

LOVE LAND

SKI AREA

2013 MASTER PLAN
JANUARY 2013



Prepared by:



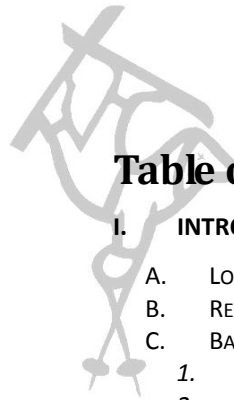
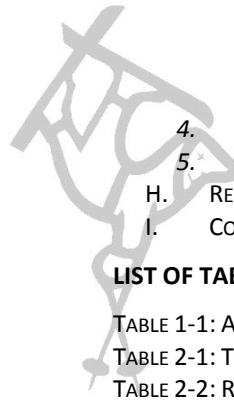


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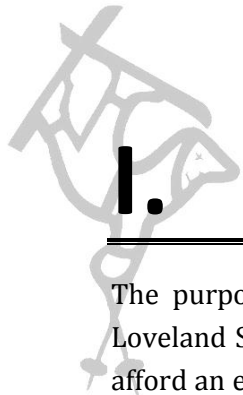
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I. INTRODUCTION

The purpose of this Master Plan is to provide future direction for the development of Loveland Ski Area (Loveland) to ensure a balance of facilities and a variety of amenities to afford an exceptional guest experience. This MP provides a thorough assessment of existing operations and facilities at Loveland—identifying both opportunities and constraints—and identifies a comprehensive plan for future improvements to the resort. This MP replaces Loveland’s current MP, which was prepared in 1994.

The entirety of Loveland’s existing lift, trail, and infrastructure network is operated on National Forest System (NFS) lands that are administered under a special use permit (SUP) by the Arapaho and Roosevelt National Forest and Pawnee National Grassland (ARP). This MP has been prepared in compliance with the terms and conditions of Loveland’s Forest Service-issued 40-year Term SUP, which was re-issued in 1994, and is consistent with general direction provided in the ARP’s 1997 Revised Land and Resource Management Plan. Chapter 2 of this MP provides more information on Forest Service administration of Loveland’s SUP.

This MP is a dynamic document, which may be amended periodically to accommodate technological innovations and evolving guest expectations over a roughly ten-year planning horizon. It is important to note that Forest Service “acceptance” of this MP does not convey “approval” of any projects contained herein. Implementation of any projects on NFS lands within Loveland’s SUP area is contingent upon site-specific environmental review and approval via the National Environmental Policy Act (NEPA). Upon Forest Service acceptance of a site-specific set of projects from this MP, a NEPA review will commence.

A. LOCATION

All of Loveland’s operations—including the lift and trail network, guest service facilities, infrastructure, and other assets—are located on NFS lands administered by the ARP in Clear Creek County, CO. Located along the Continental Divide on Interstate 70 and Colorado Route 6 (just east of the Eisenhower Tunnel, and at the base of Loveland Pass), Loveland is approximately 11 miles west of Georgetown, roughly 10 miles east of Silverthorne, and 56 miles west of Denver. Refer to Figures 1 and 2 for more information on location and land ownership.

Loveland is composed of two ski areas—Loveland Valley and Loveland Basin. Colorado Route 6—Loveland Pass—separates the two areas, with the “Valley” portion located to the

east of the Route 6 and the “Basin” portion located to the west. Loveland is accessed from Exit 216 off Interstate 70.

B. RESORT SUMMARY

The resort, including the base area and related operations, encompass an area of approximately 3,620 acres, all of which are in the Forest Service-administered SUP area. Of this, approximately 1,800 acres are lift-serviced skiable terrain, with another 415 acres accessible with hiking. The lowest elevations at Loveland are at the Valley area and include the bottom terminal of Lift 3 (10,635 feet above mean sea level [amsl]) and the base area. The highest elevations are in the Basin area and include the top of Lift 9 (12,673 feet amsl, the second-highest lift in North America) and the highest hike-to point along *The Ridge* (13,010 feet amsl), which is on the Continental Divide. Thus, Loveland’s lift-served vertical drop is 2,038 feet (although it is not possible to ski from the Basin to the Valley), and its total skiable vertical drop is approximately 1,800 feet.

The ski area attracts its guests primarily from local markets, but a significant portion of resort visitation is from the Summit County regional and national destination markets. Loveland has earned a reputation for its intimate, uncrowded setting; abundant, quality snow (averaging 420 inches annually); fun and diverse developed and hike-to terrain; and outstanding views of the Continental Divide area.

Loveland is always one of the first ski resorts in the nation to begin making snow each fall, and the resort is well known and recognized for frequently being the first area to open for skiing each season. Loveland averages over 420 inches of natural snowfall per season.

Loveland operates eight chairlifts, one surface lift, and one carpet conveyor. Skiable terrain includes 91 named Alpine trails and routes that total approximately 900 acres. The remainder of the Alpine terrain is comprised of open bowls and glades. Snowmaking operations at Loveland are fairly extensive, encompassing 240 acres, and include top-to-bottom coverage on Lifts 1, 2, 3, 6, and 7.

Skier support facilities and services are provided in a number of buildings at both base areas (Basin and Valley), including rental equipment, lift ticket sales, ski school, first aid, guest services, restrooms, public lockers, day care and food and beverage services. No overnight accommodations are available at Loveland.

Lodging options for destination guests include a few hotels in nearby Georgetown, although with less than 100 rooms, these options are limited. However, plentiful lodging is available on the other side of the Eisenhower tunnel in Summit County—with an estimated 5,000 hotel rooms and between 7,500 and 8,000 property managed/rental condos. If an average

number of four people per unit is assumed, lodging for approximately 52,000 people in Summit County may be available. The U.S. Census Bureau reports that in 2010, the Town of Georgetown had 1,034 residents; Summit County had a population of 27,994. Interestingly, Summit County has over 24,000 housing units, with an estimated 62% being vacant. Most of these units are second homes, providing a significant local ski base. However, as stated, most of Loveland's visitation is attributable to Front Range day visitors, who prefer the shorter drive and less crowded feel. Over two million people live within a two-hour drive of Loveland.

As demonstrated in Table 1-1, Loveland's annual visitation over the past ten seasons has been characterized by a general upward trend, with the exception of the recent 2011/12 season which saw a decrease in annual visitation due to below average snowfall totals (which was experienced across the national industry). Between the 2002/03 and 2010/11 seasons, annual visitation increased by 45%. During the 10-year period between 2002/03 and 2011/12, Loveland averaged just over 275,300 annual visits. With a typical season starting in mid-October and ending in May, Loveland often operates 200 days or more per season. However, the entire mountain/facility is usually not open until Christmas, and sometimes later. Note that this equates to an approximate 40% utilization rate.¹

Table 1-1: Annual Visits, 2001–2010

Season	Visitation
2002/03	244,621
2003/04	203,916
2004/05	240,961
2005/06	245,610
2006/07	263,163
2007/08	281,729
2008/09	312,355
2009/10	317,130
2010/11	355,837
2011/12	287,767
10-Year Average	275,309

Note: A visit is considered as a guest skiing or riding for one day or a portion of a day.

¹ Utilization is the analysis of actual annual skier visit days compared to the potential visitation based on the ski area's Comfortable Carrying Capacity. This is discussed in greater detail in Chapter 4.

C. BACKGROUND AND DEVELOPMENT HISTORY

Loveland was first opened as a ski area in 1937 when J.C. Blickensderfer installed a tow rope near what is now the base area of the Basin. The following year, operations were taken over by Al Bennett, who used a modified Model T to power the tow.



1. 1940s and 1950s

In 1941 the area was officially named The Loveland Ski Tow Company. By 1948 four rope tows were in use.

The 1950s brought significant changes to the area. In 1955 the business was sold to group of stockholders who hired Pete Seibert (10th Mountain Division Member and a future founder of Vail) as the general manager.

Loveland's first chairlift, Lift 1, was built by Heron Engineering and opened in 1955. It was built in the same alignment as the current Lift 1. Lift 2 was built in 1957; the bottom terminal of the lift was where the lift maintenance building west of the current Basin Lodge now sits. Also built in 1957 was the Mambo Café, which was located near where the base of Lift 4 now sits.

2. 1960s

The 1960s brought the opening of Loveland Valley, with the construction of Lift 3, also by Heron Engineering, in 1961. In 1965 the slopes to the north of Lift 2 were opened with Lift 4.

Another significant factor was the initiation of construction on the Eisenhower Tunnel in 1968. This major construction project runs directly below the base of Lift 4.

3. 1970s

Clear Creek Skiing Corporation (CCSC) was formed in 1972 and assumed the operations of Loveland Ski area at that time. Lift 5 was built in 1975, by a cooperation between Heron and Poma. This lift connected the Basin and Valley sides. Lift 6 was opened in 1977, built by Lift Engineering and replacing a Constam T-bar, providing access to a significant amount of Intermediate terrain.

The initial bore of the Eisenhower Tunnel opened in 1973, with the second tunnel opening in 1979.



4. 1980s

During the 1980s, upgrades were made resort-wide. Chair 7, a Yan double chair, was built in 1982. Two years later, in 1984, additional snowmaking capabilities were added. Loveland upgraded the old Chair 2 with a higher-capacity Yan triple chair in 1985. This provided improved, more reliable access to the beginner and intermediate terrain. In 1989, the Valley lodge was remodeled and expanded, allowing for enhanced guest services.

5. 1990s

In 1990 Lift 8 (Loveland's first fixed grip quad) was installed north of Lift 4 to access intermediate and advanced terrain, by Lift Engineering. In 1996 the Basin's lodge was remodeled and expanded, due to high demand from increased numbers of skiers. Also in 1996, Lift 3 was replaced with a fixed-grip quad, significantly increasing the lift capacity in the Valley. Lift 9, also a fixed-grip quad, was built in 1998 by Poma. This lift accesses *The Ridge*, along the Continental Divide, and remains one of the highest top terminals in the world (second highest in the nation). The lift was originally envisioned as a surface lift, but was ultimately installed as an aerial chairlift due to snow depths.

6. 2000s

During the 2000s, Loveland saw a gradual increase in annual visitation. In 2011 Lift 4 was replaced with a Leitner-Poma Fixed Grip Triple Chair and a mid-unload station will be installed on Lift 2 during summer 2012.

D. LOVELAND'S MARKET NICHE

Since its inception in the 1930s, Loveland has been known for its abundant, high quality snow; fun and diverse terrain; and uncrowded slopes. The ski area is bigger than many people realize. Over the decades it has strived to capitalize on these defining characteristics while maintaining the laid back atmosphere that guests have come to expect.

Loveland is, and always has been, a "local's favorite" for skiers from Denver and the Front Range. It is known for the intimate, un-crowded skiing experience that it offers—reminding guests of “how skiing is supposed to be.” It has terrain that is both challenging and diverse (both lift-served and hike-to), but also has a large quantity of excellent beginner terrain. Loveland has extensive above-treeline (and hike-to) skiing that is attractive to any expert, but also has some of the best learning facilities in the state. In addition to these factors, its abundant snow, free close-in parking and outstanding views of/from the Continental Divide further define the resort.

Loveland is primarily a day-use/regional destination resort, attracting people from the Front Range and Summit County. It has a strong local following from residents of both areas and also capitalizes on nearby Summit County resort's destination market. For example, destination skiers who stay in Silverthorne/Dillon may elect to ski at Loveland for one day of their week vacation. While not many skiers travel to Loveland as a destination resort, the area benefits from the proximity to Summit County in this way. Similar to most ski areas, Loveland hosts the majority of its guests on weekends and holiday periods.

E. ABSTRACT OF THE PROPOSED UPGRADE PLAN

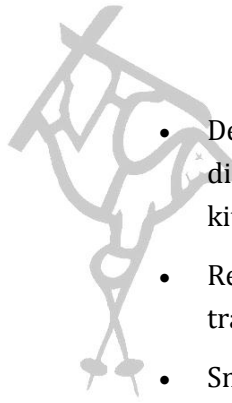
A summary of the Upgrade Plan in Chapter 5 includes:

1. Valley Projects

- Valley Lodge improvements (remodel and add restaurant seating)
- Remodel the Race Club Building to accommodate Valley Lodge fire suppression pumps
- *Zig Zag* trail widening and grading
- *Boomerang* trail widening and grading
- Novice and intermediate in-fill trails between *Boomerang* and *Switchback*
- Extend Chair 7 by relocating top terminal further uphill
- Add carpet conveyor lifts to *Take Off*
- Add a new "Chair 11" and associated terrain to improve the ski school teaching progression that is currently offered on terrain served by Chairs 3 and 7
- Replace or modify Chair 5, relocate Valley terminal along same alignment
- Develop additional parking along Highway 6 (approximately 135 spaces)

2. Basin Projects

- Basin Lodge improvements (enclose deck for additional seating and increase kitchen/storage space)
- Improve delivery vehicle access and turnaround adjacent to the Basin Lodge, add 25 parking spaces
- Remodel lift operations/ski school building
- Replace Chair 2 in its existing alignment or by installing two chairlifts that separately serve the lower and upper sections of the existing Chair 2 skiing terrain



- Develop an on-mountain facility (either expansion of Ptarmigan Roost or at a different location) that will provide indoor seats, restrooms, water/sewer, full kitchen and restaurant
- Remove dead trees and thin the stand of trees between *Cat's Meow* and *Nix Nox* trails
- Snowmaking storage improvements (increase depth of existing pond and develop an additional pond near the base of Chair 4)
- Develop a Chair 8 warming hut/yurt with limited food and beverage, deck, and toilet facilities
- Improve Chair 8 egress (trail clearing and grading to pedestrian tunnel)
- Provide lift access to *The Ridge* with the addition of "Chair 10" above Chair 8 and surface lift to *Wild Child* and *Porcupine Saddle*
- Offer guided backcountry and snowcat tours across approximately 1,000 acres on the slopes of Mt. Trelease, Western Slope of Mt. Trelease, and Dry Gulch
- Develop a snowcat access route to snowcat tour drop points

F. GOALS AND OBJECTIVES OF THIS MASTER PLAN

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. In essence, Loveland must strive to improve its offerings in order to remain viable in the competitive destination and Front Range (defined as Colorado Springs, the greater Denver metropolitan area, and Boulder) day skier/rider market.

With this concept in mind, this MP is dedicated to improving the opportunities for people to enjoy public lands on the ARP. Starting with Chapter 1 and culminating with the Upgrade Plan in Chapter 5, this MP identifies, and capitalizes on, Loveland's current recreational/operational assets, constraints, and opportunities.

This conceptual planning document essentially serves as a "road map" for future improvements at Loveland. By identifying the type, size, capacity, and location of improvements that are appropriate to achieve the goals of the resort, this MP establishes the direction and priorities for the physical improvement of mountain and base area facilities at Loveland over roughly the next decade. Thus, this document provides a comprehensive portrayal of how Loveland will function as a cohesive resort across public lands. It is expected that additional site-specific design will be warranted and completed at

the time individual projects are proposed for analysis, approval and implementation on NFS 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 Loveland's market, the evolution of the ski/snowboard industry, and technological innovations.

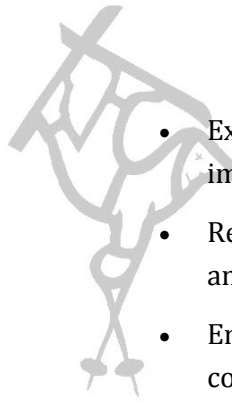
Nationally, the ski industry set an all-time record in annual visits in the 2010/11 season with 60.5 million, marking the second time that the 60 million visit level had been surpassed. Over the last ten seasons (2001/02–2010/11), the average number of visits recorded nationally was 57.8 million. The 2010/11 season, at 60.5 million visits, represents a 4.7% increase from this 10-year average. The 2011/12 was quite a bit off this record high, due to well below average snow totals and conditions throughout most of the country. Overall, the industry has operated at generally increasing levels of visitation since the 2000/01 season, achieving 57 to 60 million visits in the better years, and 54 to 55 million visits in the lower years, both well above levels from previous decades. It is important to note that despite the distinct national economic downturn in 2008 and the following years, skier visits saw remarkable resilience by posting four of the six highest total visits on record.² This high level of visits can be seen as a strong indicator of the industry's durability in challenging economic times.

To address the growth in the national, as well as Colorado skier/rider markets, and more importantly to meet guest expectations, Loveland must continue to develop and improve on-mountain and base area facilities across the ski area. The development of additional facilities at Loveland is in direct response to evolving consumer demands and the competitive regional destination ski market. The improvements illustrated within this MP were designed to enhance the recreation experience for guests of Loveland.

Loveland's niche in the ski industry (defined previously) and the clientele it serves helped cultivate the concepts found throughout this planning document. This MP has identified numerous opportunities that, when implemented, will greatly improve the recreational experience and assist in ensuring the resort's viability. Through planning efforts, the following major opportunities were identified:

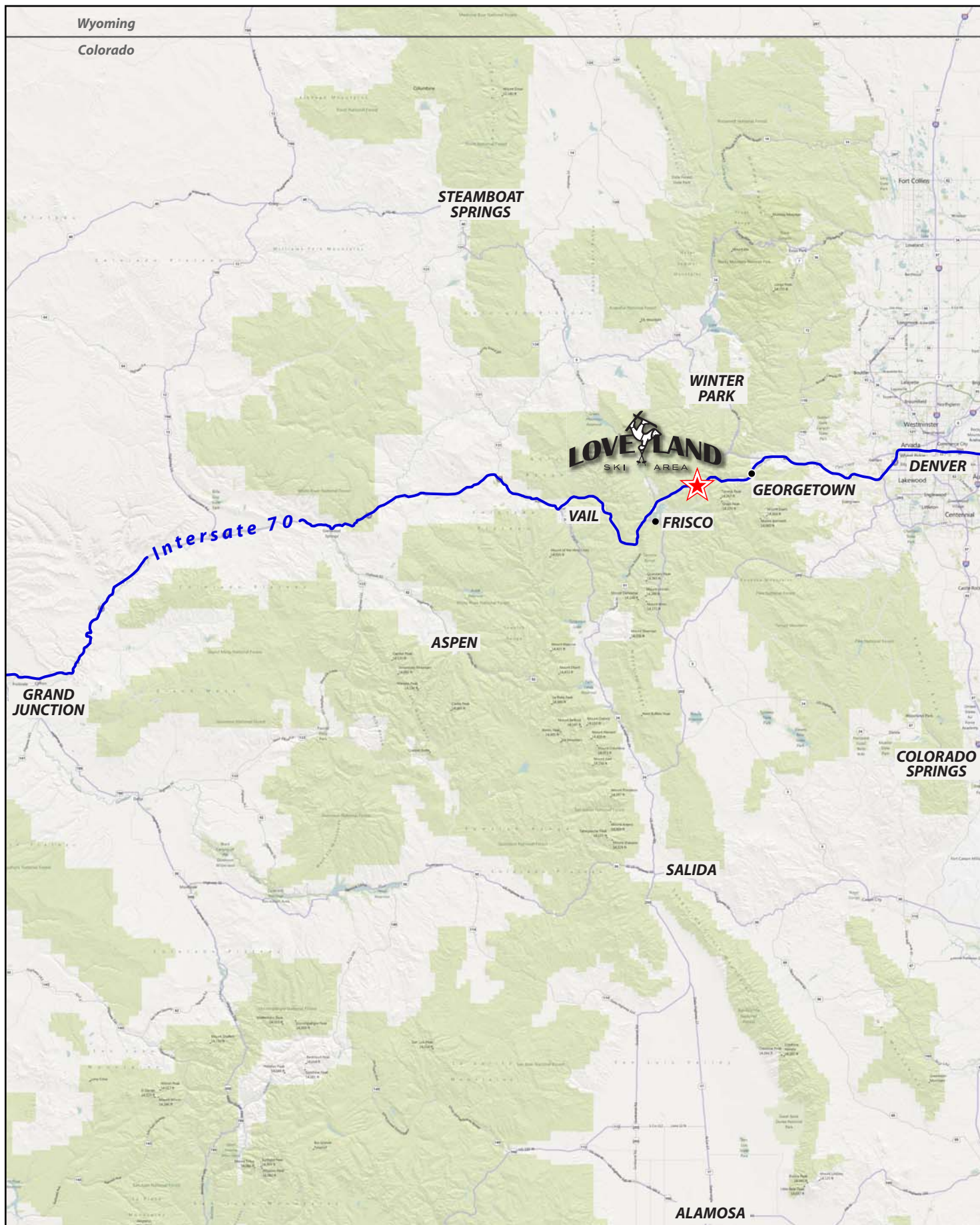
- Improve the first-time and learning progression ski experience at Loveland by providing an appropriate learning progression in an uncongested area and developing additional Beginner and lower ability level terrain;

² Kottke National End of Season Survey 2010/11. National Ski Areas Association. August 2011.



- Expand and improve the guest service facilities in the Valley to complement the improved teaching terrain;
- Replace and/or modify Lift 5 to regain and improve circulation between the Valley and the Basin;
- Enhance the overall recreation experience by improving upon, and providing, convenient on-mountain and base area guest services; and
- Improve the experience for skiers on the North side of Interstate 70, by adding guest service facilities, improving egress, and add lift access to *The Ridge*.

Each of these concepts is detailed in the Upgrade Plan in Chapter 5, which strives to achieve the goal of providing an exceptional guest experience with comfortable terrain capacities.



NORTH



10 MILES

FIGURE 1

VICINITY MAP







PROJECT AREA

2013 MASTER PLAN

FIGURE 2



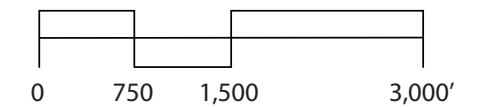
LEGEND

	Existing Lifts		SUP Boundary
	Existing Trail		Mountain Access Roads



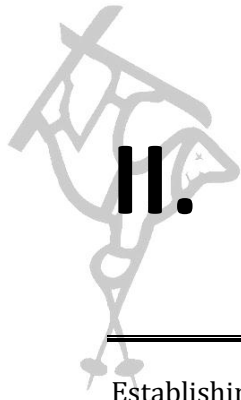
North

50' Contour Interval



Prepared by:





II. DESIGN CRITERIA & FOREST SERVICE DIRECTION

Establishing design criteria is an important concept in resort master planning. Chapter 2 provides an overview of the basic design criteria upon which Chapter 4 (Existing Ski Area Facilities) and Chapter 5 (Upgrade Plan) are based. With the exception of Forest Service Policy and Direction, information presented in Chapter 2 is general in nature and related to the concept of resort master planning, rather than to Loveland specifically. Chapters 3, 4, and 5 present information specific to Loveland.

A. DAY SKI/REGIONAL DESTINATION RESORTS

Regional destination resorts largely cater to a “drive” market. While day-use guests play a large role, the regional destination resort also appeals to vacationers. At regional 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 which 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 Loveland and its relationship to the nearby towns of Georgetown and Silverthorne/Dillon. Even though the services offered at Loveland cater directly to guests of the resort, proprietors within these towns also supply services to recreationists/vacationers, 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 and on-mountain lift and terrain network 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 complexity 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 create 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.

Guest service facilities are located in 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)

C. MOUNTAIN DESIGN

1. Trail Design

a. Slope Gradients and Terrain Breakdown

Terrain ability level designations are based on slope gradients and terrain features associated with the varying 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 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 overall Rocky Mountain market is shown in Table 2-2. See Chapter 4, Table 4-3, for the comparison of Loveland's actual ability level breakdown to the market breakdown.

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

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

b. 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 in the following Table 2-3.

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

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

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

zones, convergence areas, lift milling areas, major circulation routes, and egress routes, experience higher densities periodically during the day.

Since Loveland represents a style of ski resort that is known for uncrowded ski runs, open bowls, and wide glades, **the lower end of these ranges** was used for analyzing the terrain.

c. 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—bowls, trees, and terrain parks and pipes. This concept is explored in greater detail in Chapter 4.

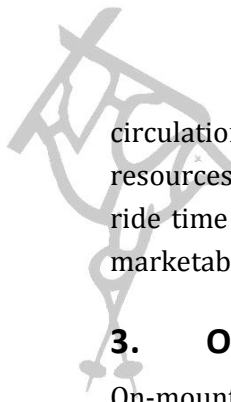
In summary, a broad range of terrain satisfies skiers/riders from Beginner through Expert ability levels within the natural topographic characteristics of the ski area.

d. Terrain Parks

Terrain parks, areas dedicated to the development and maintenance of a collection of alternative terrain features, have become part of most mountain resorts' operations. 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 the terrain pod, access needs, interconnectability between other lift pods, the need for



circulation space at the lower and upper terminal sites, and the presence of natural resources (e.g., visual impacts, wetlands, and riparian areas). The vertical rise, length and ride time of lifts across a mountain are important measures of overall attractiveness and marketability of any resort.

3. On-Mountain Guest Services

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

4. Capacity Analysis and Design

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

Design capacity is commonly expressed as “Comfortable Carrying Capacity (CCC),” “Skier Carrying Capacity (SCC),” “Skiers at One Time (SAOT),” and other ski industry specific terms. These terms refer to a level of utilization that provides a pleasant recreational experience, without overburdening the resort infrastructure. Accordingly, the design capacity does not normally indicate a maximum level of visitation, but rather the number of visitors that can be “comfortably” accommodated on a daily basis. Design capacity is typically equated to a resort’s tenth busiest day, and peak-day visitation at most resorts can range between 10% to 25% higher than the design capacity.

CCC is the term used in this document to represent Loveland’s design capacity. As described above, CCC is synonymous with Skier Carrying Capacity and SAOT.

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

CCC is derived from the resort’s supply of vertical transport (the vertical feet served combined with the uphill hourly capacities of the lifts) and demand for vertical transport

(the aggregate number of runs desired multiplied by the vertical rise associated with those runs). The CCC is calculated by dividing vertical supply (VTF/day) by vertical demand, and factors in the total amount of time spent in the lift waiting line, on the lift itself, and in the descent.

Note: It is not uncommon for resorts to experience peak days during which visitation exceeds the CCC by as much as 25%. 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.

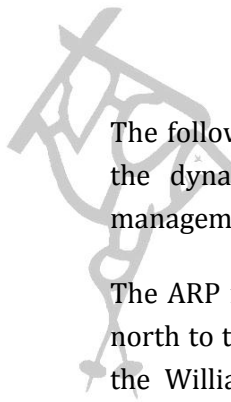
D. BALANCE OF FACILITIES

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 capacity of other resort components.

