



MOUNT SUNAPEE

**MOUNT SUNAPEE
REVISED
FIVE-YEAR MASTER DEVELOPMENT PLAN 2016–2020**

DECEMBER 1, 2015

PREPARED BY:



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I. INTRODUCTION

1. Location

The ski lease area for Mount Sunapee Resort includes approximately 1,135 acres of forested and developed land on the slopes of Mount Sunapee, in Newbury and Goshen, New Hampshire (see Figure I-1 for a regional location map). Ranging from approximately 1,230 feet in elevation at the base of the ski slopes to 2,743 feet at the summit, forested natural communities follow a typical elevation derived transition from hardwood forests at the lower to mid-mountain slopes to sub-alpine spruce-fir forests at the summit. Mount Sunapee's slopes fall towards the southeastern shore of Lake Sunapee, while Lake Solitude, Mountain View Lake, and Rand Pond circle the mountain on the southwestern, northern, and western sides, respectively. Pillsbury State Park lies to the south. Nearby peaks include Bald Sunapee to the east, Goves Mountain to the south, Thompson and Chandler Hills to the west and Blueberry Mountain to the north.

Mount Sunapee is located on northeast, north, west and southeast slopes. The steepest slopes on the mountain are located in the North Peak area. Slopes are generally uniform below the ridgelines, with the steepest areas near the top and lowest grades at the bottom. The ski area is divided into four distinct areas by distinct sub-ridges: the Sunbowl area, the Sunapee area, the South Peak learning area, and the West Bowl area. This type of topography allows for a variety of developed and "off-piste" ski opportunities, though the distinct sub-ridges make connections between lift served "ski pods" complicated.¹ See Figure I-2 for a Slope Analysis.

The resort's distinct mountain peak affords exposures in many directions. Individual portions of developed runs have exposures to almost every aspect, but the majority of runs face north or northeast. Slope aspect plays an important role in snow quality and retention at this latitude. The variety of exposures present opportunities to provide a range of slope aspects that can respond to the changes in sun angle. The placement and location of snow features, such as half pipes and terrain parks, need to consider the effects of late season sun due to varying snow softening, melting and freezing depending upon sun exposure.

2. Land Ownership

Mount Sunapee Resort is located on lands owned by the State of New Hampshire and leased to CLP Mount Sunapee, LLC. CLP has sub-leased the ski area operations to The Sunapee Difference LLC d/b/a Mount Sunapee Resort. Additional lease information can be found in Appendix A which contains the Mount Sunapee Lease and Operating Agreement, the ski area leasehold map, a description of the leased premises and an inventory of the buildings at the ski resort.

The resort is located in both Merrimack and Sullivan counties with approximately 1,048 acres in the Town of Newbury in Merrimack County and 87 acres in the town of Goshen in Sullivan County. Mount Sunapee Resort privately owns a total of 656 acres of land along the

¹ *off-piste*: skiing which occurs in areas that are un-groomed and in a natural condition; *ski pod*: a collection of ski trails/runs served by a common chairlift.

summit ridgeline south of Mount Sunapee (towards Pillsbury), and on the western flank of the mountain which is called the West Bowl. The proposed expansion of the ski area into the West Bowl area would be located on both the private land and the state land.

3. Current Ski Area Data

Mount Sunapee's alpine ski area operations are operated by The Sunapee Difference LLC d/b/a Mount Sunapee Resort. Mount Sunapee is primarily a day-use resort, hosting the majority of its guests on weekends and during holiday periods.

Mount Sunapee currently has six aerial lifts, five surface lifts and sixty-six developed Alpine trails including glades (tree skiing areas). Snowmaking coverage is provided on approximately 207 acres of terrain. There is currently no night skiing at the resort. Support facilities include two base lodges – the Spruce and Sunapee Lodges, the Learning Center, the Ski and Snowboard Rental Shop, the Alpine Racing Competition Center, the on-mountain Summit Lodge and two maintenance facilities.

4. Purpose and Goals of the Master Development Plan

The Lease and Operating Agreement (the Agreement) originally dated April 30, 1998 between the State of New Hampshire and Okemo Mountain, Inc., which was assigned to The Sunapee Difference LLC d/b/a Mount Sunapee Resort as successor to the Okemo Limited Liability Company f/k/a Okemo Mountain, Inc., then to CNL Income Mount Sunapee, LLC on December 5, 2008 (CNL later changed that name to CLP Mount Sunapee, LLC), requires the Operator (The Sunapee Difference, LLC d/b/a Mount Sunapee Resort) to present a Master Development Plan (MDP) to the New Hampshire Department of Resources and Economic Development (DRED) for public notification, review and comment prior to DRED approval.

The MDP shall be submitted to DRED on or before June 1, 2000, and thereafter the MDP shall be revised and submitted every five (5) years. An Environmental Management Plan (EMP) shall be developed and submitted for approval to DRED in conjunction with the MDP. An Annual Operating Plan (AOP) shall be submitted on or before May 15 of each year.

This December 1, 2015 MDP is a revision of the 5-year MDP that was submitted to the DRED on June 1, 2014. As such, this MDP revises and replaces the June 1, 2014 MDP. This MDP will be in effect through May 30, 2020 with the next MDP due on June 1, 2020.

Mount Sunapee Resort presents this MDP to the State of New Hampshire in accordance with the terms of the Lease and Operating Agreement. It is also provided to the Towns of Newbury and Goshen, and other local communities in the Lake Sunapee region.

The MDP includes revised plans for expanding the ski trail network, construction of new lifts, construction and/or renovation of lodges or other facilities, expansion of snowmaking and additional withdrawals from Lake Sunapee, upgrades or modifications to infrastructure including power, water and sewage disposal systems, and other improvements for the recreational use of the leased premises. The

improvements completed to date, as well as those proposed in this current MDP, are part of an all-inclusive enhancement program aimed at creating and expanding the winter and summer recreational opportunities for the region at Mount Sunapee.

The many projects described in this MDP represent both short-term and long-term plans for maintaining and upgrading the facilities at Mount Sunapee. In this MDP, we offer our vision for maintaining the overall facilities at Mount Sunapee while also maintaining Mount Sunapee's appeal to our loyal guests and our competitive standing in the New England ski marketplace. Guests have high expectations of recreational facilities, and expect them to be well maintained and modern. In order for Mount Sunapee to remain competitive, continuous capital investment in ski area improvements is essential for attracting and maintaining a loyal customer base.

This document serves as a "road map" for future planning. It is a broad overview of the major projects proposed for Mount Sunapee. More detailed planning, engineering and permitting will be required prior to the implementation of many of the projects. Changes to the approved projects may occur in these final design and permitting stages which will be addressed in the AOP, and in accordance with the terms of the Lease and Operating Agreement. Minor projects, which are mostly routine maintenance projects or small projects which do not require local or state permits, which are not described in the MDP may be proposed and described in the AOP.

Mount Sunapee will work closely with the towns of Newbury and Goshen to further refine and develop these plans to the level of detail required for local planning board and site plan review approvals.

5. History of the Lease

Mount Sunapee Resort has seventeen (17) years of experience leasing state lands for recreational purposes and understands the public sensitivity that accompanies any proposal for improvements associated with public lands. Our planning philosophy is to work with our neighbors in preparing plans that not only respond to long-term business goals, but also to the broader issues of environmental suitability and the needs of the community.

Since the inception of our Lease and Operating Agreement on July 1, 1998, Mount Sunapee Resort has worked diligently to establish a reputation for providing a consistent, high quality recreational skiing experience. Over these 17 years, Mount Sunapee has earned this reputation, especially in regard to guest service, value, safety, family programs, and snowmaking and grooming expertise. In addition to the skiing experience, Mount Sunapee management has maintained a strong environmental philosophy with a specific emphasis on erosion prevention and sediment control, the protection of the Lake Sunapee watershed, and energy and water conservation. In the future, Mount Sunapee will continue to look for ways to conserve natural resources in all aspects of their business practices.

Since July 1, 1998, over \$21,000,000 has been invested in capital improvements at Mount Sunapee Resort.

Mount Sunapee pays the Department of Resources and Economic Development an annual base payment of \$150,000 adjusted annually for inflation and 3% of gross revenues from ski area operations. In the 17 years since the Lease and Operating Agreement with the State of

New Hampshire began in 1998, Mount Sunapee has paid approximately \$8,521,000 in lease payments to the State of New Hampshire. The average annual lease payment for the past five (5) years has been approximately \$601,000 per year.

In addition to our lease payment to the Department of Resources and Economic Development, Mount Sunapee pays many state and local taxes that benefit New Hampshire and our communities. Mount Sunapee has paid the Town of Newbury approximately \$2,325,000 in local property taxes, and has paid the Town of Goshen approximately \$275,000 in local property taxes over the 17 years of the lease. Prior to the 1998 lease agreement, the Towns of Newbury and Goshen received no local property tax payments from the ski area.

Mount Sunapee has paid the State of New Hampshire approximately \$2,004,000 in Rooms and Meals taxes since 1998, and has stimulated substantial additional Rooms & Meals tax revenues from the Lake Sunapee region for the benefit of the State's General Fund. Mount Sunapee has paid the State of New Hampshire approximately \$1,257,000 in Business Profits Taxes.

Mount Sunapee also provides significant financial support within our community. Our charitable giving emphasizes college education scholarships for students in our local schools, support for environmental education and support for the arts in our community. We are also supporters of our local hospital and medical facilities. Through our charitable donations, we have provided over \$700,000 in the Lake Sunapee Region in monetary charitable donations, primarily to non-profit organizations and students. In student scholarships alone, Mount Sunapee has given over \$412,000 in college scholarship awards in the past 17 years. During the same period, Mount Sunapee has also donated over \$475,000 in product donations (ski lift tickets) to charitable organizations for their fundraising efforts and events.

Additionally, Mount Sunapee is a strong economic engine in the region due to our annual employment and payroll, our annual business purchases and from ancillary spending by our guests in the community and region. Since 1998, Mount Sunapee has purchased over \$42,000,000 in goods and services in direct purchases from regional businesses, contractors and service providers.

Mount Sunapee has had an average annual payroll of approximately \$3,650,000 for the past five years as compared to a \$960,000 annual payroll in the last year of operation by the State of New Hampshire. The majority of this payroll is paid locally or regionally within the greater central New Hampshire region. The mountain currently has 34 full-time year-round employees compared to 16 full-time employees in 1997 prior to the lease of Mount Sunapee. With the addition of the summer Adventure Park, Mount Sunapee's annual payroll has increased and was approximately \$4,072,000 in 2014-15.

In addition to the direct economic benefits from Mount Sunapee and its guests, the resort is an economic driver that also indirectly helps other businesses and service providers in the Sunapee region by being a major attraction in our region. This generates additional employment in our area and region, and other taxable benefits to the State of New Hampshire's General Fund.

6. Project Summary

The Lease and Operating Agreement states: “Whereas, it is the desire of the State and the Operator that the development of summer and winter recreational opportunities continues at Mount Sunapee for the mutual benefit of the public and the Operator.” This MDP is designed to ensure that the State and Mount Sunapee realize their goals and objectives, as well as address the resort’s opportunities to improve its competitive standing. The MDP is also designed to produce a high quality recreational experience that is appealing to guests of all ages and ability levels. The plan respects the natural resources of the study area and incorporates key skier/snowboarder preferences.

Many of the capital improvement projects described in this MDP have been previously proposed in earlier MDPs from 2000, 2005 and 2009. DRED has previously approved many of those projects following their review of those earlier MDP submittals.

Due to various constraints such as financial resources, permitting, competitive positioning and realignment of priorities due to guest’s feedback, some of the approved projects have not been implemented to date. Most of these projects are still considered to be important improvements to Mount Sunapee, and it is expected that they will be implemented over the next five to ten years.

In the following sections, capital improvement projects at Mount Sunapee will be listed and described. The capital improvement projects that have been previously approved in earlier MDPs will be listed separately according to the previous MDP in which they were approved.

Capital improvement projects that are being proposed for DRED’s approval in this 2016-2020 MDP will follow in a separate listing.

As described above, there are two categories of improvements described in this MDP:

- I. Capital improvements that were previously approved in earlier MDP’s that have not yet been implemented:
 - A. Projects previously approved in the 2000 and 2005 MDP.
 - B. Projects previously approved in the 2009 MDP.

- II. Capital improvements that are proposed for DRED’s approval in this 2016-2020 MDP:
 - A. Projects proposed for approval within the current leasehold boundary.
 - B. Projects proposed for approval *outside* of the current leasehold boundary, the West Bowl Expansion.

Using the above outline as a reference, the following section lists projects that were approved by DRED in earlier MDPs.

I.) A.) Previously approved improvements from the 2000 and 2005 MDPs that are not yet implemented:

1. Construct the Upper Outer Ridge trail.
2. Construct two new trails between Upper Ridge and Lower Blast Off (New Ridge trail #68 and Outer Upper Ridge trail #67), and widen Outer Ridge.
3. Widen existing trails – Upper and Lower Blast Off, Pipeline, Jet Stream.
4. Install the Solitude chairlift (Lift K) from the base of the Sunbowl to the summit of North Peak (possibly by re-locating the existing North Peak Triple chair lift), and construct the Solitude ski trail (note: this lift and trail was formerly called the Cataract Lift and Cataract Run trail in the earlier MDPs).
5. Upgrade the North Peak Triple to a four passenger quad chair (possibly by re-locating the existing Sunbowl Quad chair lift).
6. Upgrade Spruce Triple to a quad chair.
7. Remove Duckling Double chair.
8. Add night lighting to the South Peak, Spruce Peak, and North Peak trails.
9. Construct Phases II and III of the Sunapee Lodge.
10. Expand the New England Healing Sports Association (NEHSA) building adjacent to the Sunapee Lodge.
11. Renovate and expand the Spruce Lodge.
12. Renovate and expand the Summit Lodge.
13. Add snowmaking to Williamson and Paradise ski trails.
14. Expand existing spray field disposal lines.
15. Construct new Parking Lot #4.
16. Install snow tubing runs (location to be determined).

I.) B.) Previously approved improvements from a previous MDP (2009) that are not yet implemented:

1. Widen the Williamson and Stovepipe trails.
2. Construct a new trail in the South Peak area with snowmaking.²
3. Create a new trail and terrain park area between Pipeline and Elliot Slope along the old T-Bar line.
4. Widen and extend the Paradise ski trail.
5. Add snowmaking on a winter work road from the Sunbowl for winter maintenance vehicles.

² “Create new skiing area at South Peak” was proposed and approved as part of the 2005–2009 MDP. Item #3 is more specific to this earlier proposal.

Mount Sunapee is seeking DRED's approval for the following capital improvement projects in this 2016-2020 MDP:

II.) A.) Projects that are proposed for approval *within* the existing leasehold boundary:

1. Upgrade the Sunapee Express Quad to a Six-Passenger Express chairlift.
2. Install a Mountain Coaster in the woods between the Lynx ski trail and the Hansen-Chase ski trail.
3. Construct an express quad chairlift with ski trails and snowmaking equipment within the existing leasehold boundary that will continue downhill to the private lands that will create the West Bowl ski area expansion.

II.) B.) Projects that are proposed for approval *outside* the existing leasehold boundary, *the West Bowl ski area expansion*:

1. Install a 5,100' high-speed express quad chairlift.
2. Install a moving carpet/beginner lift.
3. Construct approximately 56 acres of new ski terrain including four (4) top-to-bottom ski trails with snowmaking.
4. Construct a new base lodge facility with skier services-guest services.
5. Construct new parking areas.
6. Install utilities and infrastructure (i.e., roads, power, water, wastewater, etc., as required).

II.) C.) Other infrastructure improvements:

1. Power upgrades when needed.
2. Snowmaking infrastructure improvements.
3. Other utility and maintenance infrastructure improvements.
4. Upgrades to the existing utility and maintenance infrastructure to support the above master plan projects.

Below is a broad overview and description of some of the future capital improvement projects planned at Mount Sunapee:

- Several existing chairlifts will be upgraded within the current leasehold and have been previously approved:
 - The existing chairlift line on which the North Peak Triple is currently installed may be upgraded to a quad chairlift to improve its uphill capacity from the base area (approved in the 2000 MDP.)
 - The existing triple chairlift, now known as the North Peak Triple, may be relocated and aligned from the base of the Sunbowl area to the summit of North Peak. This chairlift is referred to as the Solitude Triple chair lift and designated as Lift

K in this MDP. This specific chair lift line was originally proposed by the State of NH in 1962. It would allow for a new ski trail under the lift line and provide additional access to the North Peak terrain (it was formerly called the Cataract Triple when it was proposed and approved in the 2005 MDP).

- The existing Spruce Peak Triple chairlift may be upgraded to a quad chairlift (approved in the 2000 MDP).
- Upgrade the existing Sunapee Express Quad chairlift to the Sunapee Express Six chairlift (6 passenger chairlift).
- To complement Mount Sunapee's existing lift and trail network, Mount Sunapee proposes to develop the West Bowl expansion ski terrain by constructing new ski trails and add two new lift installations: a 5,100' +/- high-speed express quad and a 250' +/- surface moving carpet/beginner lift. In addition, a new day lodge facility with skier services and a parking lot will be constructed at the base of the West Bowl expansion ski trails.
- As a result of the West Bowl expansion, Mount Sunapee's Comfortable Carrying Capacity (CCC) will increase by 1,250 guests from 5,130 guests to 6,380 guests, an increase of 24% in area capacity. Other improvements within the existing leasehold area would add additional CCC capacity for a total CCC at full build-out of 6,850 guests.
- Mount Sunapee's terrain upgrading/expansion program is designed to increase the utilization of the existing resort, in addition to opening the West Bowl terrain. The West Bowl area will provide new cruising terrain for intermediate to advanced skiers.
- In addition to the West Bowl ski trail expansion, a few new trails will be built in the existing lease area to increase ski terrain for intermediate to advanced skiers. The acreage of all proposed new ski trails (including glades) in both the West Bowl and in the current leasehold will increase Mount Sunapee's skiable acreage by approximately 105 acres – from 233 acres to 338 acres.
- Guest service facilities and other mountain operations (i.e., ski patrol, first aid, snowmaking, grooming, maintenance, etc.) will receive expansions with anticipated increases in capacity. This will include renovations to the Spruce Lodge and the Summit Lodge.

The Sunapee Lodge was designed so that it could be expanded with the construction of Phases II and III in the future.

The NEHSA building was originally constructed in 1991, and is undersized for the organization's needs. The NEHSA building may be expanded in its current location, or by including it in one of the expansion phases of the Sunapee Lodge.

- Parking areas will be created at the existing base area (Parking Lot #4) and at the West Bowl base.
- Infrastructure improvements may include the expansion of existing spray field disposal lines.
- Ski patrol, snowmaking, and grooming operations may be expanded to facilitate expanded operations at the recreational facility.
- Additional winter recreational amenities such as snow tubing in winter.
- Additional summer and winter amenities such as the Mountain Coaster.

