



# MOUNT SUNAPEE

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**MOUNT SUNAPEE  
ENVIRONMENTAL MANAGEMENT PLAN (2016-2020)**

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**DECEMBER 1, 2015**



**131 CHURCH STREET - SUITE 204  
BURLINGTON, VERMONT 05401**

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## I. INTRODUCTION

Mount Sunapee is dedicated to the protection of the environment by ensuring that the values of environmental stewardship are in the forefront of our planning efforts. We understand the balance between resource protection, recreational opportunity and fiscal responsibility. All three must be in harmony to achieve our management goals and those set forth in the Lease and Operating Agreement.

Pursuant to Section 15 of the Lease and Operating Agreement (herein “the Lease”) signed with the State of New Hampshire Department of Resources and Economic Development (DRED) on April 30, 1998, Mount Sunapee submits this Environmental Management Plan (EMP).

The Master Development Plan (MDP) provides a broad road map for the major improvements that will be made over the next five to ten years at Mount Sunapee. The focus of this EMP is to respond to the overall impacts of the proposed MDP, recognizing its generalities.

This EMP will address existing environmental conditions within the leasehold and anticipate environmental impacts from the proposed expansion into the West Bowl area. We have created this document around the specific environmental categories mentioned in Section 15, Environmental Practices, in the Lease and Operating Agreement. We have also added several categories to address other potential environmental and development concerns. Where appropriate, we have also addressed the continued implementation of the summer Adventure Park and non-winter uses on relevant criteria of the EMP.

At this time, it is not possible to address all potential impacts from the implementation of the MDP. During the state and local permitting process, additional information will be provided with the Site Plan Review application to DRED, the Towns of Newbury and Goshen, and with the applicable applications to the New Hampshire Department of Environmental Services (NHDES).

When the West Bowl expansion was originally proposed in 2005, many studies were conducted to assess this project’s feasibility and environmental impacts. These studies included wildlife habitat, rare and endangered species, wetlands, watershed run-off, traffic and economic impacts. These studies will be updated during the state and local permitting process for this project, and the EMP will be updated as information becomes publicly available.

For reference, we have included the original West Bowl impact studies in this EMP since much of the information is still relevant, and we have addressed other areas where our planning provides some guidance towards creating an environmental management approach.

As the projects described in the MDP move forward, specific design plans will be created and the potential impacts will be addressed at a level of detail appropriate to their scale and required permitting.

## II. WATER USAGE AND CONSERVATION

### A. WATER USAGE

#### 1. Potable Water

Mount Sunapee continues to renovate and improve our potable water system. The initial effort to bring all of these systems into compliance with relevant State standards has been completed. Mount Sunapee continues to maintain, monitor and test the potable water supply in accordance with NHDES regulations.

A certified hydrogeologist tested the Mount Sunapee base area well in 1999 to determine its capacity (see Appendix F). The test found that this well has a design flow rate of 73.1 gallons per minute (gpm) or 105,216 gallons per day (gpd). This capacity provides the resort base area with enough capacity. This well is located at the base of the Duckling Lift within a 400-foot radius Sanitary Protection Area (SPA). The SPA does not allow for the storage of petroleum products or the use of chemical fertilizers in the area.

The vast majority of potable water consumption at Mount Sunapee occurs during the winter ski season. Over the past five years the average annual potable water usage from the base area well has been approximately 1,402,900 gallons. Additional wells service the much lower potable water requirements at the Summit Lodge and the maintenance shop. These wells have averaged 43,698 and 81,406 gallons per year respectively over the past five years. A summary of the recent potable water usage is provided in Table EMP-1 below.