E. APPLICABLE FOREST SERVICE POLICY AND DIRECTION

As discussed in Chapter 1, Forest Service “acceptance” of this MP does not convey “approval” of any projects contained herein. This MP is not an approval document. It is a planning document which has been prepared in response to Loveland's business and operational goals, within the parameters of its Forest Service-administered SUP. All planned projects are subject to modification in response to site-specific analysis.

As Loveland's lift and trail network is located on NFS lands within its SUP area, proposed projects must be consistent with the Forest-wide, Geographic Area, and the Management Area, standards of the 1997 Revised ARP Forest Plan (discussed below). Subsequent to Forest Service acceptance of this MP, Loveland will have the opportunity to submit, individually or collectively, projects from the MP for site-specific review and approval in accordance with the requirements of NEPA. As the NEPA process is initiated, a thorough Forest Plan consistency analysis will be performed. Should it be determined that any proposed project(s) are inconsistent with the 1997 ARP Forest Plan, options would include either a project modification, mitigation or potentially a Forest Plan amendment.



The following information pertaining to the 1997 ARP Forest Plan is included to illustrate the dynamic between the ski area permit holder (Loveland) and the federal land management agency (ARP). This information is not intended to be exhaustive.

The ARP is located in north central Colorado, encompassing 1.5 million acres and extends north to the Wyoming border, south to Mount Evans, west across the Continental Divide to the Williams Fork and east into the short grass prairie east of Interstate 25. It is an administrative unit of the Rocky Mountain Region (Region 2) of the U.S. Department of Agriculture, Forest Service. The ARP is divided into five ranger districts; Loveland is administered by the Clear Creek Ranger District.

The Forest Service is authorized to approve certain uses of NFS lands under the terms of Special Use Permits.³ Generally, SUPs for recreational developments are issued and administered for uses that serve the public, promote public health and safety, and provide land stewardship. Loveland's 40-year Term SUP was issued by the ARP in 1994. In accomplishing these objectives, Loveland's SUP authorizes the following:

"Clear Creek Skiing Corporation is hereby authorized to use National Forest System lands, on the Arapaho National Forest, for the purposes of constructing operating, and maintaining a winter sports resort including food service, retail sales, and other ancillary facilities"

1. 1997 Revision of the Land and Resource Management Plan for the Arapahoe and Roosevelt National Forest and Pawnee National Grassland

Land and Resource Management Plans define the direction for managing each National Forest across the country. The ARP's 1997 Revision of the Land and Resource Management Plan (Forest Plan) provides guidance for all resource management activities on the Forest. Therefore, Loveland's operations conducted on NFS lands within its SUP area must be consistent with the management direction provided in the 1997 Forest Plan. That is not to say that full consistency with the Forest Plan must be realized in this master planning process, as this is a conceptual plan; Forest Plan consistency will be addressed at the site-specific project proposal and approval stage during a future NEPA process.

a. Loveland Pass Geographic Area

The Forest Plan describes forest-wide and grassland-wide standards and guidelines which apply to all land managed by the ARP. The Forest Plan then subdivided its' land into 59 geographic areas, which may have more specific standards and guidelines that pertain only

³ 16 United States Code 497

to that geographic area. The Loveland SUP area is within the Loveland Pass Geographic Area.

The Loveland Pass Geographic Area extends southwest of Georgetown to the Continental Divide, with the Interstate 70 corridor along the Clear Creek valley as its northern boundary and the Guanella Pass National Scenic Byway corridor as its eastern boundary. The area receives a high level of both summer and winter recreational use. The area contains Loveland Ski Area, Guanella Pass National Scenic Byway, many miles of easily accessible Continental Divide with many high peaks, including Grays and Torreys peaks, both over 14,000 feet, and Grays Peak National Recreation Trail.⁴

Goals and Desired Conditions for Management Area 8.22 (discussed below) within the Loveland Pass Geographic Area include (but are not limited to):⁵

- Continue to provide day-use developed alpine skiing and snowboarding opportunities and facilities.
- Continue to provide day-use dispersed recreational opportunities at Loveland Pass and Mine Dumps areas, including undeveloped backcountry alpine and nordic skiing and snowboarding. Provide trails and other facilities to concentrate and accommodate recreational use within 1.5 miles on either side of Loveland Pass. Accommodate both winter and summer use at high levels. Provide loop trails, interpretation, and viewing areas.
- Protect the wildlife migration corridor over the Eisenhower Tunnel, which functions as a land bridge over Interstate 70.

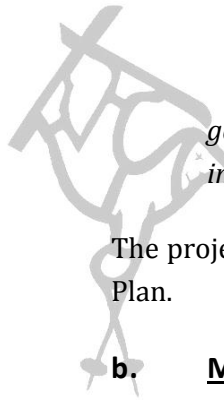
“Management Areas” define where differing kinds of resource and use opportunities are available to the public and where different management practices may be carried out. Management Areas are organized within eight “Management Area Categories,” each with a detailed prescription to guide its management, specifying: the theme; desired condition; and standards and guidelines. The Loveland SUP area is within Category 8:⁶

Ecological conditions in Category 8 are likely to be permanently altered by human activities to levels beyond those needed to maintain natural-appearing landscapes and ecological processes. Ecological values are protected where they affect the health and welfare of human occupancy. Human activities are

⁴ USDA Forest Service. 1997. 1997 Revision of the Land and Resource Management Plan. Arapaho and Roosevelt National Forests and Pawnee National Grassland, Supervisor’s Office, Fort Collins, Colorado. p. 127

⁵ Ibid. p. 129

⁶ Ibid. p. 330



generally commercial in nature, and directly or indirectly provide jobs and income.

The projects included in this Master Plan are consistent with Category 8 of the 1997 Forest Plan.

b. Management Area 8.22

The Loveland SUP area is within Management Area (MA) 8.22 Ski-Based Resorts – (Existing and Potential). The “Theme” for MA 8.22 is: “Areas with ski-based resorts or potential for ski-based resorts are managed to provide for skiing and related recreational uses.” The projects included in the Master Plan are consistent with the MA 8.22 Theme. The following excerpt from the 1997 Forest Plan provides direction for Management Area 8.22:⁷

Desired Condition:

Physical/Biological – Maintain or improve vegetation composition and structure to provide a pleasing appearance, maintain scenic views from the site and provide for sustainable vegetation cover... Manage scenic resources so that the character is one of forested areas interspersed with openings of varying widths and shapes. Manage tree stands and islands to provide a variety of species and size classes, stability, longevity, esthetics, and wind firmness to sustain forest cover and complement recreational values. Ski operations that affect water, including snowmaking and other water-depleting activities, will be compatible with maintenance of healthy aquatic ecosystems.

Social – Design new human modifications to vegetation to resemble natural patterns or patterns typical of the particular area. Recreational opportunities are primarily those at the developed level. The base area is often an urban setting. Views and vistas outside the area, but visible from within, may be featured. Blend existing improvements such as improved roads, primitive roads, trails, bridges, fences, shelters, signs or water diversions into the landscape where feasible or remove them if no longer needed. Design new improvements to be minimally intrusive into the landscape.

Administrative – Facilities provided on site vary from rustic to highly developed, depending on the individual site. Improve areas to restore the desired appearance. Improvements are owned by permittee. Master plans for special-use permits ensure that facilities harmonize and blend with the natural setting. Travelways constructed and maintained under terms of the permit will

⁷ Ibid. p. 384

meet Forest Service standards. Design ski runs to avoid snow scour and to favor snow deposition. Assess land-adjustment strategies on a case-by-case basis. Allow only special uses that do not interfere with the permittee's business operations of the ski area.

Standards and Guidelines

- *Withdraw the area from locatable mineral entry. (Standard)*
- *Retain vegetation for screening around structures where vegetation recovery will be slow. (Guideline)*
- *Prohibit cutting trees or locating structures in areas that promote snow loading in avalanche zones. (Guideline)*

The projects included in this Master Plan are generally consistent with the MA 8.22 direction and desired conditions. No tree removal or structures have been planned in known avalanche zones. Furthermore, during future site-specific project proposals, project design measures will be included, as necessary, to ensure that vegetative screening is incorporated, as appropriate.

2. Scenery Management and the Built Environment Image Guide

a. Scenery Management System

In October 2006 the ARP amended the 1997 Forest Plan (Amendment No. 9) to replace the Visual Management System with the Scenery Management System (SMS).

In addition to providing recreation experiences and the production of numerous resources, public landscapes provide beauty, which is a valuable resource to many Forest Service constituencies. This resource is explicitly recognized in the law. NEPA requires equal consideration of aesthetics and science. The Forest Service requires application of Scenery Management to all NFS lands. In brief, the SMS is a systematic approach for assessing visual resources in a project area and then using the assessment findings to help make management decisions regarding proposed projects. The system is founded on an ecological aesthetic, which recognizes that management which preserves the integrity, stability, and beauty of the biotic community preserves the scenery as well.

The Forest Plan establishes acceptable limits of change for Scenic Resources. The acceptable limits of change are the documented Scenic Integrity Objectives (SIO), which serve as a management goal for scenic resources.



Scenic Integrity Objectives

A project can cause visual resource change that can be objectively measured. Viewer response to this change, although subjective, usually displays broad patterns of consensus. Thus, visual impacts comprise both the landscape change and viewer response to that change. By assessing the existing visual character of an area in terms of pattern elements (form, line, color and texture) and pattern character (dominance, scale, diversity, and continuity), it is possible to identify the extent to which the visual character of a facility will exhibit visual contrast with the landscape, or its converse, visual compatibility.

People experience the visual environment as an integrated whole, not as a series of separate objects. Scenic Integrity is a measure of the degree to which a landscape is visually perceived to be complete, indicating the degree of intactness and wholeness of the landscape character. The SMS uses SIOs, which range from Very High (unaltered) to Very Low (heavily altered). The SIO for the Eldora SUP is “Low” as designated in the 1997 Forest Plan, as amended. In an area with a Low SIO, the landscape character appears “moderately altered,” and deviations begin to dominate the valued landscape character being viewed but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles outside the landscape being viewed. Deviations should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within. The 2006 Forest Plan Amendment No. 9 amended the Forest Plan Final Environmental Impact Statement to specify that MA 8.22 Ski Based Resorts maintain a predominant SIO of Low.⁸ The Low SIO is defined as:

Refers to landscapes where the valued landscape character “appears moderately altered.” Deviations begin to dominate the landscape character being viewed but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.

Forest-wide direction for Scenery Management (relative to the Loveland SUP area) includes:⁹

- Prohibit management activities that are inconsistent with the scenic integrity objective unless a decision is made to change the scenic integrity objective. A

⁸ USDA Forest Service, 1997b p. 402

⁹ USDA Forest Service, 1997c Amendment No. 9 p. 1

decision to change the scenic integrity objective will be documented in a project level NEPA decision document. (Standard 154)

- The scenic classes, which are a measure of the relative importance or value of landscapes to people, are usually accepted as the base for scenic integrity objectives unless special documented circumstances warrant a change. (Standard 155)
- Design and implement management activities to meet the adopted scenic integrity objective for the area as shown on the SIO Map enclosed with this document. (Guideline 157)
- Rehabilitate all existing facilities and areas that do not meet the scenic-condition objectives specified for each management area. (Guideline 158)

b. Built Environment Image Guide

In 2001 the Forest Service adopted the Built Environment Image Guide (BEIG) as a way of incorporating “thoughtful design and management” of the built environment across National Forests and grasslands.¹⁰ The Forest Service defines the built environment as “the administrative and recreation buildings, landscape structures, site furnishings, structures on roads and trails, and signs installed or operated by the Forest Service, its cooperators, and permittees.¹¹ Per the BEIG, the cultural context of the built environment influences appropriate building designs, and the amount and type of surrounding development requires careful consideration. For example, “The size, style, and materials chosen for a regional [Forest Service] office in a large city would be much different than those for a ranger station in a small town.”¹²

The BEIG provides guidance for improving the image, sustainability, and overall quality of Forest Service facilities consistent with the Agency’s role as a leader in land stewardship. To achieve this aim, the BEIG:¹³

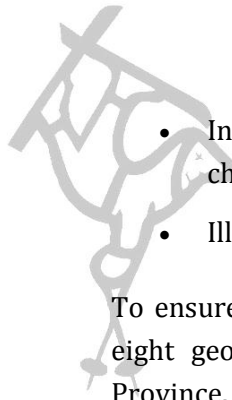
- Describes an approach to designing recreation and administrative facilities that highlights key elements of the Agency’s national identity and image.
- Describes a process to “fit” facilities within the context of their ecological, physical and cultural settings.
- Establishes architectural character types for National Forests and grasslands across eight provinces, nationwide.

¹⁰ USDA Forest Service. 2001. The Built Environment Image Guide for the National Forests and Grasslands.

¹¹ Ibid. p. ii

¹² Ibid. p. 5

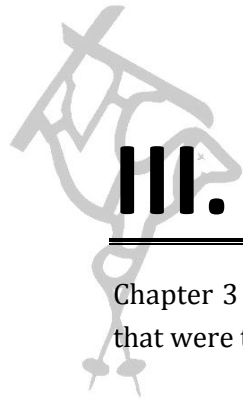
¹³ Ibid. p. 2



- Incorporates the principles of sustainability as an integral part of architectural character.
- Illustrates the role everyone plays in maintaining a quality facility.

To ensure sensitive responses to the contexts of ecology and culture, the BEIG addresses eight geographic areas known as provinces. The ARP is within the Rocky Mountain Province. Designs should synthesize rustic precedents with contemporary needs and realities. Rocky Mountain structures may not always use natural materials, yet they can still compliment their settings, be more durable, consume less energy, and lay more lightly within the landscape than structures from previous eras.

The architectural design of proposed structures on NFS lands would be subject to Forest Service review and approval during future project proposal. Refer to Chapter 5 for the description of planned facilities.



III. SITE INVENTORY

Chapter 3 provides a brief overview of some of the unique characteristics of the SUP area that were taken into consideration in the preparation of this Master Plan.

A. TOPOGRAPHY AT LOVELAND

The ski terrain at Loveland can be generally described as a very large bowl, with a pronounced valley (which contains Interstate 70) at the bottom. The bowl is defined to the west by the Continental Divide. The ski terrain lies on the north, east, and south facing slopes of this bowl. This is an ideal topographic scenario for a ski area, as it provides efficient access and circulation to all the terrain. There are several sub-ridges and valleys in the area, most notably *The Ridge* and drainage that separate the Basin area from the Valley area. While these features provide some challenges to circulation, the most significant features that inhibit circulation are not topographical in nature, they are the roads of Interstate 70 and Highway 6 over Loveland Pass.

The highest lift-serviced point at Loveland is the top of Lift 9, at 12,673 feet elevation. The highest hike-to point is the high point of *The Ridge*, at 13,010 feet elevation. The lowest skiable point is the bottom of Lift 3, at 10,635 feet. This equates to a vertical drop of 2,375 feet with Loveland's lift-served vertical drop at 2,038 feet (although it is not possible to ski from the Basin to the Valley). The total skiable vertical drop is around 1,800 feet.

B. SLOPE GRADIENTS AT LOVELAND

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 (the upper section of *Apollo*, 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 (*Lower Patrol Bowl*, for example).

Slope gradients at Loveland are depicted on Figure 5.

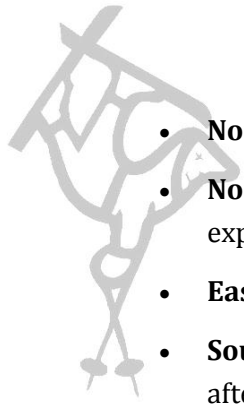
- **0 to 8% (0 to 5 degrees):** too flat for skiing and riding, but ideal for base area accommodations and other support facility development
- **8 to 25% (5 to 15 degrees):** ideal for Beginners and Novices, and typically can support some types of development
- **25 to 45% (15 to 25 degrees):** ideal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

As displayed in Figure 5, all of the ability level gradients are present. The lift served terrain at Loveland shows a strong presence of Novice level gradients with bands of Intermediate and Advanced slopes throughout the skiable terrain. Steep sections of Expert level, and higher, terrain are found right off *The Ridge*, along Lift 1, and the upper section of Lift 4. Intermediate grades are mostly found in the transition zones between the steeper and more gentle grades. Importantly, the gradients typically do not remain continuous for extended periods, from the top to the bottom of the lifts. Continuously skiable paths of all ability levels of terrain would be ideal. The most continuous Novice and Intermediate terrain is found at Lifts 6 and 8, respectively. The most significant amount of continuous Expert level terrain is found under Lift 1, and the most significant amount of continuous Intermediate level terrain is found in the undeveloped area to the east of Lift 3, in the Valley area.

C. SOLAR ASPECT AT LOVELAND

Due to the large topographic bowl that contains the ski area, Loveland is located with predominantly north, east, and south facing slopes, with very few west facing areas. This is a good range of exposures, allowing for good snow retention while providing a variety of sun exposures and snow conditions. While more north-facing slopes would provide better snow retention, the east facing slopes do provide decent snow retention and also have good sun exposure, particularly in the afternoons. Loveland's aspect analysis is shown in Figure 4.

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:** good for snow retention, high wind scour, late morning and afternoon sun exposure
- **Northwest-facing:** good for snow retention, moderate wind scour, some afternoon sun









ELEVATION ANALYSIS




2013 MASTER PLAN

FIGURE 3

ELEVATION LEGEND

	<10,500'
	10,500' - 11,000'
	11,000' - 11,500'
	11,500' - 12,000'
	12,000' - 12,500'
	>12,500'

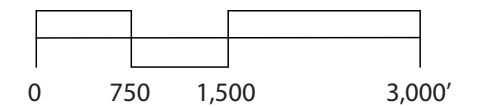
LEGEND

	Existing Lifts		SUP Boundary
			Mountain Access Roads



North

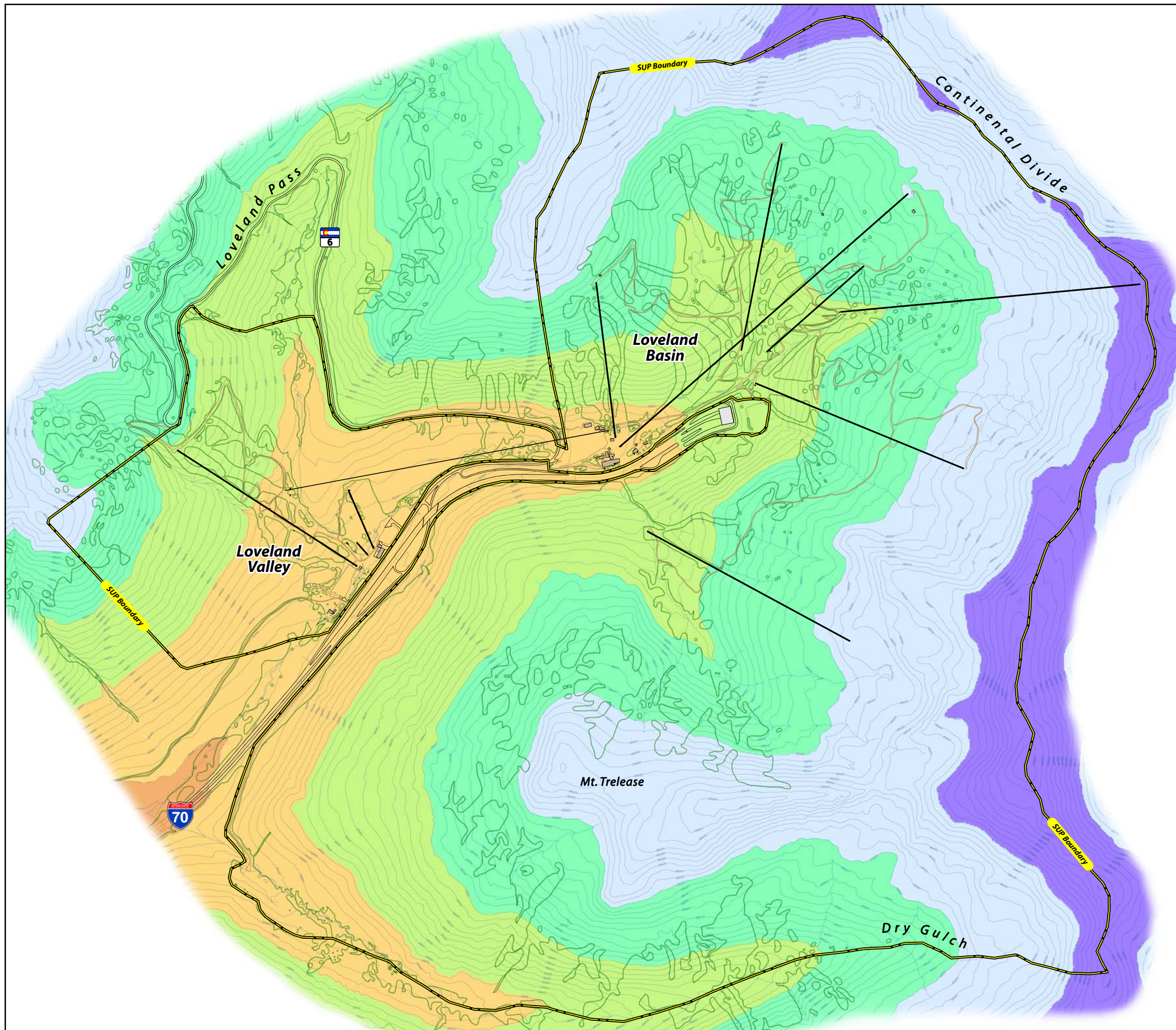
50' Contour Interval



Prepared by:



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LOVELAND

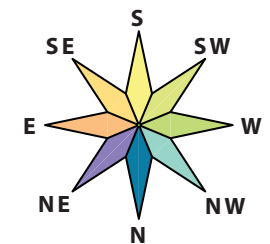
SKI AREA

SLOPE ASPECT ANALYSIS

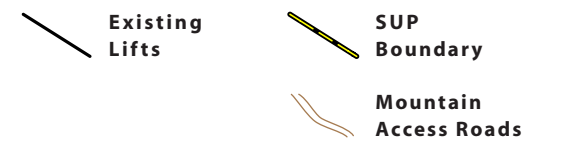
2013 MASTER PLAN

FIGURE 4

ASPECT LEGEND

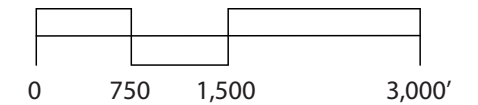


LEGEND



North

50' Contour Interval



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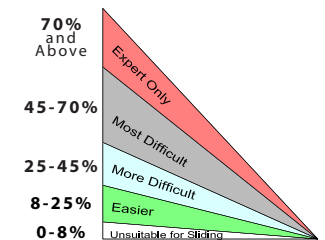




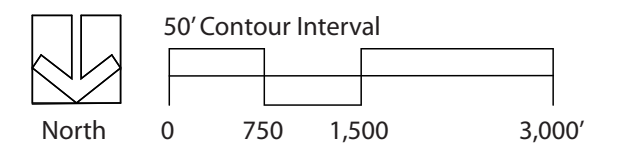
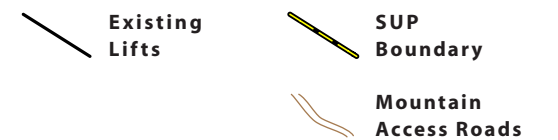
SLOPE GRADIENT ANALYSIS

2013 MASTER PLAN **FIGURE 5**

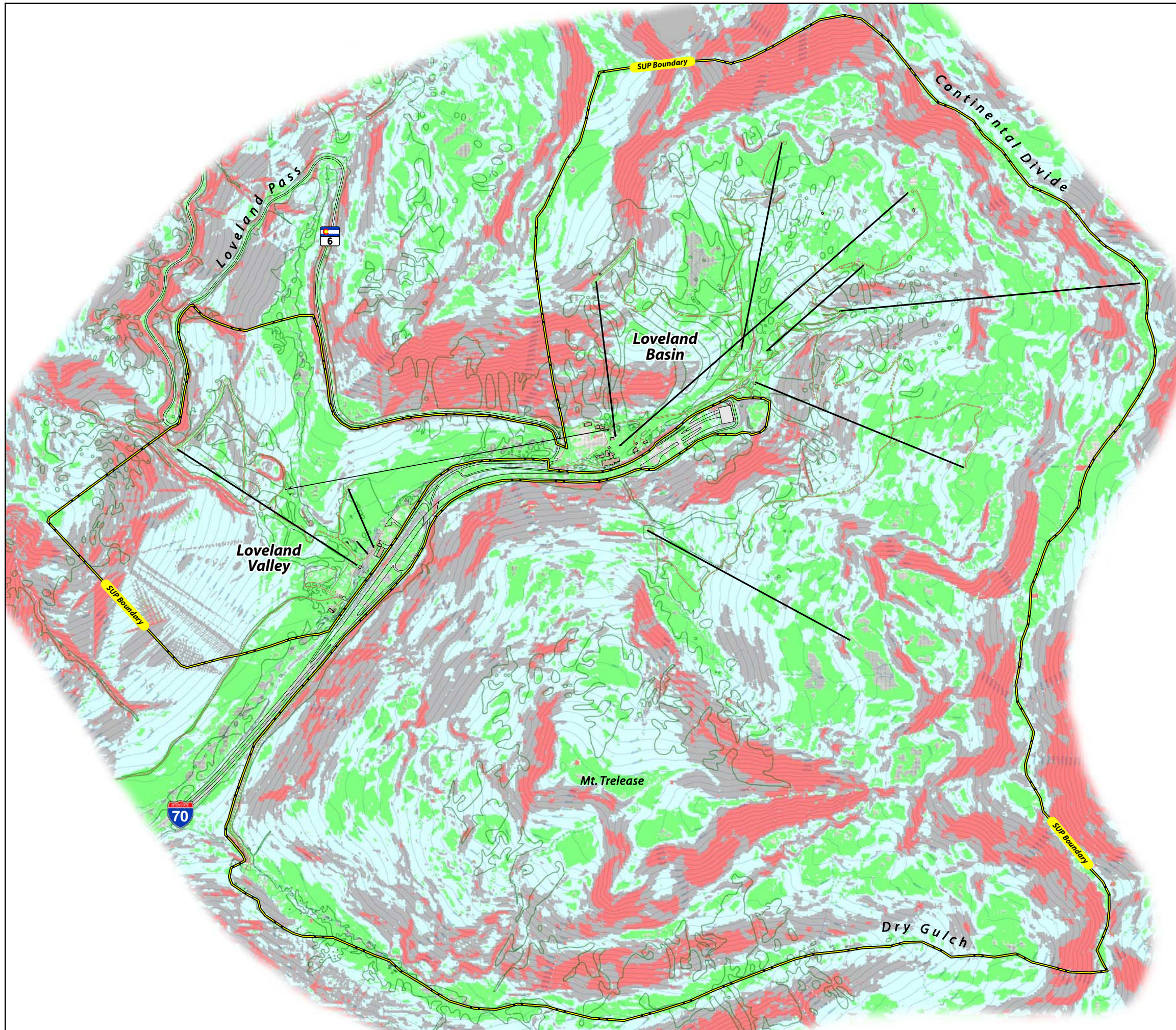
SLOPE GRADIENT LEGEND



LEGEND



Prepared by:





IV. EXISTING FACILITIES

The following section contains an examination and analysis of existing facilities at Loveland. 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, mountain roads and utilities/infrastructure. The analysis of the inventoried data involves the application of industry standards to Loveland'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 Loveland'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 its 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 recreation experience.