7. West Bowl Expansion

As a major component of this revised MDP, Mount Sunapee Resort asks the Department of Resources and Economic Development and the State of New Hampshire to approve our request for an expansion of our ski area leasehold by approximately 150 acres from the current 1,132 acres to approximately 1,282 acres. The purpose of the additional acreage is for the development of the “West Bowl” ski pod which is described in detail in this MDP. The main features of the West Bowl will be a high-speed quad chairlift and an associated fifty-six (56) acres of new ski terrain developed on the western slope of Mount Sunapee.

In relation to the requested expansion, it should be noted that in the Request for Proposals issued by DRED on January 15, 1998, in Section 4.1, the following sentence was instructive for all prospective applicants.

“IV. PROPOSAL CONTENTS

4.1 Introduction

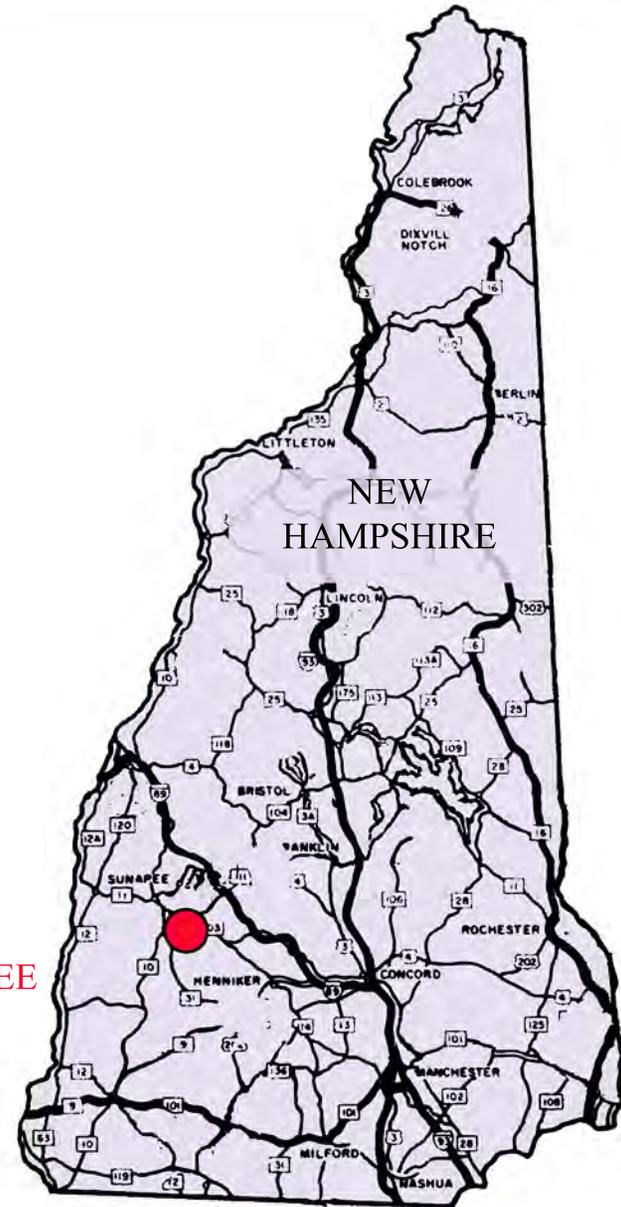
Each proposal must respond to the requirements of the RFP by offering to provide ski area management and operational services at the ski area by stating information about the operator’s financial standing, staff and resources, ski operational experience, *its proposal for the development and expansion of the Mount Sunapee Ski Area*, and its payment proposal.” (note: emphasis added by Mount Sunapee)

In our proposal to the State of New Hampshire and the Department of Resources and Economic Development’s RFP in 1998, we were clear about our intention to expand the Mount Sunapee Ski Area and described expansion possibilities in our proposal. More specifically, we described adding a third major chairlift that would serve upper elevation skiing with an additional and significant new ski trail complex. The western side of Mount Sunapee, called the West Bowl Expansion lands area, is the only area on Mount Sunapee on which an expansion of the ski area boundary is planned.

Figure I-1: Location Map



MOUNT SUNAPEE
RESORT



Title
Location Map

Figure Number:
I-1

Project Number: 09033/001

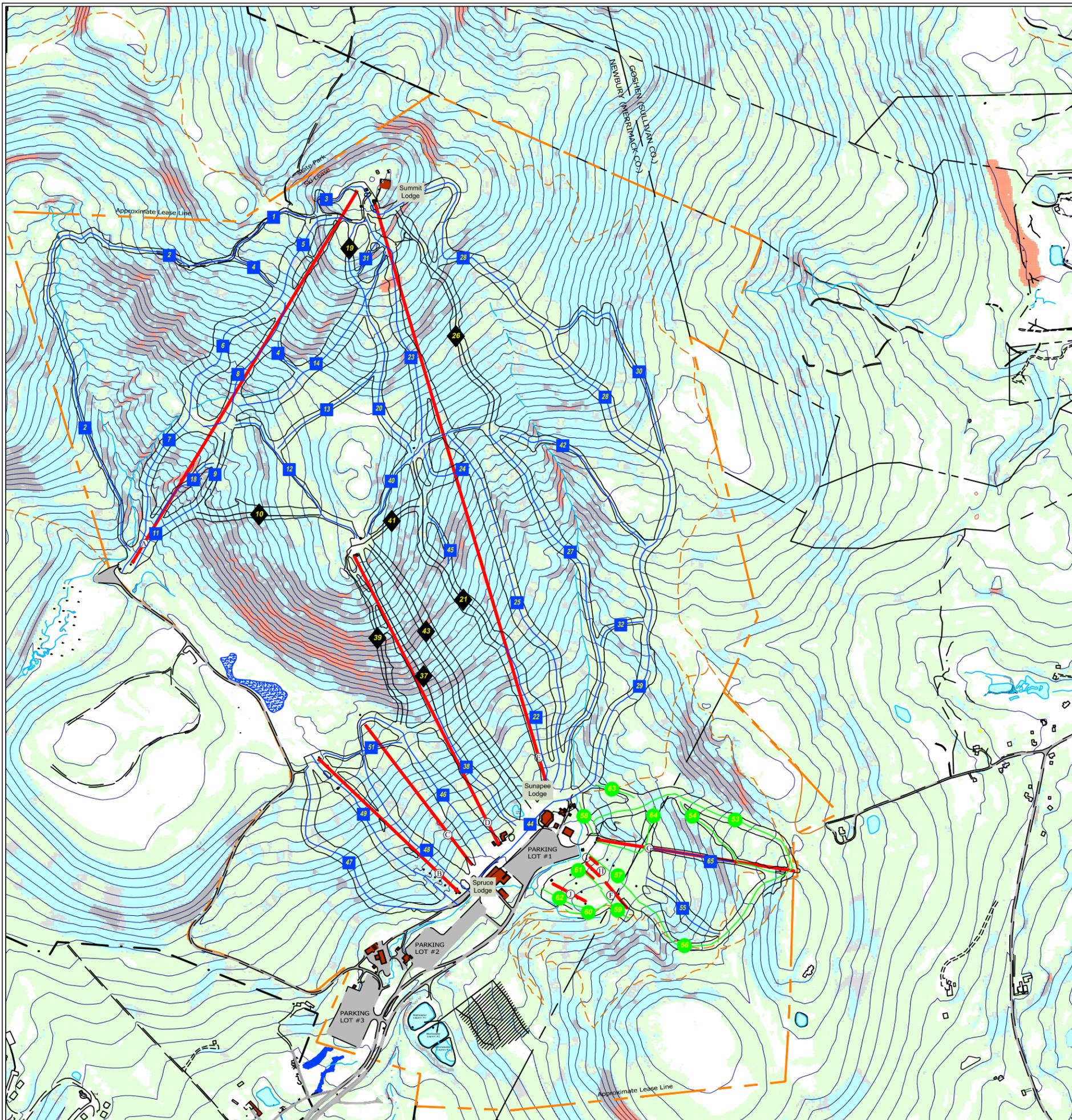
Date: 12/01/2015



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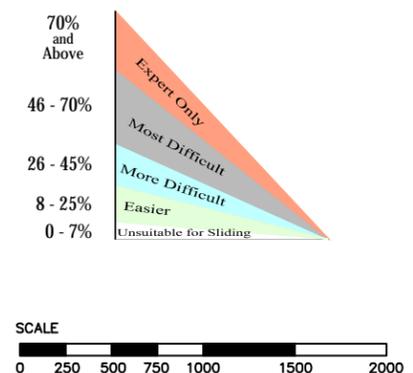
MOUNT SUNAPEE

Figure I-2: Slope Analysis



LEGEND

-  EXISTING CONTOURS -25ft. Interval
-  EXISTING STREAMS & WETLANDS
-  EXISTING LAKES & PONDS
-  EXISTING ROADS AND PARKING
-  EXISTING BUILDINGS
-  EXISTING VEGETATION AND RUNS
-  EXISTING LIFTS
-  APPROX. LEASE BOUNDARY



Title
Slope Analysis

Figure Number:
I-2

Project Number: 09033/001
File: M Slope Analysis .dwg



Scale: 1"=1000' North

Date: 12/01/2015

Drawn By: MJL

Checked By: CLH




II. EXISTING SKI RESORT FACILITIES

The following section contains an examination and analysis of the existing ski facilities at Mount Sunapee. The resort inventory is the first step in the evaluation process and involves the collection of data pertaining to Mount Sunapee's existing facilities. This inventory includes ski lifts, ski trails, the snowmaking system, grooming capabilities, base area structures, skier services and day-use parking. The analysis of the inventory data involves the application of ski industry standards to Mount Sunapee's existing conditions. This process allows for the comparison of Mount Sunapee's existing ski facilities to those facilities commonly found at other North American ski resorts of similar size and composition.

The overall balance of the existing ski area is evaluated by calculating the skier capacities of Mount Sunapee's various facility components and then comparing these capacities to the ski area's Comfortable Carrying Capacity (CCC). Mount Sunapee's current CCC is described and detailed in the following sections.

This examination of capacities helps to identify the ski resort's strengths and weaknesses. The next step is to identify improvements that would help bring the existing ski area into better equilibrium, and would help the resort meet the ever-changing needs of their skier marketplace. Accomplishing both of these objectives would ultimately enhance Mount Sunapee's competitive positioning and financial performance.

A. LIFTS

Mount Sunapee's lift network currently consists of two high-speed express quad chairlifts; one fixed-grip quad chair; two fixed-grip triple chairs; one fixed-grip double chair, and five surface lifts.

Specifications for the existing lifts are set forth in the following table.

**TABLE II-1:
SKI LIFT SPECIFICATIONS – EXISTING CONDITIONS**

Map Ref.	Lift Name and Type	Vert. Rise	Slope Length	Avg. Grade	Hourly Capacity	Speed	Carrier Spacing	Lift Maker/ Year Installed
		(ft.)	(ft.)	(%)	(persons/hr.)	(fpm)	(ft.)	
A	Sunbowl Quad/DC4	1,058	4,292	26%	2,400	1,000	100	Poma/1992/2014
B	Spruce Triple/C3	417	1,940	23%	1,600	425	48	Doppelmayr/1985
C	Duckling Double/C2	385	1,743	23%	900	390	52	Roebbing/1962
D	North Peak Triple/C3	965	3,254	31%	1,800	450	45	Doppelmayr/1987
E	Sunapee Express/DC4	1,402	6,056	24%	2,650	1,100	86	Poma/1998
F	Piggyback/Handle Tow	34	300	14%	400	200	30	Borer/1994
G	Clipper Ship Quad/C4	374	1,814	19%	1,600	425	64	Poma/2000
H	Kinder/Rope Tow	30	200	13%	250	100	24	Bruckschlogl/1997
I	Little Carpet/Carpet	8	90	9%	400	50	8	Bruckschlogl/2000
J	Flying Carpet/Carpet	48	360	17%	800	100	8	Bruckschlogl/2002
L	Middle Carpet/Carpet	16	130	13%	800	100	8	Bruckschlogl/2010

Mount Sunapee’s existing lifts service the terrain efficiently and are generally newer lifts. The lifts have been well maintained and are in good working order. The oldest lift at Mount Sunapee is the Duckling Double which was installed in 1962, and will need to be removed or replaced sometime in the future.

Other issues include the need for a lift to transport skiers from the base of the Sunbowl Quad to the top of the North Peak area to enable more efficient circulation between the parts of the mountain.

B. SKI TERRAIN

The existing developed ski terrain network at Mount Sunapee covers approximately 216 acres, with an additional approximately 17 acres of gladed terrain for a total of 233 acres of skiing. The maximum vertical drop of the ski trail network is approximately 1,510 feet as measured from the summit of the mountain to the bottom of the Spruce Triple chair lift.

The sanctioned ski trail network accommodates the entire range of skier ability levels, from beginner to expert. The following table outlines the terrain that constitutes Mount Sunapee’s formal ski trail network.

**TABLE II-2:
TERRAIN SPECIFICATIONS – EXISTING CONDITIONS**

Map Ref.	Trail Name	Vertical Drop	Slope Length	Avg. Width	Area	Avg. Grade	Max. Grade	Skier/Rider Ability Level
		(ft.)	(ft.)	(ft.)	(acres)	(%)	(%)	
42	Beck Brook	261	1,928	66	2.9	14%	30%	Low Intermediate
23	Bonanza	548	2,365	133	7.2	24%	38%	Intermediate
45	By Way	114	526	51	0.6	22%	28%	Low Intermediate
55	Calypso	168	945	108	2.3	18%	29%	Low Intermediate
21	Chase Ledges	462	2,109	107	5.2	23%	43%	Advanced Intermediate
25	Chipmunk	774	3,817	112	9.8	21%	29%	Low Intermediate
57	Coconut Grove	67	564	257	3.3	12%	17%	Novice
13	Eastside	226	1,239	79	2.2	19%	28%	Low Intermediate
46	Eggbeater	385	1,911	175	7.7	21%	32%	Low Intermediate
47	Elliot Slope	412	2,413	116	6.4	17%	35%	Intermediate
55	Explorer	300	2,152	101	5.0	14%	25%	Novice
58	Fin	15	355	74	0.6	4%	8%	Novice
62	Flip Flop	67	498	221	2.5	14%	18%	Novice
44	Fly Way	49	1,083	193	4.8	5%	10%	Low Intermediate
12	Fox Run	208	1,731	43	1.7	12%	27%	Low Intermediate
39	Goose Bumps	625	1,944	74	3.3	34%	53%	Expert
51	Guster	80	795	44	0.8	10%	13%	Low Intermediate
22	Hansen Chase	369	1,595	152	5.6	24%	31%	Low Intermediate
48	Jet Stream	395	2,115	143	7.0	19%	34%	Intermediate
18	Kartwheel	236	888	72	1.5	28%	39%	Intermediate
24	Kick Back	142	649	117	1.7	23%	29%	Low Intermediate
59	Lemon	50	401	121	1.1	13%	15%	Novice
8	Lift Line	405	1,583	134	4.9	27%	35%	Intermediate
60	Lime	37	432	41	0.4	9%	13%	Novice
27	Lower Blast Off	715	3,993	90	8.3	18%	33%	Intermediate
11	Lower Cataract	200	903	105	2.2	23%	36%	Intermediate
4	Lower Crossover	52	351	51	0.4	15%	25%	Low Intermediate
38	Lower Flying Goose	345	1,388	123	3.9	26%	35%	Intermediate
29	Lower Ridge	455	3,054	115	8.1	15%	24%	Low Intermediate
7	Lower Wingding	331	1,735	116	4.6	20%	33%	Intermediate
43	Lynx	929	3,151	134	9.7	31%	47%	Advanced Intermediate
6	Middle Wingding	363	1,462	176	5.9	26%	40%	Intermediate

**TABLE II-2:
TERRAIN SPECIFICATIONS – EXISTING CONDITIONS**

Map Ref.	Trail Name	Vertical Drop	Slope Length	Avg. Width	Area	Avg. Grade	Max. Grade	Skier/Rider Ability Level
		(ft.)	(ft.)	(ft.)	(acres)	(%)	(%)	
31	Old Goat	48	359	37	0.3	14%	25%	Low Intermediate
30	Outer Ridge	335	2,120	56	2.7	16%	31%	Low Intermediate
54	Paradise	162	1,195	59	1.6	14%	19%	Novice
49	Pipeline	420	2,108	176	8.5	20%	31%	Low Intermediate
3	Porky's	78	556	48	0.6	14%	36%	Intermediate
32	Portage	99	543	57	0.7	19%	26%	Low Intermediate
61	Promenade	43	327	148	1.1	13%	17%	Novice
	Little Carpet	28	168	120	1.5	10%	10%	Beginner
53	Province	363	2,286	110	5.8	16%	28%	Novice
19	Skyway Ledges	197	1,006	80	1.9	20%	37%	Intermediate
14	Skyway	543	2,250	124	5.9	25%	37%	Intermediate
64	Smooth Sail'n	130	930	118	2.4	14%	22%	Novice
65	Spinnaker	215	823	49	0.9	27%	36%	Intermediate
1	Stovepipe	132	929	43	0.9	14%	27%	Low Intermediate
9	Sundance	149	794	107	1.9	19%	29%	Low Intermediate
63	Sunnyside Down	38	396	55	0.5	10%	18%	Novice
40	Toboggan Chute	185	1,660	58	2.2	11%	21%	Low Intermediate
26	Upper Blast Off	619	2,486	93	5.3	26%	38%	Advanced Intermediate
10	Upper Cataract	338	1,235	118	3.3	29%	39%	Advanced Intermediate
4	Upper Crossover	46	480	37	0.4	10%	11%	Low Intermediate
37	Upper Flying Goose	601	1,815	140	5.8	35%	43%	Advanced Intermediate
41	Upper Hansen Chase	153	793	90	1.6	20%	31%	Advanced Intermediate
28	Upper Ridge	940	5,875	108	14.5	16%	31%	Low Intermediate
5	Upper Wingding	324	1,377	141	4.4	24%	32%	Intermediate
20	West Side	330	1,564	97	3.5	22%	37%	Intermediate
2	Williamson Trail	800	5,071	54	6.3	16%	24%	Low Intermediate
TOTAL			89,221		216.1			

Overall, the trail network is fairly well balanced and efficient. There are good opportunities to increase intermediate level terrain in the area of the Ridge ski trails on the main mountain.

The following table and chart illustrate the distribution of terrain by skier ability level for the developed trail network. These exhibits show that the trail network at Mount Sunapee accommodates a wide range of skier ability levels from beginner to expert. The terrain distribution figures also indicate a shortage of Beginner, Intermediate, Advanced Intermediate, and Expert terrain, and a surplus of Novice and Low Intermediate terrain. The significant surplus of Low Intermediate terrain skews the rest of the percentages. The shortage of expert terrain is mitigated by the existing gladed areas. Note that this table is not a CCC analysis, but a terrain distribution by ability level analysis.