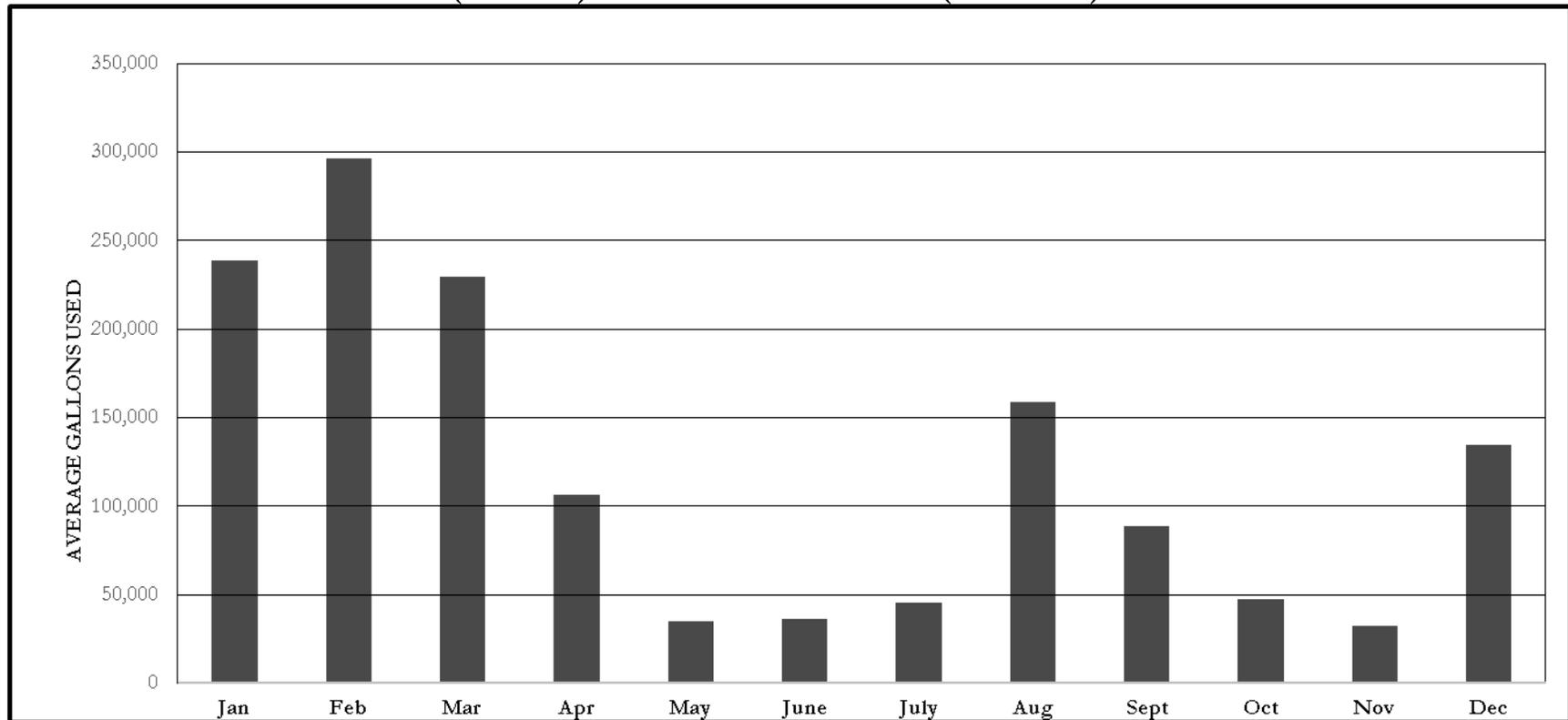
**TABLE EMP-1  
POTABLE WATER USAGE - 2010 TO 2014**

Year	Total Potable Water Used	Base Area Well	Summit Lodge Well	Maintenance Shop Well
	(Gallons)	(Gallons)	(Gallons)	(Gallons)
2010	1,568,950	1,430,300	50,910	87,740
2011	1,408,190	1,291,600	39,250	77,340
2012	1,360,460	1,255,300	32,660	72,500
2013	1,538,190	1,407,900	48,170	82,120
2014	1,764,230	1,629,400	47,500	87,330
TOTAL ('10-'14)	7,640,020	7,014,500	218,490	407,030
AVERAGE ('10-'14)	1,528,004	1,402,900	43,698	81,406

Summer Use

Chart EMP-1 below illustrates that non-winter demand for potable water represents a small fraction of the peak winter use. August exhibits the highest water use during the summer, coinciding with the annual League of NH Craftsmen’s Fair which draws approximately 30,000 visitors each year. The expectation is that all of the summer events and the Adventure Park will not generate enough additional visitation to tax the water or waste water facilities, and any increases would be easily accommodated by the unused capacity during non-winter months.

**CHART EMP-1:  
AVERAGE (2009-2014) POTABLE WATER USED (GALLONS) BY MONTH**



Water consumption at Mount Sunapee continues to be far below the capacity of the water supply system and this reserve capacity will continue to meet the demand for potable water anticipated during implementation of the MDP within the existing leasehold.