The examination of existing facilities presented in this chapter correlates with Figures 6 (entire ski area), 7 (Basin area), 8 (Valley area), and 9 (base area details).

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 Loveland's principal components reveal the existing mountain is fairly well balanced, indicating that any opportunities for expansions should address the full spectrum of skier ability levels, while focusing on particular areas to correct some small existing imbalances.

A resort's CCC is computed by analyzing the resort's supply of, and demand for, vertical lift transport. Loveland's existing CCC was determined to be approximately 4,680 guests. From a terrain standpoint, the resort's trail network has a trail density of approximately five skiers-per-acre, this density 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 lift capacity does not balance with the terrain capacity.

Generally speaking, the current guest experience at Loveland is acceptable. There is a friendly atmosphere and a "locals" feel, the facilities are well maintained, the snow is typically abundant (averaging over 420 inches per year), 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 relatively uncommon.

However, several aspects of Loveland's facilities are in need of upgrading. While most of the existing lifts are relatively new and are in good condition, and they access the available terrain efficiently, they are limited when looking at the entire extent of the SUP (access to *The Ridge* and Dry Gulch). However, likely the most significant deficiency is in skier service space—particularly restaurants. There is a shortage of restaurant seating throughout the resort, and a very small amount of on-mountain skier services. The lack of on-mountain/up-mountain restaurants and restrooms is a deficiency, as eating lunch on the mountain tends to be very popular with skiers, particularly in areas where it is difficult and time consuming to return to the base area (such as the situation for the Lift 8 and terrain on the north side of Interstate 70).

B. EXISTING LIFT NETWORK

Loveland currently operates 3 fixed-grip quads, 3 fixed-grip triples, 2 fixed-grip doubles, 1 surface lift, and 1 carpet conveyor. The resort's existing total uphill design lift capacity has been calculated at 14,125 people-per-hour (pph). Table 4-1 below summarizes the technical specifications for the existing lifts, and Figure 6 illustrates the location of existing lifts.

Overall, Loveland's lift network services the available terrain efficiently and effectively. The primary difficulties at the resort lie in circulating between the Valley and the Basin, and in circulating from Lift 8 to the Basin base area. Many of the lifts are within, or approaching, the average life expectancy for fixed-grip lifts of 35 years.



**Table 4-1:
Lift Specifications – Existing Conditions**

Lift Name, Lift Type	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Plan Length (ft)	Slope Length (ft)	Avg. Grade (%)	Actual Design Capacity (pers/hr)	Rope Speed (fpm)	Carrier Spacing (ft)	Year Installed
Lift 1 C-3	11,838	10,882	956	2,380	2,689	40	1,800	475	48	Yan 1981
Lift 2 C-3	11,973	10,892	1,080	5,863	6,012	18	619	475	138	Yan 1985
Lift 2 – Mid Unload C-3	11,240	10,889	351	2,871	2,898	12	412	475	208	
Lift 2 – Mid Load C-3	11,973	11,262	711	2,942	3,047	24	619	475	138	
Lift 3 C-4	11,454	10,635	819	3,260	3,383	25	1,350	450	80	Poma 1996
Lift 3 – Mid Unload C-4	10,937	10,635	302	1,592	1,626	19	150	450	720	
Lift 4 C-3	12,195	11,116	1,079	3,435	3,647	31	1,000	480	86	Poma 2011
Lift 4 – Mid Unload C-3	11,913	11,116	797	2,320	2,489	34	400	480	216	
Lift 5 C-2	10,892	10,880	12	5,023	5,058	0	775	450	70	Heron Poma 1975
Lift 6 C-2	11,865	11,215	651	3,210	3,304	20	1,200	475	48	Yan 1977
Lift 7 C-2	10,771	10,642	129	966	977	13	1,200	300	30	Yan 1982
Lift 8 C-4	12,131	11,270	862	3,518	3,639	24	1,500	450	72	Yan Poma 1990
Lift 9 C-4	12,673	11,432	1,241	4,590	4,820	27	1,200	450	90	Poma 1998
Carpet c	10,657	10,640	18	246	247	7	1,000	120	7	Magic Carpet 2008
Platter s	11,711	11,203	508	1,972	2,045	26	900	780	52	Poma 1970

c = carpet conveyor

s = surface lift

C-2 = fixed-grip double chairlift

C-3 = fixed-grip triple chairlift

C-4 = fixed-grip quad chairlift

Source: SE Group

1. Lift 1

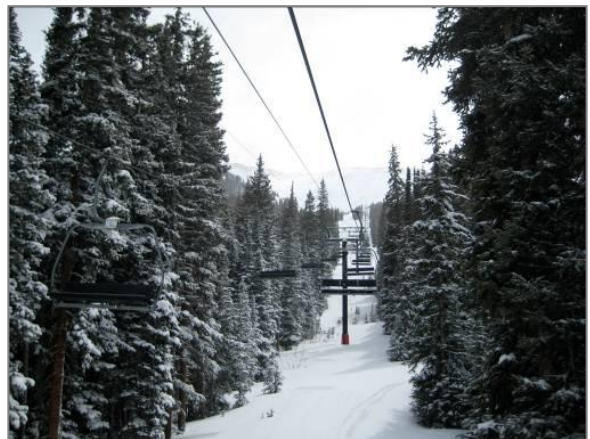
Lift 1 was installed in 1981 and provides out-of-base access from the Basin base area to popular north-facing terrain, as well as the Rock House. The lift has a quite steep average grade and the terrain under, and around, the lift corridor is also very steep. This area has some of the steepest continuous grades in Colorado. This lift services over 950 vertical feet of Novice through Expert terrain. Lift 1 also provides access to other lifts, particularly Lift 6. The mid-load station on Lift 2 can be reached from Chair 1, which is a popular route to access higher terrain. Additionally, Lift 1 is popular on cold, windy days, as it is less exposed than other lifts.

2. Lift 2

Lift 2 was installed in 1985 and provides out-of-base access from the Basin base area up to the basin terrain, as well as Ptarmigan Roost. This lift provides access to all of the non out-of-base lifts at the Basin, except for Lift 8. It sees heavy demand in the mornings as an access lift. The lift also has a mid-unload and a mid-load station. The upper section of the lift serves the repeat-skiable terrain along the upper portion the Lift 2. While the lower section provides a round trip skiing experience for the lower ability level guests and access to Lifts 4 and 6. In its entirety, Lift 2 is very long for a fixed-grip lift, at over 6,000 feet in length—equating to a 12-minute ride time. The mid-stations break that ride into separate 6-minute ride times for guests who are only circulating on the upper or lower sections of Lift 2. This lift services over 1,000 vertical feet of Novice through Intermediate terrain.

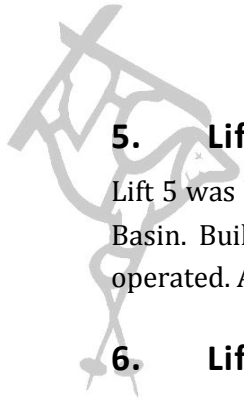
3. Lift 3

Lift 3 is the primary lift in the Valley area. It was installed in 1996 and includes a mid-unload station to allow access to Novice level terrain. Lift 3 is also the race lift, as it is used by the *Loveland Race Club*. The lift is also used extensively by the ski school programs. It services Novice through Advanced Intermediate terrain.



4. Lift 4

Lift 4, which was replaced with a new lift in 2011, services over 1,000 vertical feet of Intermediate through Expert terrain on the south-east facing slopes of the Basin. The lift has a mid-unload station that is used primarily for access to Lift 8.



5. Lift 5

Lift 5 was built exclusively as a transfer lift, transporting skiers between the Valley and the Basin. Built in 1975, Lift 5 is one of the oldest lifts at Loveland, and it is not currently operated. An interesting feature of this lift is that it crosses Colorado Highway 6.

6. Lift 6

Built in 1977, Lift 6 is the oldest currently operating chairlift at Loveland. Accessed from Lifts 1 or 2, it serves about 650 vertical feet of Novice to Intermediate level terrain. This lift is very popular for cruiser style terrain on well-groomed slopes. Lift 6 also serves some of the most consistent Low Intermediate level terrain at Loveland.

7. Lift 7

At the Valley, Lift 7 exclusively serves Novice level terrain. Built in 1982, it serves 130 vertical feet of terrain and is used extensively by ski school programs.

8. Lift 8

Lift 8 is the most remote lift at Loveland, as it lies north of the Basin base area, on the far side of Interstate 70. Built in 1990, it serves about 860 vertical feet of Intermediate and Advanced terrain.

9. Lift 9

Built in 1998, Lift 9 accesses *The Ridge*. The elevation of the top terminal is one of the highest in the world. The terrain accessed by this lift is natural bowl-style Expert level terrain. With over 1,200 vertical feet of rise, Lift 9 provides the most vertical feet of terrain at Loveland. There is a mid-unload station on Lift 9, but it is rarely used. It could be used to access lower level terrain from the lower section of the lift.

10. Carpet

The Magic Carpet serves first-time beginners. Located at the Valley between the bottom terminals of Lifts 3 and 7, it is used exclusively by the ski school. It is the only lift that accesses true Beginner level terrain.

11. Platter

Built in 1970 the Platter accesses just over 500 vertical feet of Intermediate and Advanced terrain. It is located between Lift 2 and the bottom terminals of Lifts 9 and 4; it runs parallel with Lift 2 and *Fire Cut*. The surface lift provides round trip skiing of the adjacent trails, as well as some popular tree skiing on either side of the surface lift alignment. This photograph shows the Platter and Lift 2.



C. EXISTING TERRAIN NETWORK

1. Terrain Variety

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). 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. In summary, to provide the highest quality guest experience, resorts should offer 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 existing developed Alpine terrain network is depicted on Figures 6, 7, and 8. The developed, or formalized, terrain network at Loveland consists of the named, defined, lift-served, 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/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 and the associated ability level breakdown must be sufficient to accommodate the full capacity of the lift network.

However, at Loveland, it is difficult to differentiate between the developed terrain and the undeveloped terrain, as such a significant quantity of Loveland's terrain is above treeline. Most of the trails at Loveland (at least in the Basin area) were not cut into tree stands, but rather exist in natural open bowls and in above treeline areas. Since there is not a distinct edge to most of the trails, it is difficult to define a fixed area for the developed trails. This influences the actual usage patterns for the ski area, where skiers are found skiing throughout the entire width of any given bowl area. When quantifying the developed terrain a set area can be used where the trails are defined by tree edges, but in the open areas, a larger width is used.

Based on the rationale presented in the preceding paragraphs, and for the purposes of this analysis, the developed trail network is calculated by accounting for the full widths of lift-accessible bowls, but does not include treed areas or hike-to areas. **This developed trail network is the basis for the trail acreage calculations, skier/rider classification breakdown, trail capacity, and density formulas.** If this analysis were to account for terrain outside of the developed trail network, it would have a misleading effect on those calculations, i.e., lower trail densities, higher capacities, and an incorrect skier/rider classification breakdown. However, terrain outside of the developed network (in this case, the glades and hike-to terrain) is crucial to terrain variety and the overall quality of the guest experience, and as such is addressed later in this section.

The developed trail network accommodates Beginner through Expert-level guests on 91 lift-served, named trails or trail segments spanning approximately 900 acres. Most “Green” and “Blue” runs are groomed on a regular basis.

Key aspects of Loveland's terrain are explored in the following discussions.

a. Loveland Valley

The Valley has total of 48 acres of terrain. All of Loveland's Beginner teaching terrain is located at the Valley area. Children and first-time beginners start out on teaching terrain served by the magic carpet, then progress to the Lift 7 trails, and finally to Lift 3. True Beginner terrain is found on the Carpet and totals about an acre and half, which is not enough for the demand from first-timers and children. The remainder of the terrain in the Valley is accessed off Lift 3, and includes Intermediate and Low Intermediate trails.



There is one notable challenge with the terrain in the Valley area. This relates to the next step up from the Lift 7 terrain. After “graduating” from Lift 7, Beginners move onto Lift 3. From here, the easiest options are: either to unload at the mid-unload ramp and take *Boomerang* down to the bottom, or to ride to the top and take *Zig-Zag* down. However, both of these trails have short sections that are too steep for Novice level skiers. Furthermore, the section on *Boomerang* is off fall-line, and the section on *Zig-Zag* is narrow. This also makes the run more intimidating to lower level skiers. Strategic grading in these steep sections could reduce the grade to the point where it is comfortable for lower level skiers. Also, it should be noted that there would ideally be more trail options for this step in the learning/teaching progression.

b. Loveland Basin

Loveland Basin contains the significant majority of the total developed terrain at Loveland. With the exception of the 48 acres in the Valley, the rest of the 903 acres are found in the Basin area.

As discussed earlier, there is a constraint to skiing the terrain served off Lift 8, and to a lesser degree, Lift 4. This constraint is the time it takes to circulate between this area and the Basin base area. It takes some time to ride the necessary lifts and ski the connector routes, and there are no restroom or food service facilities on the north side of Interstate 70. As a result, this area is underutilized. Further contributing to the underutilization of terrain served by Lifts 8 and 4 is that fact that many expend a great deal of time and energy to get to this area, only to find that they are soon ready for a break.

While there is a tunnel under Interstate 70 that connects the base of Lift 8 and the Basin base area, the trail down to the tunnel is steep and narrow and so is avoided by most skiers.

c. Cruiser Terrain

Much of the cruising terrain is found off of Lift 6 and the trails off the western side of Lift 1.¹⁴ This terrain is fairly well defined, as it is cut into tree stands. As a result, and from the direction this area faces, this terrain tends to be more protected than other parts of the Basin, and is popular on windy days. This area represents a significant portion of the Intermediate terrain at Loveland, and is well used.



**View from Chair 4 looking back at
Chair 1 cruiser terrain**

d. Open Bowls

Lifts 2, 4, 8 and 9 all access open bowl skiing.



Lift 2 Area



Lift 8 Area

¹⁴ Cruiser terrain is described as relatively long ski trails with enough vertical drop that skiers/riders are able to continuously link varying radius turns with minimal interference from cross traffic or breaks in the fall-line. These trails are relatively wide with very good visibility and are groomed on a routine basis.

Loveland Ski Area



Lift 9 Area



Lift 4 Area

These bowls represent some of the best high altitude, above treeline, powder and bowl skiing available in the state. Open bowl terrain served by Lifts 2, 4 and 8 offer similar, although exciting, experiences in which skiers can descend where they want, eventually entering treed areas and ultimately to Loveland's formal trail network. Open bowl terrain served by Lift 9 is unique in that skiers can access *The Ridge* (by hiking) from this area. Hike-to terrain is discussed in more detail, below, under "Undeveloped and Gladed Expert Terrain."

Table 4-2 below lists the specifications for all the developed terrain at Loveland, including the bowls.

Table 4-2: Terrain Specifications – Existing Conditions

Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
Over the Rainbow	11,924	10,858	1,066	2,404	319	17.6	50	69	Expert
Zoom	11,405	11,005	400	839	195	3.7	55	66	Expert
Avalanche Bowl	11,840	11,405	435	1,141	255	6.7	42	76	Expert
Tiger's Tail	11,856	11,469	386	1,183	136	3.7	35	61	Expert
Spillway	11,849	11,631	218	702	198	3.2	33	41	Intermediate
Waterfall	11,638	11,515	124	370	172	1.5	36	45	Adv. Intermediate
Upper Richard's	11,816	11,702	113	348	159	1.3	35	38	Intermediate
Cat Walk	11,856	11,644	212	1,830	63	2.7	12	31	Low Intermediate
Holy Cat	11,141	10,917	224	505	90	1.0	50	67	Expert
Busy Gully	11,421	10,903	518	1,394	115	3.7	41	65	Expert
Cats Meow	11,515	10,889	625	1,806	144	6.0	38	65	Expert
Nix Nox	11,530	11,023	507	1,658	153	5.8	32	50	Adv. Intermediate
Richard's Run	11,633	11,120	513	1,931	156	6.9	28	37	Intermediate
Mambo	11,652	11,181	471	2,095	149	7.2	23	28	Low Intermediate
Tempest	11,695	11,392	303	1,306	117	3.5	24	35	Intermediate
Excelleration	11,720	11,446	275	1,006	131	3.0	29	47	Adv. Intermediate
T-bar Road	11,388	11,318	69	498	83	1.0	14	18	Low Intermediate
Un-named trail section (below T-bar Road)	11,336	11,103	233	1,143	50	1.3	21	26	Low Intermediate
Home Run	11,200	10,895	305	2,333	174	9.3	13	22	Novice
Tango Road	11,121	10,999	123	1,297	97	2.9	10	16	Novice
Bennett's Bowl	11,984	11,614	370	1,833	567	23.9	21	31	Low Intermediate
Fire Bowl	11,978	11,631	347	2,447	432	24.3	14	27	Novice
North Turtle Creek	11,617	11,342	274	1,264	231	6.7	22	26	Novice
Drifter	11,556	11,268	288	1,191	107	2.9	25	31	Low Intermediate

Table 4-2: Terrain Specifications – Existing Conditions

Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
Fire Cut	11,613	11,121	491	1,985	244	11.1	26	40	Intermediate
Tomahawk	11,712	11,445	267	888	178	3.6	32	47	Adv. Intermediate
Apollo (Lower)	11,900	11,592	308	905	256	5.3	37	59	Expert
Apollo (Upper)	12,193	11,898	295	1,901	249	10.9	16	28	Adv. Intermediate
Mercury	12,137	11,706	431	1,986	932	42.5	22	31	Low Intermediate
Telestar	12,187	11,887	299	1,249	309	8.9	25	40	Intermediate
Sunburst Bowl	12,197	11,866	331	1,702	861	33.6	20	33	Intermediate
North Chutes	11,850	11,507	342	1,032	204	4.8	35	53	Adv. Intermediate
North Chute	11,739	11,471	267	788	129	2.3	36	51	Adv. Intermediate
Fail Safe Trees I	11,722	11,416	305	876	172	3.5	37	45	Adv. Intermediate
Fail Safe Trees II	11,414	11,237	177	377	395	3.4	53	58	Expert
Perfect Bowl	11,731	11,456	275	835	761	14.6	35	48	Adv. Intermediate
Splashdown	11,882	11,136	745	2,135	338	16.6	38	59	Expert
Sunburst Chutes	11,844	11,384	460	1,405	233	7.5	35	58	Expert
West Ropes	11,781	11,481	300	868	287	5.7	37	43	Expert
Zip Trail	11,915	11,263	652	4,523	76	7.9	15	31	Low Intermediate
Fail Safe	11,513	11,335	178	1,350	60	1.9	13	24	Low Intermediate
Scrub	11,460	11,125	335	883	330	6.7	41	49	Adv. Intermediate
Lower Creek Trail	11,331	11,120	211	1,275	96	2.8	17	25	Low Intermediate
Dealer's Choice	11,878	11,719	158	1,351	104	3.2	12	29	Low Intermediate
Forest Meadow	11,719	11,313	406	2,638	262	15.9	16	32	Low Intermediate
Keno	11,840	11,448	392	1,751	202	8.1	23	36	Intermediate
South Blackjack	11,868	11,603	266	1,107	164	4.2	26	36	Intermediate
North Blackjack	11,752	11,603	149	579	141	1.9	27	42	Intermediate
Blackjack (Lower)	11,318	11,223	95	631	156	2.3	15	20	Novice

Table 4-2: Terrain Specifications – Existing Conditions

Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
Blackjack (Upper)	11,602	11,318	284	1,462	124	4.2	20	28	Intermediate
Roulette	11,862	11,458	404	1,819	182	7.6	23	42	Intermediate
Straight Flush	11,837	11,474	364	1,471	182	6.1	26	38	Intermediate
Royal Flush	11,768	11,514	254	1,083	175	4.3	24	32	Low Intermediate
Sani Flush	11,728	11,583	144	577	141	1.9	26	40	Intermediate
Deuces Wild	11,877	11,622	255	1,415	178	5.8	19	34	Low Intermediate
South Turtle Creek	11,633	11,414	219	1,171	166	4.5	19	26	Low Intermediate
Turtle Creek	11,458	11,121	337	1,906	150	6.6	18	28	Novice
Zippity Split	12,130	11,805	325	2,568	51	3.0	13	30	Low Intermediate
Tickler Gulch	12,066	11,601	465	2,039	740	34.7	24	39	Intermediate
Zip Basin Street	12,123	11,657	467	1,922	220	9.7	25	45	Intermediate
Chet's Run	12,124	11,279	845	3,552	264	21.6	25	40	Intermediate
Hook 'Em Horns	11,875	11,497	378	1,088	608	15.2	37	48	Adv. Intermediate
In The Mood	12,014	11,524	489	1,648	485	18.4	32	51	Adv. Intermediate
The Plunge	12,106	11,948	158	747	372	6.4	22	45	Adv. Intermediate
Awesome II	12,122	11,711	411	1,729	284	11.3	25	48	Adv. Intermediate
Awesome	12,129	11,301	828	5,381	287	35.5	16	39	Intermediate
The Face	11,298	10,958	341	1,149	99	2.6	31	51	Adv. Intermediate
Primer Bowl	12,683	12,059	624	2,245	598	30.8	29	61	Expert
Rip Curl	12,686	12,204	482	1,249	363	10.4	42	53	Adv. Intermediate
Patrol Bowl (Lower)	12,227	12,050	177	1,172	589	15.9	15	18	Adv. Intermediate
Patrol Bowl (Upper)	12,634	12,227	407	844	472	9.1	57	89	Expert
Upper #4 Headwall	12,515	12,095	419	1,897	650	28.3	23	52	Adv. Intermediate
Rookie Road	12,716	12,079	637	4,084	151	14.2	16	51	Adv. Intermediate
Challenger	12,530	12,108	422	1,662	558	21.3	27	49	Adv. Intermediate

Table 4-2: Terrain Specifications – Existing Conditions

Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
North Star	12,498	12,124	374	1,624	645	24.1	24	52	Adv. Intermediate
South Chutes	11,933	11,520	413	1,374	858	27.1	32	52	Adv. Intermediate
Our Bowl	12,051	11,611	439	1,547	532	18.9	30	48	Adv. Intermediate
#4 Headwall	12,095	11,738	358	1,038	1,025	24.4	37	57	Expert
Creek Trail	11,726	11,333	392	2,023	225	10.5	20	29	Adv. Intermediate
Castle Rock	12,540	12,073	466	1,332	350	10.7	38	53	Adv. Intermediate
Jelly Roll	12,439	12,024	416	1,342	991	30.5	33	60	Expert
Switchback (Lower)	10,943	10,829	113	575	153	2.0	20	27	Low Intermediate
Switchback (Upper)	11,451	10,943	508	1,747	139	5.6	30	39	Intermediate
Twist (Lower)	10,898	10,740	158	820	90	1.7	20	28	Low Intermediate
Twist (Upper)	11,440	10,898	542	1,770	188	7.6	32	46	Intermediate
Double Dip	11,401	10,987	414	1,240	132	3.8	35	43	Intermediate
Zig-Zag	11,453	10,637	816	6,367	76	11.1	13	30	Low Intermediate
Boomerang	10,943	10,646	297	1,859	108	4.6	16	26	Novice
All Smiles	10,772	10,666	106	878	220	4.4	12	20	Novice
Take Off	10,772	10,645	128	1,248	212	6.1	10	17	Novice
Magic Carpet Slope	10,658	10,640	18	266	254	1.6	7	11	Beginner
TOTAL				140,480		903			
Light Gray = Valley Trails									

e. Terrain Distribution by Ability Level

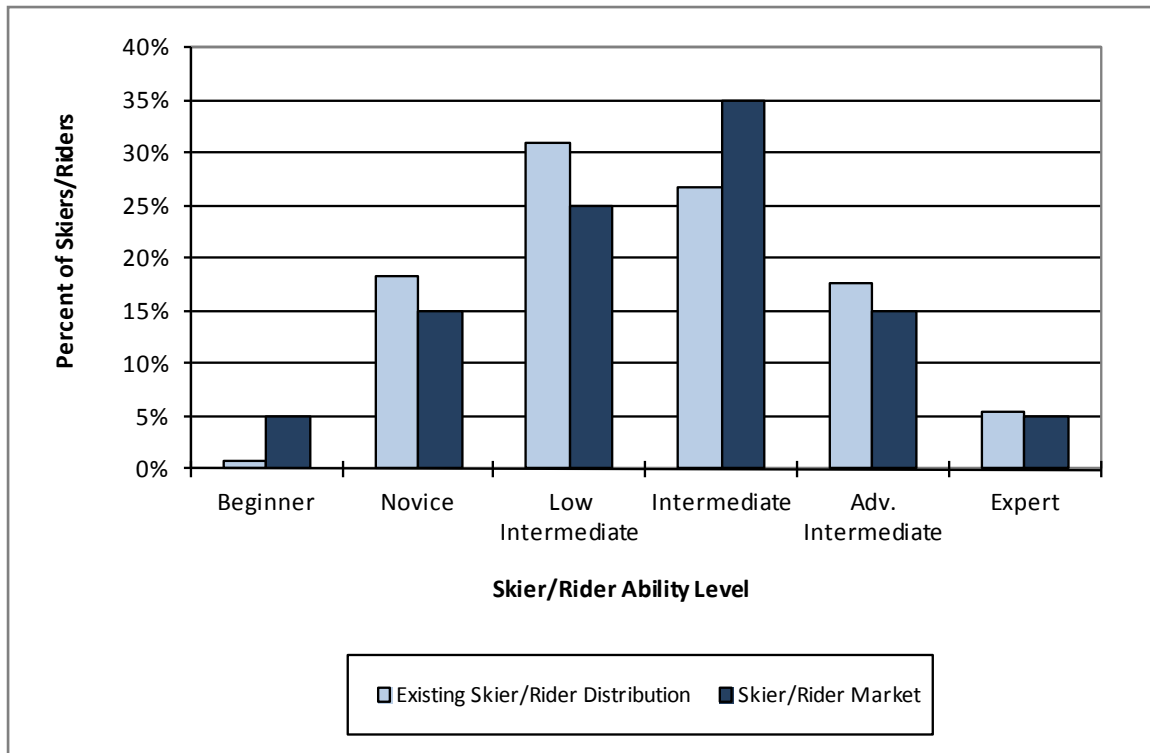
The terrain distribution through the full range of ability levels shows a bell shaped curve it does not match the bell shaped curve of the skier/rider market. The terrain classification breakdown of the existing resort is set forth in the following table and chart. The last column in this table represents what can be considered the skill level distribution in the relevant skier/rider market and provides a comparison with the actual skier/rider distribution at Loveland.