**TABLE II-3:
TERRAIN DISTRIBUTION BY ABILITY LEVEL – EXISTING CONDITIONS**

Skier/Rider Ability Level	Trail Area	Skier/Rider Capacity	Skier/Rider Distribution	Skier/Rider Market
	(acres)	(guests)	(%)	(%)
Beginner	1.5	45	2%	5%
Novice	24.5	441	17%	15%
Low Intermediate	86.4	1,224	46%	25%
Intermediate	69.5	696	26.5%	35%
Adv. Intermediate	30.9	216	8%	15%
Expert	3.3	10	0.5%	5%
TOTAL	216.1	2,632	100%	100%

**CHART II-1:
TERRAIN DISTRIBUTION BY ABILITY LEVEL – EXISTING CONDITIONS**

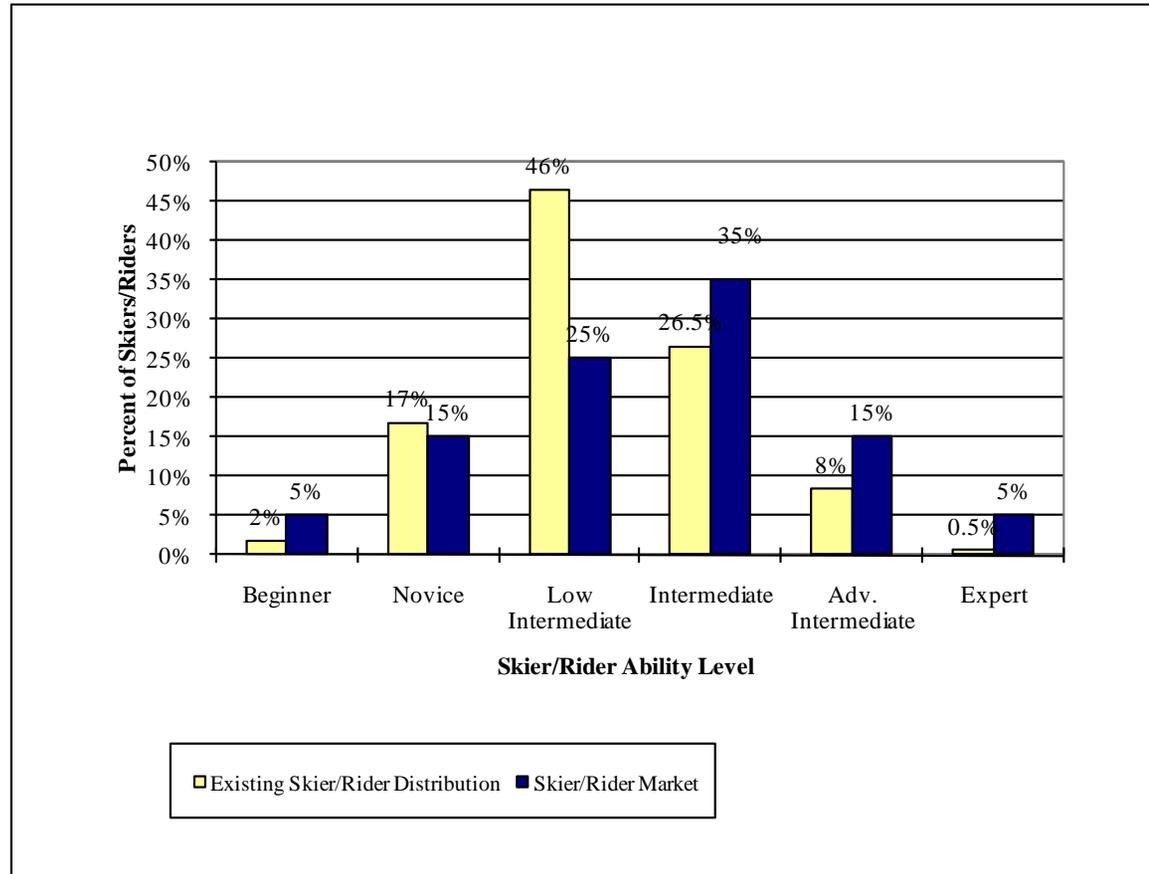
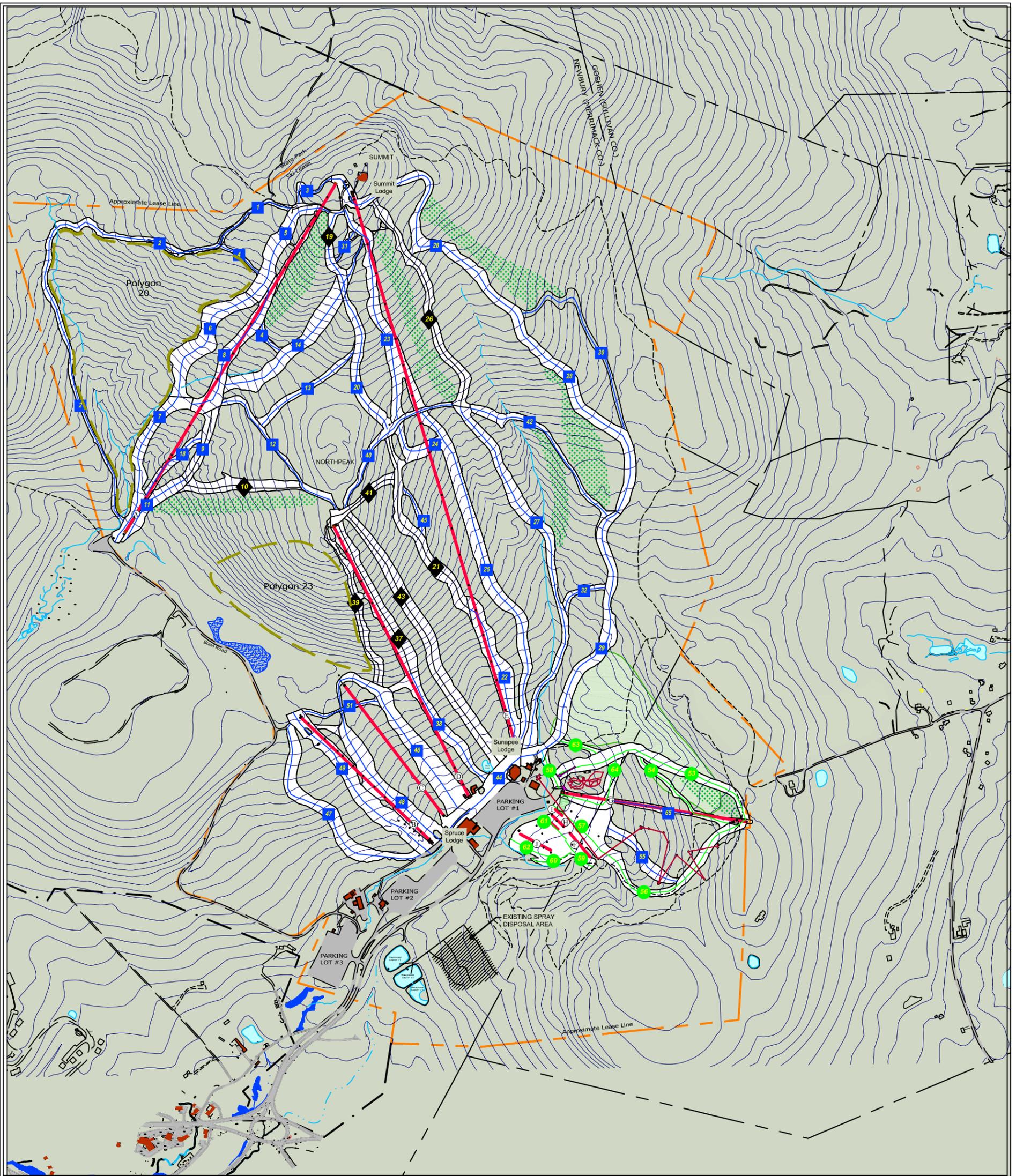
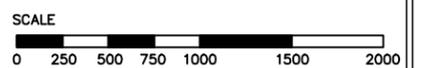


Figure II-1: Existing Conditions



LEGEND

- | | | | |
|---|-----------------------------------|---|------------------------|
|  | EXISTING CONTOURS -25ft. Interval |  | EXISTING GLADES |
|  | EXISTING STREAMS & WETLANDS |  | EXISTING LIFTS |
|  | EXISTING LAKES & PONDS |  | APPROX. LEASE BOUNDARY |
|  | EXISTING ROADS AND PARKING |  | HIKING TRAIL |
|  | EXISTING BUILDINGS | | |
|  | EXISTING VEGETATION AND RUNS | | |



Title
Existing Conditions

Figure Number:
II-1

Project Number: 09033/001
File: M Existing Conditions .dwg



Scale: 1"=1000' North
Date: 12/01/2015
Drawn By: MJL
Checked By: CLH



C. COMFORTABLE CARRYING CAPACITY

The daily carrying capacity of a resort is described as the Comfortable Carrying Capacity (CCC). CCC is not a cap on visitation, but is rather a design standard defined as the number of daily visitors a resort can comfortably or efficiently accommodate at one time without overburdening the resort infrastructure.

In essence, CCC is a guest attendance level that can be serviced by the resort while operations remain optimally functional. The CCC 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). The CCC is calculated by dividing vertical supply (expressed as VTF/Day in Table II-4) by Vertical Demand.

The accurate estimation of a ski area’s CCC is a complex issue and is the single most important planning criterion for the ski area. All other related skier service facilities can be planned based upon the proper identification of the mountain’s capacity. The calculation of Mount Sunapee’s CCC is described in the following table.

**TABLE II-4:
CALCULATION OF COMFORTABLE CARRYING CAPACITY – EXISTING CONDITIONS**

Map Ref.	Lift Name and Type	Slope Length	Vert. Rise	Hourly Capacity	Oper. Hours	Access Role.	Misloading Stopping	Adjusted Hrly. Cap.	VTF/Day	Vertical Demand	CCC
		(ft.)	(ft.)	(persons/hr.)	(hrs.)	(%)	(%)	(persons/hr.)	(000)	(ft./day)	(guests)
A	Sunbowl Quad/DC4	4,292	1,058	2,400	7.00	5	10	2,040	15,108	13,467	1,120
B	Spruce Triple/C3	1,940	417	1,600	7.00	0	10	1,440	4,203	7,402	570
C	Duckling Double/C2	1,743	385	900	7.00	0	10	810	2,183	7,102	310
D	North Peak Triple/C3	3,254	965	1,800	7.00	10	10	1,440	9,727	14,223	680
E	Sunapee Express/DC4	6,056	1,402	2,650	7.00	15	5	2,120	20,806	16,809	1,240
F	Piggyback/Handle Tow	300	34	400	7.00	0	20	320	76	850	90
G	Clipper Ship Quad/C4	1,814	374	1,600	7.00	0	10	1,440	3,770	4,622	820
H	Kinder/Rope Tow	200	30	250	7.00	0	20	200	42	914	30
I	Little Carpet/Carpet	90	8	400	7.00	0	20	320	18	370	50
J	Flying Carpet/Carpet	360	48	800	7.00	0	20	640	215	1,408	150
L	Middle Carpet/Carpet	130	16	800	7.00	0	20	640	63	868	70
TOTAL		20,179		13,600				11,410	56,211		5,130

As illustrated in Table II-4 above, the CCC of the lift and trail network at Mount Sunapee is approximately 5,130 guests per day. It is not uncommon for ski areas to experience peak days during which skier visitation exceeds the CCC by as much as 25%. However, 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 repeat business.

Note that the CCC of the Sunbowl Quad decreased slightly from 1,240 to 1,120 (-120) with the 2014 upgrade to a high-speed detachable. This decrease is due to fewer people actually on the lift at any one time, since there are fewer carriers.

D. SKI TRAIL DENSITY ANALYSIS

An important aspect of ski area 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. At any one time, skiers are dispersed throughout the resort, while using guest facilities and milling areas, waiting in lift mazes, riding lifts or enjoying descents. For the trail density analysis, 25% of each lift's capacity is presumed to be using guest service facilities or milling areas. This 25% of the skier population is the resort's inactive population.

The active skier population can be found in lift lines, on lifts, or on trails. The number of skiers 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 guests on each lift is the product of the number of carriers on the uphill line and the capacity of the lift's carriers. The remainder of the skier 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 enjoying downhill descents.

Trail density is calculated for each lift pod by dividing the number of guests on the trails by the amount of trail area that is available within each lift pod. The trail density analysis compares the calculated trail density for each lift pod to the target 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 density analysis for the existing conditions at Mount Sunapee is illustrated in Table II-5. This table shows that, overall, there is a good balance between downhill terrain capacity and uphill lift capacity. The overall downhill terrain capacity was calculated at around 7,800 people, or around 50% higher than the uphill lift capacity. This desirable situation is reflected in the moderate skier densities.

**TABLE II-5:
SKI TRAIL DENSITY ANALYSIS – EXISTING CONDITIONS**

Lift Name.	Daily Capacity	Disbursement of Skier/Rider Population				Trail Density Analysis				Density Index
		Support Fac./Milling	Lift Lines	On Lift	On Trails	Trail Area	Trail Density	Target Trail Density	Diff.	
	(CCC)	(guests)	(guests)	(guests)	(guests)	(acres)	(guests/acre)	(guests/acre)	(+/-)	(%)
Sunbowl Quad	1,120	280	218	146	476	52.1	9	11	-2	82%
Spruce Triple	570	143	168	110	149	22.2	7	12	-5	58%
Duckling Double	310	78	95	60	77	7.6	10	13	-3	77%
North Peak Triple	680	170	192	174	144	24.2	6	10	-4	60%
Sunapee Express	1,240	310	177	225	528	82.1	6	12	-6	50%
Piggyback Tow	90	23	37	8	22	1.2	18	18	0	100%
Clipper Ship Quad	820	205	204	102	309	21.2	14	17	-3	81%
Kinder Tow	30	8	7	7	8	0.9	9	29	-20	31%
Little Carpet	50	13	16	10	11	0.8	15	30	-15	50%
Flying Carpet	150	38	32	38	42	2.6	16	18	-2	89%
Middle Carpet	70	18	21	14	17	1.2	13	18	-5	72%
TOTAL	5,130	1,286	1,167	894	1,783	216.1	8	12	-4	68%

The only area shown in the above table to have densities at or above desirable densities is the novice terrain serviced by the Piggyback handle tow. However, even though the terrain off this lift is classified as novice due to its 14% grade, it functions more as a higher level beginner area where densities are not a concern, since many of the skiers are clustered on the sides of the runs, in group lessons, or similar situations. As a result, that 100% density index number is not a concern.

E. MAINTENANCE FACILITIES, UTILITIES, AND SNOWMAKING COVERAGE

1. Maintenance Facilities

Mount Sunapee has three primary maintenance facilities. The vehicle maintenance facility has a five-bay garage, a stock room and offices, and is where the maintenance of all rolling stock takes place. The service shop is a three-bay facility and is the location of buildings and grounds maintenance, lift maintenance, and carpentry. The snowmaking control building houses the electric air compressors and all snowmaking maintenance and storage.

2. Utilities

Mount Sunapee has an onsite wastewater disposal system, consisting of septic tanks at each building and a lagoon and sprayfield system for final treatment. The base area has a combined treatment capacity of 13,500 gallons per day. The Summit Lodge has a septic tank with a leach field with a treatment capacity of 5,000 gallons per day. The Summit Lodge leach field was replaced in 2006. All systems are considered to be adequate to accommodate current and future use.

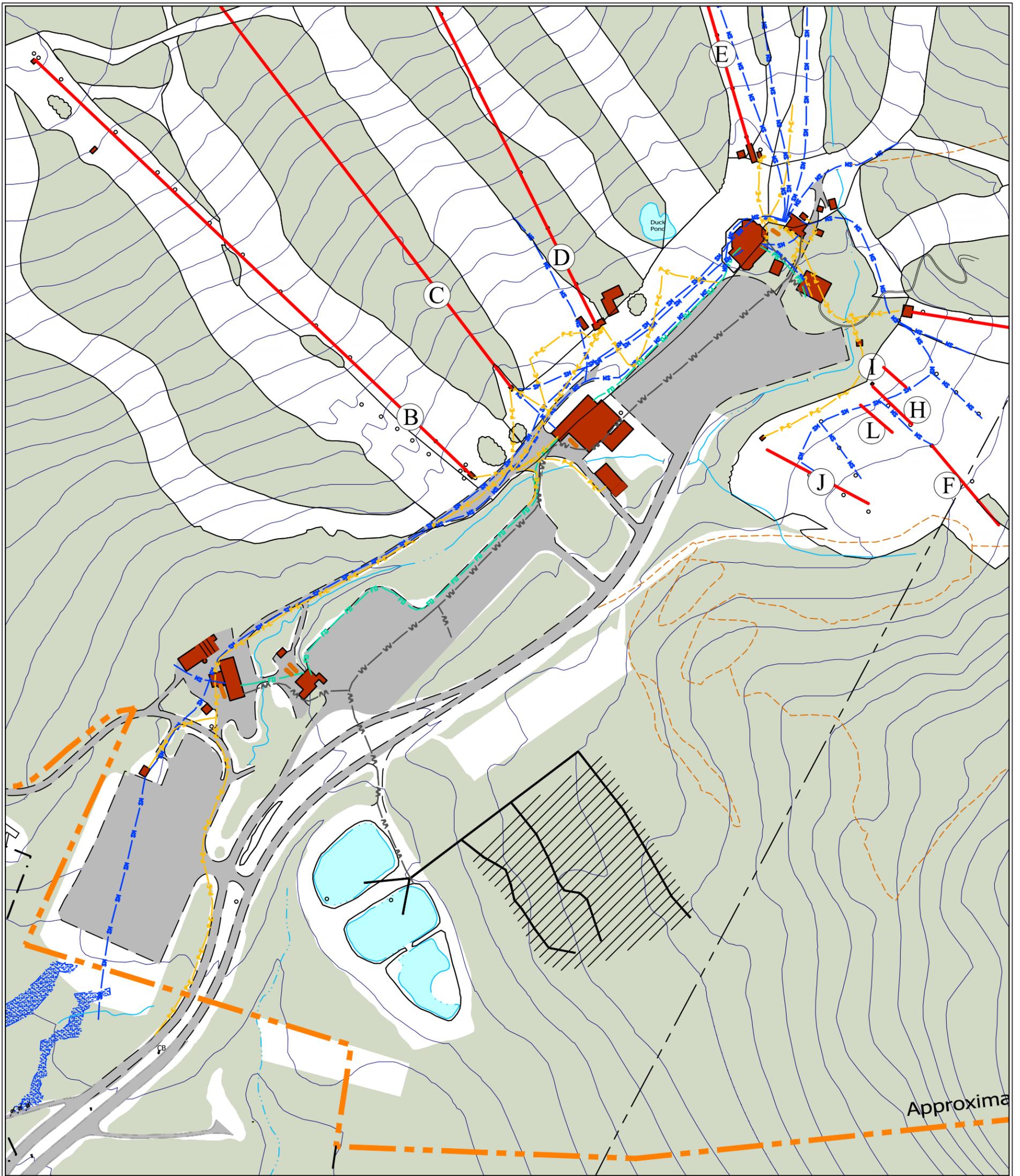
Fuel storage is accomplished in multiple locations around the resort, in both underground and above ground tanks. Heating oil (#2 fuel) is stored in underground tanks adjacent to respective buildings, ranging in size from 3,000 to 10,000 gallons. Propane is stored in above ground and below ground tanks throughout the resort, ranging in size from 100 to 2,000 gallons. Diesel fuel is stored in a 6,000 gallon underground tank at the service shop, and gasoline is also stored in a 6,000 gallon underground tank at the service shop. The diesel and gasoline tanks at the service shop were replaced with new double-walled tanks in 2012. All tanks are in compliance with applicable codes.