West Bowl Expansion Water System

The distance between the existing potable water system and the West Bowl expansion would likely require development of a new water source and system to support the base area of the West Bowl. Detailed engineering studies of water needs and sources will be required to address these issues. Mount Sunapee will comply with the Water Supply and Pollution Control Division regulations of the NHDES to permit, monitor and manage any new potable water supply system.

## 2. Snowmaking

Snowmaking is an essential component in the operation of a successful ski resort in the eastern United States. Mount Sunapee is fortunate to have Lake Sunapee and its abundant water supply adjacent to the mountain for its snowmaking water supply. We manage this resource carefully as we recognize how important Lake Sunapee is to our resort and to the greater community and region. The substantial surface area of Lake Sunapee, at 4,090 acres, enables us to withdraw enough water to support our snowmaking operations without causing any measurable impact to the lake.

Mount Sunapee's water withdrawals for winter snowmaking from Lake Sunapee are regulated by a water withdrawal permit (#2000-02687) from the NHDES. This permit allows Mount Sunapee to use Lake Sunapee for its snowmaking water supply during the winter months. Mount Sunapee's five-year average for water withdrawals is 153 million gallons.

Electricity consumption over the past five years has cumulatively decreased by almost 14%, due largely to the improved efficiencies of our snowmaking system. In 2007, Mount Sunapee purchased fifty-eight (58) new high-efficiency HKD SV-10 snow guns. Since 2007, an additional one hundred thirty-two (132) SV-10 snow guns have been purchased, for a total of 190 energy efficient snow guns.

The efficiency of these snow guns has allowed Mount Sunapee to retire all four (4) of its diesel air compressors that were used exclusively for snowmaking. This has resulted in the significant savings of over 12,000 gallons of diesel fuel annually. Mount Sunapee currently uses three (3) electric air compressors for snowmaking, and uses the energy efficient HKD snow guns as much as possible.

The replacement of all fluorescent lighting to higher efficiency ballasts and bulbs has also contributed to this reduction in electricity consumption. Motion sensor lighting switches have been installed in all restrooms and some other areas to reduce electricity usage when those areas are not in use.

The following table, EMP-2, summarizes the snowmaking activities of Mount Sunapee since the 1996-1997 ski season.

**TABLE EMP-2: SNOWMAKING WATER CONSUMPTION - 1996/97 TO 2014/15**

<b>Snowmaking Season</b>	<b>Gallons Pumped (total)</b>	<b>Maximum Pumping Rate (gpm)</b>	<b>Operating Hours</b>	<b>Acres Covered</b>	<b>Acre-Feet Produced</b>	<b>Average Depth (feet)</b>
1996-97	86,373,000	2,000	-	-	-	-
1997-98	76,147,000	2,000	-	-	-	-
1998-99	91,000,000	2,250	960	155	505.6	3.26
1999-00	83,821,000	3,000	851	185	465.7	2.52
2000-01	106,522,000	3,000	695	191	591.8	3.10
2001-02	128,000,000	5,000	672	191	711.1	3.72
2002-03	108,235,000	5,000	541	193	601.3	3.12
2003-04	124,718,000	5,000	667	193	692.9	3.59
2004-05	151,851,000	5,000	690	195	843.6	4.33
2005-06	165,000,000	5,000	745	195	916.7	4.70
2006-07	136,416,000	5,000	696	202	757.9	3.75
2007-08	147,268,000	5,000	674	204	818.2	4.01
2008-09	147,730,575	5,000	735	204	820.7	4.02
2009-10	144,028,387	5,000	622	204	800.2	3.92
2010-11	160,413,000	5,000	777	204	891.2	4.37
2011-12	141,872,528	5,000	653	207	788.2	3.83
2012-13	161,007,579	5,000	766	207	894.5	4.34
2013-14	159,058,098	5,000	670	207	883.7	4.29
2014-15	149,600,961	5,000	697	207	831.1	4.02
<b>5 YEAR AVERAGE</b>	<b>154,390,433</b>	<b>5,000</b>	<b>713</b>	<b>206</b>	<b>858</b>	<b>4.17</b>

Notes:

1996-1998 Seasons were under the management of the State of New Hampshire. 1998-1999 Season marked the first season of management by Mount Sunapee Resort.

New snowmaking pumps were added in 2001, resulting in an increased pumping capacity.

Snowmaking coverage on the mountain had been added in 1998, 1999 and 2000 to a total of about 193 acres.