**Table 4-3:
Terrain Distribution by Ability Level – Existing Conditions**

Skier/Rider Ability Level	Trail Area (acres)	Skier/Rider Capacity (guests)	Actual Skier/Rider Distribution (%)	Relevant Skier/Rider Market (%)
Beginner	2	47	1	5
Novice	67	1,208	18	15
Low Intermediate	146	2,037	31	25
Intermediate	221	1,766	27	35
Adv. Intermediate	292	1,167	18	15
Expert	176	352	5	5
TOTAL	903	6,577	100	100

Source: SE Group

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



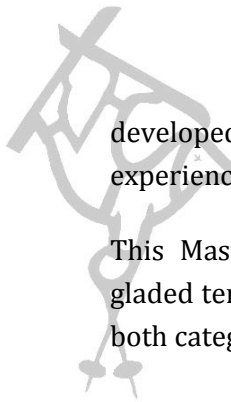
Source: SE Group

The above table illustrates how Loveland's existing terrain distribution does not exactly match the market demand for most ability levels. The deficiency of true Beginner terrain is reflected by the small amount of terrain accessed by the Magic Carpet. Novice, Low Intermediate, and Advanced Intermediate terrain are somewhat higher than the market. There is a noticeable deficiency of Intermediate terrain, which reflects the topography of Loveland, where most of the Intermediate terrain is located in a transition band between more gentle and steeper terrain. Expert ability level terrain is very close to the market.

3. Undeveloped and Gladed Expert Terrain

Undeveloped terrain is one of Loveland's main draws; the topography within the SUP area includes steeps, chutes, bowls and glades intermingled within, and outside of, the developed and maintained terrain network.

As discussed previously under "Terrain Variety," for the purposes of this analysis, the developed trail network includes the open bowls but not the glades and hike-to terrain. 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 discussed in this section.

This Master Plan puts Loveland’s undeveloped terrain into two categories: lift-served gladed terrain and hike-to terrain. Both are discussed below. Note that all of this terrain, in both categories, is located at the Basin area, within the SUP boundary.

a. Lift-Served Gladed Terrain

Gladed areas are labeled on Figure 7 and are detailed in the table below. A distinguishing characteristic of Loveland is that the Basin area is literally skiable “wall-to-wall” due to the open areas and naturally gladed tree stands. Examples of these areas within Loveland’s developed terrain network include: the trees between *Cat’s Meow* and *Nix Nox* (off Lift 1), *Fail Safe Glades* (off Lift 4), and the *East Ropes* (off Lift 8). Depending on snow conditions, these areas are heavily used by Expert skiers and riders. Loveland 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. One particular location is the trees between *Cat’s Meow* and *Nix Nox*—the spacing of the trees in this existing tree stand is quite tight. The glade skiing in this area would be significantly improved if the stand would be cleared of the dead trees and thinned. Areas with potential for improved glading are discussed in Chapter 5.

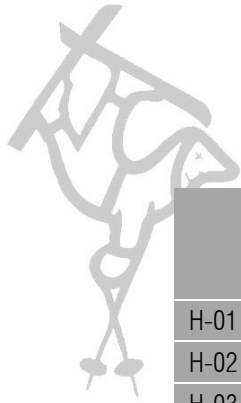
**Table 4-4:
Gladed Terrain – Existing Conditions**

Trail Area/Name	Vert. Rise (ft)	Slope Area (acres)	Max Grade (%)	Ability Level
Cat Nix Trees	560	18.5	70	Expert
Cat Walk Trees	277	9.2	48	Adv. Intermediate
Dave's Ditch	472	16.7	69	Expert
Forest Meadow Trees I	681	26.5	78	Expert
Forest Meadow Trees II	197	6.0	32	Adv. Intermediate
North Chute Trees	231	1.1	57	Expert
Fail Safe Glades I	191	2.4	49	Adv. Intermediate
Fail Safe Glades II	227	4.1	55	Adv. Intermediate
Scrub Trees	335	3.3	54	Adv. Intermediate
West Ropes	519	15.0	60	Expert
Tunnel Face	533	23.9	82	Expert
East Ropes	595	24.3	68	Expert
Zip Glades	273	10.9	33	Adv. Intermediate
Hook 'Em Horns Glades	115	7.7	20	Adv. Intermediate
POMA Glades	295	11.4	29	Adv. Intermediate
Total		181		

b. Hike-To Terrain/Loveland Ridge Cat Access

The Hike-To terrain is off *The Ridge* and portions of the terrain adjacent to Lift 8. Lifts 8 and 9 are used to access the hiking routes; skiers can hike either to the north or south along *The Ridge* to access large amounts of terrain. These areas are shown on Figures 6 and 7, and are listed in the table below.

Recently, Loveland purchased a transport snowcat to provide better access to the hike-to terrain. The snowcat picks up skiers north of the top terminal of Lift 9 and transports them up to numerous points along *The Ridge* free of charge, on a first-come, first-serve basis. These services are provided when conditions are favorable and provide additional value to the skiers/riders who have the ability to ski the Advanced Intermediate and Expert terrain off of *The Ridge*, but are not able to hike in order to access that terrain.



**Table 4-5:
Hike-To – Existing Conditions**

Trail Area/Name	Vert. Rise (ft)	Slope Area (acres)	Max Grade (%)	Ability Level
H-01 Porcupine Saddle	547	76.8	62	Expert
H-02 Wild Child	440	24.9	74	Expert
H-03 Super Bowl	342	33.1	48	Adv. Intermediate
H-06 Nada Bowl	149	13.7	48	Adv. Intermediate
H-07 Northstar	41	4.6	15	Novice
H-08 Super Nova	532	51.4	87	Expert
H-09 Velvet Hammer	684	48.2	86	Expert
H-10 Tickler	301	16.6	65	Expert
H-11 Field of Dreams	650	41.5	66	Expert
H-12 Marmot	810	61.6	80	Expert
H-13 Rock Chutes	243	26.2	29	Adv. Intermediate
H-14 Past Rock Chutes	224	15.2	60	Expert
Total		414		

4. Terrain Parks

Loveland has historically built terrain parks—both off Chair 1 and off Chair 6—to offer skiers and riders of all abilities the chance to improve their freestyle skills. Loveland will continue this practice as conditions warrant, in locations that are appropriate based on the varying and evolving needs of park users.

D. EXISTING CAPACITY ANALYSIS

1. Comfortable Carrying Capacity

As discussed previously in Chapter 2, ski area planning involves the establishment of a “design capacity,” which represents the daily, at-one-time guest population to which all ski resort functions are balanced. The design capacity is a planning parameter that is used to establish the acceptable size of the primary facilities of a ski resort: ski lifts, ski terrain, guest services, restaurant seats, building space, utilities, parking, etc.

Design capacity is commonly expressed as “Comfortable Carrying Capacity,” “Skier Carrying Capacity,” “Skiers at One Time,” and other ski industry specific terms. These terms refer to a level of utilization that provides a pleasant recreational experience, without overburdening the resort infrastructure. Accordingly, the design capacity does not normally indicate a maximum level of visitation, but rather the number of visitors that can be “comfortably” accommodated on a daily basis. Design capacity is typically equated to roughly a resort’s

tenth busiest day, and peak-day visitation at most resorts is often between 10% and 25% higher than the design capacity.

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 Loveland's CCC was completed for this MP, as shown in Table 4-6. As indicated, Loveland's CCC was calculated at 4,680 guests per day.



**Table 4-6:
Comfortable Carrying Capacity (Chairlift Based) – Existing Conditions**

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)	CCC (guests)
Lift 1 C-3	2,689	956	1,800	7.50	30	10	1,080	7,748	20,719	370
Lift 2 C-3	6,012	1,080	619	7.50	15	10	464	3,762	8,694	430
Lift 2 – Mid Unload C-3	2,898	354	412	7.50	15	15	288	760	4,753	160
Lift 2 – Mid Load C-3	3,047	711	619	7.50	10	15	464	2,476	13,505	180
Lift 3 C-4	3,383	819	1,350	7.50	0	15	1,148	7,050	9,985	710
Lift 3 – Mid Unload C-4	1,626	302	150	7.50	0	15	128	289	6,848	40
Lift 4 C-3	3,647	1,079	1,000	7.50	0	5	950	7,689	17,383	440
Lift 4 – Mid Unload C-3	2,489	797	400	7.50	30	5	260	1,555	17,046	90
Lift 5 C-2	5,058	12	775	7.50	100	0	-	0	83	-
Lift 6 C-2	3,304	651	1,200	7.50	0	10	1,080	5,270	11,455	460
Lift 7 C-2	977	129	1,200	7.50	0	15	1,020	984	2,230	440
Lift 8 C-4	3,639	862	1,500	7.00	0	5	1,425	8,594	14,979	570
Lift 9 C-4	4,820	1,241	1,200	6.50	0	5	1,140	9,195	18,350	500
Carpet c	247	18	1,000	7.50	0	5	950	125	821	150
Platter s	2,045	508	900	7.00	0	15	765	2,721	19,450	140
TOTAL	42,982		14,125				11,162	58,218		4,680

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 comparing 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% of each lift's CCC is presumed to be "inactive"—i.e., using guest service facilities or milling areas and otherwise not actively skiing or riding lifts.

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 approximate 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. The density analysis for Loveland is illustrated in the following table (Table 4-7). This table shows that the average trail density at Loveland is five skiers/riders-per-acre, a density that is on the low end of the industry standard range.¹⁵ 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.

¹⁵ Specific trails, particularly the egress trails towards the end of the day, can consistently have high densities.

**Table 4-7:
Density Analysis – Existing Conditions**

Lift Name, Lift Type	Daily Lift Capacity	Guest Dispersal				Density Analysis				Density Index (%)
		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. (+/-)	
Lift 1 C-3	370	93	54	102	121	81.7	1	6	-5	17
Lift 2 C-3	430	108	15	98	209	16.7	12	16	-4	75
Lift 2 – MU C-3	160	40	5	29	86	7.9	11	17	-6	65
Lift 2 – ML C-3	180	45	8	50	77	54.8	1	15	-14	7
Lift 3 C-4	710	178	77	144	311	32.0	10	11	-1	91
Lift 3 – MU C-4	40	10	2	8	20	4.4	5	16	-11	31
Lift 4 C-3	440	110	16	120	194	134.0	1	8	-7	13
Lift 4 – MU C-3	90	23	9	22	36	39.1	1	4	-3	25
Lift 5 C-2	460	115	18	125	202	71.7	3	11	-8	27
Lift 6 C-2	440	110	119	55	156	10.5	15	18	-3	83
Lift 7 C-2	570	143	48	192	187	161.4	1	7	-6	14
Lift 8 C-4	500	125	19	204	152	278.5	1	3	-2	33
Lift 9 C-4	150	60	32	33	25	1.6	16	30	-14	53
Carpet c	140	56	13	33	38	8.4	5	7	-2	71
TOTAL	4,680	1,216	435	1,215	1,814	903	5	10	-5	53

Source: SE Group

The density figures included in the table above shows that, for all of the individual lift/trail systems at Loveland, the actual trail densities are lower than the target design criteria, meaning that trails are generally less crowded than most resorts. Not surprisingly, the average densities in the Valley (Lifts 3, 7, and carpet) are comparatively higher. This is simply because there is so much less available terrain in the Valley, and no wide open bowl areas where skiers get dispersed. Densities are not above desirable levels in the Valley however, so that area is well balanced. The Basin has very low average densities, with several lift systems showing an average of one skier/rider per acre. Notably, the primary bowl lifts (Lifts 9, 4, and 8) all have average densities of one skier per acre. Again, this is the result of the natural conditions at these parts of Loveland, with above treeline skiing. As stated, the low densities are desirable from the standpoint of the quality of the skiing experience.

However, the low density numbers can 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 that the amount of effort required to properly maintain the quantity of terrain could be disproportionately high when compared to the overall number of skiers/riders on the mountain.

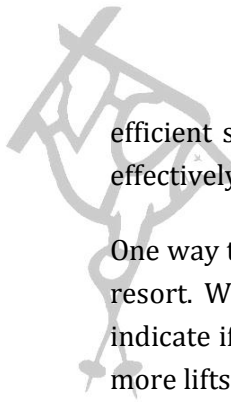
In terms of the guest dispersal percentages, Loveland is in a comfortable position of having a higher percentage of guests on the trails than in lift lines and on the lifts. This implies that the lift system is efficient. This concept is discussed further below.

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

a. Lift Network Efficiency

Within the context of ski area design efficiency, the term “Lift Network Efficiency” refers to the amount of effort and cost required to operate and maintain the lift network, as compared to the number of guests served by the lift network. The energy and costs related to the lifts include, 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.

One way to analyze Lift 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) if 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 guests. Industry-wide, the average CCC per lift is approximately 650. The average CCC per lift at Loveland is 549. This rating is below average, indicating that Loveland may operate more lifts than required to efficiently serve the available terrain. Another factor is low hourly capacities of the lifts—most of Loveland's lifts operate at hourly capacities that are lower than the maximum for the given lift type. This results in overall lower CCC.

b. Terrain Network Efficiency

To further the above discussion, an offshoot of the terrain density analysis is an analysis that provides an indication of the efficiency of the terrain network as compared to the lift network serving it. In this usage, the term “Terrain Network Efficiency” refers to the amount of effort required to properly maintain the terrain (e.g., costs related to snowmaking, grooming, energy, ski patrol, summer trail maintenance, administration, etc). From this standpoint, the most efficient scenario is to have a quantity of terrain that closely meets the target density requirements. This can be easily achieved by reviewing the density analysis above, for a terrain density index of 100% would imply that the resort had exactly the right amount of terrain to match target densities. Since Loveland has an index of 53%, actual densities half as much as the target densities, it can be assumed that the terrain network could be utilized in a more efficient manner.

However, it is important to note that the full developed terrain network is used in these calculations, because it is largely the developed terrain that incurs the highest operational and maintenance costs. Since Glades and Hike-To terrain do not incur these costs, increasing the quantity of alternate, undeveloped terrain not only meets the demand and current industry trend for this style of terrain, but also increases a resort’s terrain network efficiency. As a result, it can be reasonable to assume that the Terrain Network Efficiency is likely higher than the 53% would indicate.

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

1. Guest Services

Guest services are provided throughout Loveland. There are base areas in both the Valley and Basin areas, and there are three on-mountain warming huts. Existing guest service facilities are identified on Figures 6 through 9.

a. Base Area Guest Services

In the Valley area, guest services are provided in the Valley Lodge. The Valley Lodge is well located to provide direct access to Lift 7 and the carpet, with a short distance to Lift 3. As all Ski School operations are staged out of the Valley Lodge, this proximity is very functional. This photograph shows the Valley Lodge and the relationship to the Lift 7 base and the carpet. The only other base area building in the Valley is the Race Club building.



Valley Lodge

In the Basin, services are provided in the Basin Lodge, Childcare building, Rental Shop, Retail Shop, Ski Patrol, and Ticket Office.



Restroom Building



**Ticket Office (foreground) and
Locker Building (background)**

On-mountain skier services are limited to the three warming huts; the Rock House, E-Tow Cabin, and Ptarmigan Roost. Rock House and E-Tow provide indoor shelter and have outdoor decks with limited seating, there are no other guest services available. Ptarmigan Roost will provide the most developed guest service of the three buildings. During Summer 2012, Loveland will be remodeling Ptarmigan Roost to include 90 indoor seats and 120 outdoor seats. Limited food and beverage items will be available for the upcoming 2012/13 season.



Rock House at the top of Lift 1



Ptarmigan Roost and proximity to top of Lift 2

2. Space Use Analysis

Sufficient guest service space should be provided to accommodate the existing resort CCC of 4,680 guests per day. A distribution of the CCC to each facility location is utilized to determine guest service capacities and space requirements at base area and on-mountain facilities. The CCC is 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. Since the on-mountain guest services are very limited, almost all skiers return to the base area for services. This does not indicate a lack of demand for on-mountain facilities, but rather that there is no full service option currently. This is an identified constraint for Loveland, as guests expect on-mountain food service and restrooms.

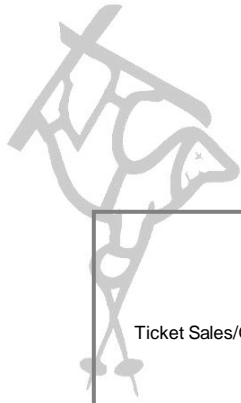
In addition to distributing the CCC amongst the base area and on-mountain facilities, guest service capacity needs and the resulting spatial recommendations are determined through a process of reviewing and analyzing the current operations to determine specific guest service requirements that are unique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

Based upon a CCC of 4,680 skiers, Chart 4-2, below, compares the current space use allocations of the guest service functions to industry norms for a resort of similar market

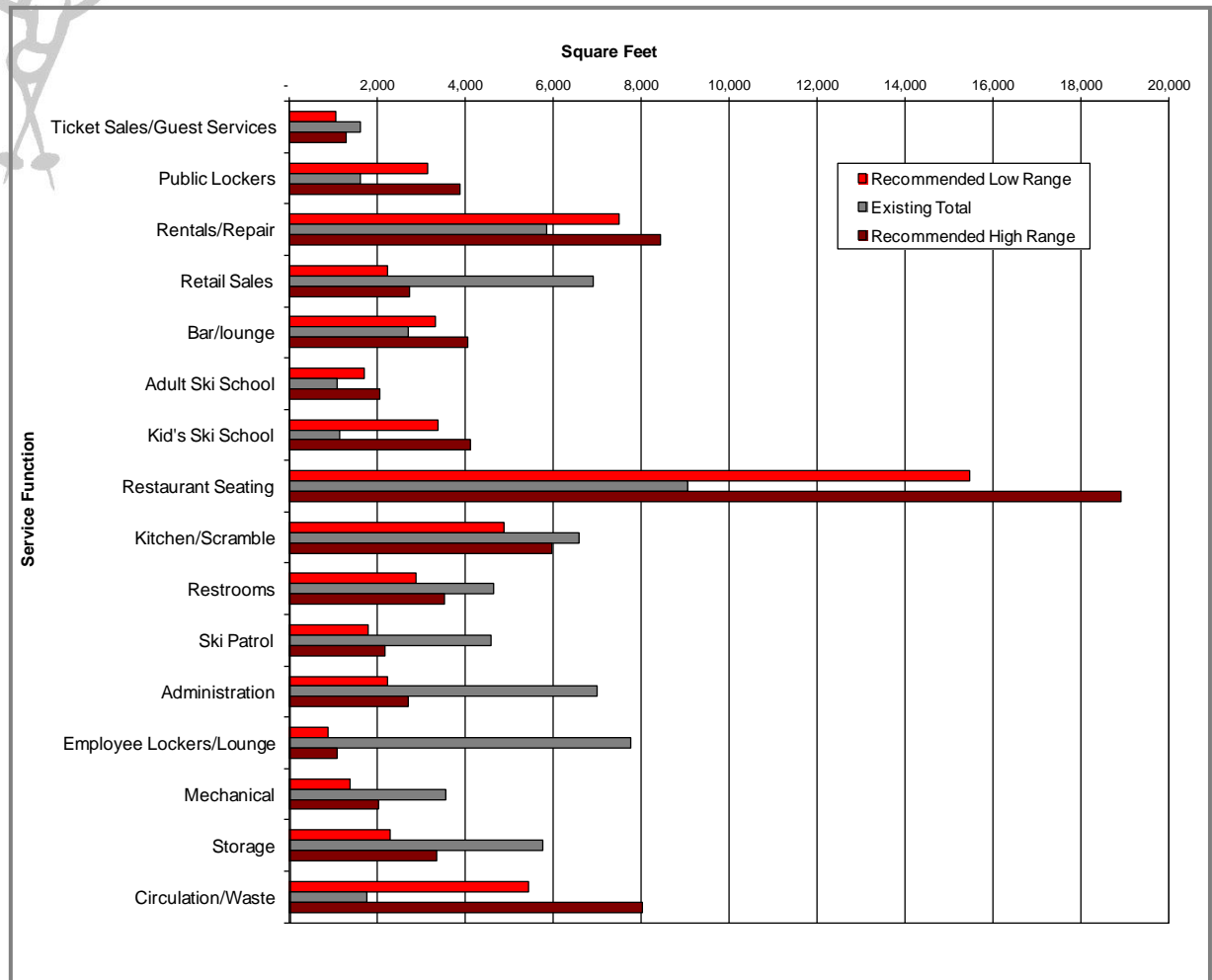
orientation and regional context as Loveland. Square footage contained in this chart is calculated to illustrate how Loveland compares to industry averages, and should not be considered absolute requirements.

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 space.
- **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**

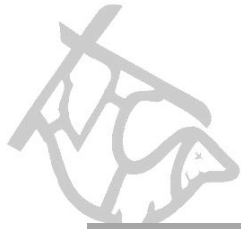


Source: SE Group

**Table 4-8:
Industry Average Space Use
Valley Building – Existing Conditions**

Service Function	Existing Total	Recommended Range		Difference from Recommended	
		Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	130	290	360	(160)	(230)
Public Lockers	520	880	1,080	(360)	(560)
Rentals/Repair	3,230	3,300	4,040	(70)	(810)
Retail Sales	1,100	620	760	480	340
Bar/lounge	660	930	1,140	(270)	(480)
Adult Ski School	695	880	1,260	(185)	(565)
Kid's Ski School	1,350	2,700	3,290	(1,350)	(1,940)
Restaurant Seating	3,276	4,440	5,430	(1,164)	(2,154)
Kitchen/Scramble	1,820	1,400	1,710	420	110
Restrooms	1,476	820	1,010	656	466
Ski Patrol	1,400	510	620	890	780
Administration	140	880	1,080	(740)	(940)
Employee Lockers/Lounge	420	920	1,240	(500)	(820)
Mechanical	640	500	760	140	(120)
Storage	510	840	1,270	(330)	(760)
Circulation/Waste	933	2,010	3,040	(1,077)	(2,107)
TOTAL SQUARE FEET	18,300	21,930	28,090	(3,630)	(9,790)

Source: SE Group



**Table 4-9:
Industry Average Space Use
Basin Base Area – Existing Conditions**

Service Function	Existing Total	Recommended Range		Difference from Recommended	
		Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	1,460	760	930	700	530
Public Lockers	1,096	2,270	2,780	(1,174)	(1,684)
Rentals/Repair	3,025	5,390	6,070	(2,365)	(3,045)
Retail Sales	5,804	1,610	1,960	4,194	3,844
Bar/lounge	2,224	2,390	2,920	(166)	(696)
Adult Ski School	375	220	310	155	(65)
Kid's Ski School	0	670	820	(670)	(820)
Restaurant Seating	4,328	9,680	11,830	(5,352)	(7,502)
Kitchen/Scramble	4,272	3,040	3,720	1,232	552
Restrooms	3,240	1,800	2,200	1,440	1,040
Ski Patrol	3,044	1,110	1,350	1,934	1,694
Administration	4,707	1,330	1,620	5,527	5,237
Employee Lockers/Lounge	7,353	1,380	1,860	5,973	5,493
Mechanical	2,916	850	1,270	2,066	1,646
Storage	4,158	1,420	2,110	2,738	2,048
Circulation/Waste	1,470	3,320	5,060	(1,950)	(3,590)
TOTAL SQUARE FEET	49,472	37,340	46,810	12,132	2,662

Note:

Restroom/Childcare Building includes 800 sq. ft. for the Childcare program

Source: SE Group

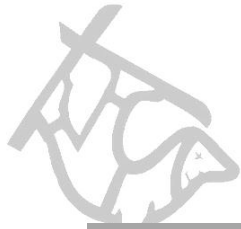
**Table 4-10:
Industry Average Space Use
On-Mountain Warming Huts – Existing Conditions**

Service Function	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	1,887	1,360	1,660	527	227
Kitchen/Scramble	-	430	520	(430)	(520)
Restrooms	200	250	310	(50)	(110)
Ski Patrol	120	160	190	(40)	(70)
Administration	-	-	-	-	-
Employee Lockers/Lounge	-	-	-	-	-
Mechanical	-	60	90	(60)	(90)
Storage	-	100	150	(100)	(150)
Circulation/Waste	-	240	350	(240)	(350)
TOTAL SQUARE FEET	2,207	2,600	3,270	(393)	(1,063)

Note:

Warming Hut space is represented by Restaurant Seating even though full service food and beverage is not a function offered at the on-mountain buildings. E-Tow, Rock House, and Ptarmigan Roost comprise the Restaurant Seating. The Lift 9 top terminal building contains the Ski Patrol square footage.