Transmission and distribution of electrical power to Mount Sunapee is provided by Eversource (formerly Public Service of New Hampshire), a commercial electrical power company. Power is distributed throughout the resort via underground power lines and is considered adequate for current and future use.

Domestic water needs at Mount Sunapee are met by private wells. There is a 2,000 gallon underground tank in the base area fed by a 73 gallon per minute well, a 1,000 gallon above ground tank at the summit lodge fed by a 7.5 gallon per minute well, and a 500 gallon tank at the maintenance shop fed by a 25 gallon per minute well. Based upon current usage, all sources are considered adequate, with the base area well being more than adequate.

See Figure II-2 for a map of the existing utilities in the base area.

Figure II-2: Existing Base Area Utilities



LEGEND

- | | | | | | |
|---|-----------------------------------|---|-------------------------------|---|--------------------------|
|  | EXISTING CONTOURS -25ft. Interval |  | EXISTING LIFTS |  | UNDERGROUND FUEL STORAGE |
|  | EXISTING STREAMS & WETLANDS |  | APPROX. LEASE BOUNDARY |  | PHONE ELECTRIC |
|  | EXISTING LAKES & PONDS |  | WASTE WATER |  | FIBER OPTICS |
|  | EXISTING ROADS AND PARKING |  | DOMESTIC WATER AND SNOWMAKING | | |
|  | EXISTING BUILDINGS | | | | |
|  | EXISTING VEGETATION AND RUNS | | | | |



Title
Existing Base Area
Utilities

Figure Number:
II-2

Project Number: 09033/001
File: M Base Area Utilities.dwg



Scale: 1"=300' North
Date: 12/01/2015
Drawn By: MJL
Checked By: CLH



3. Snowmaking Coverage

Snowmaking is an essential part of Mount Sunapee's operations. The amount and timing of natural snowfall, and the degree to which temperatures are cold enough for snowmaking, often dictate the overall success of a ski resort's winter operation. Compounding the weather risk is the fact that most resorts receive a significant portion of their wintertime visitation during a few, relatively short, vacation periods. This factor exerts extreme pressure on resorts to provide a quality snow product during those important holiday periods.

Mount Sunapee currently holds permitted water rights from the NH-Department of Environmental Services allowing for the winter seasonal use of water from Lake Sunapee annually. This water provides snowmaking coverage on approximately 206 acres of developed ski terrain with snowmaking capabilities. Over the past five seasons, the resort has averaged using 153 million gallons of water per year. Approximately 28 inches of man-made snow coverage is required to ski the terrain covered by the snowmaking infrastructure. See Section III for a snowmaking coverage map.

F. SKIER SERVICES BUILDINGS

Skier services are offered in three primary locations within the base area of Mount Sunapee, as illustrated in Figure II-3. The first is the Spruce Lodge, constructed in 1962, with approximately 26,300 square feet in size and two floors; it houses a restaurant, 635 indoor and 200 outdoor seats, a bar/lounge, restrooms, guest service facilities, ski school, rentals, retail sales, ticket sales, public lockers, administration and storage.³ The building was constructed in the 1960s, and is considered to be in good condition. Adjacent to the Spruce Lodge is the Ski Patrol building, housing First Aid/Ski Patrol as well as the Ski School and Ambassador locker rooms.

The Sunapee Lodge, located at the west end of Parking Lot #1, was constructed in 1999 and has 24,800 square feet on three floors. The Sunapee Lodge houses a restaurant with 590 indoor seats, guest services, ticket sales, public lockers, retail sales, restrooms, administration and storage.

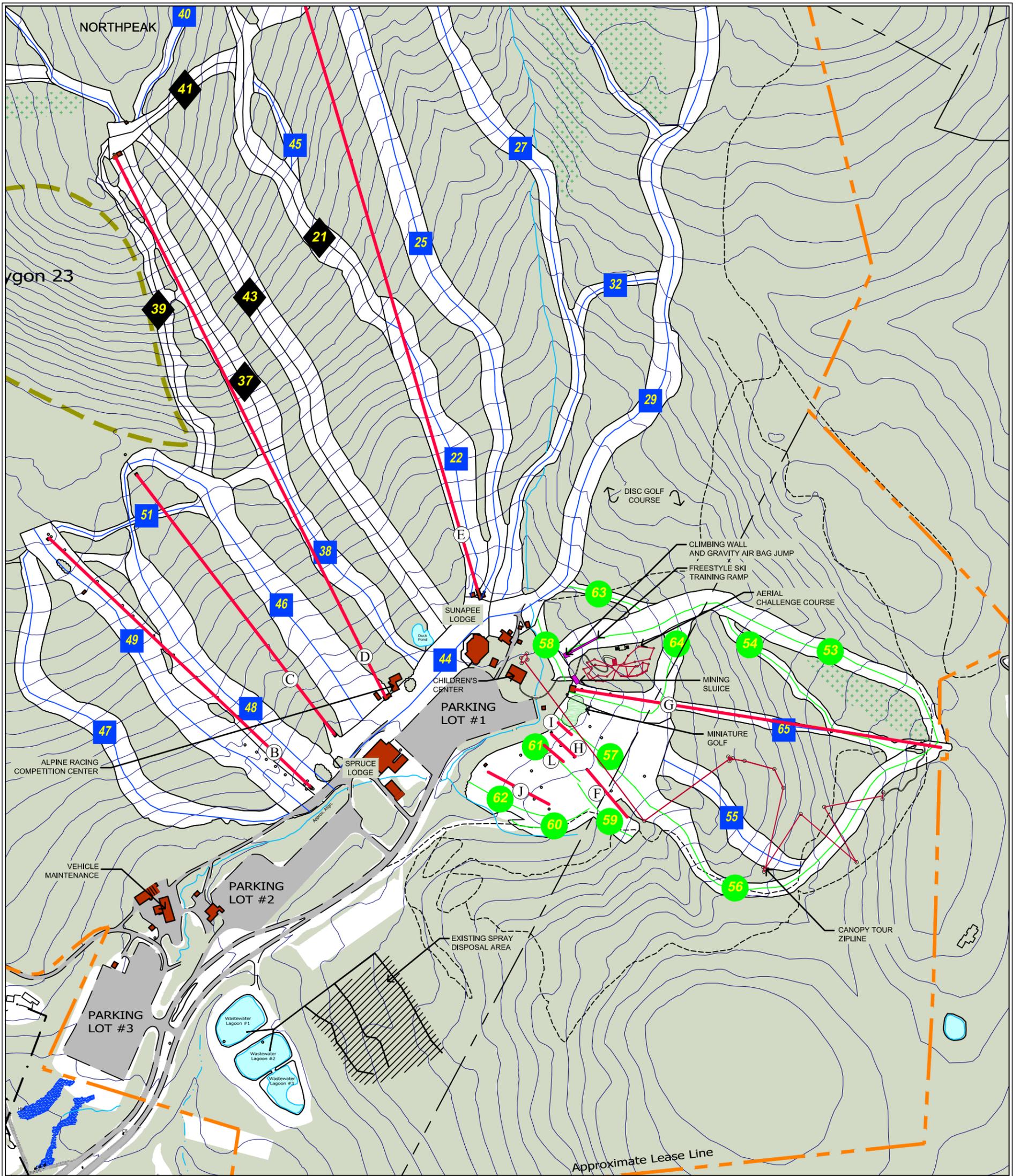
The third facility is the Learning Center, a 5,300-square foot building constructed in 2003 as the primary location for ski school programs for children and adults, and for a childcare facility.

The fourth base area facility is the Alpine Racing Competition Center, a 1,849-square foot building constructed in 2004 and expanded with a 1,554-square foot addition in 2013, which is the primary location for the participants in the Mount Sunapee Alpine Racing Program.

On-mountain services are provided in the Summit Lodge. The 6,275-square foot building houses food service and restrooms, and was constructed in 1963 with 191 indoor seats.

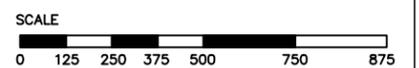
³ For the purposes of this discussion, Spruce Lodge includes the adjacent rental shop.

Figure II-3: Base Area Existing Conditions



LEGEND

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|---|-----------------------------------|---|------------------------|
|  | EXISTING CONTOURS -25ft. Interval |  | EXISTING LIFTS |
|  | EXISTING STREAMS & WETLANDS |  | APPROX. LEASE BOUNDARY |
|  | EXISTING LAKES & PONDS |  | HIKING TRAIL |
|  | EXISTING ROADS AND PARKING | | |
|  | EXISTING BUILDINGS | | |
|  | EXISTING VEGETATION AND RUNS | | |
|  | EXISTING GLADES | | |



Title
Base Area
Existing Conditions

Figure Number:
II-3

Project Number: 09033/001
File: M Conditions 3.dwg



Scale: 1"=500' North

Date: 12/01/2015

Drawn By: MJL

Checked By: CLH



Sufficient space should be provided to accommodate the resort CCC of 5,130 guests per day. Table II-6 shows the size and placement of all existing visitor services at Mount Sunapee. Based upon a CCC of 5,130 skiers, Table II-7 compares the current space use allocations of the visitor service functions to industry standards for a resort of similar size and market orientation as Mount Sunapee.

**TABLE II-6:
EXISTING SPACE USE ALLOCATIONS**

Service Function	Spruce Lodge	Sunapee Lodge	Learning Center	Summit	Ski Patrol	Existing Total
Ticket Sales/Guest Services	2,300	500	300	-	150	3,250
Public Lockers	1,400	900	0	-	-	2,300
Rentals/Repair	2,565	0	260	-	-	2,825
Retail Sales	1,740	1,800	0	-	-	3,540
Bar/lounge	1,340	0	0	-	-	1,340
Adult Ski School	312	0	1,775	-	840	2,927
Kid's Ski School	0	0	1,000	-	-	1,000
Restaurant Seating	5,344	11,000	0	3,060	-	19,404
Kitchen/Scramble	2,020	3,000	155	700	-	5,875
Rest rooms	1,000	1,300	335	320	80	3,035
Ski Patrol	0	0	0	-	2,100	2,100
Administration	3,008	200	600	-	80	3,888
Employee Lockers/Lounge	800	0	40	-	480	1,320
Mechanical	800	200	100	568	80	1,748
Storage	1,170	2,300	65	877	-	4,412
Circulation/Waste	3,825	4,000	700	750	500	9,775
TOTAL SQUARE FEET	27,624	25,200	5,330	6,275	4,310	68,739

**TABLE II-7:
EXISTING TOTAL SPACE USE RECOMMENDATIONS (SQ. FT.)**

Service Function	Existing Total	Recommended Range		Difference from Recommended	
		Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	3,250	2,110	2,580	1,140	670
Public Lockers	2,300	3,520	4,310	-1,220	-2,010
Rentals/Repair	2,825	4,230	5,640	-1,405	-2,815
Retail Sales	3,540	2,880	3,510	660	30
Bar/lounge	1,340	3,590	4,390	-2,250	-3,050
Adult Ski School	2,927	1,880	2,300	1,047	627
Kid's Ski School	1,000	3,760	4,590	-2,760	-3,590
Restaurant Seating	19,404	19,730	24,120	-326	-4,716
Kitchen/Scramble	5,875	5,920	7,230	-45	-1,355
Rest rooms	3,035	4,440	5,430	-1,405	-2,395
Ski Patrol	2,100	2,220	2,710	-120	-610
Administration	3,888	2,400	2,930	1,488	958
Employee Lockers/Lounge	1,320	1,200	1,460	120	-140
Mechanical	1,748	1,560	2,350	188	-602
Storage	4,412	2,600	3,920	1,812	492
Circulation/Waste	9,775	6,250	9,400	3,525	375
TOTAL SQUARE FEET	68,739	68,290	86,870	449	-18,131

The differences in recommended square footages for the Service Functions in Table II-7 provide guidance to Mount Sunapee for addressing these needs in the MDP planning process and for future capital improvement projects. The table illustrates that lockers, rentals, ski school, restaurant seating and restrooms are service functions in which Mount Sunapee could use more space.

For example, food service seating at Mount Sunapee is provided at the base area in the Spruce Lodge and Sunapee Lodge, and on-mountain at the Summit Lodge. There are a total of 1,416 seats available to skiers.

A key factor in evaluating restaurant capacity is the turnover rate of the seats. A turnover rate of three to five times is the standard range utilized in determining restaurant capacity. Sit-down dining at ski areas typically results in a turnover rate of three, while “fast food” cafeteria style dining is characterized by a higher turnover rate. Furthermore, weather has an influence on turnover rates at ski areas, as on very cold or snowy days skiers will spend more time indoors than on mild, sunny days.

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

**TABLE II-8:
EXISTING FOOD SERVICE SEATING RECOMMENDATIONS**

Building/Location	Base Area	Summit	Total
Lunchtime Capacity (CCC)	4,207	1,180	5,387
Average Seat Turnover	3	3.5	
Existing Seats	1,225	191	1,416
Required Seats	1,402	337	1,739
Difference	-177	-146	-323

Source: SE Group

Due to frequent cold and inclement weather, an average turnover rate of 3 was used for the Base Area and 3.5 at the Summit Lodge.

As shown in Table II-8 above, there is a deficiency in seating capacity of -323 seats. The seating shortage is somewhat mitigated by the children’s lunches provided in the Learning Center, and by the fact that outdoor deck seating is available at the Spruce Lodge and the Summit Lodge. However, as the ski area is upgraded, additional food service seating should be provided.

G. SUMMER ADVENTURE PARK

In the summer of 2012, Mount Sunapee constructed the first phase of its summer Adventure Park as described in its “*Summer Recreational Program Proposal*” which was presented to the New Hampshire Department of Resources and Economic Development on November 3, 2011, and included as Appendix B in this 2016–2020 MDP.

In the summer of 2012, Mount Sunapee began constructing, or planning for construction of, the following recreational activities:

- I. Canopy Zip Line Tour

- II. Aerial Adventure Park (Phase I, and now called Aerial Challenge Course)
- III. Mountain Bike Trails
- IV. Disc Golf
- V. Interpretive Hiking Trails
- VI. Segway Tours
- VII. Miniature Golf

In the summer of 2013, Mount Sunapee added two additional loops (Phase II) to the Aerial Challenge Course and continued work on the Interpretive Hiking Trails with assistance from the Upper Valley Trails Alliance.

In the summer of 2014, Mount Sunapee added a Climbing Wall tower which includes a Gravity Jump platform into the 50'x50' AcroBag air bag, and began work on the Mountain Bike Trails at South Peak.

The Base Area Existing Conditions map (Figure II-3) shows the location of the Adventure Park activities.

The summer Adventure Park activities are designed to appeal to a broad cross-section of guests and represent recreational activities for all age groups, skills and price points.

In the May 2014 issue of Yankee Magazine, the Mount Sunapee Adventure Park was given an Editor's Choice Award for the "Best Obstacle Course" in New England.

The summer Adventure Park opens in May for the Memorial Day weekend and operates on weekends only until the third weekend in June when it begins seven-day a week operations through Labor Day. After Labor Day, the Adventure Park operates on weekends only through Columbus Day in October when it closes for the season.

Average daily utilization of the Adventure Park in summer is much lower than the average daily utilization of the ski area in winter. This is due to the relatively low capacity levels for the activities in the Adventure Park. For example, maximum daily capacity for the Canopy Zip Line Tour is ninety-six (96) guests. The maximum daily capacity for the Aerial Challenge Course is approximately 400 guests. For all summer Adventure Park activities, the average daily utilization is 300 to 500 guests which is significantly less than a typical mid-week ski day in winter.

H. PARKING AND ROADS

Total parking capacity must be balanced with the CCC. All skiers come to Mount Sunapee in cars or buses and park in the day-skier parking areas. No overnight accommodations are available at Mount Sunapee. Three parking areas exist in the base area. Lots #1 and #2 are paved, and Lot #3 is gravel. On busy days, all parking areas are completely full.

**TABLE II-9:
PARKING REQUIREMENTS – EXISTING CONDITIONS**

	Multiplier	Total
CCC plus non-ski guests	2%	5,233
Percent parking at portal		
Number parking at portal		5,233
Net number requiring parking		5,233
Number of guests arriving by car	95%	4,971
Number of guests arriving by charter bus	5%	262
Required car parking spaces	2.7	1,841
Required charter bus parking spaces	35.00	8
Equivalent car spaces (1 bus=4.5 car)	4.5	34.2
Required employee car parking spaces	4.0%	209
Total required spaces		2,080
Existing parking spaces		1,830
Deficit		250

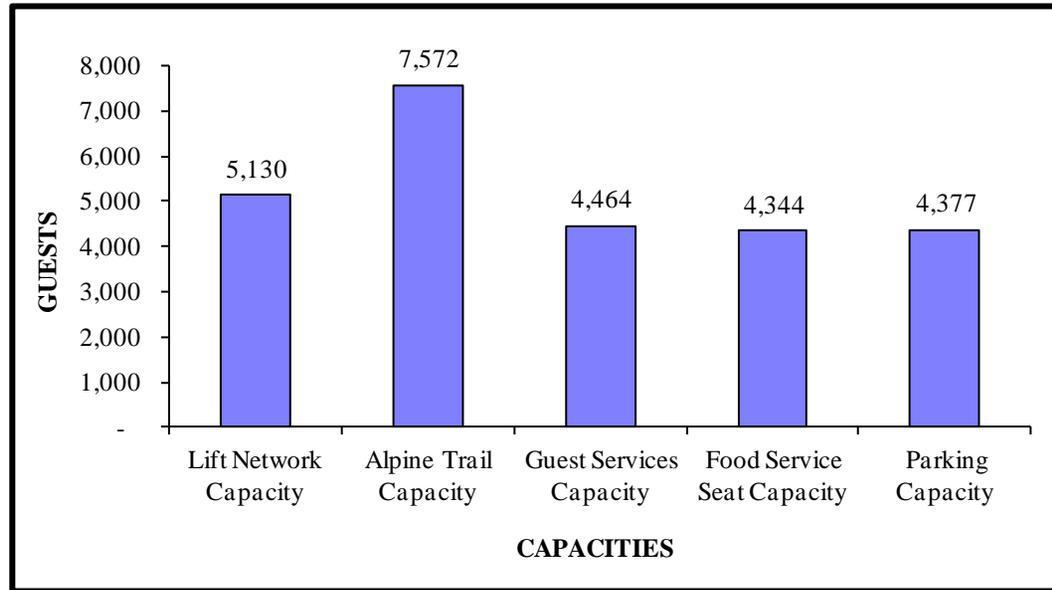
Note: existing parking – Lot 1=545 cars, Lot 2=510 cars, Lot 3=775 cars

Based upon a CCC of 5,130 skiers, there is currently less than adequate day-skier parking provided (see Table II-9 above). On busy days overflow parking is provided at the State beach parking lot (capacity 450 cars). As the mountain capacity increases additional parking will need to be provided.