2000-2001 and 2002-2003 seasons had above average snowfall and low temperatures.

Maximum snowmaking pumping rate has been maintained at 5000 gpm since 2001-2002.

Six acres (Elliot Slope) added to snowmaking system coverage in 2006.

Four acres (Eastside and Portage) added to snowmaking system coverage in 2007.

Snowmaking was added to Outer Ridge in 2012.

Acre feet are calculated by using an average of 180,000 gallons/acre feet of snow.

The table suggests that as the pumping rate is increased and snowmaking coverage extended, intake water consumption increases in a proportional way. Many variables affect this pattern (natural snowfall, temperatures, etc.) but in general, the relationship is quite linear.

Over the past five ski seasons, Mount Sunapee has averaged approximately 153,000,000 gallons of snowmaking withdrawal per year. Higher withdrawal volumes for snowmaking generally occur in years with mild winter temperatures and/or lower natural snowfall amounts. Based upon these averages, Mount Sunapee's current snowmaking water withdrawal permit is sufficient to meet its future needs.

To put Mount Sunapee's snowmaking water usage into perspective, if 100% of Mount Sunapee's annual snowmaking water were to be instantaneously withdrawn from Lake Sunapee, the lake level would be reduced by only 1.375 inches (one and three-eighth inches).

Snowmaking water withdrawals typically occur over a four-month period from mid-November to early March. Based upon the total hours of snowmaking during this period, the average daily water usage would impact the lake level by approximately 1/32<sup>nd</sup> of an inch. Natural recharge to the lake on any given day most likely exceeds any snowmaking water withdrawals.

#### West Bowl Expansion

The current MDP terrain upgrading plan identifies 105 acres of additional terrain to be added to Mount Sunapee's developed trail network.

Approximately 56 acres of new ski terrain is proposed for the revised West Bowl expansion area. The currently permitted water reserve capacity is adequate to accommodate this projected growth (previously, 75 acres of new ski trails were proposed in the June 1, 2014 MDP, but by eliminating the ski trails in Polygon D, the total acres of ski trails has been reduced).

Once constructed, the addition of this new terrain will bring the total developed trail area to approximately 321 acres. In addition, Mount Sunapee currently has 17 acres of glades. Glades are not covered by the snowmaking system.

## B. WATER CONSERVATION

Mount Sunapee's focus on encouraging water conservation since the inception of the lease in 1998 has resulted in a significant reduction in wastewater flows. In 2006, all fixtures (water closets and lavatories) in the Spruce Lodge were replaced with low-flow fixtures as part of these continuing efforts.

Low flow fixtures traditionally have been rated at 1.6 gallons per flush for toilets and urinals. Newer low flow fixtures which only utilize one pint of water may be utilized in future building renovations and/or in new building construction at Mount Sunapee.

Generally, wastewater flows are a good measure of the effectiveness of water conservation programs. Table EMP-3, below, summarizes the annual wastewater flows for the period 2010-2014. As would be expected, the vast majority of wastewater flows from Mount Sunapee occur during the ski season.

**TABLE EMP-3  
ANNUAL WASTEWATER FLOWS - 2010 TO 2014**

Year	Wastewater Influent	Ski Season Attendance	Wastewater Flow Rates
	(Gallons)		(gal/person)
2010	1,247,091	288,000	4.33
2011	1,412,008	214,000	6.60
2012	1,162,705	255,000	4.56
2013	1,331,767	254,000	5.24
2014	1,305,536	262,000	4.98
AVERAGE ('10-'14)	1,291,821	254,600	5.07

Notes:  
Attendance figures do not include summer operations  
1999 water consumption was 5.32 gallons per person.

The measures taken to conserve water at Mount Sunapee have been able to keep the rate of water consumption (per person) relatively consistent over the past five years.

### III. WASTEWATER DISPOSAL/TREATMENT

Mount Sunapee Resort currently operates a lagoon and spray field system for on-site wastewater treatment and disposal under NHDES permit #GWP-870458-N-001. Mount Sunapee staff, who are licensed with the State of New Hampshire, operate, monitor and maintain the system. The monitoring program utilizes a series of monitoring wells with chemical and biological sampling requirements. The system continues to operate within all parameters required by the State of New Hampshire.

Currently, a separate septic tank and leach field system provides sewage disposal at the Summit Lodge. Annual pumping of the septic tank at each lodge is part of a routine maintenance program for the system.