Source: SE Group



**Table 4-11:
Industry Average Space Use
Resort Total – Existing Conditions**

Service Function	Existing Total	Recommended Range		Difference from Recommended	
		Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	1,590	1,050	1,290	540	300
Public Lockers	1,616	3,150	3,860	(1,534)	(2,244)
Rentals/Repair	6,255	8,690	10,110	(2,435)	(3,855)
Retail Sales	6,904	2,240	2,710	4,664	4,184
Bar/lounge	2,884	3,320	4,060	(436)	(1,176)
Adult Ski School	1,070	1,100	1,570	(30)	(500)
Kid's Ski School	1,350	3,370	4,110	(2,020)	(2,760)
Restaurant Seating	9,491	15,480	18,920	(5,989)	(9,429)
Kitchen/Scramble	5,092	4,870	5,950	1,222	142
Restrooms	4,916	2,870	3,520	2,046	1,396
Ski Patrol	4,564	1,780	2,160	2,784	2,404
Administration	4,847	2,210	2,700	2,637	2,147
Employee Lockers/Lounge	7,773	2,300	3,100	5,473	4,673
Mechanical	3,556	1,410	2,120	2,146	1,436
Storage	4,668	2,360	3,530	2,308	1,138
Circulation/Waste	2,403	5,670	8,450	(3,267)	(6,047)
TOTAL SQUARE FEET	69,979	61,870	78,170	8,109	(8,191)

Source: SE Group

As shown in Chart 4-2 and Tables 4-8 through 4-11 above, Loveland is not deficient in overall guest service space. However, it is very important to note that the analysis shows a significant imbalance. Close inspection of the tables show that there are large deficiencies in some categories and large surpluses in other categories. Importantly, it is the services related to space that is directly used by guests that are deficient. The largest deficiencies are in Restaurant Seating, Children's Ski School, Rentals, and Public Lockers. These are all areas that would directly affect the guest's experience. Also, all of these functions have substantial revenue-generation potential, so the shortages could be adversely affecting the resort's effective yield per skier. The shortage of restaurant seating is particularly noteworthy, since restaurant seating is typically in very high demand, as well as being an important profit center. The restaurant seating deficiency is something that needs to be addressed, as it directly affects the guest experience of virtually all guests. The space categories that have large surpluses are mostly in employee used space, for example Administration and employee lockers. Guests do not directly benefit from the extra space in these categories. One of the other large surpluses is in Retail Sales space.

Another category that shows a significant surplus is Ski Patrol space. Loveland has a large number of volunteer ski patrol, members of the National Ski Patrol. A significant amount of space in the Basin base area is currently used for this purpose.

It is important to note is the difference between space available in the Basin and in the Valley base areas. The Valley shows an overall deficiency of space, while the Basin shows a surplus. Since the two areas are so separated geographically, the deficiencies at the Valley are not effectively offset by the Basin area surpluses. Also, note again that restaurant seating, public lockers, and other spaces used directly by guests are deficient in all locations.

3. Food Service Seating

Food service seating at Loveland is provided at both base areas and the on-mountain warming huts.

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. Based on observed operating characteristics at Loveland, a turnover rate of 3.0 was used for the various facilities in this MP, as shown in the table below.



The following table summarizes the seating requirements at Loveland.

**Table 4-12:
Recommended Restaurant Seating**

	Valley Building	Basin Base Area	On Mountain	Resort Total
Lunchtime Capacity (CCC + other guests)	1,410	3,072	432	4,914
Average Indoor Seat Turnover	3	3	3	3
Existing Indoor Seats	278	617	130	1,025
Required Seats	470	1,024	144	1,638
Difference	-192	-407	-14	-613
Existing seating capacity (existing seats x turnover)	834	1,851	390	3,075
Existing Outdoor Seats	56	193	120	369
Average Outdoor Seat Turnover	2	2	2	
Seating capacity including Outdoor Seats	946	2,237	630	3,813

Source: SE Group

CCC + other guests is accounting for the non-skiing guests who come to Loveland with larger groups or families that use the guest service facilities just as the skiing guest does. Other guests are being calculated at 5% of CCC.

As shown in the table above, there is a significant deficiency of seats. On good weather days, this deficiency is somewhat mitigated by outdoor seating, but this is clearly an issue that needs to be addressed.

F. EXISTING PARKING CAPACITY

Parking for Loveland guests is available across multiple lots located in the Basin and Valley base areas. The total area of parking lots is roughly 14 acres. An industry average of 120 to 140 cars per acre is typically used for calculating parking capacity, to account for parking efficiencies and snow storage. Loveland's vigilant parking management results in capacities ranging from 125 to 160 cars per acre across the five parking lots, 140 cars per acre is used in the following parking capacity analysis.

Vehicle occupancy counts confirm that average car occupancy at Loveland is 2.1 people per car, a ratio which is lower than the national averages of 2.3 to 2.8 people per car. However, for a primarily day-use ski area such as Loveland, it is common to see lower vehicle occupancy rates.

Parking is positively affected by Loveland's Flex Ticket Program, along with the behavior of many of the local day skiers, where parking spaces are vacated during the middle of the day. Loveland staff has observed spaces being vacated as early as 11 a.m.; when this occurs, the

parking staff will refill those spaces. Therefore, 150 turnover parking spaces have been included in the analysis below.

Existing parking areas are identified on Figure 9. Table 4-13 analyzes Loveland's existing skier parking capacity. As indicated, Loveland has a deficit (205 spaces) of parking based on its existing CCC.

**Table 4-13:
Recommended Parking – Existing Conditions**

	Total
CCC + other guests	4,914
No. of guests arriving by car (94%)	4,619
No. of guests arriving by charter bus (6%)	295
Required car parking spaces (2.1 guests per vehicle)	2,200
Required charter bus parking spaces	7
Equivalent car spaces (1 bus = 4.5 car)	33
Required employee car parking spaces	120
Turnover parking spaces	150
Total required spaces	2,203
Existing parking spaces	1,998
surplus/deficit	-205
Existing parking capacity (guests)	4,258

Note:

CCC + other guests is accounting for the non-skiing guests who come to Loveland with larger groups or families that use the guest service facilities just as the skiing guest does. Other guests are being calculated at 5% of CCC.

Car counts over 4 separate weekend days showed an average vehicle occupancy of 2.1

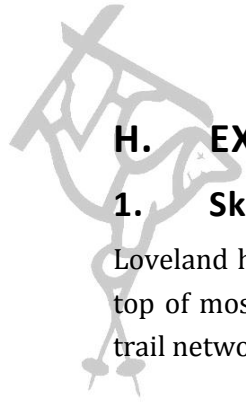
Parking capacity = (parking spaces + turnover spaces – employee spaces)*2.1

Source: SE Group and Loveland Ski Area

To reduce the employee parking requirement Loveland provides an employee shuttle from Georgetown. Three separate shuttles transport a total of 100 employees. Even with the shuttle, 120 employee vehicles need to be parked at Loveland's parking lots.

G. SUMMER ACTIVITIES

Loveland Ski Area does not operate a summer activity program and there are no plans to develop any summer activities at this time.



H. EXISTING RESORT OPERATIONS

1. Ski Patrol/First Aid

Loveland has Ski Patrol facilities located at both base areas, as well as duty stations at the top of most lifts. From these facilities, ski patrol has access to all points of the developed trail network. Well-appointed first aid facilities are located in the base areas.

2. Snowmaking Coverage

As discussed, Loveland is usually one of the earliest ski areas in the country to start making snow in any season, and usually one of the first ski areas to open. Historically, Loveland has been the first ski area to open on many occasions, and has gained good publicity and name recognition as such. Accordingly, Loveland has a robust snowmaking system, with the ability to make an average of 18 inches of snow on 240 acres of terrain. Typically starting in mid-September and operating through early December, the system has a combined capacity of 2,230 gallons per minute of water and 5,500 cubic feet per minute of compressed air. The system uses a combination of air/water guns and fan guns. Loveland owns water rights for around 13.5 cfs from Clear Creek, and leases additional water from the Straight Creek Tunnel and Henderson Mine. Loveland has storage rights for Loveland Basin Reservoir (0.5 acre foot) and Loveland Valley Reservoir (1 acre foot), and lease of off-site storage in Guanella Reservoir. During spring runoff, the water is recaptured with snowmaking returns to those storage structures. Current aggregate water rights are for 110 acre feet, purchased and recaptured.

Snow is made on *Catwalk, Mambo, Homerun, Spillway, Lower Richard's Run, Tempest, T-Bar Road, Roulette, Firebowl, Turtle Creek, Tango Road, Drifter, and Firecut* in the Basin; and *Switchback, Twist, Zig-Zag, Takeoff, and All Smiles* in the Valley.

While there are sufficient water rights for the quantity of snow made during the season, the quantity of storage is lower than desirable. The purpose of water storage for snowmaking is to enable high production rates during optimal conditions. When conditions are optimal in the fall, it is crucial to have enough water to make as much snow as possible. This allows for the most efficient operation, resulting in lower energy use per unit. Loveland currently does not have sufficient water storage in the two reservoirs to take advantage of these opportunities.

3. Grooming

Loveland grooms approximately 390 acres of terrain per night, including virtually all of the Beginner through Intermediate terrain, with some selected upper ability level areas as well.

As is typical with most ski areas, terrain is groomed in two shifts, with approximately 3.25 acres groomed per hour per vehicle.

4. Maintenance Facilities

Loveland's main maintenance facilities are located at the Basin base area, shown on Figure 9. The vehicle maintenance shop is located on the south side of the parking lot, near the base of Lift 1. The shop has a total area of 6,886 square feet. Additional operations buildings provide an additional 10,688 square feet of space for lift maintenance operations, communications, electrical, and carpentry.

As the Basin and Valley areas are separated by both distance and Highway 6, it is necessary to operate at the two locations from the one maintenance facility. This creates unfortunate inefficiencies in the operations.

5. Waste Water Treatment

Loveland's waste water treatment plant is located at the Valley, just east of "Parking Lot D", refer to Figure 9. At 7,248 square feet in size, this facility houses sewer and snowmaking pump functions.

The treatment plant consists of a standard activated sludge package plant with chlorine injection and then de-chlorination. The plant has excess capacity for existing conditions and can handle up to 6,600 guests per day.

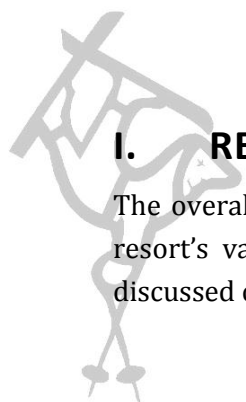
Alignments of the sewer connection lines are shown on Figure 14.

6. Fresh Water Plant

In addition to the waste water treatment plant, Loveland operates two state of the art water purification plants. As shown on Figure 9, The Basin water treatment plant is located near the east end of the Basin Lodge and has storage for 10,000 gallons. The Valley water treatment plant is located adjacent to the bottom terminal of Lift 3, with 20,000 gallons of water storage.

7. Mountain Roads

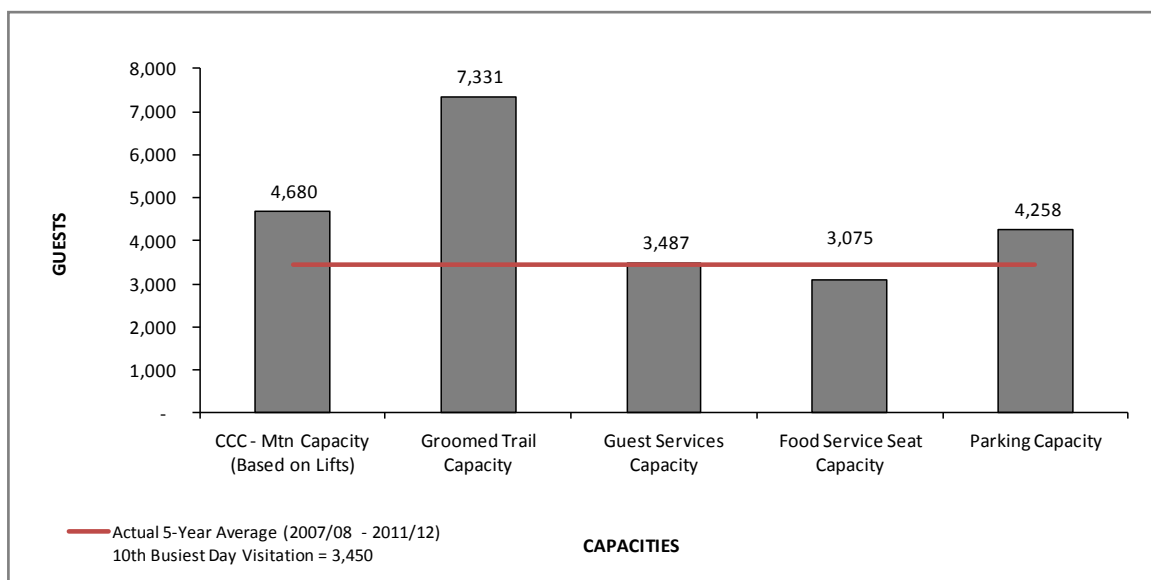
Approximately 14.5 miles of mountain roads exist at Loveland. These roads provide access throughout the SUP area for summer maintenance to all on-mountain facilities and all terminals of all lifts (except for the top of Lifts 8 and 9). Locations of mountain roads are shown on Figure 14.



I. 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**



Source: SE Group

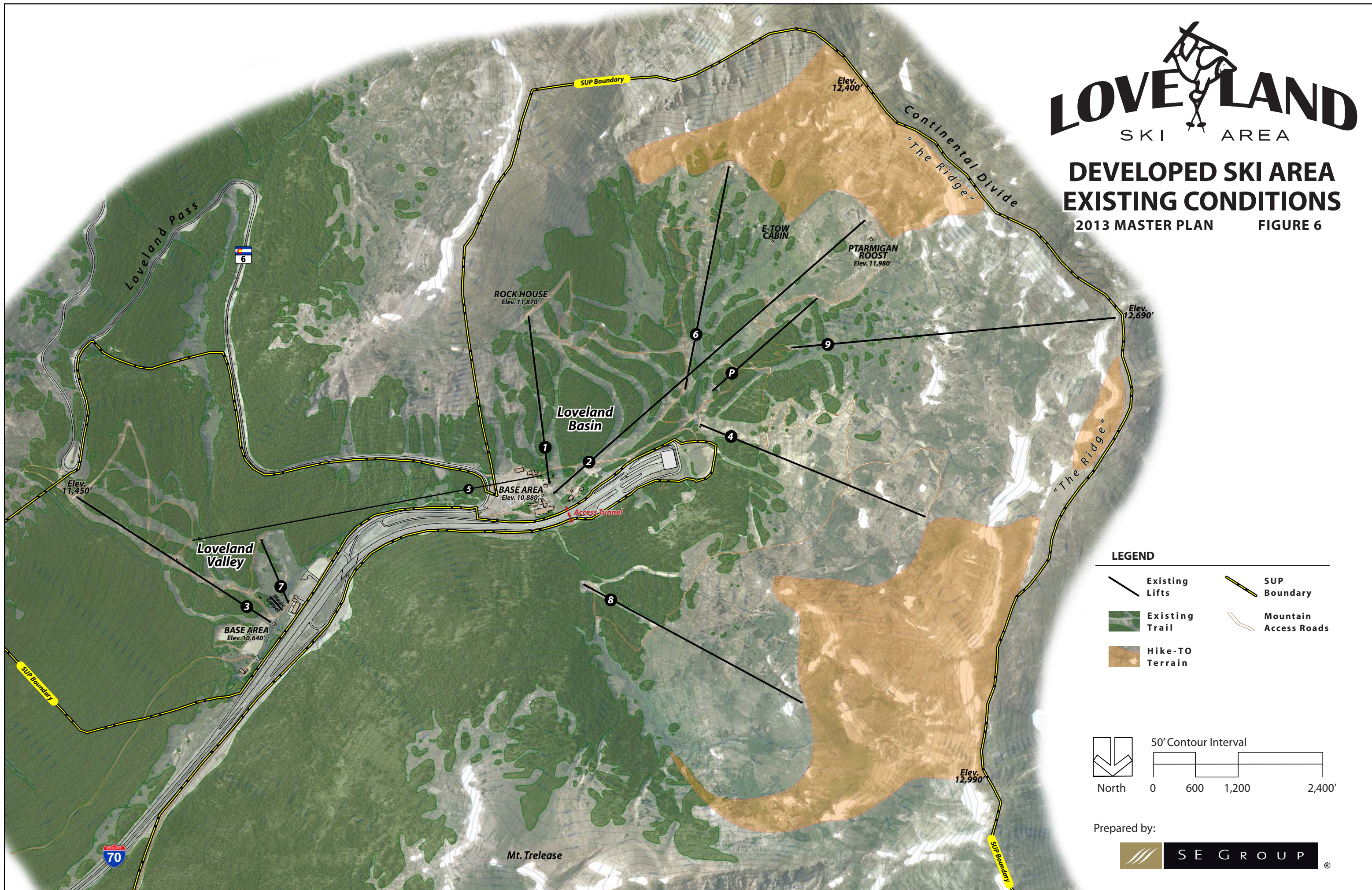
Chart 4-3 indicates an interesting situation. While Loveland's existing CCC is 4,680, the rest of the ski area is not well balanced to that number. The surplus of groomed terrain network capacity is reflected in Loveland's low skier densities, and does not present a particular issue. However, note that the capacities of guest services, food service seating, and parking are all similar and below Loveland's existing CCC. In fact, if outdoor seating is included in the food service seating calculation, it increases the capacity to 3,813—closer to the capacities of other functions, but still below the CCC. The reference line shown indicates the actual 5-year average (2007/08 through 2011/2012 seasons) 10th busiest day visitation, of 3,450 guests. Note that the 10th busiest day visitation level is typically a good approximation of CCC, if the ski area is realizing effective utilization rates. The analysis of existing conditions reveals that actual visitation levels are exceeding current guest and food service capacities. By providing improvements to guest and food service facilities which align these functions with the overall CCC, the ski area would realize improvements in utilization and higher annual visitation. Food service seating capacity is the most deficient and should be addressed immediately. The potential for an on-mountain food service facility should be given priority consideration, since not having any on-mountain full service restaurants is a deficiency of the existing resort.

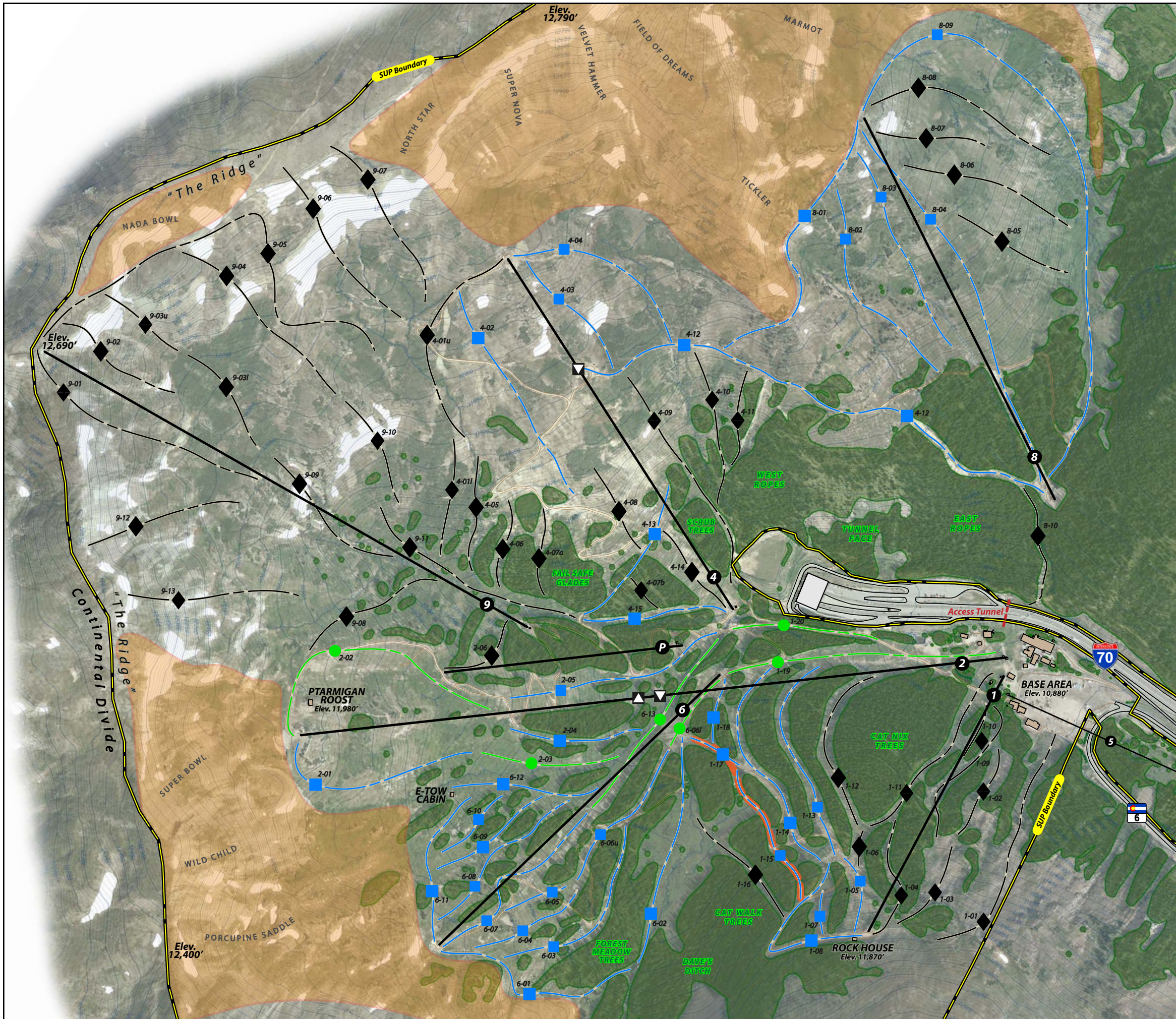


DEVELOPED SKI AREA EXISTING CONDITIONS

2013 MASTER PLAN

FIGURE 6





LOVELAND BASIN EXISTING CONDITIONS

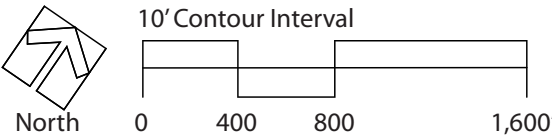
2013 MASTER PLAN FIGURE 7

TRAIL ABILITY LEVELS

- Novice
- Low Intermediate
Intermediate
- Advanced Intermediate
Expert

LEGEND

- Existing Lifts
- Lift with Mid Unload
- Lift with Mid Load
- Existing Trail
- Gladed Terrain Area
- SUP Boundary
- Terrain Park Features
- Mountain Access Roads
- Hike-TO Terrain



Prepared by:





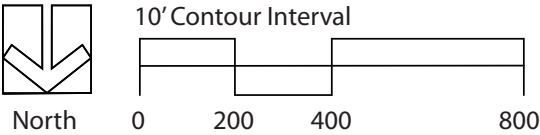
**LOVELAND VALLEY
EXISTING CONDITIONS**
2013 MASTER PLAN FIGURE 8

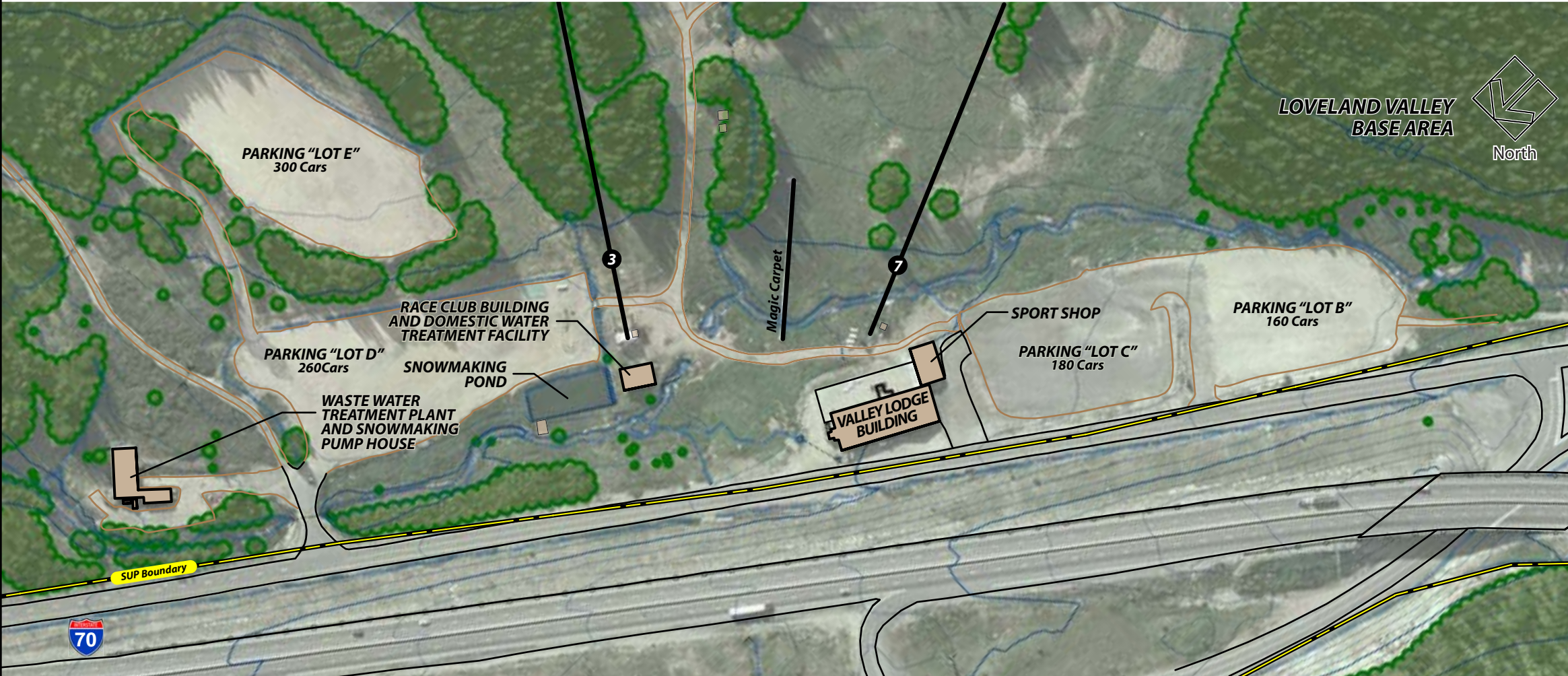
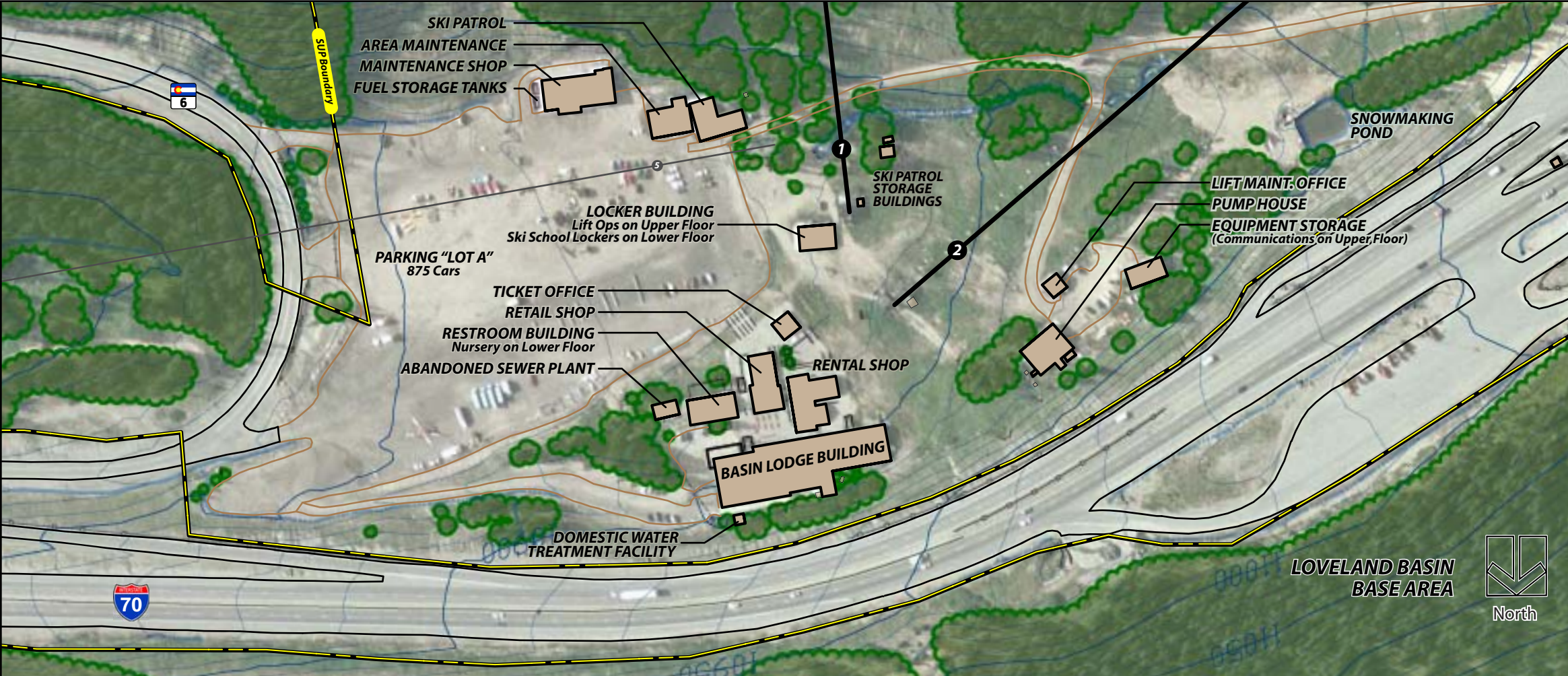
TRAIL ABILITY LEVELS