I. RESORT BALANCE AND LIMITING FACTORS

The overall balance of the existing ski area is evaluated by calculating the capacities of the resort’s various facilities, as compared to the resort’s CCC. The above discussed capacities are shown in Chart II-2.

**CHART II-2:
RESORT BALANCE – EXISTING CONDITIONS**



As Chart II-2 above shows, the existing ski resort balance limits Mount Sunapee from reaching its CCC potential by deficiencies in the skier support facilities, i.e., Guest Services, Food Service Seating, and Parking.

Parking is recognized as a particular problem with parking availability being in highest demand on the higher volume skier days such as weekends and holidays.

The higher amount of Alpine Trail Capacity (ski terrain) creates the very desirable situation of low skier densities on the ski trails. This is a positive attribute for which Mount Sunapee is well known, and a situation that the resort would very much like to maintain in the future.

III. PROPOSED UPGRADING PLAN

The upgrading plan for Mount Sunapee reflects the findings of the existing facilities analysis. The purpose of the upgrading plan is to produce a guide for ski area development that ensures the greatest practical and profitable use of the existing lands while remaining sensitive to the environment. The goal of the upgrading plan is to produce a high quality experience throughout the recreational area. Accordingly, the upgrading plan is tailored to improve Mount Sunapee's ability to respond to its market/skier demands through the development of a more well-rounded resort experience. This plan should not only improve the ski area's current market niche, but also help to attract new visitors. The upgrading plan is shown in Figure III-1 below.

Mount Sunapee will perform a series of on-mountain and base area improvements as detailed in this section. There are two broad categories of improvements as described on pages 5-9:

- I. Previously approved improvements from the 2000, 2005 and 2009 MDP's that are not yet implemented.
- II. Projects proposed for DRED's approval in this revised 2016-2020 MDP, with additional emphasis and descriptions given to the West Bowl ski area expansion proposal.

Overview of the revised West Bowl ski area expansion proposal:

While much of the overall master plan is similar to the June 1, 2014 MDP, the West Bowl expansion plan has been substantially revised.

These revisions are discussed in the text throughout this section, with additional information presented here. The revised West Bowl expansion plan is shown in detail in Figure III-2.

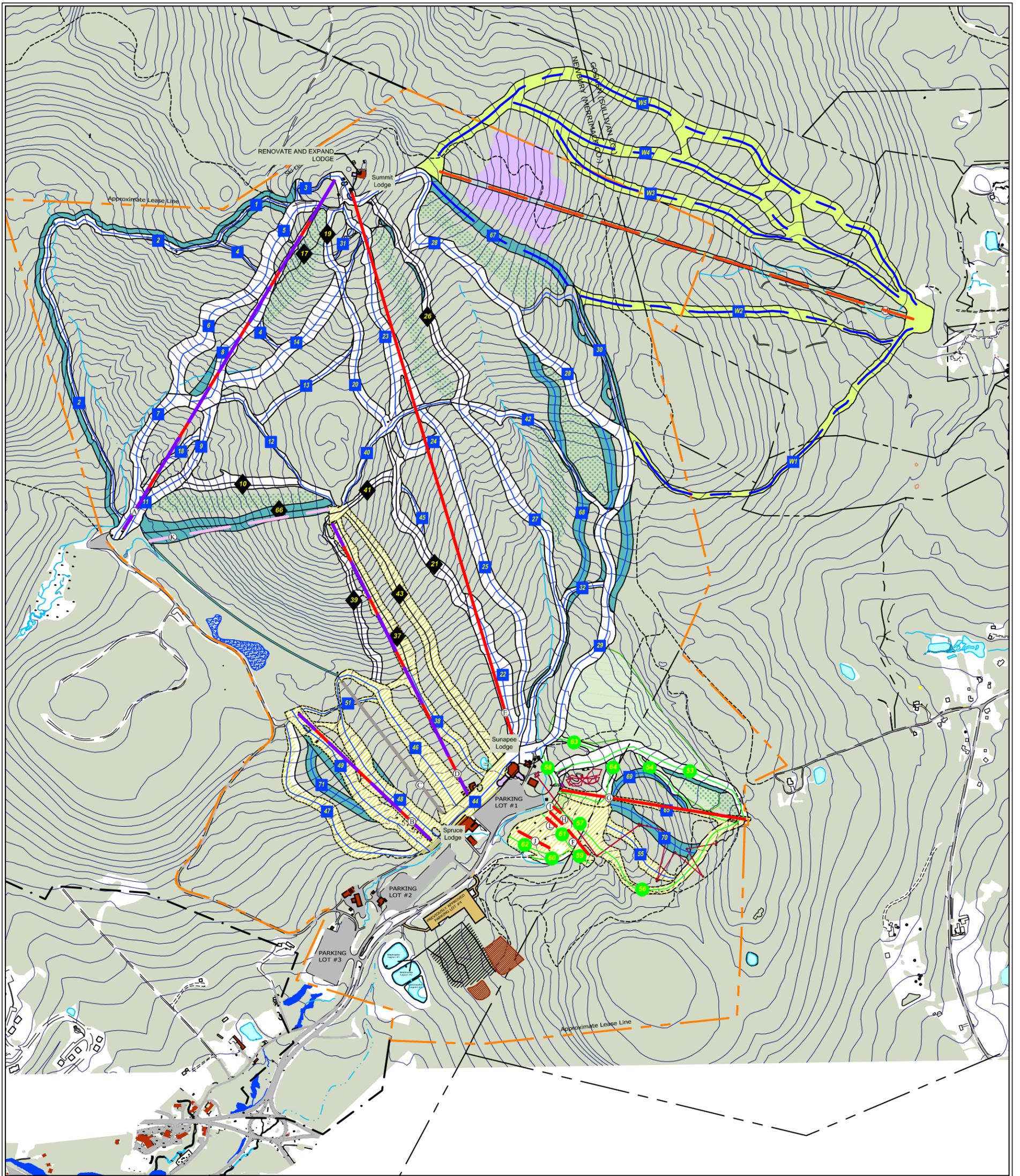
Mount Sunapee has significantly revised the West Bowl expansion project in this 2016-2020 MDP and now proposes the following conditions to the New Hampshire Department of Resources and Economic Development:

1. Mount Sunapee Resort proposes to transfer a total of approximately 410 acres of privately owned land to DRED. The details of this acreage are discussed below and are shown in Figure III-3.
 - a. Approximately 150 acres of the privately owned land that comprise the West Bowl ski area expansion will become part of the expanded Mount Sunapee ski area leasehold upon transfer to DRED.
 - b. The 150 acres (+/-) of land that comprise the ski area expansion will include all of the new skier services, including the new ski trails, quad chairlift, moving carpet surface lift, base lodge, ski school, ski rentals, retail and parking lots.

- c. These 150 acres (+/-) will be transferred to DRED after all construction permits are finalized, and after the construction of the West Bowl expansion project. The land will be transferred on or before June 30, 2028.
 - d. Approximately 260 acres of land will be transferred to DRED as conservation lands. These 260 acres (+/-) will not become part of the Mount Sunapee ski area leasehold, and will remain in their natural state to protect the summit scenic vistas of Mount Sunapee in perpetuity.
 - e. The approximately 260 acres (+/-) of conservation land will be transferred to DRED after all permits are finalized, but prior to the beginning of any construction work for the West Bowl expansion such as clearing land for ski trails or the chairlift line.
 - f. In addition to DRED's approval of the West Bowl ski area expansion project, Mount Sunapee will also obtain all other approvals and permits as required, including the Towns of Goshen and Newbury, the NH Department of Environmental Services, NH Department of Transportation, the Army Corp of Engineers and EPA, and at our expense.
 - g. Mount Sunapee will provide a fifty foot (50') setback between the edge of the new West Bowl ski trails and the new property boundary line for the lands being transferred to DRED. The new boundary line for the proposed expanded ski area is shown in Figure III-2 on page 36.
2. Mount Sunapee now proposes to substantially minimize the impacts in the sensitive forest stand known as Polygon D by eliminating both ski trails that were previously proposed in this area. This revised MDP reduces the impact to the 16-acre Polygon D from approximately 4.2 acres in the June 1, 2014 MDP to approximately 1.1 acres in this revised MDP.
 - a. The ski trail labeled W6 in the June 1, 2014 MDP has been eliminated.
 - b. The ski trail labeled W4 in the June 1, 2014 MDP that would have been under the quad chairlift line has been eliminated as a ski trail. Therefore, no terrain grading or snowmaking equipment will be on the chairlift line corridor in Polygon D.
 - c. The West Bowl Express Quad chairlift line corridor will be restricted to 50-60 feet wide going through Polygon D to minimize impacts. The trees within the lift line corridor will be flush cut to ground level and the stumps will be left in place. Heavy equipment will not be used to grade the terrain in Polygon D. Maintenance will be done by hand mowing.
 - d. Chairlift tower foundations will be pinned to rock or hand excavated to depth in Polygon D. Blasting will be restricted and not used anywhere within Polygon D.
 3. Mount Sunapee now proposes to minimize ski trails crossings on the Sunapee-Kearsarge-Ragged Greenway Coalition's Summit Hiking trails by reducing the number of ski trail crossings to three (3) from the six (6) crossings that were in the June 1, 2014 plan.
 - a. Mount Sunapee will provide signage to alert both downhill skiers and hikers to the trail crossing areas.

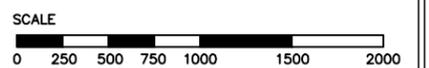
- b. Mount Sunapee will provide spring maintenance and clean-up annually on the Summit Hiking Trail.
- 4. Mount Sunapee will provide rights, easements and agreements to DRED for road access from Brook Road in Goshen into the West Bowl base area, and for any utilities, such as water and sewer, if those utilities are not located on land that is transferred to DRED. The easements will be recorded with the land transfer deeds.
- 5. Mount Sunapee proposes to support DRED and the Natural Heritage Bureau by providing up to \$40,000 in research funds to conduct an Ecological Integrity Assessment (EIA) on the upland forests on Mt. Sunapee. The EIA project can be used to update DRED's knowledge of the condition of the upland forest types on Mt. Sunapee. These funds will be provided after all required permits and approvals have been finalized, and construction begins on the West Bowl expansion project.
- 6. There are several historic Town of Newbury town line monuments in the West Bowl expansion area. Town monuments numbers 9, 10, and 11 are located in the area containing the West Bowl ski trails, as shown on Figure III-2. These monuments have been located, and their coordinates mapped by GPS technology. They have been avoided in the design layout for the West Bowls trails, and they will not be impacted by construction of the new ski trails.

Figure III-1: Upgrading Plan



LEGEND

- | | | | | | |
|---|-----------------------------------|---|--|---|--|
|  | EXISTING CONTOURS -25ft. Interval |  | EXISTING LIFTS |  | PREVIOUSLY APPROVED PROPOSED BUILDINGS |
|  | EXISTING STREAMS & WETLANDS |  | EXISTING LIFTS TO BE REMOVED |  | PREVIOUSLY APPROVED PROPOSED PARKING |
|  | EXISTING LAKES & PONDS |  | PREVIOUSLY APPROVED PROPOSED LIFTS |  | APPROX. LEASE BOUNDARY |
|  | EXISTING ROADS AND PARKING |  | PREVIOUSLY APPROVED LIFT UPGRADING |  | HIKING TRAIL |
|  | EXISTING BUILDINGS |  | PREVIOUSLY PROPOSED/NOT APPROVED LIFTS |  | PREVIOUSLY APPROVED NIGHT LIGHTING |
|  | EXISTING VEGETATION AND RUNS |  | PREVIOUSLY APPROVED TERRAIN |  | POLYGON D |
|  | EXISTING GLADES |  | PREVIOUSLY PROPOSED/NOT APPROVED WEST BOWL RUN EXPANSION | | |



Title
Upgrading Plan



Figure Number:
III-1

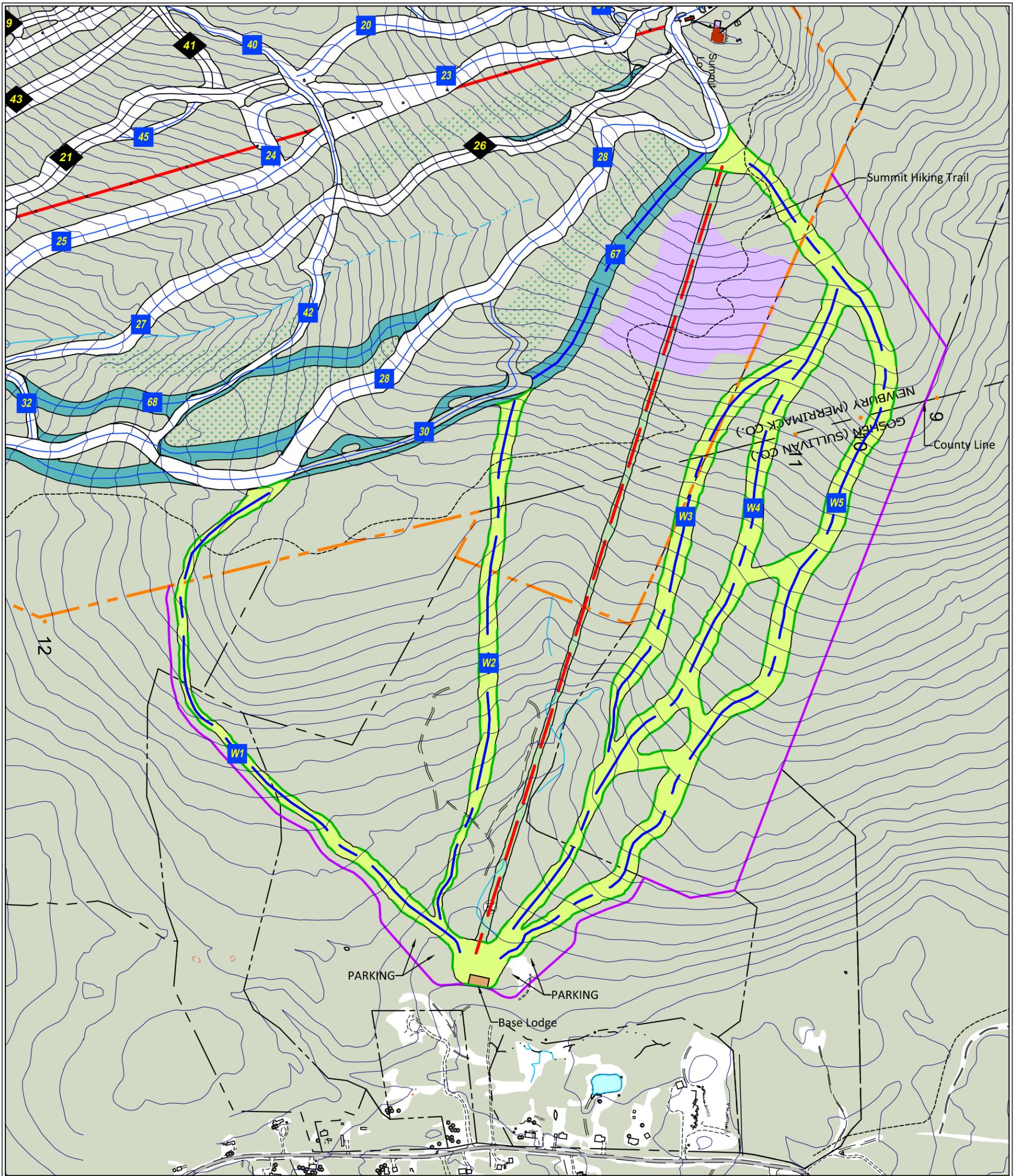
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Date: 12/01/2015
Drawn By: MJL
Checked By: CLH



Project Number: 09033/001
File: M Conditions 3.dwg

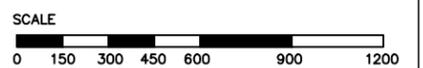


Figure III-2: West Bowl Overall Perimeter Plan



LEGEND

- | | | | | | | | |
|---|-----------------------------------|---|--|---|--|---|-------------------------------|
|  | EXISTING CONTOURS -25ft. Interval |  | EXISTING LIFTS |  | PREVIOUSLY APPROVED PROPOSED BUILDINGS |  | POLYGON D |
|  | EXISTING STREAMS & WETLANDS |  | PREVIOUSLY APPROVED LIFT UPGRADING |  | PREVIOUSLY APPROVED PROPOSED PARKING |  | NEWBURY TOWN LINE MONUMENT |
|  | EXISTING LAKES & PONDS |  | PREVIOUSLY PROPOSED/NOT APPROVED LIFT |  | APPROX. LEASE BOUNDARY |  | PERIMETER LINE AFTER EXCHANGE |
|  | EXISTING ROADS AND PARKING |  | PREVIOUSLY APPROVED TERRAIN |  | HIKING TRAIL | | |
|  | EXISTING BUILDINGS |  | PREVIOUSLY PROPOSED/NOT APPROVED WEST BOWL RUN EXPANSION | | | | |
|  | EXISTING VEGETATION AND RUNS | | | | | | |
|  | EXISTING GLADES | | | | | | |



Title
West Bowl Overall
Perimeter Plan

Figure Number:
III-2

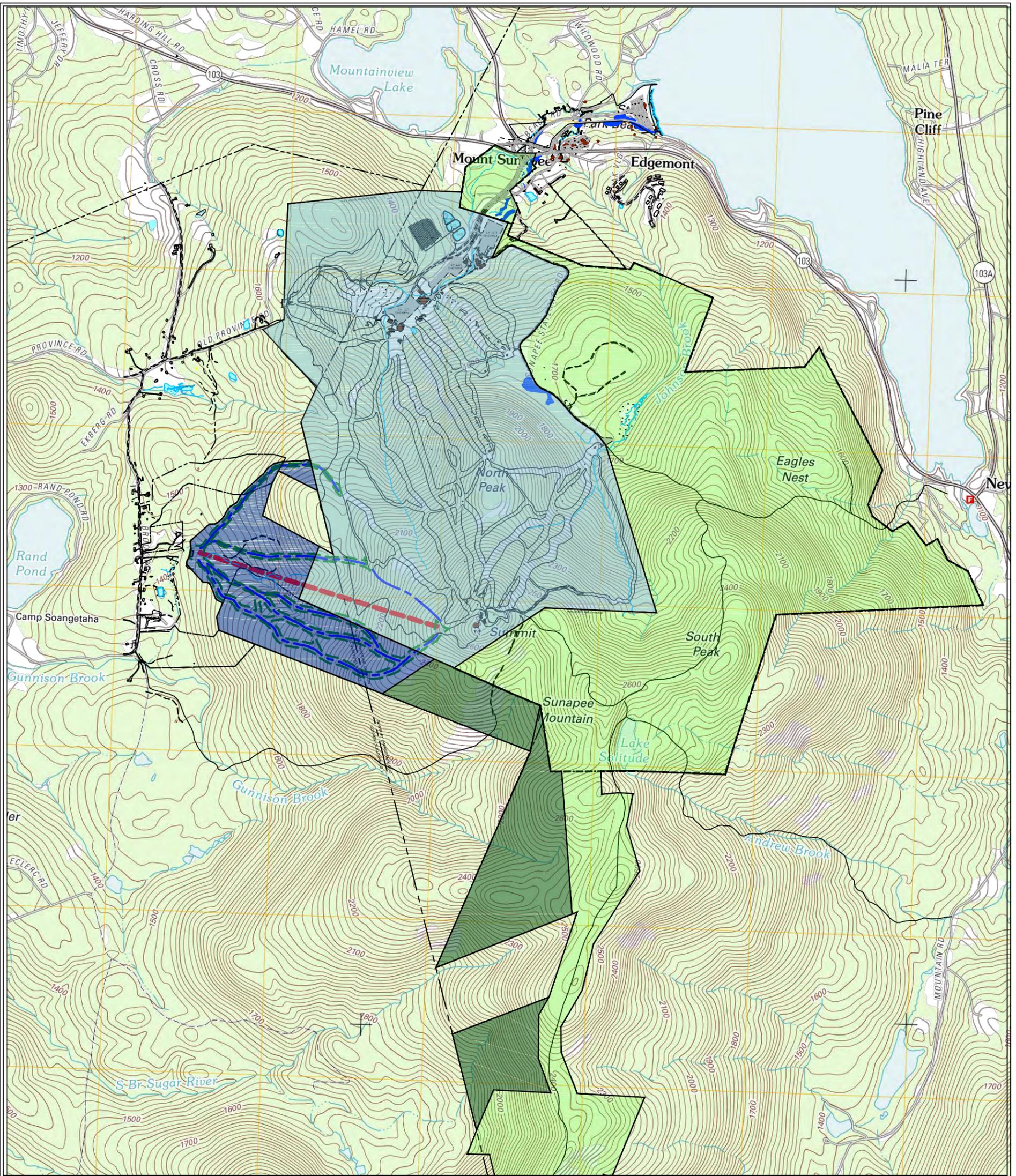
Project Number: 09033/001
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Scale: 1" = 600'
Date: 12/01/2015
Drawn By: MJL
Checked By: CLH

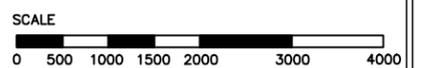


Figure III-3: Regional Map



LEGEND

- Existing Mount Sunapee State Park: Non Ski Leasehold, Non Ski Expansion Area
- Existing Mount Sunapee State Park: Current Ski Leasehold Area
- To Be Added To Mount Sunapee State Park As Conservative Lands, Will Not Be Included In Ski Leasehold Area
- To Be Added To Mount Sunapee State Park For West Bowl Ski Trails, Will Be Included In Ski Leasehold Area



Title
Regional Map

Figure Number:
III-3

Project Number: 09033/001
File: M Regional Map.dwg



Scale: 1"=2000'
Date: 12/01/2015
Drawn By: MJL
Checked By: CLH



A. LIFTS

The lift upgrading plan remains similar to what was proposed in the 2009–2014 MDP. The lift upgrading plan calls for the installation of four new and/or relocated/upgraded chairlifts and two new carpet lifts.

The existing Sunbowl Quad chairlift was upgraded to a high-speed Express Quad chairlift in the summer of 2014 to better service that terrain and help create a higher utilization of that area.

1. The existing North Peak Triple chairlift may be upgraded to a quad chairlift to increase the uphill capacity from the main base area.
2. The existing Spruce Peak Triple may be upgraded to a quad chairlift to maintain the capacity of that area after the Duckling Double is removed due to age.
3. A new chairlift may be installed on an alignment from the bottom of the Sunbowl chairlift area to the top of the North Peak area, and is referred to as the Solitude Triple chairlift (Lift K). This lift will allow for improved circulation and will have one new ski trail with that lift.
4. A future chairlift upgrade that is newly proposed in the 2016–2020 MDP is upgrading the Sunapee Express Quad chairlift to an Express 6-Passenger chairlift.
5. Construct the West Bowl Express Quad chairlift and a moving carpet lift on the western flank of Mount Sunapee. The West Bowl chairlift may be a new lift or a relocated lift. One potential option could be to reuse the existing Sunapee Express Quad by relocating it to the West Bowl Express Quad lift line, if the Sunapee Express is upgraded to a 6-Passenger Express chairlift.

It is probable that some of the existing chairlifts that are in good condition could be reused in some of these lift alignments, such as the Sunbowl Quad being relocated to become the North Peak Quad and the North Peak Triple being relocated to become the Solitude Triple, as previously approved in prior MDPs.

One additional lift modification that was approved through the 2005–2009 and 2009–2014 MDPs has been implemented. An additional moving carpet lift was installed in the South Peak learning area to reduce wait times and better utilize the teaching terrain there for beginner and novice skiers and snowboarders. This carpet is referred to as the Middle Carpet.

A new or relocated high-speed express chairlift will be built in the West Bowl area to service the proposed new ski terrain on the western slopes of the mountain. An additional carpet lift would be built at the base of that lift for beginner skiers. The lift line for the West Bowl lift would be restricted to 50-60 wide to reduce disturbance to the sensitive forested area of Polygon D that the lift passes through.

Specifications for the planned lifts are set forth in the following table:

**TABLE III-1:
SKI LIFT SPECIFICATIONS – UPGRADING PLAN**

Map Ref	Lift Name and Type	Vert. Rise	Slope Length	Avg. Grade	Hourly Capacity	Speed	Carrier Spacing	Lift Maker/Year Installed
		(ft.)	(ft.)	(%)	(persons/hr.)	(fpm)	(ft.)	
A	Sunbowl Quad/DC4	1,058	4,292	26%	2,400	1,000	100	Poma 1992/2014
B	Spruce Quad/C4	417	1,940	23%	2,400	425	43	Doppelmayr/1985
D	<i>North Peak Quad/C4</i>	965	3,254	31%	2,400	450	45	<i>Proposed</i>
E	<i>Sunapee Express Six /DC6</i>	1,402	6,056	24%	3,000	1,000	132	<i>Proposed</i>
F	Piggyback/Handle Tow	34	300	14%	400	200	30	Borer/1994
G	Clipper Ship Quad/C4	374	1,814	19%	1,600	425	64	Poma/2000
H	Kinder/Rope Tow	30	200	13%	250	100	24	Bruckschlogl/1997
I	Little Carpet/Carpet	8	90	9%	400	50	8	Carpet/2000
J	Flying Carpet/Carpet	48	360	17%	800	100	8	Carpet/2002
K	<i>Solitude Triple/C3</i>	571	1,947	31%	1,800	450	45	<i>Proposed</i>
L	Middle Carpet/Carpet	17	130	11%	800	100	8	Carpet 2010
M	<i>West Bowl Express Quad/DC4</i>	1,082	5,186	21%	2,400	1,000	100	<i>Proposed</i>
N	<i>West Bowl Carpet</i>	25	250	10%	800	100	8	<i>Proposed</i>

Notes:

1. Lifts listed in italics are future upgraded lifts. Regular fonts describe the existing lifts.
2. Lift D represents an upgrade to an existing lift line that was previously approved in the 2000 MDP.
3. Lift K represents a new lift line that was previously approved in the 2005 MDP.
4. Lifts M and N are for the West Bowl expansion and are proposed for approval in this 2015 MDP.
5. Lift C, the existing Duckling Double, is not listed in the above table since it will be removed from service sometime in the future.

B. SKI TERRAIN

The goal of the ski terrain upgrading program is to allow for better utilization of the existing terrain, as well as provide some new, more varied terrain. Mount Sunapee plans to construct several new ski trails, including new terrain in the Ridge trails area, the new Solitude trail, a new intermediate trail in the South Peak learning area, a new terrain park trail, and the West Bowl terrain. This will add approximately 105 acres of additional terrain to Mount Sunapee's developed trail network (216 acres), for a total of 321 acres⁴ (excluding gladed trails).

A number of terrain modifications approved through the 2005–2009 and 2009–2014 MDP have been implemented. These include widening various runs in the existing resort to improve the ski experience and creating two new runs. Runs that have been widened include: Upper Cataract, Elliot Slope, Duckling Slope (Jet Stream), Toboggan Chute, Lower Ridge and Chipmunk.

Terrain modifications that were approved through the 2005–2009 and 2009–2014 MDP that have not yet been implemented include widening Upper and Lower Blast Off, Pipeline, and the construction of the Upper Outer Ridge run, K Lift/Solitude trail, and two new trails between Upper Ridge and Lower Blast Off (New Ridge, Upper Ridge). A gladed skiing area at South Peak was approved in the 2005–2009 MDP and has been implemented. The new Solitude trail will provide more advanced intermediate level skiing as well as providing better circulation. The new trails in the Upper and Outer Ridge area will create more intermediate level terrain and will provide better utilization of the western side of the existing mountain.

Additionally, lighting for night skiing on several runs in the South Peak, North Peak, and Spruce areas had been approved as part of the 2005–2009 MDP (as shown in Figure III-1).

The West Bowl expansion was proposed as part of the 2005–2009 and the 2009–2014 MDP. This expansion remains very important to Mount Sunapee's future market share and competitive positioning in the NH ski industry, and it is proposed again in this MDP.

In the past 10 years, there have been ski area expansions at many of our major competitors in New Hampshire including Loon Mountain, Cannon Mountain, and Bretton Woods. Other areas such as Ragged Mountain and Waterville Valley have announced expansion plans.

This expansion area will create a new beginner area, one novice/lower intermediate run, two new intermediate runs, and one new advanced intermediate run, for a total of approximately 56 acres of new skiing when all trails are built. This acreage has been reduced from the 75 acres that was proposed in previous MDPs. The reduction in ski trail acreage came from removing the previously proposed ski trails from the Polygon D area of the West Bowl where a sensitive environmental area has been identified.

⁴ There are currently 17 acres of glades in addition to the 216 acres of developed trail network. The upgrading program adds 105 acres of proposed developed terrain. This increases the total developed skiable acreage (excluding glades) from 216 to 321 acres, plus 17 acres of glades for a total of 338 acres (total upgrading program).

Additional terrain improvements approved as part of the previous 2009–2014 MDP include the widening of the Williamson and Stovepipe trails, widening and extending Paradise, widening Lift Line, creating a new terrain park trail between the Elliot Slope and Pipeline trail, and creating an additional lower intermediate trail in the South Peak area. The Beck Brook glades between Upper Ridge and Beck Brook trails were created in 2012.

Table III-2 lists details of the proposed terrain upgrades.

**TABLE III-2:
TERRAIN SPECIFICATIONS – UPGRADING PLAN**

Map Ref.	Trail Name	Vertical Drop	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Skier/Rider Ability Level
		(ft.)	(ft.)	(ft.)	(acres)	(%)	(%)	
42	Beck Brook	171	1008	75	1.7	17%	30%	Low Intermediate
23	Bonanza	548	2365	133	7.2	24%	38%	Intermediate
45	By Way	197	1192	108	0.6	17%	28%	Low Intermediate
55	Calypso	168	945	108	2.3	18%	29%	Low Intermediate
21	Chase Ledges	462	2109	107	5.2	23%	43%	Advanced Intermediate
25	Chipmunk	774	3817	112	9.8	21%	29%	Low Intermediate
57	Coconut Grove	67	564	257	3.3	12%	17%	Novice
13	Eastside	226	1239	79	2.2	19%	28%	Low Intermediate
46	Eggbeater	385	1911	175	7.7	21%	32%	Low Intermediate
47	Elliot Slope	412	2413	116	6.4	17%	35%	Intermediate
55	Explorer	300	2152	101	5.0	14%	25%	Novice
58	Fin	15	355	74	0.6	4%	8%	Novice
62	Flip Flop	67	498	221	2.5	14%	18%	Novice
44	Fly Way	49	1083	193	4.8	5%	10%	Low Intermediate
12	Fox Run	208	1731	48	1.9	12%	27%	Low Intermediate
39	Goose Bumps	625	1944	74	3.3	34%	53%	Expert
51	Guster	80	795	44	0.8	10%	13%	Low Intermediate
22	Hansen Chase	369	1595	152	5.6	24%	31%	Low Intermediate
17	Hawes's Hideout	258	843	49	1.0	32%	43%	Expert
48	Jet Stream	395	2115	149	7.3	19%	34%	Intermediate
18	Kartwheel	236	888	72	1.5	28%	39%	Intermediate
24	Kick Back	73	307	131	0.9	25%	27%	Low Intermediate

**TABLE III-2:
TERRAIN SPECIFICATIONS – UPGRADING PLAN**

Map Ref.	Trail Name	Vertical Drop	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Skier/Rider Ability Level
		(ft.)	(ft.)	(ft.)	(acres)	(%)	(%)	
59	Lemon	50	401	121	1.1	13%	15%	Novice
8	Lift Line	405	1583	154	5.6	27%	35%	Intermediate
60	Lime	37	432	91	0.9	9%	13%	Novice
27	Lower Blast Off	715	3993	93	8.6	18%	33%	Intermediate
11	Lower Cataract	200	903	105	2.2	23%	36%	Intermediate
4	Lower Crossover	52	351	51	0.4	15%	25%	Low Intermediate
38	Lower Flying Goose	345	1388	123	3.9	26%	35%	Intermediate
29	Lower Ridge	454	3004	129	8.9	15%	25%	Low Intermediate
7	Lower Wingding	331	1735	116	4.6	20%	33%	Intermediate
43	Lynx	929	3151	134	9.7	31%	47%	Advanced Intermediate
6	Middle Wingding	363	1462	176	5.9	26%	40%	Intermediate
31	Old Goat	48	359	37	0.3	14%	25%	Low Intermediate
30	Outer Ridge	564	3753	115	9.9	15%	31%	Low Intermediate
54	Paradise	162	1195	99	2.7	14%	19%	Novice
49	Pipeline	420	2108	176	8.5	20%	31%	Low Intermediate
3	Porky's	78	556	48	0.6	14%	36%	Intermediate
32	Portage	99	543	82	1.0	19%	26%	Low Intermediate
61	Promenade	43	327	377	2.8	13%	17%	Novice
	Little Carpet	28	168	120	1.5	10%	10%	Beginner
53	Province	363	2286	122	6.4	16%	28%	Novice
19	Skyway Ledges	197	1006	80	1.9	20%	37%	Intermediate
14	Skyway	543	2250	124	5.9	25%	37%	Intermediate
64	Smooth Sail'n	130	930	118	2.4	14%	22%	Novice
65	Spinnaker	215	823	49	0.9	27%	36%	Intermediate
1	Stovepipe	132	929	119	2.5	14%	27%	Low Intermediate
9	Sundance	149	794	107	1.9	19%	29%	Low Intermediate
63	Sunnyside Down	38	396	55	0.5	10%	18%	Novice
40	Toboggan Chute	185	1660	56	2.1	11%	21%	Low Intermediate
26	Upper Blast Off	619	2486	97	5.5	26%	38%	Advanced Intermediate

**TABLE III-2:
TERRAIN SPECIFICATIONS – UPGRADING PLAN**

Map Ref.	Trail Name	Vertical Drop	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Skier/Rider Ability Level
		(ft.)	(ft.)	(ft.)	(acres)	(%)	(%)	
10	Upper Cataract	338	1235	118	3.3	29%	39%	Advanced Intermediate
4	Upper Crossover	46	480	37	0.4	10%	11%	Low Intermediate
37	Upper Flying Goose	601	1815	140	5.8	35%	43%	Advanced Intermediate
41	Upper Hansen Chase	153	793	90	1.6	20%	31%	Advanced Intermediate
28	Upper Ridge	940	5735	110	14.4	17%	31%	Low Intermediate
5	Upper Wingding	324	1377	141	4.4	24%	32%	Intermediate
20	West Side	330	1564	97	3.5	22%	37%	Intermediate
2	Williamson Trail	800	5071	100	11.7	16%	24%	Low Intermediate
66	<i>K Lijt/ Solitude Trail</i>	576	2072	150	7.2	29%	49%	Advanced Intermediate
67	<i>Upper Outer Ridge</i>	482	1954	125	5.6	27%	36%	Intermediate
68	<i>New Ridge Trail</i>	537	2620	125	7.6	21%	33%	Low Intermediate
69	<i>Paradise Extension</i>	115	513	148	1.7	23%	45%	Intermediate
70	<i>New South Peak Trail</i>	225	1,221	149	4.2	19%	45%	Intermediate
71	<i>New Spruce Quad Trail</i>	215	1025	111	2.6	24%	31%	Intermediate
W1	<i>West Bowl 1</i>	386	3824	90	7.9	10%	20%	Low Intermediate
W2	<i>West Bowl 2</i>	535	3298	110	8.2	17%	36%	Intermediate
W3	<i>West Bowl 3</i>	595	2816	120	7.7	22%	35%	Advanced Intermediate
W4	<i>West Bowl 4</i>	862	4568	125	13.1	19%	31%	Low Intermediate
W5	<i>West Bowl 5</i>	1067	6177	130	18.5	18%	39%	Intermediate
	<i>West Bowl Carpet</i>	25	250	392	1.0	10%	10%	Beginner
TOTAL			121,029		321.1			

The following table and chart compares the existing distribution of terrain by skier ability level with the distribution after upgrading. These exhibits show that the upgraded trail network at Mount Sunapee will accommodate a range of skier ability levels from Beginner to Expert.

The terrain distribution figures indicate a shortage of Beginner, Novice, Intermediate, Advanced Intermediate, and Expert terrain, and a surplus of Low Intermediate terrain.