- Novice
- Low Intermediate
Intermediate
- Advanced Intermediate
Expert

LEGEND

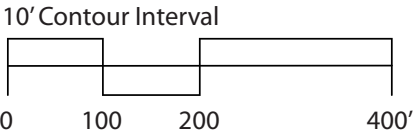
- Existing Lifts
- Lift with Mid Unload
- Existing Trail
- SUP Boundary
- Terrain Park Features
- Mountain Access Roads





**EXISTING CONDITIONS
BASE AREAS**

2013 MASTER PLAN FIGURE 9

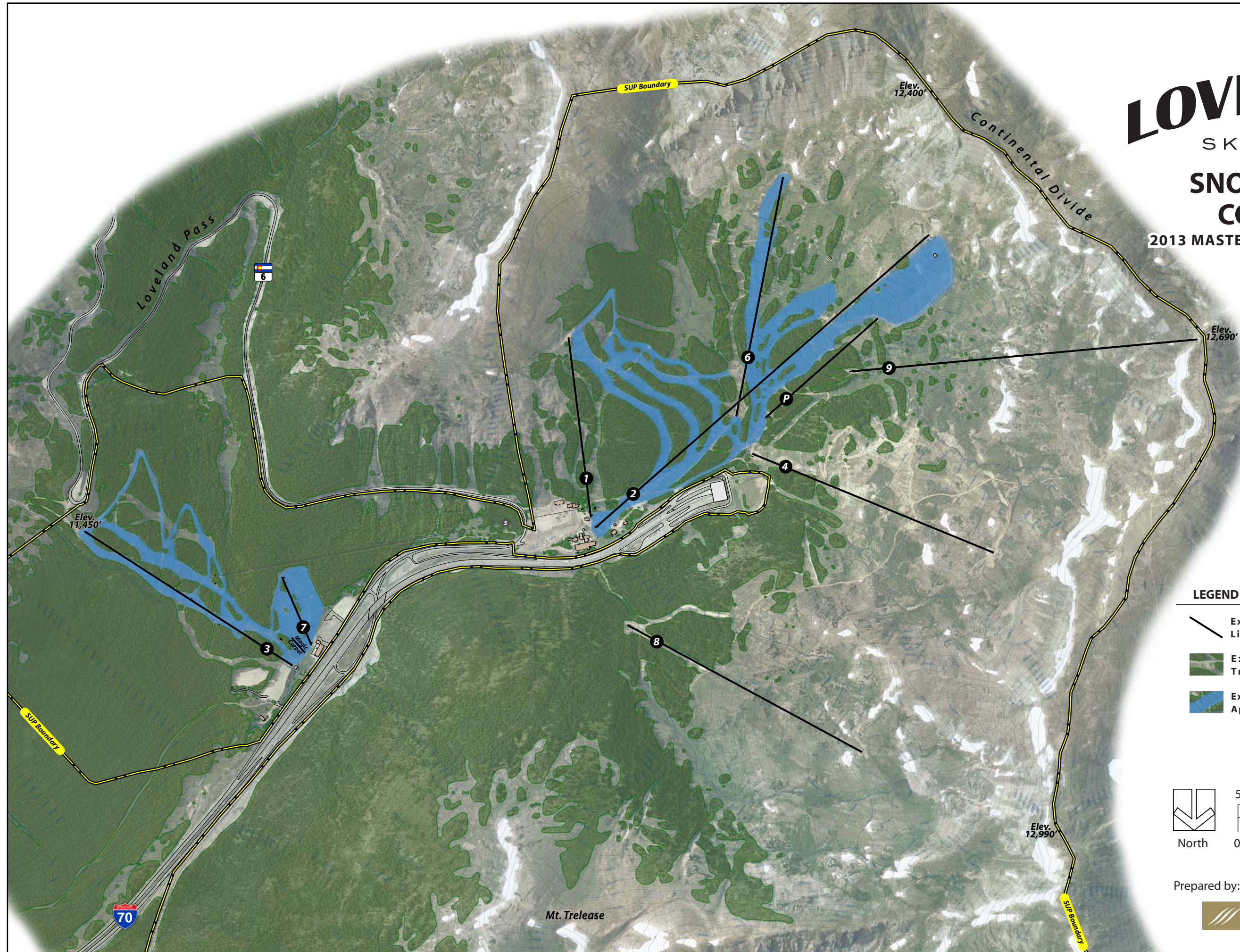




SNOWMAKING COVERAGE

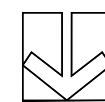
2013 MASTER PLAN

FIGURE 10



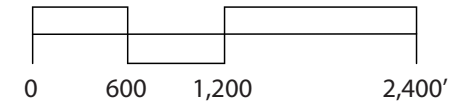
LEGEND

- | | |
|--|-----------------------|
| Existing Lifts | SUP Boundary |
| Existing Trail | Mountain Access Roads |
| Existing Snowmaking
Approx. 142 acres | |



North

50' Contour Interval



Prepared by:





V. UPGRADE PLAN

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

The Upgrade Plan is depicted on Figures 11 through 13.

A. SUMMARY

This Upgrade Plan focuses on Loveland's intentions to enhance the total guest experience through a series of improvements that primarily address existing deficiencies. This would be achieved by implementation of strategic enhancements across the existing SUP area; with particular emphasis on improving and expanding the guest service facilities.

Since Loveland's developed terrain network currently has sufficient, if not surplus, terrain in most ability level categories, there is very little actual trail clearing planned. Approximately 14 acres of new trails are planned, in addition to selected grading and other trail improvements. Tree stand clean up and thinning is planned for the area between *Cat's Meow* and *Nix Nox*. The focus of the new terrain is for additional teaching terrain to be developed adjacent to Loveland Valley. This terrain would provide the important step between Lift 7 and Lift 3, as well as expand the total amount of teaching terrain. Terrain off *The Ridge* that is currently dedicated as hike-to is planned to be lift served with additional areas within the existing SUP area to be opened for guided backcountry hike-to and snowcat tour operations. A snowcat access route would be required to access this terrain. The other specific terrain improvement is in relation to improving the egress route from the bottom of Lift 8 down to the tunnel that links back to the Basin base area.

The Upgrade Plan includes strategic lift network improvements. Lift 2 is planned to be either replaced with new lift equipment in the same alignment or by two separate lifts that would better provide the same functions that Lift 2 currently performs, while improving mountain circulation and reducing lift ride times. Lift 5 is planned to be modified or replaced, with the relocation of the Valley terminal along the existing alignment. A small lengthening of Lift 7 would be required to accommodate this planned Lift 5 alignment. One

new lift and two new conveyors are planned in conjunction with the improved and expanded teaching area at the Valley. Finally, two new lifts are planned to access *The Ridge* above existing Lift 2 and Lift 8.

Skier services are planned to be significantly improved and expanded. Facilities at both base areas would be expanded, with an emphasis on guest service space. On-mountain skier services are planned to be improved through two planned projects: the addition of a new facility in the Lift 8 area and either the expansion of Ptarmigan Roost or a new facility within the extents of the Lift 1, Lift 2, and Lift 6 ski pods.

Loveland's existing snowmaking system is planned to be improved by expanding the storage capacity of the Basin water impoundment and the development of an additional storage location at the Basin. Expansions to coverage are minimal and would include covering the new teaching terrain at the Valley, about 11 acres. This would bring total coverage up to about 251 acres.

Expanded parking is planned along Highway 6, for approximately 135 additional vehicle spaces and improvements to the Basin Lodge delivery access will result in 25 additional spaces.

The net result of these projects would increase the existing CCC of 4,680 to a planned CCC of 5,550.

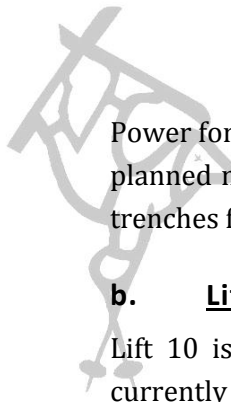
B. LIFT NETWORK

1. New Lift Installations

a. Valley Teaching Terrain

The additions to the Valley teaching terrain would include a new fixed grip chairlift and two conveyor lifts. The planned chairlift, Lift 11, would provide access to novice level skiing and would be used in conjunction with existing Lift 7 to provide progression to steeper terrain. The lift would be approximately 700 feet long with a vertical rise of about 100 feet.

The two planned conveyor lifts would be used for first-time teaching. In concept one would be shorter, just under 100 feet, and one at about 300 feet in length. The shorter lift is designed with a grade of 8%, ideal for the very first ride for beginners. The longer lift would have a grade of 12%, providing the ideal next step in teaching first-timers. These lifts would be used in conjunction with the existing Valley Carpet conveyor lift.



Power for these lifts is planned to be provided via underground electrical lines following the planned mountain road alignment from the top of Lift 7 to the top terminal of Lift 11 and trenches from existing underground power to the planned carpet conveyors.

b. Lift 10 and the Ridge Surface Lift

Lift 10 is planned, in an alignment directly above Lift 8, to access *The Ridge* which is currently accessible only by hiking from the top of Lift 9. Installation of Lift 10 would convert this terrain off of *The Ridge* to lift-served. The terrain off the lift is very popular with Loveland skiers, and Lift 10 is expected to be well used, particularly on powder days and in early morning spring skiing conditions (the lift is south-facing). Lift 10 is planned to be a fixed-grip triple with a capacity of 1,000 people per hour, to regulate the numbers of skiers on the terrain. The planned top terminal elevation is over 12,900 feet, which would make it the highest elevation lift at Loveland (and in the country). With a vertical rise of about 970 feet, and a slope length of about 3,700, it would serve open bowl terrain. Power is planned to be installed underground in conjunction with the construction of the planned mountain road that accesses the bottom terminal of Lift 10.

The planned Ridge surface lift would also be used to access more of *The Ridge*. Unlike Lift 10, it would not provide any repeat-skiing opportunities. Instead, it would be used in conjunction with Lift 9 to provide easier access to the portion of *The Ridge* to the south of Lift 9. Skiers would ski/hike along *The Ridge*, and then use the surface lift to gain access to a higher point along *The Ridge*. Due to the remoteness and the low power requirement of this short lift, the power supply will be self-contained with this lift installation. Options for this are currently being researched, but examples of propane powered surface lifts exist in the ski industry.

2. Lift Replacements/Removals

a. Lift 2

As discussed in Chapter 4, Lift 2 is quite long, and is used in three separate ways. The primary use of the bottom portion is an out-of-base lift to access Lifts 4, 6 and 9 (and the Platter when it is operating). With the installation of the mid-unload, the secondary use is for round trip skiing on the bottom portion of the lift by Novice level skiers. The primary use of the upper section of Lift 2 is to provide repeat-skiing opportunities to the bowl, glade, and traditional terrain that are available off the lift. The existing mid-load and mid-unload stations allow for these functions to occur along the existing Lift 2 alignment.

The upgrade plan calls for removing the existing Lift 2 and replacing it with two separate fixed-grip lifts—2a and 2b. The alignments are shown in Figures 11 and 12. Removal of Lift 2 and installation of two separate lifts would essentially serve the same role as the

existing lift, but would do so more efficiently. As an option to the two lift scenario, Loveland may choose to replace the existing lift with new lift equipment that would make use of a mid-load and mid-unload to serve the multiple uses of Lift 2.¹⁶

For the two lift scenario, power is planned to be supplied from the existing underground electrical network. Short underground spurs will be needed to access the top terminal of the lower lift and the lower terminal of the upper lift.

b. Lift 5

Lift 5 provides access between the Valley and Basin areas of Loveland, but has not been operated in many years. Transferring skiers between the two areas is provided by shuttle buses. The existing Lift 5 is planned to be modified or replaced with new lift equipment. In order to reduce what was a long ride time, the lift is planned to be shortened to 3,750 feet, or a seven and a half minute ride time. This would be accomplished as shown in Figures 11 and 13, by having the lift stop at the top of the existing Lift 7 terrain, instead of continuing over to the Lift 3 terrain, as the existing alignment now does. Skiers would then ski down to the Valley base on the Lift 7 terrain. The Lift 7 terrain is more suitable for the guests that would use Lift 5 versus the steeper terrain on the lower portion of Lift 3.

c. Lift 7

In order to access the Valley side of the planned Lift 5 alignment, Lift 7 would be lengthened slightly, to 1,084 feet.¹⁷ The reason for this is that it is not possible to ski to the planned Lift 5 terminal from the existing Lift 7 top terminal. Skiers who wanted to get to the Basin from the Valley would ride Lift 7, then ski over to the Lift 5 terminal and ride the lift over. The Basin side of Lift 5 is easily accessible from the Basin base area.

d. Lift Replacements and Upgrades

Lift upgrades and replacements may be required in the future to replace older equipment with newer technology. There are no plans for upgrades and replacements beyond what is described above, but unforeseen circumstances may require this to occur within the lifespan of the Loveland Master Plan. If it is needed, lifts would be replaced with new equipment along their current alignment and with similar uphill hourly capacity.

Table 5-1 includes detailed information on the lift specifications in the Upgrade Plan.

¹⁶ For planning purposes, the two lift scenario is being used for calculating the planned CCC and associated upgrade plan analysis. This is being done since the two lift scenario affects the planned CCC more than the lift replacement and therefore the upgrade plan recommendations will be balanced with the potential CCC increase.

¹⁷ The underground power line would need to be extended from the existing top terminal location along the additional length of the lift to the planned top terminal location.

**Table 5-1:
Lift Specifications – Upgrade Plan**

Lift Name, Lift Type	Top Elev. (ft)	Bot. Elev. (ft)	Vert. 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
Lift 1 C-3	11,838	10,882	956	2,380	2,689	40%	1,800	475	48	Yan 1981
Lift 2a C-3	11,333	10,892	441	3,280	3,327	13%	1,500	500	60	Proposed
Lift 2b C-3	12,010	11,265	745	2,937	3,048	25%	1,200	500	75	Proposed
Lift 3 C-4	11,454	10,635	819	3,260	3,383	25%	1,350	450	80	Poma 1996
Lift 3 – Mid Unload C-4	10,937	10,635	302	1,592	1,626	19%	150	450	720	
Lift 4 C-3	12,195	11,116	1,079	3,435	3,647	31%	1,000	480	86	Poma 2011
Lift 4 – Mid Unload C-3	11,913	11,116	797	2,320	2,489	34%	400	480	216	
Lift 5 C-3	10,880	10,768	112	3,737	3,753	3%	1,800	500	50	Modify/Replacement
Lift 6 C-2	11,865	11,215	651	3,210	3,304	20%	1,200	475	48	Yan 1977
Lift 7 C-2	10,794	10,642	152	1,069	1,084	14%	1,200	300	30	Yan 1982
Lift 8 C-4	12,131	11,270	862	3,518	3,639	24%	1,500	450	72	Yan Poma 1990
Lift 9 C-4	12,673	11,432	1,241	4,590	4,820	27%	1,200	450	90	Poma 1998
Valley Carpet c	10,657	10,640	18	246	247	7%	1,000	120	7	Magic Carpet 2008
Platter s	11,711	11,203	508	1,972	2,045	26%	900	780	52	Poma 1970
Lift 10 C-3	12,933	11,964	969	3,487	3,689	28%	1,000	500	90	Proposed
Lift 11 C-3	10,820	10,715	105	701	710	15%	1,800	500	50	Proposed
Ridge Surface Lift	12,554	12,431	123	732	747	17%	1,400	350	15	Proposed
Valley Carpet 2 c	10,656	10,650	6	87	87	8%	600	120	12	Proposed
Valley Carpet 3 c	10,711	10,671	40	332	335	12%	600	120	12	Proposed

c = carpet conveyor

s = surface lift

C-2 = fixed-grip double chairlift

C-3 = fixed-grip triple chairlift

C-4 = fixed-grip quad chairlift

Source: SE Group

C. TERRAIN NETWORK

1. Terrain Variety

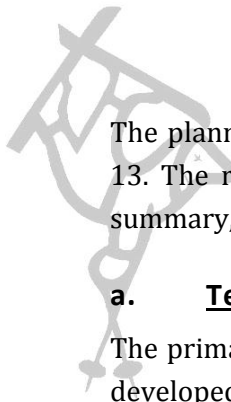
As discussed in the previous chapter, terrain variety is the key factor in evaluating the quality of the actual skiing and riding guest experience (as opposed to lift quality, restaurant quality, or any other factor). The implication of the importance of terrain variety is that a resort must have a diverse, interesting, and well designed developed trail system, but also have a wide variety of alternate style terrain, such as mogul runs, bowls, trees, glades, 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.

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. Keep in mind that, in the case of Loveland, all open bowl lift served terrain is included in the developed terrain network.

2. Developed Alpine Trails

As mentioned, there is very little actual trail clearing included in this MP. Overall, approximately 302 acres are planned to be added to Loveland’s lift-served terrain network, however only roughly 14 acres constitute newly constructed runs. The remainder is terrain that is composed of that which is skied/ridden currently via hike-to access from Lift 9. A majority of this terrain would become lift-served with the addition of Lift 10 and the Ridge surface lift, so would then be included in the developed terrain network.



The planned trail configuration under the Upgrade Plan is depicted in Figures 11 through 13. The reader is encouraged to review those figures in conjunction with the following summary, by lift pod.

a. Teaching Terrain

The primary focus of the planned trail construction is for additional teaching terrain to be developed at Loveland Valley. This terrain would provide an important step between Lift 7 and Lift 3, as well as expansion of the total amount of teaching terrain. Shown in Figure 13, there are two separate areas of planned trail construction.

The Lift 11 terrain would provide expanded Novice level teaching terrain, and would be slightly steeper than the Lift 7 trails, so would provide an important “next step up” from those trails. In total, the Lift 11 terrain is planned to add 6.3 acres of Novice level teaching terrain.

The other trails are those that are planned off the mid-unload of Lift 3. These trails would be used in conjunction with the improved *Boomerang* trail to provide the next step up in difficulty from the Lift 7 and 11 trails. In total, these improvements would provide 4.6 acres of Novice and Low Intermediate level terrain. The planned trails are referred to as Boomerang II, In-Fill I, and In-Fill II in Table 5-2.

b. Lift 8 Egress

Other specific terrain improvements are in relation to improving the egress route from the bottom of Lift 8 down to the tunnel that links back to the Basin base area. As discussed in Chapter 4, the existing egress from the bottom terminal of Lift 8 down to the tunnel under Interstate 70 is too steep and narrow for the majority of skiers. Shown on Figure 12, a bypass trail is planned to route around the steep section and provide substantially improved access to the tunnel. The planned trail would have a maximum grade of 29%, as opposed to the 51% of the existing trail. This trail would account for 2.8 acres of increased ski terrain.

c. Trail Construction

Note that the 14 acres of planned trails discussed in this section are all developed style trails, with well-defined and smooth skiable surfaces. As such, heavy machinery would be required in certain circumstances to achieve the desired surface. This trail work would be in areas shown as planned trails and those requiring grading in Figures 12 and 13.

The proposed terrain specifications are detailed in the following table.

**Table 5-2:
Terrain Specifications – Upgrade Plan**

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
Over the Rainbow	11,924	10,858	1,066	2,112	2,404	319	17.6	50	69	Expert
Zoom	11,405	11,005	400	733	839	195	3.7	55	66	Expert
Avalanche Bowl	11,840	11,405	435	1,027	1,141	255	6.7	42	76	Expert
Tiger's Tail	11,856	11,469	386	1,099	1,183	136	3.7	35	61	Expert
Spillway	11,849	11,631	218	665	702	198	3.2	33	41	Intermediate
Waterfall	11,638	11,515	124	347	370	172	1.5	36	45	Adv. Intermediate
Upper Richard's	11,816	11,702	113	327	348	159	1.3	35	38	Intermediate
Cat Walk	11,856	11,644	212	1,713	1,830	63	2.7	12	31	Low Intermediate
Holy Cat	11,141	10,917	224	446	505	90	1.0	50	67	Expert
Busy Gully	11,421	10,903	518	1,268	1,394	115	3.7	41	65	Expert
Cats Meow	11,515	10,889	625	1,664	1,806	144	6.0	38	65	Expert
Nix Nox	11,530	11,023	507	1,568	1,658	153	5.8	32	50	Adv. Intermediate
Richard's Run	11,633	11,120	513	1,858	1,931	156	6.9	28	37	Intermediate
Mambo	11,652	11,181	471	2,040	2,095	149	7.2	23	28	Low Intermediate
Tempest	11,695	11,392	303	1,266	1,306	146	3.5	24	35	Intermediate
Excelleration	11,720	11,446	275	957	1,006	131	3.0	29	47	Adv. Intermediate
T-bar Road	11,388	11,318	69	493	498	83	1.0	14	18	Low Intermediate
Un-named trail section (below T-bar Road)	11,336	11,103	233	1,116	1,143	50	1.3	21	26	Low Intermediate
Home Run	11,200	10,895	305	2,305	2,333	174	9.3	13	22	Novice
Tango Road	11,121	10,999	123	1,284	1,297	97	2.9	10	16	Novice
Bennett's Bowl	11,984	11,614	370	1,772	1,833	567	23.9	21	31	Low Intermediate
Fire Bowl	11,978	11,631	347	2,403	2,447	432	24.3	14	27	Novice
North Turtle Creek	11,617	11,342	274	1,233	1,264	231	6.7	22	26	Novice
Drifter	11,556	11,268	288	1,155	1,191	107	2.9	25	31	Low Intermediate

**Table 5-2:
Terrain Specifications – Upgrade Plan**

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
Fire Cut	11,613	11,121	491	1,913	1,985	244	11.1	26	40	Intermediate
Tomahawk	11,712	11,445	267	839	888	178	3.6	32	47	Adv. Intermediate
Apollo (Lower)	11,900	11,592	308	843	905	256	5.3	37	59	Expert
Apollo (Upper)	12,193	11,898	295	1,869	1,901	249	10.9	16	28	Adv. Intermediate
Mercury	12,137	11,706	431	1,934	1,986	932	42.5	22	31	Low Intermediate
Telestar	12,187	11,887	299	1,206	1,249	309	8.9	25	40	Intermediate
Sunburst Bowl	12,197	11,866	331	1,660	1,702	861	33.6	20	33	Intermediate
North Chutes	11,850	11,507	342	968	1,032	204	4.8	35	53	Adv. Intermediate
North Chute	11,739	11,471	267	734	788	129	2.3	36	51	Adv. Intermediate
Fail Safe Trees I	11,722	11,416	305	818	876	172	3.5	37	45	Adv. Intermediate
Fail Safe Trees II	11,414	11,237	177	332	377	395	3.4	53	58	Expert
Perfect Bowl	11,731	11,456	275	779	835	761	14.6	35	48	Adv. Intermediate
Splashdown	11,882	11,136	745	1,986	2,135	338	16.6	38	59	Expert
Sunburst Chutes	11,844	11,384	460	1,307	1,405	233	7.5	35	58	Expert
West Ropes	11,781	11,481	300	813	868	287	5.7	37	43	Expert
Zip Trail	11,915	11,263	652	4,328	4,523	76	7.9	15	31	Low Intermediate
Fail Safe	11,513	11,335	178	1,329	1,350	60	1.9	13	24	Low Intermediate
Scrub	11,460	11,125	335	814	883	330	6.7	41	49	Adv. Intermediate
Lower Creek Trail	11,331	11,120	211	1,249	1,275	96	2.8	17	25	Low Intermediate
Dealer's Choice	11,878	11,719	158	1,322	1,351	104	3.2	12	29	Low Intermediate
Forest Meadow	11,719	11,313	406	2,590	2,638	262	15.9	16	32	Low Intermediate
Keno	11,840	11,448	392	1,702	1,751	202	8.1	23	36	Intermediate
South Blackjack	11,868	11,603	266	1,039	1,107	164	4.2	26	36	Intermediate
North Blackjack	11,752	11,603	149	546	579	141	1.9	27	42	Intermediate