The significant surplus of Low Intermediate terrain skews the rest of the percentages. However, this is reflective of Mount Sunapee's target market. Since Mount Sunapee is positioned as a family-oriented, lower ability level resort within the region, the abundance of lower level terrain is a positive attribute.

With the addition of the proposed Intermediate and Advanced Intermediate terrain, the distribution figures indicate a slightly closer match between the type of terrain being offered by the upgrading plan and the ability level profile of the region's skier market. This will provide for a better balanced resort.

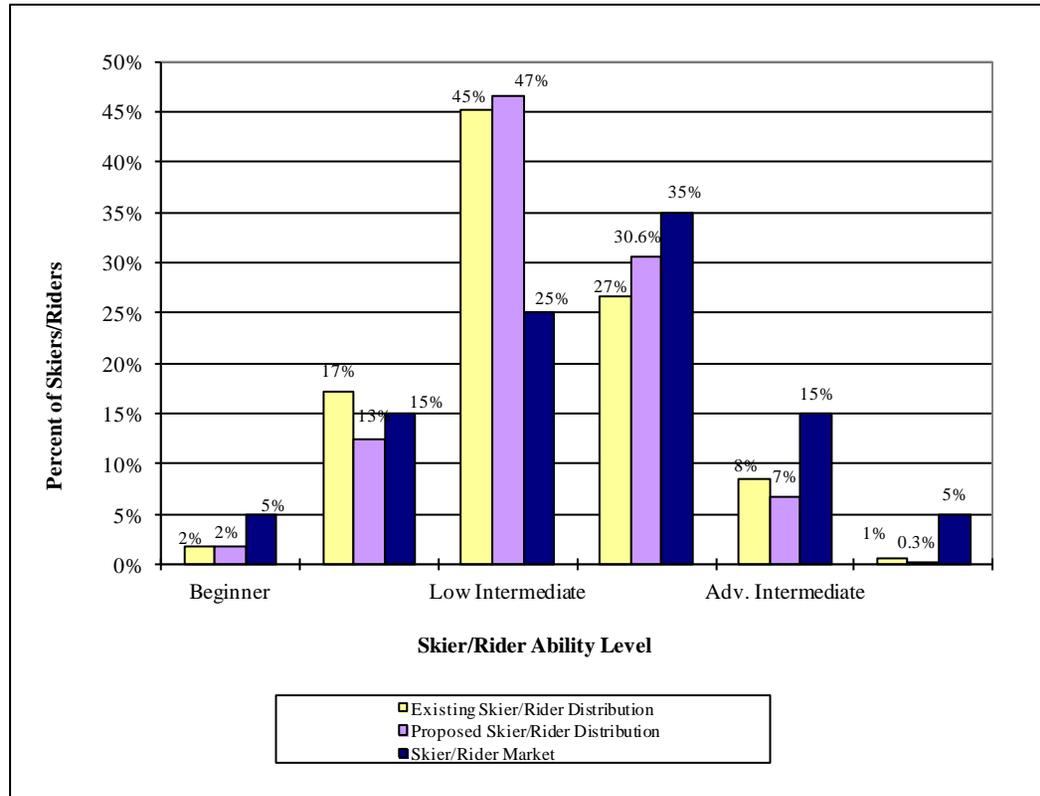
The deficit of Expert level terrain will continue to be mitigated by the existing gladed areas, and the new lower level terrain will continue to fit with Mount Sunapee's market position.

**TABLE III-3:
TERRAIN DISTRIBUTION BY ABILITY LEVEL – UPGRADING PLAN**

Skier/Rider Ability Level	Trail Area	Skier/Rider Capacity	Existing Skier/ Rider Distribution	Skier/Rider Market
	(acres)	(guests)	(%)	(%)
Beginner	2.0	60	2%	5%
Novice	28.5	427	13%	15%
Low Intermediate	132.1	1588	47%	25%
Intermediate	109.2	1096	31%	35%
Adv. Intermediate	46.0	230	7%	15%
Expert	3.3	10	< 1%	5%
TOTAL	321.1	3,411	100%	100%

Note: Table III-3 includes acreage for developed ski trails only. It excludes gladed trails in the woods (17 acres).

**CHART III-1:
TERRAIN DISTRIBUTION BY ABILITY LEVEL – UPGRADING PLAN**



C. COMFORTABLE CARRYING CAPACITY

The calculation of Mount Sunapee’s Upgrading Plan CCC is described in the following table. As illustrated, the upgrading program increases the CCC of the lift and trail network at Mount Sunapee to about 6,850 guests per day, an increase of 1,720 guests, or 33%.

**TABLE III-4:
CALCULATION OF COMFORTABLE CARRYING CAPACITY – UPGRADING PLAN**

Map Ref.	Lift Type	Slope Length	Vert. Rise	Hourly Capacity	Oper. Hours	Access Reduction	Misloading Stopping	Adjusted Hrly. Cap.	VTF/Day	Vertical Demand	CCC
		(ft.)	(ft.)	(persons/hr.)	(hrs.)	(%)	(%)	(persons/hr.)	(000)	(ft./day)	(guests)
A	Sunbowl Quad/DC4	4,292	1,058	2,400	7.00	10	5	2,040	15,108	13,467	1,120
B	Spruce Quad/C4	1,940	417	2,400	7.00	0	10	2,160	6,305	8,396	750
D	North Peak Quad/C4	3,254	965	2,400	7.00	10	10	1,920	12,970	14,421	900
E	Sunapee Express Six/DC6	6,056	1,402	3,000	7.00	20	5	2,250	20,806	18,034	1,220
F	Piggyback/Handle Tow	300	34	400	7.00	0	20	320	76	850	90
G	Clipper Ship Quad/C4	1,814	374	1,600	7.00	0	10	1,440	3,770	5,066	740
H	Kinder/Rope Tow	200	30	250	7.00	0	20	200	42	1,475	30
I	Little Carpet/Carpet	90	8	400	7.00	0	20	320	18	310	60
J	Flying Carpet/Carpet	360	48	800	7.00	0	20	640	215	1,254	170
K	Solitude Triple/C3	1,947	571	1,800	7.00	10	10	1,440	5,756	13,377	430
L	Middle Carpet/Carpet	130	17	800	7.00	0	20	640	63	690	90
M	West Bowl Express/DC4	5,027	1,071	2,400	7.00	10	5	2,040	15,294	13,585	1,130
N	West Bowl Carpet	250	25	800	7.00	0	20	640	112	909	120
TOTAL		25,660		19,450				16,050	80,535		6,850

Notes:

1. Upgrades to lift A, B and D, and the installation of lift K, which were approved in the 2005–2009 MDP but not yet been implemented, will increase Mount Sunapee’s CCC to 5,600.
2. The addition of Lifts M and N, proposed for the West Bowl expansion, will increase Mount Sunapee’s CCC to the full build-out of 6,850.
3. The existing Duckling Double, is not listed in the above table, III-4 or the following table III-5, since it will likely be removed from service sometime in the future.

D. SKI TRAIL DENSITY ANALYSIS

The trail density analysis compares the calculated trail density for each lift pod to the desired trail density for that pod.

The existing densities at Mount Sunapee are at desirable levels. Since significant increases in skier density would decrease the quality of the skiing experience, it is a goal to balance increases in lift capacity with commensurate increases in terrain capacity. The density analysis for the upgrading plan at Mount Sunapee is illustrated in Table III-5. The last line of the table shows that this goal has been accomplished, with densities remaining at desirable levels.

**TABLE III-5:
SKI TRAIL DENSITY ANALYSIS – UPGRADING PLAN**

Lift Number	Daily Capacity	Disbursement of Skier/Rider Population				Trail Density Analysis				Density Index
		Support Fac./Milling	Lift Lines	On Lift	On Trails	Trail Area	Trail Density	Target Trail Density	Diff.	
	(CCC)	(guests)	(guests)	(guests)	(guests)	(acres)	(guests/ac.)	(guests/ac.)	(+/-)	(%)
A	1,120	280	218	146	476	58.2	8	10	-2	80%
B	750	188	180	164	218	29.7	7	11	-4	64%
D	900	225	256	222	197	27.2	7	9	-2	78%
E	1,220	305	150	206	559	102.1	5	10	-5	50%
F	90	23	37	8	22	1.3	16	15	1	107%
G	740	185	163	102	290	29.4	10	14	-4	74%
H	30	8	7	7	8	1.0	8	27	-19	30%
I	60	15	21	10	14	0.8	19	30	-11	63%
J	170	43	43	38	46	4.4	10	15	-5	67%
K	430	108	120	104	98	8.7	11	6	5	183%
L	90	23	32	14	21	1.4	15	15	0	100%
M	1,130	283	296	171	380	56.4	7	10	-3	70%
N	120	30	32	27	31	0.5	26	30	-17	87%
TOTAL	6,850	1,716	1,555	1,219	2,360	321.1	8	11	-3	74%

E. MAINTENANCE FACILITIES, UTILITIES, AND SNOWMAKING COVERAGE

1. Maintenance Facilities

Some of the resort's existing maintenance facilities have been renovated since the last MDP, and will continue to be renovated as part of on-going maintenance activities. No new maintenance facilities are proposed to be built as a part of this master plan within the existing leasehold area.

Maintenance of all facilities at Mount Sunapee including roof replacements, siding replacements, window replacements, equipment replacements, etc., are part of our on-going maintenance of the facilities at Mount Sunapee. Minor projects, which are mostly routine maintenance projects or small projects which do not require local or state permits, which are not described in the MDP may be described in the Annual Operating Plan. Maintenance of the facilities is discussed in the AOP, and performed in accordance with the terms of the Lease and Operating Agreement.

2. Utilities

Upgrades to the existing sewer system may include expanding the sprayfield lines.

The new lifts and lift upgrades may require service upgrades in Mount Sunapee's power supply. For example, the existing single phase, 220 volt service on the Bowl Road was upgraded to 480 volt, 3-phase service in 2014 when the Sunbowl Express Quad chairlift was installed.

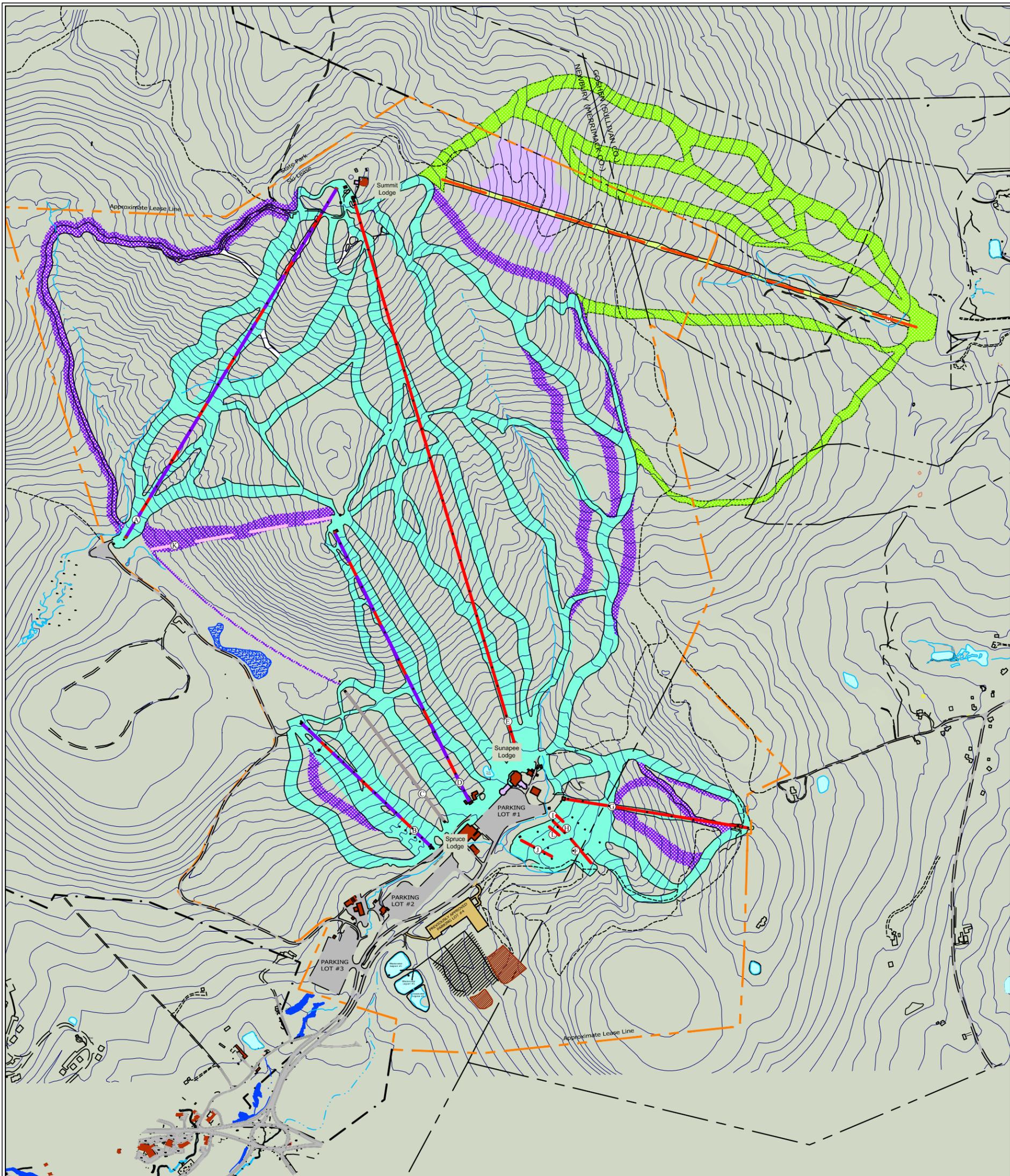
The addition of the West Bowl facility will require installing a water supply system to that area. No upgrades to the resort's main water supply system are proposed at this time. The West Bowl facility will also require installing a sewer system to serve the West Bowl facility.

3. Snowmaking System

Expansion of the resort's snowmaking system is an important part of the upgrading plan. Ensuring a reliable and quality skiing product on the proposed trails is critical to the reputation and development of the resort as a whole. In conjunction with the terrain modifications, the installation of snowmaking infrastructure on 18 acres of existing ski trails, along with 105 acres of new ski trails, will add approximately 123 additional acres of new snowmaking coverage. Whenever Mount Sunapee proposes to build a new ski trail, the installation of snowmaking pipes and snowmaking equipment on the new trail is always a planned requisite for the trail.

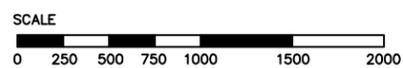
Mount Sunapee's currently permitted water rights from the NH-Department of Environmental Services to use water from Lake Sunapee for winter snowmaking operations are sufficient to accommodate the proposed increases in snowmaking coverage for the additional ski trails that are proposed in this MDP. See Figure III-4 for a snowmaking coverage map. Both existing and expanded snowmaking coverage is illustrated on the Snowmaking Coverage map.

Figure III-4: Snowmaking Coverage



LEGEND

- | | | | | | |
|---|-----------------------------------|---|--|---|---|
|  | EXISTING CONTOURS -25ft. Interval |  | EXISTING LIFTS |  | EXISTING SNOWMAKING |
|  | EXISTING STREAMS & WETLANDS |  | EXISTING LIFTS TO BE REMOVED |  | PREVIOUSLY APPROVED, NOT YET IMPLEMENTED SNOWMAKING |
|  | EXISTING LAKES & PONDS |  | PREVIOUSLY APPROVED PROPOSED LIFTS |  | PREVIOUSLY PROPOSED/NOT APPROVED WEST BOWL EXPANSION SNOWMAKING |
|  | EXISTING ROADS AND PARKING |  | PREVIOUSLY APPROVED LIFT UPGRADING |  | POLYGON D |
|  | EXISTING BUILDINGS |  | PREVIOUSLY PROPOSED/NOT APPROVED LIFTS |  | HIKING TRAIL |
|  | EXISTING VEGETATION AND RUNS |  | APPROX. LEASE BOUNDARY | | |



Title
Snowmaking Coverage

Figure Number:
III-4

Project Number: 09033/001
File: M Snowmaking.dwg



Scale: 1"=1000' North

Date: 12/01/2015

Drawn By: MJL

Checked By: CLH



F. SKIER SERVICES BUILDINGS

Improved and expanded skier services will be offered at Mount Sunapee upon completion of the upgrading program. Sufficient space must be provided to accommodate the upgraded resort CCC of 6,850 guests per day. Base area improvements include:

I.) Previously approved improvements from the 2005–2009 MDP that are not yet implemented:

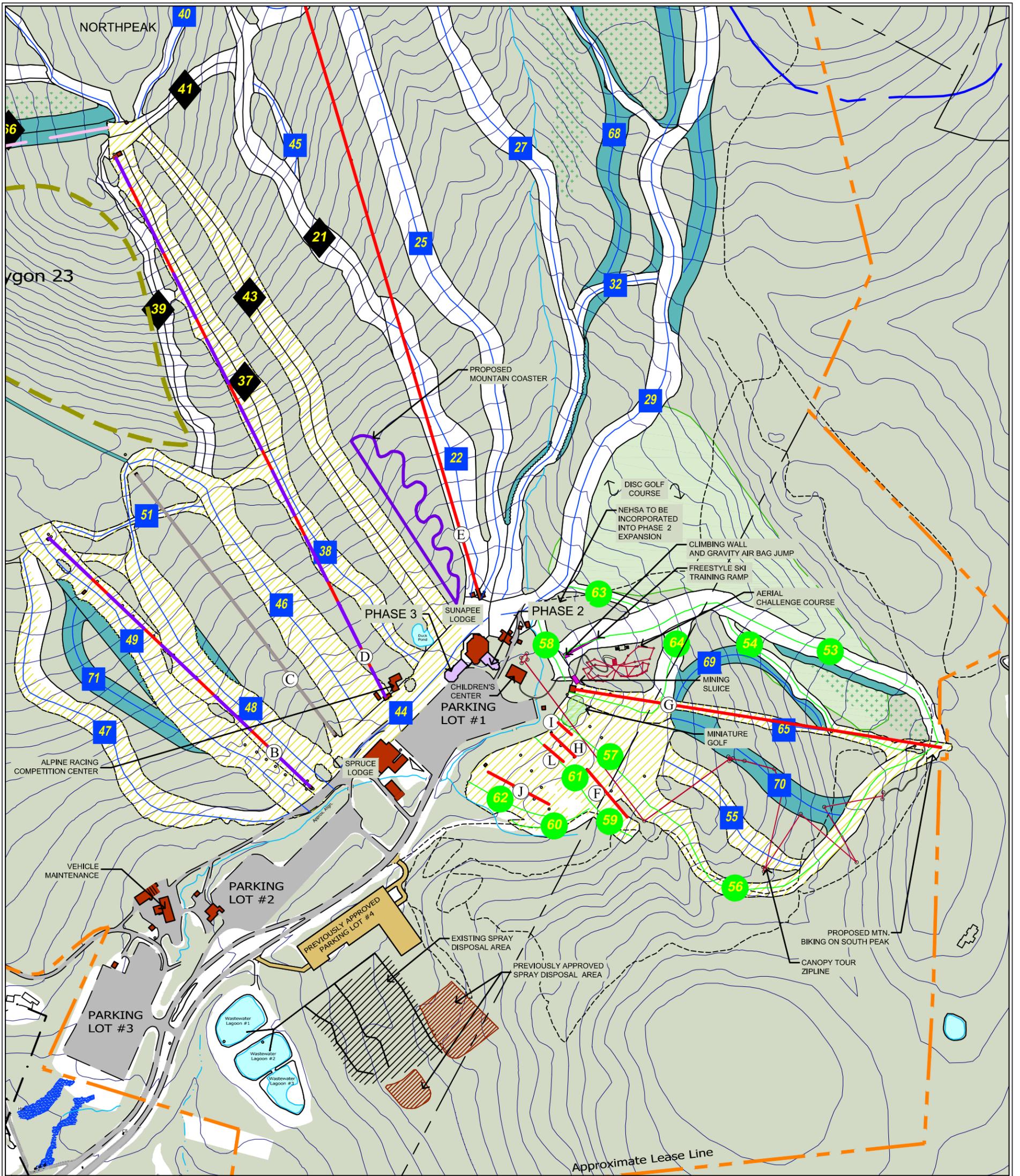
- Construction of Phases II (approximately 10,000 square feet) and III (approximately 15,000 square feet) of the Sunapee Lodge.
- Relocate the NEHSA building, or include it as a component of Sunapee Lodge Phase II addition.
- Renovate and expand the Spruce Lodge.
- Renovate and expand the Summit Lodge.
- Construct new Parking Lot #4.