**Table 5-2:
Terrain Specifications – Upgrade Plan**

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
Blackjack (Lower)	11,318	11,223	95	616	631	156	2.3	15	20	Novice
Blackjack (Upper)	11,602	11,318	284	1,432	1,462	124	4.2	20	28	Intermediate
Roulette	11,862	11,458	404	1,751	1,819	182	7.6	23	42	Intermediate
Straight Flush	11,837	11,474	364	1,422	1,471	182	6.1	26	38	Intermediate
Royal Flush	11,768	11,514	254	1,051	1,083	175	4.3	24	32	Low Intermediate
Sani Flush	11,728	11,583	144	555	577	141	1.9	26	40	Intermediate
Deuces Wild	11,877	11,622	255	1,369	1,415	178	5.8	19	34	Low Intermediate
South Turtle Creek	11,633	11,414	219	1,149	1,171	166	4.5	19	26	Low Intermediate
Turtle Creek	11,458	11,121	337	1,872	1,906	150	6.6	18	28	Novice
Zippity Split	12,130	11,805	325	2,526	2,568	51	3.0	13	30	Low Intermediate
Tickler Gulch	12,066	11,601	465	1,975	2,039	740	34.7	24	39	Intermediate
Zip Basin Street	12,123	11,657	467	1,853	1,922	220	9.7	25	45	Intermediate
Chet's Run	12,124	11,279	845	3,421	3,552	264	21.6	25	40	Intermediate
Hook 'Em Horns	11,875	11,497	378	1,016	1,088	608	15.2	37	48	Adv. Intermediate
In The Mood	12,014	11,524	489	1,532	1,648	485	18.4	32	51	Adv. Intermediate
The Plunge	12,106	11,948	158	719	747	372	6.4	22	45	Adv. Intermediate
Awesome II	12,122	11,711	411	1,658	1,729	284	11.3	25	48	Adv. Intermediate
Awesome	12,129	11,301	828	5,275	5,381	287	35.5	16	39	Intermediate
The Face	11,298	10,958	341	1,085	1,149	126	3.3	31	51	Adv. Intermediate
The Face Bypass	11,227	10,980	247	1,219	1,253	97	2.8	20	29	Low Intermediate
Primer Bowl	12,683	12,059	624	2,123	2,245	598	30.8	29	61	Expert
Rip Curl	12,686	12,204	482	1,139	1,249	363	10.4	42	53	Adv. Intermediate
Patrol Bowl (Lower)	12,227	12,050	177	1,158	1,172	589	15.9	15	18	Adv. Intermediate
Patrol Bowl (Upper)	12,634	12,227	407	718	844	472	9.1	57	89	Expert

**Table 5-2:
Terrain Specifications – Upgrade Plan**

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
Upper #4 Headwall	12,515	12,095	419	1,824	1,897	650	28.3	23	52	Adv. Intermediate
Rookie Road	12,716	12,079	637	3,889	4,084	151	14.2	16	51	Adv. Intermediate
Challenger	12,530	12,108	422	1,589	1,662	558	21.3	27	49	Adv. Intermediate
North Star (Lower)	12,498	12,124	374	1,536	1,624	645	24.1	24	52	Adv. Intermediate
South Chutes	11,933	11,520	413	1,299	1,374	858	27.1	32	52	Adv. Intermediate
Our Bowl	12,051	11,611	439	1,467	1,547	532	18.9	30	48	Adv. Intermediate
#4 Headwall	12,095	11,738	358	966	1,038	1,025	24.4	37	57	Expert
Creek Trail	11,726	11,333	392	1,976	2,023	225	10.5	20	29	Adv. Intermediate
Castle Rock	12,540	12,073	466	1,238	1,332	350	10.7	38	53	Adv. Intermediate
Jelly Roll	12,439	12,024	416	1,242	1,342	991	30.5	33	60	Expert
Switchback (Lower)	10,943	10,829	113	563	575	153	2.0	20	27	Low Intermediate
Switchback (Upper)	11,451	10,943	508	1,667	1,747	139	5.6	30	39	Intermediate
Twist (Lower)	10,898	10,740	158	801	820	114	2.2	20	28	Low Intermediate
Twist (Upper)	11,440	10,898	542	1,678	1,770	188	7.6	32	46	Intermediate
Double Dip	11,401	10,987	414	1,166	1,240	132	3.8	35	43	Intermediate
Zig-Zag	11,453	10,637	816	6,258	6,342	84	12.2	13	26	Low Intermediate
Boomerang	10,943	10,646	297	1,830	1,859	115	4.9	16	26	Novice
Boomerang II	10,851	10,737	113	697	707	101	1.6	16	23	Novice
In-Fill I	10,922	10,759	162	762	780	91	1.6	21	25	Novice
In-Fill II	10,823	10,677	146	661	679	93	1.4	22	36	Low Intermediate
All Smiles	10,772	10,666	106	869	878	228	4.6	12	20	Novice
Take Off	10,772	10,645	128	1,238	1,248	162	4.6	10	17	Novice
Magic Carpet Slope Existing	10,658	10,640	18	265	266	254	1.6	7	11	Beginner
Magic Carpet Slope II	10,656	10,650	6	87	87	352	0.7	8	8	Beginner

**Table 5-2:
Terrain Specifications – Upgrade Plan**

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
Magic Carpet Slope II	10,711	10,671	40	332	335	249	1.9	12	12	Beginner
Lift 11 Terrain	10,814	10,712	102	753	761	358	6.3	15	23	Novice
Northstar (Upper)	12,551	12,509	41	489	498	400	4.6	8	15	Adv. Intermediate
Super Nova	12,705	12,173	532	1,383	1,549	1,446	51.4	38	87	Expert
Velvet Hammer	12,769	12,085	684	1,851	2,178	965	48.2	37	86	Expert
Tickler	12,337	12,036	301	691	765	947	16.6	44	65	Expert
Field of Dreams	12,805	12,155	650	2,419	2,613	693	41.5	27	66	Expert
Marmot	12,893	12,083	810	2,404	2,742	978	61.6	34	80	Expert
Rock Chutes	12,295	12,051	243	1,128	1,156	989	26.2	22	29	Expert
Past Rock Chutes	12,155	11,931	224	802	847	782	15.2	28	60	Expert
Porcupine Saddle	12,317	11,770	547	2,123	2,229	127	6.5	26	62	Expert
Wild Child	12,315	11,875	440	1,311	1,422	205	6.7	34	74	Expert
Super Bowl	12,317	11,975	342	1,415	1,482	190	6.5	24	48	Adv. Intermediate
TOTALS					162,538		1,205			

Light Gray = Planned Trails

Source: SE Group

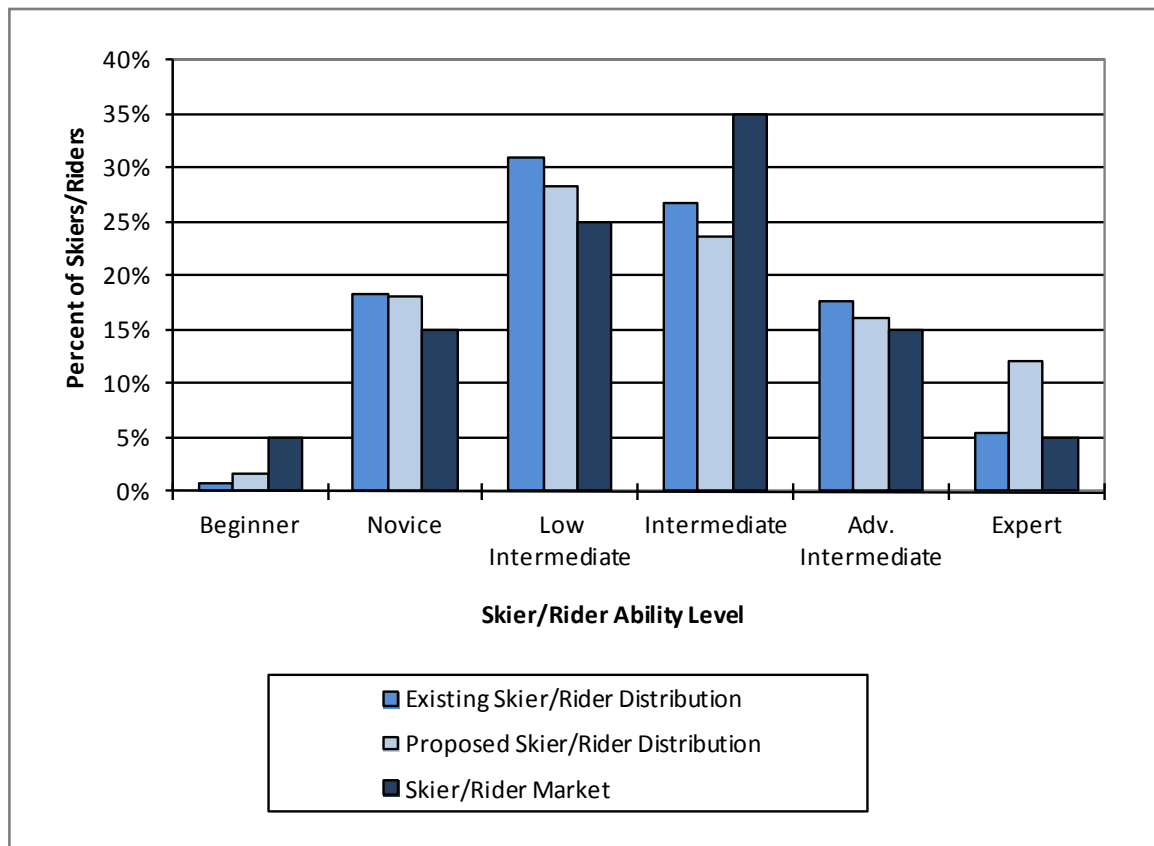
d. Terrain Distribution by Ability Level

The ideal breakdown of trail capacity by ability level should be in-line with percentages of skiers by ability level, based on 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 planned conditions.

**Table 5-3:
Terrain Distribution by Ability Level – Upgrade Plan**

Skier/Rider Ability Level	Trail Area (acres)	Skier/Rider Capacity (guests)	Loveland Skier/Rider Distribution (%)	Skier/Rider Market (%)
Beginner	4.2	125.1	2	5
Novice	75.7	1,362.2	18	15
Low Intermediate	151.3	2,118.3	28	25
Intermediate	220.8	1,766.4	24	35
Adv. Intermediate	303.5	1214.2	16	15
Expert	450.0	899.9	12	5
TOTAL	1,205.5	7,486	100	100

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



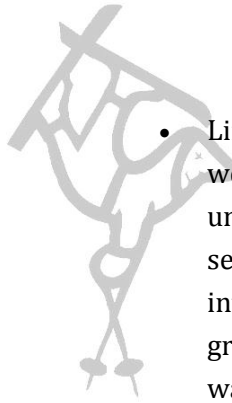
Source: SE Group

Because this MP does not contemplate significant additions to the network of skiing terrain the overall terrain distribution would not change appreciably. As the terrain accessible from *The Ridge* is converted from its current hike-to status to lift-accessed, it becomes included in the terrain distribution analysis. This has the effect of increasing the Expert level terrain which results in corresponding decreases in the percentages of the other ability levels. Despite the planned improvements in Beginner level/teaching terrain at the Valley, an overall deficit of Beginner terrain remains.

3. Planned Trail Grading

Planned trail grading within the Upgrade Plan amounts to approximately 14 acres. Areas planned for grading are identified on Figures 11 through 13. Notable planned grading projects include:

- Lift 11 trail grading. All planned trails in the Lift 11 area would be graded smooth to create ideal teaching terrain.



- Lift 3 trail grading. As discussed in Chapter 4, there are two trails off Lift 3 that would benefit from grading. *Boomerang* is the easiest way down off the Lift 3 mid-unload, and as such should be easy for Novice level skiers. However, there is a section that is too steep and is off fall-line. Both of these characteristics make it intimidating to Novice skiers. Trail grading, as shown in Figure 13 would reduce the grade to a maximum of 25% and correct the fall-line. Off the top of Lift 3, the easiest way down is *Zig-Zag*, but, as discussed in Chapter 4, it is too steep and narrow to be comfortable for Novice level skiers. The planned grading would bring the maximum grade down to 25% and would widen the trail out to recommended widths for Novice trails.¹⁸
- Lift 8 trail grading. The full length of the planned egress trail would require grading, as it would need to be benched into a steep slope.

4. Gladed Terrain

As discussed in Chapter 4, a distinguishing characteristic of Loveland is that the Basin is literally skiable “wall-to-wall” due to the open areas and naturally gladed tree stands. Under the Upgrade Plan, the only improvement to existing glades is the planned removal of the dead trees and additional thinning in the area between *Cat’s Meow* and *Nix Nox*. This area is already accounted for in the existing glades discussion, so there would be no increase to the overall gladed area. The existing tree stand is tighter than desirable for glade skiing. The planned clean up and thinning project is within an area that is approximately 16 acres.

Loveland’s 2012 Summer Operating Plan included a project that allowed for the clearing of the dead trees from this area. During the 2012/2013 ski season, Loveland will observe the skiing patterns and at that time may decide to submit a project proposal for additional pruning and thinning. If a formal proposal is submitted to the ARP to begin site-specific analysis of this project, Loveland would work with its Forest Service counterparts to assemble a thinning plan that is responsive to both the resort’s operational/recreational needs as well as to any forest health objectives that may be important to the ARP. The thinning plan would address elements such as, but not limited to: preservation of selected species, size selection, tree mortality (i.e., targeting dead/dying trees), percent removal, and habitat characteristics.

5. Guided Backcountry and Snowcat Tours

Additional areas within Loveland’s existing SUP are planned to be opened for guided backcountry hike-to and snowcat tour operations. These areas are known as Mt. Trelease,

¹⁸ As shown on Figure 13, in conjunction with the widening and grading of *Zig-Zag* there is a slight re-alignment is planned for the lower half of *Zig-Zag*. The existing trail sections adjacent to the re-alignment will be abandoned and reclaimed.

Western Slope of Mt. Trelease, and Dry Gulch (shown on Figure 11). A primary snowcat access route would be required to shuttle skiers to/from this terrain. The primary route is roughly 4,800 feet long and would require selective tree clearing. Additional snowcat routes within the guided tour area have been conceptually laid out, these routes amount to roughly four miles. As these routes are refined, the alignments will minimize tree clearing to the best extent as possible. No grading is planned for the development of the access routes.

Loveland plans on implementing guided backcountry and snowcat tour operations in a phased approach. This area encompasses approximately 1,200 acres of skiable terrain with five distinct areas that are planned be brought operationally on-line in the following order: the Western Slope of Mt. Trelease; Mt. Trelease; and then the three areas in Dry Gulch from East to West, as shown on Figure 11.¹⁹ These areas are 210, 290, 140, 130, and 430 acres respectively. Initially, the backcountry terrain areas are planned to be opened and managed on a season-to-season basis as Ski Patrol and guides become familiar with each section of terrain. Eventually, it is envisioned that these areas can be opened all within the same operating season, depending on snow conditions. Each area will have varying degrees of Guided Backcountry and Snowcat Tour operations.

6. Terrain Parks

As described in Chapter 4, Loveland has historically built terrain parks—most recently off Lifts 1 and 6—to offer skiers and riders of all abilities the chance to improve their freestyle skills. The resort plans on continuing this practice as conditions warrant, in locations that are appropriate based on the varying and evolving needs of park users.

D. CAPACITY ANALYSIS

1. Comfortable Carrying Capacity

As discussed previously in Chapter 2, ski area planning involves the establishment of a “design capacity,” which represents the daily, at-one-time guest population to which all ski resort functions are balanced.

As detailed in Chapter 4, Loveland’s existing CCC has been calculated at 4,680. Under the Upgrade Plan, Loveland’s planned CCC would increase by 870, as detailed in the following table, and has been calculated at 5,550 guests per day.

¹⁹ Although the skiable terrain would be approximately 1,200 acres, the ski area operational boundary would be adjusted by roughly 1,320 acres to include the overall area where the Guided Backcountry and Snowcat Tour operations would occur. The entire extent of this planned operation is within Loveland’s existing Special Use Permit Boundary.

**Table 5-4:
Comfortable Carrying Capacity – Upgrading Plan**

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)
Lift 1 C-3	2,689	956	1,800	7.50	30	10	1,080	7,748	20,719	370
Lift 2a C-3	3,327	441	1,500	7.50	20	10	1,050	3,469	6,223	560
Lift 2b C-3	3,048	745	1,200	7.50	15	10	900	5,032	14,447	350
Lift 3 C-4	3,383	819	1,350	7.50	0	15	1,148	7,050	9,985	710
Lift 3 – Mid Unload C-4	1,626	302	150	7.50	0	15	128	289	6,848	40
Lift 4 C-3	3,647	1,079	1,000	7.50	0	5	950	7,689	17,383	440
Lift 4 – Mid Unload C-3	2,489	797	400	7.50	30	5	260	1,555	17,046	90
Lift 5 C-3	3,753	112	1,800	7.50	100	0	-	0	1,072	-
Lift 6 C-2	3,304	651	1,200	7.50	0	10	1,080	5,270	11,455	460
Lift 7 C-2	1,084	152	1,200	7.50	0	15	1,020	1,163	2,502	460
Lift 8 C-4	3,639	862	1,500	7.00	0	5	1,425	8,594	14,979	570
Lift 9 C-4	4,820	1,241	1,200	6.50	0	5	1,140	9,195	18,350	500
Valley Carpet c	247	18	1,000	7.50	0	5	950	125	1,019	120
Platter s	2,045	508	900	7.00	0	15	765	2,721	19,450	140
Lift 10 C-3	3,689	969	1,000	6.50	0	10	900	5,670	17,385	330
Lift 11 C-3	710	105	1,800	7.00	0	10	1,620	1,196	4,200	280
Ridge Surface Lift	747	123	1,400	6.50	100	0	-	0	5,828	-
Valley Carpet 2 c	87	6	600	7.00	0	5	570	25	702	40
Valley Carpet 3 c	335	40	600	7.00	0	5	570	158	1,804	90
TOTAL	44,931		22,200				16,125	66,996		5,550

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 5-5:
Density Analysis – Upgrading Plan**

Map Ref.	Daily Lift Capacity	Guest Dispersal				Density Analysis				Density Index (%)
		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. (+/-)	
Lift 1 C-3	370	93	54	102	121	81.7	1	6	-5	17
Lift 2a C-3	560	140	35	116	269	23.5	11	16	-5	69
Lift 2b C-3	350	88	15	91	156	55.9	3	15	-12	20
Lift 3 C-4	710	178	77	144	311	34.0	9	11	-2	82
Lift 3 – Mid Unload C-4	40	10	2	8	20	9.0	2	16	-14	13
Lift 4 C-3	440	110	16	120	194	134.0	1	8	-7	13
Lift 4 – Mid Unload C-3	90	23	9	22	36	39.1	1	4	-3	25
Lift 6 C-2	460	115	18	125	202	71.7	3	11	-8	27
Lift 7 C-2	460	115	119	61	165	9.2	18	18	0	100
Lift 8 C-4	570	143	48	192	187	164.9	1	7	-6	14
Lift 9 C-4	500	125	19	204	152	278.5	1	3	-2	33
Valley Carpet c	120	48	16	33	23	1.6	15	30	-15	50
Platter s	140	56	13	33	38	8.4	5	7	-2	71
Lift 10 C-3	330	83	30	111	106	265.4	0	2	-2	0
Lift 11 C-3	280	70	54	38	118	6.3	19	18	1	106
Ridge Surface Lift	0	0	0	0	0	19.7	0	3	-3	0
Valley Carpet 2 c	40	10	10	7	13	0.7	19	30	-11	63
Valley Carpet 3 c	90	23	10	26	31	1.9	16	30	-14	53
TOTAL	5,550	1,430	545	1,433	2,142	1,205	6	11	-5	57

Source: SE Group

Table 5-5 shows that the existing overall density of six skiers-per-acre would be maintained, meaning that the existing uncrowded feel of the resort would remain. The planned teaching areas are sized to have a balance between trail and lift capacity, resulting in desirable densities.

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 fewest number of lifts possible, while maintaining desired CCC rates, circulation routes, and service to the full spectrum of ability levels and types.

a. Lift Network Efficiency

As discussed in Chapter 4, this MP analyzes Lift Network Efficiency by calculating the average CCC per lift. 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 existing average CCC per lift at Loveland is slightly below average at 549. As discussed, this is related to the number of lifts operated as well as the generally low hourly capacities of the lifts at Loveland. With the addition of the planned lifts, and only a small increase in CCC, this average would drop to 505. While there is a decrease in lift network efficiency resulting from the planned upgrades, it is not a significant decrease. Furthermore, a consequential benefit of the additional lifts is that circulation around Loveland would be significantly improved.

b. Terrain Network Efficiency

As discussed in Chapter 4, Terrain Network Efficiency refers to the amount of effort required to properly maintain a resort's terrain. From this standpoint, the most efficient scenario is to have a quantity of terrain that closely meets the target density requirements. As discussed in Chapter 4, an effective way to review terrain efficiency is to interpret the density analysis. Since the overall "Density Index" figure would effectively not change (an increase from 53% to 57%), it is reasonable that the terrain network efficiency would also not change.



E. SKIER SERVICES FACILITIES AND FOOD SERVICE SEATING

1. Skier Services Locations

Loveland would continue to function with both base area staging portals under the Upgrade Plan, although facilities at both base areas would be expanded and improved. Additionally the Upgrade Plan calls for expansion and upgrades to one existing on-mountain facility and the addition of one more on-mountain facility to meet guests' needs.

The architectural design of planned new and expanded structures would be subject to Forest Service review and approval during future project proposal (e.g. , NEPA). Loveland plans to develop an consistent architectural design theme for all of the planned facility improvements. The Forest Service will utilize the BEIG in any respective review of these facilities, as defined in Chapter 2 of this document.

a. Valley Base Area

The Valley Lodge Building is planned to be expanded and upgraded. Ideas currently include expanding the building to the extent of the current outdoor plaza space. An important aspect of the expansion is an increase in restaurant seating space, it will also accommodate all ski school employee and operational needs.

The Race Club building is planned to be expanded and remodeled.

Additionally, a play structure is planned to be constructed near the Valley base area. The "Mountain Kids Fort" would be a timber structure tucked into the tree island along the lower portion of the Lift 7 alignment and at the same elevation of the Valley carpet unload elevation. This play structure would be used in conjunction with the children's ski school and would have small snow features built in and around the structure.

b. Basin Base Area

The Basin base area is planned to be improved and expanded. One of the Basin Lodge decks is planned to be enclosed to add restaurant seating along with adding kitchen and storage space. Vehicle circulation directly adjacent to the lodge would be altered to improve delivery vehicle access, turn around, and additional parking.

c. On-Mountain Facilities

Two on-mountain projects are planned.

The first is an on-mountain full service food and beverage facility with restrooms within the extent of the ski terrain served by Lifts 1, 2, and 6 at the Basin. This facility will either be an

expansion/replacement of the Ptarmigan Roost facility or an entirely new facility in a different location, but still located within the extent of the ski terrain mentioned above. It is recommended that at full build out this facility would need 4,300 to 5,500 square feet of guest service space with approximately 250 restaurant seats.

Second is the addition of a small warming hut, grill deck, limited pre-packaged food service, and restroom facility within the ski terrain served by Lift 8. As noted in Chapter 4, the length of stay within the Lift 8 area is relatively short since skiers do not have direct access to a ski-in/ski-out guest service facility. The planned warming hut will create a destination with services that will allow skiers to stay at Lift 8 for a longer period of time. This would also serve skiers on the planned Lift 10.

2. Space Use Analysis

A 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 would be utilizing the lifts and terrain associated with each facility. Sufficient guest service space should be provided to accommodate Loveland's planned CCC of 5,550 guests per day.

The following tables and text address the Upgrade Plan space use needs at Loveland's planned 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. The tables show planned size ranges for the facilities, based on industry averages for space use by service function.

Expansions and upgrades are planned for both base areas, particularly in the area of food services.

The following tables show recommended ranges for the facilities.



**Table 5-6:
Industry Average Space Use
Basin Base Area – Recommended Upgrades**

Service Function	Existing Total	Recommended Range		Difference from Recommended	
		Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	1,460	900	1,100	560	360
Public Lockers	1,096	2,700	3,300	(1,604)	(2,204)
Rentals/Repair	3,025	6,390	7,190	(3,365)	(4,165)
Retail Sales	5,804	1,890	2,310	3,914	3,494
Bar/lounge	2,224	2,830	3,460	(606)	(1,236)
Adult Ski School	375	260	400	115	(25)
Kid's Ski School	0	800	980	(800)	(980)
Restaurant Seating	4,328	10,350	12,650	(6,022)	(8,322)
Kitchen/Scramble	4,272	3,250	3,970	1,022	302
Restrooms	3,240	1,920	2,350	1,320	890
Ski Patrol	3,044	1,180	1,450	1,864	1,594
Administration	4,707	1,570	1,920	3,137	2,787
Employee Lockers/Lounge	7,353	1,630	2,210	5,723	5,143
Mechanical	2,916	960	1,430	1,956	1,486
Storage	4,158	1,610	2,380	2,548	1,778
Circulation/Waste	1,470	3,850	5,710	(2,380)	(4,240)
TOTAL SQUARE FEET	49,472	42,090	52,810	7,382	(3,338)

Source: SE Group

Existing square footages are being compared to the recommended ranges (based on the planned CCC) to show the amount of space that would need to be added in order for the facilities to be in balance with the rest of the components of the upgrade plan.

**Table 5-7:
Industry Average Space Use
Valley Building – Recommended Upgrades**

Service Function	Existing Total	Recommended Range		Difference from Recommended	
		Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	130	350	430	(220)	(300)
Public Lockers	520	1,050	1,280	(530)	(760)
Rentals/Repair	3,230	3,960	4,610	(730)	(1,380)
Retail Sales	1,100	730	900	370	200
Bar/lounge	660	1,100	1,350	(440)	(690)
Adult Ski School	695	1,040	1,600	(345)	(905)
Kid's Ski School	1,350	3,200	3,910	(1,850)	(2,560)
Restaurant Seating	3,276	5,740	7,020	(2,464)	(3,744)
Kitchen/Scramble	1,820	1,810	2,210	10	(390)
Restrooms	1,476	1,070	1,300	406	176
Ski Patrol	1,400	660	800	740	600
Administration	140	1,050	1,280	(910)	(1,140)
Employee Lockers/Lounge	420	1,090	1,470	(670)	(1,050)
Mechanical	640	620	930	20	(290)
Storage	510	1,030	1,550	(520)	(1,040)
Circulation/Waste	933	2,470	3,720	(1,537)	(2,787)
TOTAL SQUARE FEET	18,300	26,970	34,360	(8,670)	(16,060)

Source: SE Group

Existing square footages are being compared to the recommended ranges (based on the planned CCC) to show the amount of space that would need to be added in order for the facilities to be in balance with the rest of the components of the upgrade plan.