II.) Projects that are proposed for approval *outside* of the existing leasehold boundary, the West Bowl ski area expansion:

- Construct a new base lodge facility with basic skier services in the West Bowl.
- Construct a new parking lot in the West Bowl.

Based upon the upgraded CCC of 6,850 skiers, tables III-6 and III-7 below, compare the current space use allocations of the visitor service functions to industry standards for a resort of similar size and market orientation as Mount Sunapee.

Figure III-5: Base Area Upgrading Plan



LEGEND

	EXISTING CONTOURS -25ft. Interval		EXISTING LIFTS		PREVIOUSLY APPROVED PROPOSED PARKING
	EXISTING STREAMS & WETLANDS		EXISTING LIFTS TO BE REMOVED		APPROX. LEASE BOUNDARY
	EXISTING LAKES & PONDS		PREVIOUSLY APPROVED PROPOSED LIFTS		HIKING TRAIL
	EXISTING ROADS AND PARKING		PREVIOUSLY APPROVED LIFT UPGRADING		PREVIOUSLY APPROVED NIGHT LIGHTING
	EXISTING BUILDINGS		PREVIOUSLY APPROVED TERRAIN		
	EXISTING VEGETATION AND RUNS		PREVIOUSLY APPROVED PROPOSED BUILDINGS		
	EXISTING GLADES				



Title
Base Area Upgrading Plan
Figure Number:
III-5
Project Number: 09033/001
File: M Conditions 3.dwg



Scale: 1"=500' North
Date: 12/01/2015
Drawn By: MJL
Checked By: CLH



**TABLE III-6:
TOTAL SPACE USE RECOMMENDATIONS (SQ. FT.) – UPGRADING PLAN
MAIN BASE AREA CCC=5,600**

Service Function	Existing Total	Recommended Range		Difference from Recommended	
		Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	3,250	2,360	2,880	890	370
Public Lockers	580	3,930	4,800	-3,350	-4,220
Rentals/Repair	2,825	5,550	7,400	-2,725	-4,575
Retail Sales	3,540	3,090	3,780	450	-240
Bar/lounge	1,340	4,710	5,760	-3,370	-4,420
Adult Ski School	2,927	2,220	2,710	-133	-623
Kid's Ski School	1,000	4,930	6,030	-3,930	-5,030
Restaurant Seating	19,404	21,390	26,150	-1,986	-6,746
Kitchen/Scramble	5,875	6,420	7,840	-545	-1,965
Rest rooms	3,035	4,810	5,880	-1,775	-2,845
Ski Patrol	2,100	2,410	2,940	-900	-1,430
Administration	3,888	3,140	3,840	748	48
Employee Lockers/Lounge	1,320	1,570	1,920	1,270	920
Mechanical	1,748	1,800	2,700	-52	-952
Storage	4,412	2,990	4,510	1,422	-98
Circulation/Waste	9,775	7,190	10,810	2,585	-1,035
TOTAL SQUARE FEET	67,019	78,510	99,950	-11,401	-32,841

**TABLE III-7:
TOTAL SPACE USE RECOMMENDATIONS (SQ. FT.) – UPGRADING PLAN
WEST BOWL BASE AREA CCC=1,250**

Service Function	Recommended Range	
	Recommended Low Range	Recommended High Range
Ticket Sales/Guest Services	420	510
Public Lockers	690	850
Rentals/Repair	-	-
Retail Sales	680	830
Bar/lounge	-	-
Adult Ski School	250	300
Kid's Ski School	-	-
Restaurant Seating	4,500	5,500
Kitchen/Scramble	1,350	1,650
Rest rooms	1,010	1,240
Ski Patrol	510	620
Administration	-	-
Employee Lockers/Lounge	-	-
Mechanical	250	380
Storage	420	630
Circulation/Waste	1,020	1,520
TOTAL SQUARE FEET	11,100	14,030

Some of the existing deficits, as shown in Table III-6 on page 53, will be addressed in the proposed expansions of the Sunapee and Summit lodges, and in the proposed new base lodge facility in the West Bowl area. Mount Sunapee may address some of the deficits by repurposing and/or modifying existing space to better serve our guests.

Food service seating is an important deficit at Mount Sunapee that is addressed in this MDP. Food service seating will continue to be provided at the base area in the expanded Spruce and Sunapee lodges, and on-mountain at the expanded Summit Lodge.

A key factor in evaluating restaurant capacity is the turnover rate of the seats. A turnover rate of three to five times is the standard range utilized in determining restaurant capacity. Sit-down dining at ski areas typically results in a turnover rate of three, while “fast food” cafeteria style dining is characterized by a higher turnover rate. Furthermore, weather has an influence on turnover rates at ski areas, as on cold or snowy days skiers will spend more time indoors than on milder, sunny days.

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

**TABLE III-8:
PROPOSED FOOD SERVICE SEATING RECOMMENDATIONS**

Building/Location	Base Area	Summit	West Bowl	Total
Lunchtime Capacity (CCC+5%)	4,773	1,170	1,250	7,193
Average Seat Turnover	3	3.5	3.5	
Existing Seats	1,225	191		1,416
Required Seats	1,591	334	357	2,282
Difference	-366	-143	-357	-866

Source: SE Group

Due to frequent cold and inclement weather, an average turnover rate of 3 was used for the Base Area and 3.5 at the Summit Lodge and West Bowl.

As shown in Table III-8, there is a deficiency in seating capacity of -866 seats as compared to ideal seating recommendations. The seating shortage will continue to be somewhat mitigated by the children’s lunches provided in the Learning Center, and by the fact that outdoor deck seating is available at the Spruce Lodge and the Summit Lodge. As the ski area is upgraded, additional food service seating will be provided at both the Spruce and Sunapee Lodges, at the on-mountain Summit Lodge and in the new West Bowl Lodge.

G. PARKING AND ROADS

Total parking capacity must be balanced with the resort’s CCC. All day skiers come to Mount Sunapee in cars or buses and park in the day-skier parking lots. There are no overnight accommodations available at Mount Sunapee Resort to provide additional parking. Compared with all other major New Hampshire ski areas, Mount Sunapee has significantly fewer rooms available in the local lodging sector.

**TABLE III-9:
PARKING REQUIREMENTS – PROPOSED CONDITIONS**

	Multiplier	Main Base Area (CCC = 5,600)	West Bowl (CCC = 1,250)	Total
CCC plus non-ski guests	2%	5,729	1,250	6,979
Percent parking at portal		100	100	
Number parking at portal	100%	5,729	1,250	6,979
Net number requiring parking		5,729	1,250	6,979
Number of guests arriving by car	95%	5,443	1,188	6,630
Number of guests arriving by charter bus	5%	286	63	349
Required car parking spaces	2.70	2,016	440	2,456
Required charter bus parking spaces	35.00	8.2	1.8	10
Equivalent car spaces (1 bus=4.5 car)	4.5	36.8	8.0	45
Required employee car parking spaces	4.5%	229	25	279
Total required spaces		2,282	473	2,755
Existing parking spaces		1,830	0	1,830
Proposed parking spaces		272	450	722
Surplus/Deficit		-180	-23	-203

Note: existing parking – Lot 1=545 cars, Lot 2=510 cars, Lot 3=775 cars

Lot #4 will be built in the existing main base area with approximately 272 parking spaces. A day skier parking lot will be built in the West Bowl base area with approximately 450 parking spaces. Based upon the upgraded CCC objective of 6,850 skiers, there will still be a deficit in skier parking (see Table III-9 above). The overflow parking provided at the State beach parking lot (capacity 450 cars) will continue to be utilized on peak days.

H. SUMMER ADVENTURE PARK

Mount Sunapee plans to continue its summer Adventure Park improvements as an integral part of its annual operations. The existing activities were developed with great care to preserve the essential character of Mount Sunapee. Both the type of activities and their locations were carefully considered to fit into the existing Mount Sunapee operations and to appeal to our guests. That same thought process will be used in the next phases of the Adventure Park.

An Alpine Slide has been proposed since the first MDP in 2000, but it has not been approved by DRED to date and therefore has not been constructed. During this period, a similar but different device has been developed which is called a Mountain Coaster. Mount Sunapee proposes installing a Mountain Coaster instead of an Alpine Slide in this MDP.

The benefits include the fact that the Mountain Coaster vehicle is secured to the track rather than an unattached vehicle traveling within an open half-pipe on the Alpine Slide. Also, the Mountain Coaster's track is elevated and may be installed with minimal ground disturbance. Additionally, the Mountain Coaster carrier is a self-propelled unit traveling uphill on its track, so it does not require the use of a chairlift to transport guests uphill to the starting position as the Alpine Slide does.

Another desirable feature of the Mountain Coaster is the ability to locate it in the woods to provide an experience similar to the other Adventure Park activities at Mount Sunapee. Mount Sunapee's staff has visited several ski areas with Mountain Coasters, and have found that some are located in open areas, some in a combination of open areas and woods, and some primarily in the woods (Jiminy Peak MA).

We found the design of the Jiminy Peak Mountain Coaster to be a good design choice for Mount Sunapee. The proposed location is in the woods to the east of the Sunapee Express Quad chairlift between the Hansen-Chase and Lynx ski trails.

Other proposed activities in the summer Adventure Park include the continued development of Mountain Biking trails, as described in the 2011 Summer Recreational Program Proposal.

The locations of the Mountain Coaster and Mountain Biking trails are illustrated in Figure III-3 on page 37.

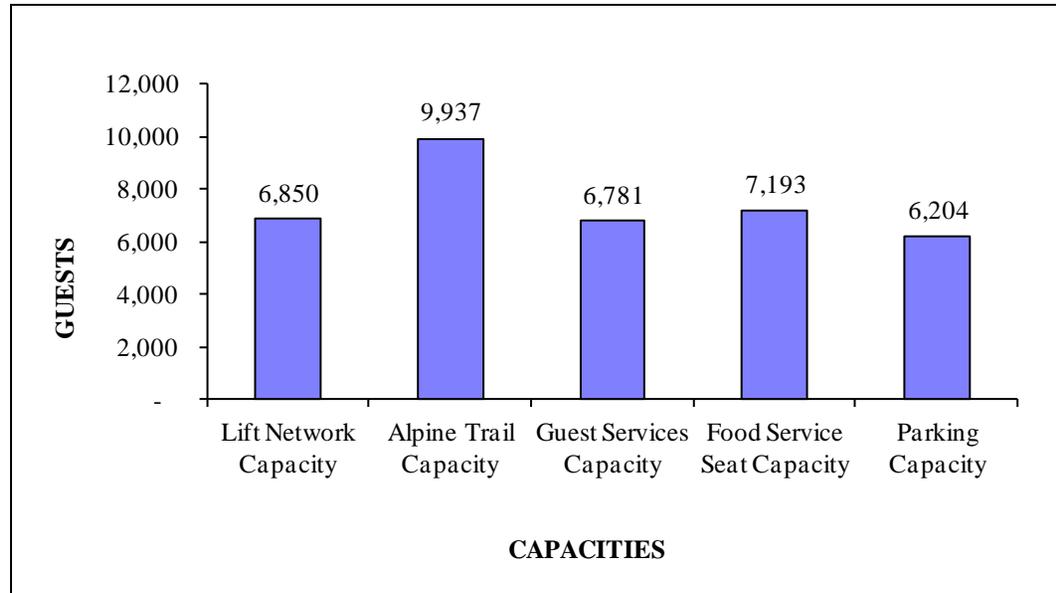
It is again noted that over the next five years, minor improvements to the Adventure Park and other Mount Sunapee facilities may be presented in the Annual Operating Plan (AOP), and in accordance with the terms of the Lease and Operating Agreement.

An example of this is the Cold River Company "Mining Sluice" which is described in the 2014 AOP. It is a relatively small, portable unit that may be set-up for summer use in the Adventure Park but removed and stored away in the winter.

I. RESORT BALANCE AND LIMITING FACTORS

The overall balance of the ski area is evaluated by calculating the capacities of the resort’s various facilities, as compared to the resort’s CCC. The above discussed capacities are shown in Chart III-2.

**CHART III-2:
RESORT BALANCE – UPGRADING PLAN**



Factors that previously limited Mount Sunapee from reaching the CCC, while maintaining a quality guest experience, will be upgraded in conjunction with the lift network.

Skier services space, restaurant seating, and parking capacity will be improved with the upgraded CCC of the ski area, bringing the resort into a better overall balance. The higher capacity of the trail network is a design objective that results in desirably low ski trail densities.

VI. DESIGN CRITERIA

The upgrading and expansion of a ski area is influenced by a variety of ski facility design criteria that help to create a quality ski experience. This section will briefly discuss these factors as they apply to Mount Sunapee.

A. TRAIL DESIGN

1. Fall-Line

The Fall-Line Analysis evaluates the natural fall-lines of mountainous terrain, with the fall-line representing the path an object would take as it descends a slope under the influence of gravity. Fall-line paths indicate the natural flow of potential ski trail routes, from the top of mountain ridges to the valleys and base areas below. Consistency of fall-line provides for the best recreational skiing experience and results in the least amount of environmental disruption due to the minimal amount of terrain modification required for trail construction.

2. Slope Gradients and Terrain Breakdown

The following gradients were used to determine the skier ability level of the mountain terrain:

**TABLE IV-1:
ACCEPTABLE TERRAIN GRADIENTS**

Skier Ability	Slope Gradient
Beginner	8 to 12%
Novice	to 25% (short pitches to 30%)
Low Intermediate	to 30% (short pitches to 35%)
Intermediate	to 40% (short pitches to 45%)
Advanced Intermediate	to 50% (short pitches to 55%)
Expert	over 50% (maximum of 80%)

Source: SE Group

The distribution of terrain by skier ability level and slope gradient is then compared with the market demand for each ability level. The available ski terrain should be capable of accommodating the full range of ability levels consistent with market demand. The ideal breakdown of terrain for the Northeastern skier market is shown below, illustrating that intermediate skiers comprise the bulk of market demand.

**TABLE IV-2:
SKIER ABILITY BREAKDOWN**

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

Source: SE Group

3. Trail Density

The calculation of capacity for a ski area is based in part upon the acceptable number of skiers that can be accommodated on each acre of ski terrain at any one given time. The specific density criteria used for Mount Sunapee are listed in Table IV-3.

**TABLE IV-3:
SKIER DENSITY PER ACRE**

Skier Ability	Trail Density
Beginner	30 skiers/acre
Novice	15 skiers/acre
Low Intermediate	12 skiers/acre
Intermediate	10 skiers/acre
Advanced Intermediate	5 skiers/acre
Expert	3 skiers/acre

Source: SE Group

These density figures account for the skiers that are actually populating the ski 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. These criteria assume that on an average day approximately 33% of the total number of skiers in the area will be on the trails at any one time. The densities listed above have been used in the analysis of Mount Sunapee's trail densities.

4. Trail System

Each trail must have generally consistent grades to provide an interesting and challenging experience for skiers with the ability level for which the trail is designed. Optimum trail widths should vary depending upon topographic conditions and the caliber of the skier being served. The trail network must minimize cross-traffic and should provide the full range of ability levels consistent with market demand. The trails must be designed and constructed to minimize off fall-line conditions and to avoid bottlenecks and convergence zones that might produce skier congestion.

In summary, a broad range of skiing terrain must be provided in order to satisfy skiers from beginner through expert ability levels within the natural topographic characteristics of the site.

B. LIFT DESIGN

Ski lifts should be placed to serve the available ski terrain in the most efficient manner. A myriad of factors should be considered including wind conditions, round-trip skiing and access needs, interconnectability between other lifts and trails, and the need for circulatory space at the lower and upper terminal sites. The vertical rise and length of ski lifts for a particular mountain are the primary measures of overall attractiveness and marketability of a ski area.

C. CAPACITY ANALYSIS AND DESIGN

Comfortable Carrying Capacity (CCC) is defined as an optimal level of utilization for the ski area (the number of visitors that can be accommodated at any given time) that guarantees a pleasant recreational experience, without overburdening the resort infrastructure.

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 can be planned, including base lodge seating, mountain restaurant requirements, sanitary facilities, parking, and other skier services with proper identification of the mountain's true capacity. The CCC figure is based upon a combination of the uphill hourly capacity of the lift system, the downhill capacity of the trail system, and the total amount of time spent in the lift waiting line, on the lift itself, and in the downhill descent.

D. BASE AREA DESIGN

Particular consideration should be given to the relationship between the base area and the mountain facilities. Upon arrival at the ski area, skiers should be able to move directly from parking, through ticketing or rentals, to the base of the lifts. Walking distance and vertical differential between the base area facilities and lifts should be minimized in an effort to move skiers directly onto the mountain. Vehicle, pedestrian, and skier circulation should be coordinated to create an organized and pleasant base area environment.

E. BALANCE OF FACILITIES

The mountain master planning process emphasizes the importance of balancing recreational facility development. The size of the skier service functions must be matched to the CCC of the mountain. The future development of a ski area should be designed and coordinated to maintain a balance between skier demand, ski area capacity (lifts and trails), and the supporting equipment and facilities (e.g., grooming machines, day lodge services and facilities, utility infrastructure, access, and parking).