As discussed above, a planned facility within the ski terrain of Lifts 1, 2, and 6, and a planned facility in the Lift 8 area would constitute Loveland's on-mountain guest service facilities with build-out of the Upgrade Plan.

The following table shows the planned size range and programming for the on-mountain facilities.



**Table 5-8:
Industry Average Space Use
On-Mountain Warming Huts – Recommended Upgrades**

Service Function	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	1,887	2,270	2,770	(383)	(883)
Kitchen/Scramble	-	710	870	(710)	(870)
Restrooms	200	420	510	(220)	(310)
Ski Patrol	120	260	320	(140)	(200)
Administration	-	-	-	-	-
Employee Lockers/Lounge	-	-	-	-	-
Mechanical	-	100	150	(100)	(150)
Storage	-	160	250	(160)	(250)
Circulation/Waste	-	400	590	(400)	(590)
TOTAL SQUARE FEET	2,207	4,320	5,460	(2,113)	(3,253)

Source: SE Group

Existing square footages are being compared to the recommended ranges (based on the planned CCC) to show the amount of space that would need to be added in order for the facilities to be in balance with the rest of the components of the upgrade plan.

**Table 5-9:
Industry Average Space Use
Resort Total – Recommended Upgrades**

Service Function	Existing Total	Recommended Range		Difference from Recommended	
		Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	1,590	1,250	1,530	340	60
Public Lockers	1,616	3,750	4,580	(2,134)	(2,964)
Rentals/Repair	6,255	10,350	11,800	(4,095)	(5,545)
Retail Sales	6,904	2,620	3,210	4,284	3,694
Bar/lounge	2,884	3,930	4,810	(1,046)	(1,926)
Adult Ski School	1,070	1,300	2,000	(230)	(930)
Kid's Ski School	1,350	4,000	4,890	(2,650)	(3,540)
Restaurant Seating	9,491	18,360	22,440	(8,869)	(12,949)
Kitchen/Scramble	6,092	5,770	7,050	322	(958)
Restrooms	4,916	3,410	4,160	1,506	756
Ski Patrol	4,564	2,100	2,570	2,464	1,994
Administration	4,847	2,620	3,200	2,227	1,647
Employee Lockers/Lounge	7,773	2,720	3,680	5,053	4,093
Mechanical	3,556	1,680	2,510	1,876	1,046
Storage	4,668	2,800	4,180	1,868	488
Circulation/Waste	2,403	6,720	10,020	(4,317)	(7,617)
TOTAL SQUARE FEET	69,979	73,380	92,630	(3,401)	(22,651)

Source: SE Group

Existing square footages are being compared to the recommended ranges (based on the planned CCC) to show the amount of space that would need to be added in order for the facilities to be in balance with the rest of the components of the upgrade plan.

As discussed, planned upgrades will focus primarily on direct guest-used space, particularly food services.

3. Food Service Seating

Food service seating would be provided in expanded seating at both base areas as well as the two planned on-mountain facilities.

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



**Table 5-10:
Recommended Restaurant Seating – Upgrade Plan**

	Valley Building	Basin Base Area	On-Mountain Facilities	Total Resort
Lunchtime Capacity (CCC + other guests)	1,823	3,285	720	5,828
Average Indoor Seat Turnover	3	3	3	3
Existing Indoor Seats	278	617	130	1,025
Required Seats	608	1,095	240	1,943
Difference	-330	-478	-110	-918

Source: SE Group

CCC + other guests is accounting for the non-skiing guests who come to Loveland with larger groups or families that use the guest service facilities just as the skiing guest does. Other guests are being calculated at 5% of CCC.

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 would 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. Restaurant seating should be supplied per the recommendations in the above table. As shown, a total of 1,943 seats would be required at the completion of the upgrade plan.

F. PARKING CAPACITY

Table 5-11 analyzes Loveland's day skier parking capacity and needs under the Upgrade Plan. Loveland has identified two areas that have the potential to create 160 new parking spaces.

- The area directly across from the Basin parking lot entry and south of Highway 6 has been identified as a planned parking lot that would have a capacity of approximately 135 cars.
- In conjunction with the delivery vehicle access and turn around improvements adjacent to the Basin Lodge, 25 parking spaces are planned to be added.

As described in Chapter 4, parking is positively affected by Loveland's Flex Ticket Program. As a result of this program, Loveland staff has observed spaces being vacated as early as 11 am. When this occurs parking staff refills those spaces. Loveland plans on continuing the Flex Ticket program and looks to get a higher utilization by actively marketing that lift ticket option. Considering the higher utilization, the upgrade plan parking analysis increases the turnover spaces to 200 from the 150 which were analyzed in Chapter 4.

Lowering the parking demand on peak days and spreading out the demand throughout the week is an important component to Loveland's operations. Along with the Flex Ticket, Loveland has a Midweek Season Pass and is considering additional weekday ticket offerings that have the potential to lower the demand for parking on weekends while spread that demand to the weekdays. Loveland plans to continue and improve the employee shuttle program while working with commercial bus service providers to reduce the demand for parking even more.

In addition, Loveland plans to implement various incentive programs to increase the average vehicle occupancy rate from an average of 2.1 guests per car to an average of 2.5 guests per car. These incentive programs could include preferred parking or discounts given to members of cars carrying three or more guests.

**Table 5-11:
Recommended Parking – Upgrade Plan**

	Total
CCC + other guests	5,828
No. of guests arriving by car (94%)	5,478
No. of guests arriving by charter bus (6%)	350
Required car parking spaces (2.5 guests per vehicle)	2,191
Required charter bus parking spaces	9
Equivalent car spaces (1 bus=4.5 car)	37
Required employee car parking spaces	120
Turnover parking spaces	200
Total required spaces	2,148
Total existing parking spaces	1,998
Total Planned parking spaces	160
surplus/deficit	10
Planned parking capacity	5,595

Note:

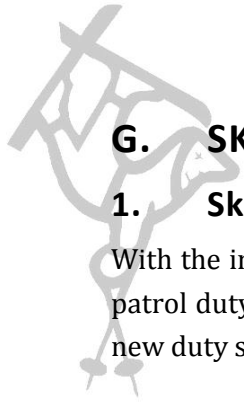
CCC+other guests is accounting for the non-skiing guests who come to Loveland with larger groups or families that use the guest service facilities just as the skiing guest does. Other guests are being calculated at 5% of CCC.

This table assumes an increased average vehicle occupancy of 2.5

Parking capacity = (parking spaces + turnover spaces – employee spaces)*2.5

Source: SE Group and Loveland Ski Area

The upgrade plan parking capacity analysis shows that with the expanded parking, accounting for additional turnover spaces, and the projected increase in average vehicle occupancy, Loveland would have a balanced parking scenario (surplus of 10 parking spaces) when compared to the planned CCC.



G. SKI AREA OPERATIONS

1. Ski Patrol/First Aid

With the introduction of lift-served skiing on *The Ridge* to the north and south of Lift 9, ski patrol duty stations would be established adjacent to the top terminals of these lifts. These new duty stations would provide full downhill ski patrol access to the expanded terrain.

2. Snowmaking Coverage

Snowmaking is planned to cover the new teaching terrain, about 11 acres of expansion to the current coverage, bringing the total to about 251 acres. No other specific areas are planned for expansion of snowmaking coverage.

The most important upgrade to the snowmaking system is to increase the storage capacity of the Valley and Basin reservoirs, and to add another water impoundment at the Basin (for locations, refer to Figure 11). As discussed in Chapter 4, the existing reservoirs do not provide adequate water storage to accommodate snowmaking during optimal conditions in the fall and early winter. Increasing the capacity of the reservoirs would significantly increase Loveland's ability to efficiently make snow and take advantage of optimal conditions.

3. Maintenance Facilities

No changes are proposed to the existing maintenance facilities. The increased groomed acreage is small enough that no additional grooming equipment would be required for slope maintenance.

4. Mountain Roads

Road access will be required to the bottom terminal of Lift 10 and both lift terminals of Lift 11. Similar to Lift 9, no road access, for construction or maintenance, would be required for the top terminal of Lift 10. All existing chairlifts can be accessed off the existing road network. In total, approximately 3,100 feet of new mountain road are planned to the bottom terminal of Lift 10 and 1,500 feet of roads for the installation of Lift 11.

New road segments are not planned for the installation of the planned Ridge surface lift. Materials for this lift installation will be brought in over the snow during the spring; access during the summer will be by foot, and additional materials will be flown in by helicopter.

5. Wastewater System and Water Supply

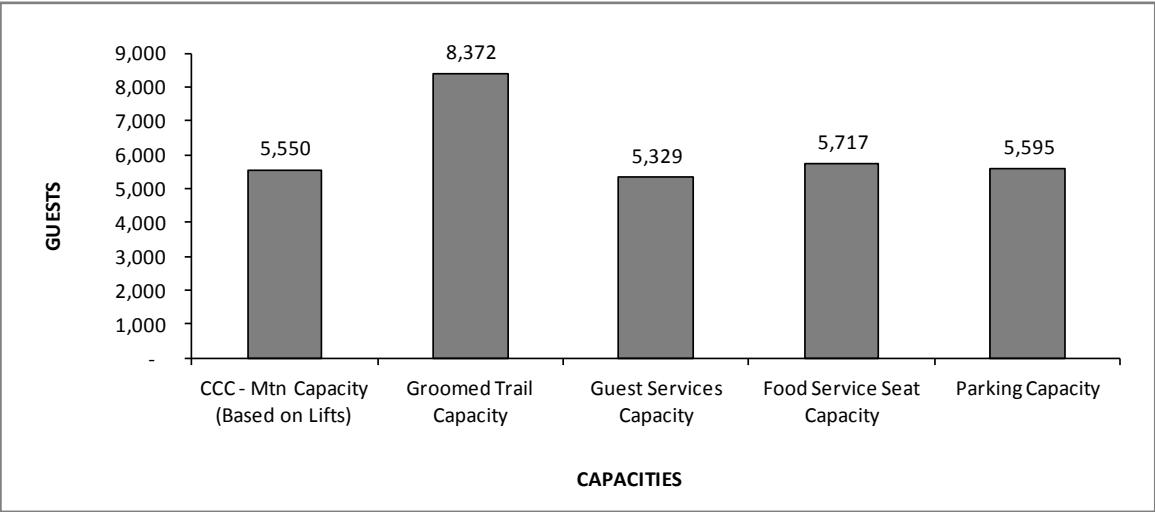
The existing wastewater system capacities are considered to be adequately sized to handle the planned upgrades and increased use. Wastewater processing infrastructure will be improved in the future as needed.

Loveland staff has expressed concerns related to the domestic water supply at the Basin due to the recent dry conditions. Loveland is looking into the potential for adding well(s) at the Basin to supplement the fresh water supply that comes from surface runoff out of Zip Basin.

H. RESORT CAPACITY BALANCE AND LIMITING FACTORS

The overall balance of the Upgrade Plan 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 5-2.

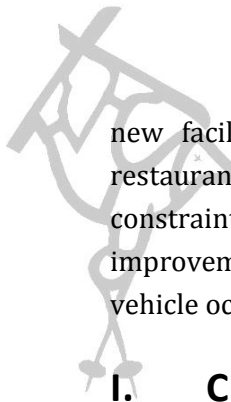
Chart 5-2:
Resort Balance – Upgrade Plan



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. Projects described in this Upgrade Plan for improvements to Loveland have been configured to match as best as possible the capacities of key resort operations, including lifts, terrain, guest services, food service seating, and parking with the resort CCC of 5,550 skiers.

As the above chart indicates, CCC would be increased slightly, and Alpine trail capacity would be increased commensurately. Food service capacity would be increased with the



new facilities and brought in line with CCC. The improvement of the on-mountain restaurant facilities would be a significant addition to the guest experience. Due to physical constraints, this MP increases parking capacity to the extent possible. Capacity improvements come from changes in parking demand and a projected increase in average vehicle occupancy

I. CONCLUSION

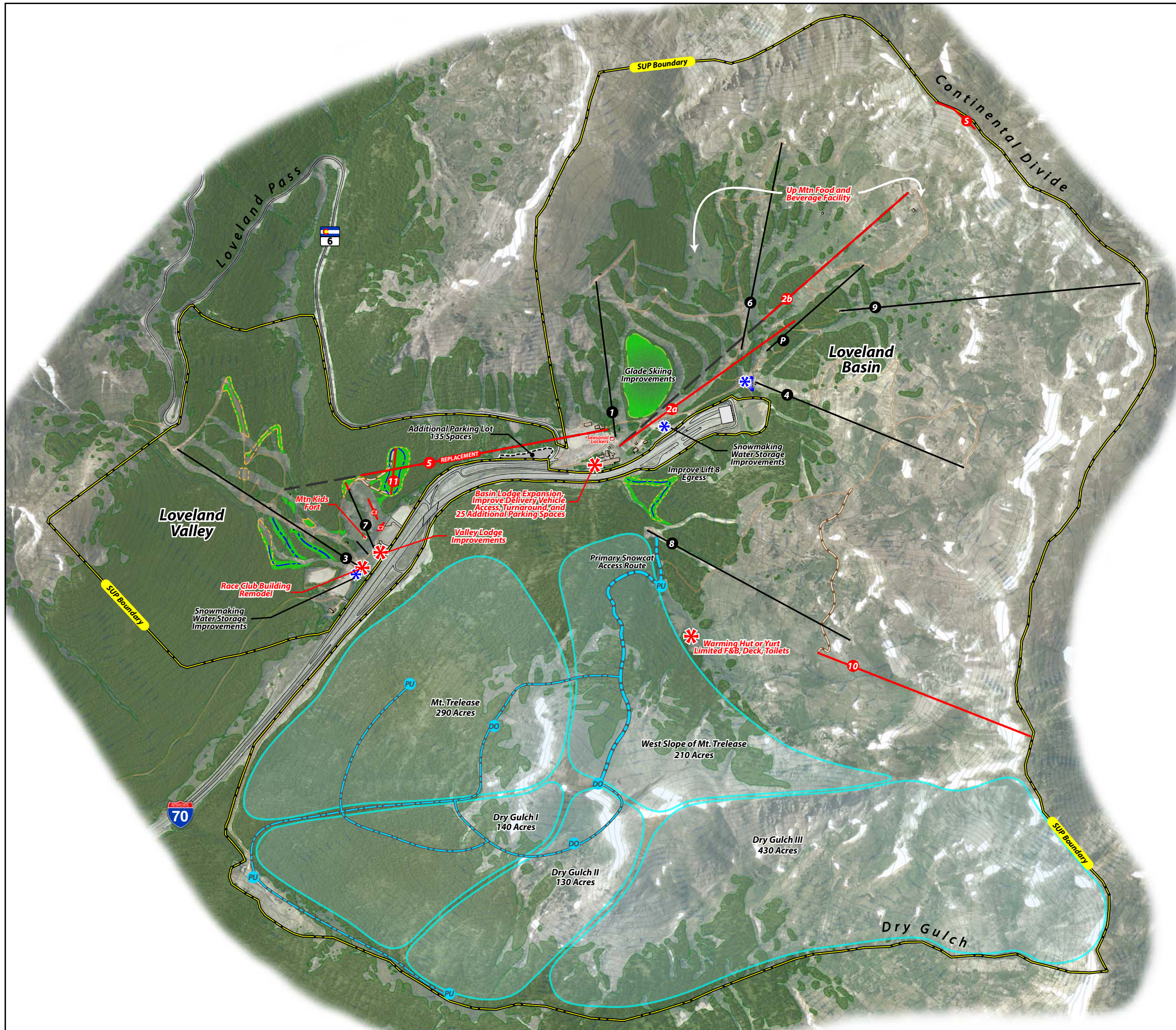
This Master Plan has been prepared in compliance with the terms and conditions of Loveland's Forest Service-issued 40-year Term SUP. As stated previously, Forest Service "acceptance" of this Master Plan does not convey "approval" of any projects contained herein. Implementation of any projects on NFS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



UPGRADE PLAN

2013 MASTER PLAN

FIGURE 11

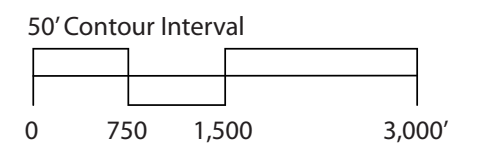


LEGEND

- | | |
|---|---|
| Existing Lifts | SUP Boundary |
| Planned Lifts | Existing Lifts 2 & 5 |
| Existing Trail | Mountain Access Roads |
| Planned Trail Improvements | Planned Mountain Access Road |
| Planned Trail Grading | Planned Facility Improvements |
| Guided Backcountry and Snowcat Tour Areas | Planned Snowmaking Water Storage Improvements |
| Snowcat Routes with Pick-Up and Drop-Off Points | |



North



Prepared by:

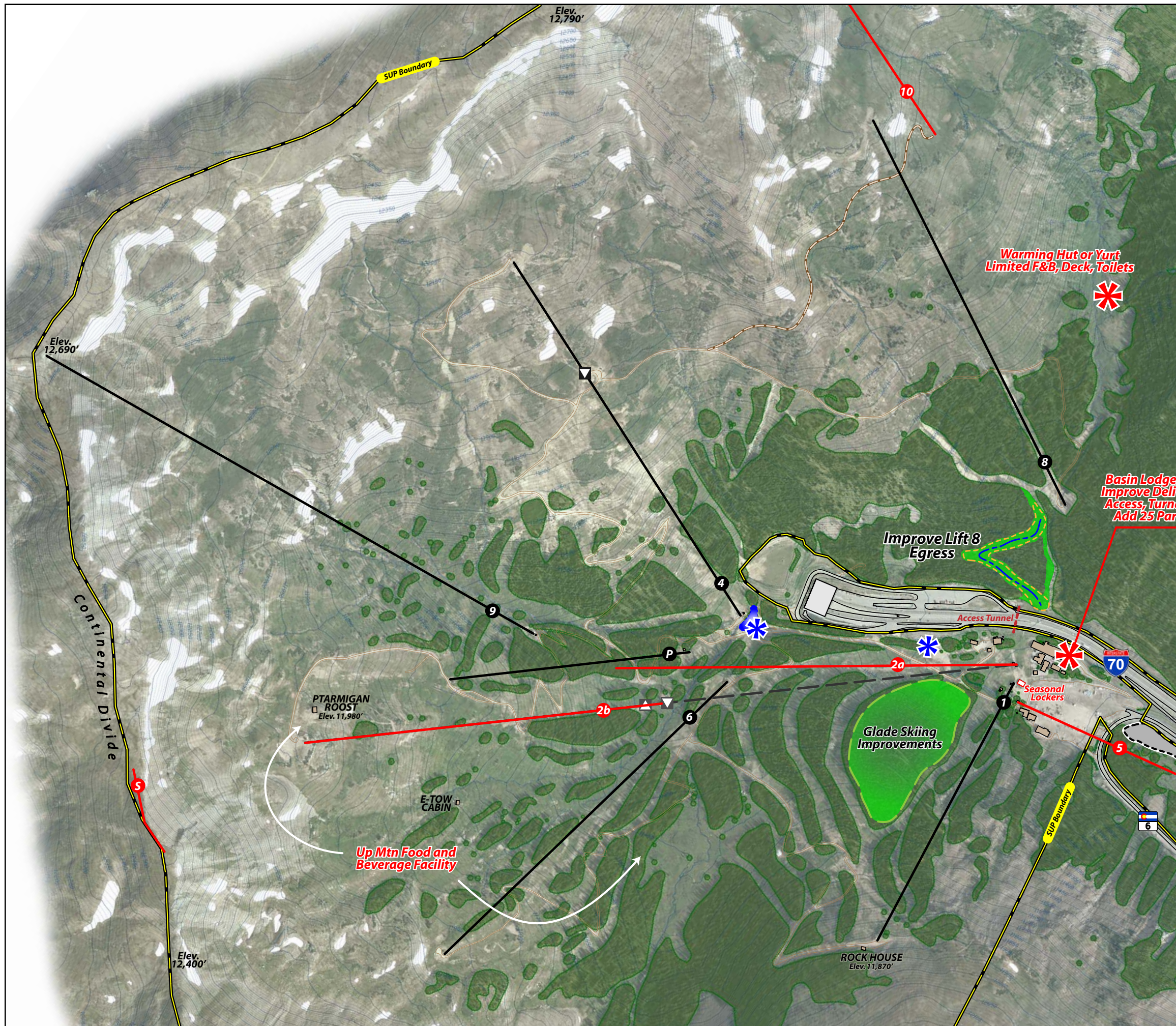




LOVELAND BASIN UPGRADE PLAN

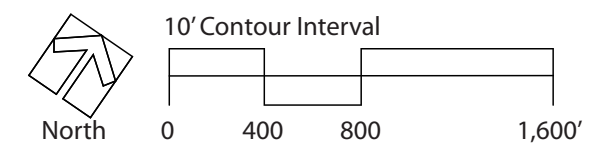
2013 MASTER PLAN

FIGURE 12



LEGEND

- | | |
|----------------------------|---|
| Existing Lifts | SUP Boundary |
| Lift with Mid Unload | Existing Lift 2 |
| Lift with Mid Unload | Mountain Access Roads |
| Planned Lifts | Planned Mountain Access Road |
| Existing Trail | Planned Facility Improvements |
| Planned Trail Improvements | Planned Snowmaking Water Storage Improvements |



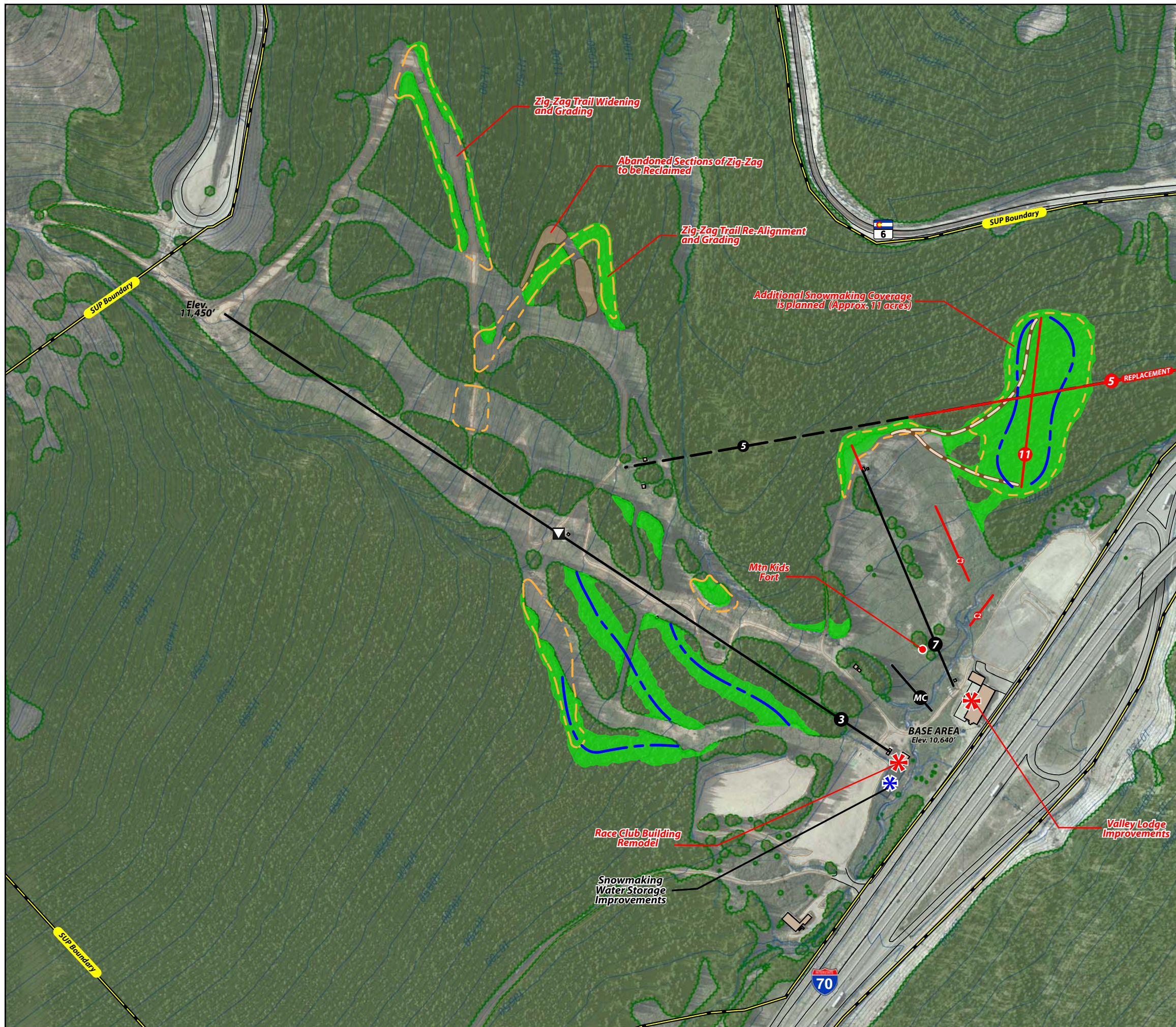
Prepared by:





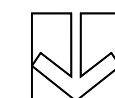
LOVELAND VALLEY UPGRADE PLAN

2013 MASTER PLAN FIGURE 13



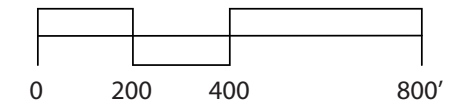
LEGEND

- | | |
|----------------------------|---|
| Existing Lifts | SUP Boundary |
| Lift with Mid Unload | Existing Lift 5 |
| Planned Lifts | Mountain Access Roads |
| Existing Trail | Planned Mountain Access Road |
| Planned Trail Improvements | Planned Facility Improvements |
| Planned Trail Grading | Planned Snowmaking Water Storage Improvements |



North

10' Contour Interval



Prepared by:



MOUNTAIN ROADS AND POWER NETWORK

2013 MASTER PLAN

FIGURE 14