Mount Sunapee continues to use the engineering services of Hoyle Tanner and Associates, Inc. for its wastewater systems as they have over twenty years of experience with the Mount Sunapee system. They are retained to:

- 1) evaluate the integrity of the existing systems,
- 2) evaluate the capacity and utilization of the existing systems,
- 3) study the future wastewater requirements at Mount Sunapee,
- 4) make recommendations on how to meet the future wastewater requirements at Mount Sunapee, and
- 5) design appropriate expansion measures to meet future requirements.

In the spring of 2000, Mount Sunapee completely rebuilt the existing spray field lines due to the age and condition of the existing disposal lines. The new spray lines have the ability to operate nozzles individually, increasing spray effectiveness within the disposal area.

An additional engineering report by Hoyle Tanner and Associates, Inc. in March 2003 (see Appendix G), suggested that the wastewater system (lagoons and spray fields) will provide adequate capacity for increasing skier visits to approximately 325,000 visits. Over the past five seasons, skier visitation has averaged 255,000 annual visits. Mount Sunapee does not propose to expand the wastewater lagoons, as their capacity is adequate. In addition, other options such as the newer low flush fixtures and water recycling can be implemented to avoid the need to expand the lagoons in the future.

The current permitted capacity of the spray fields is 250,000 gallons per week of lagoon effluent. Mount Sunapee has proposed to expand the spray field by 15-20% to allow better ability to dispose of lagoon effluent during the permitted spring, summer and fall spraying seasons. In very rainy spring and fall periods, the soil conditions may be too saturated to permit spraying. Although Mount Sunapee has not expanded the spray fields to date, this remains a viable option in the overall management of the waste water system. Our primary lagoon management objective is to ensure that the full storage capacity of the lagoons is maximized by completely emptying the lagoon by October 31<sup>st</sup> of each year.

### Summer Use

The summer Adventure Park does not adversely affect the ability of the current waste water treatment system to operate properly and effectively. The attendance for non-winter uses, in addition to representing only a small fraction of the overall resort attendance, also occurs during months when use of the spray fields is permitted.

Overall, the current wastewater systems meet all anticipated wastewater disposal requirements for implementation of the MDP within the existing leasehold.

### West Bowl Expansion

The proposed expansion in the West Bowl area will require the development of a new wastewater disposal system to service the proposed base lodge in that area.

The West Bowl base lodge is envisioned as a smaller “satellite” base lodge with limited services as compared with the primary base lodges. The type of wastewater disposal system needed has not been determined. Mount Sunapee will work with professional engineers and the State of New Hampshire to develop a certified wastewater disposal system that will meet the required demands for the West Bowl.

#### **IV. DRAINAGE, EROSION AND WATER QUALITY ISSUES**

Two named permanent streams, Beck Brook and Johnson Brook, flow out of the Mount Sunapee drainage basin. As named permanent streams, they are afforded protection under the Shoreline Zoning Regulations of both the Town of Newbury and NHDES. The general location of the existing Mount Sunapee base area is depicted in Figure EMP-1. These named streams are identified in Figure EMP-2.

Mount Sunapee recognizes the importance Johnson Brook has as one of the major tributaries flowing into Lake Sunapee. Mount Sunapee continues to prevent degradation of Johnson Brook by using Best Management Practices (BMPs) to prevent soil erosion in the Sun Bowl area. For example, we have evaluated the size of culverts on the summit work road and on ski trails in the Sun Bowl area. New water bars on the summit road minimize erosion in the gravel road base. All of these measures continue to provide protection of Johnson Brook.

Mount Sunapee has continued to work in cooperation with the Lake Sunapee Protective Association (LSPA), to develop measures that prevent or minimize sedimentation along Beck Brook as it flows through the base areas. Since 1998, measures have included the development of small sediment basins to catch parking lot run-off, creation of new drainage swales and sediment dams, and creation of stabilization systems along important segments of Beck Brook. In some instances, LSPA has provided design services with construction and maintenance by Mount Sunapee. As a result of the annual maintenance to these systems, it appears that substantial amounts of sediment are being captured.

Mount Sunapee utilizes the New Hampshire Stormwater Manuals, volumes 1-3, published in December 2008 for guidance in managing storm water run-off, soil stabilization and erosion control methods.

When soils are disturbed on the mountain, Mount Sunapee utilizes the Vermont Conservation Mix, a highly recommended seed mixture for ski slopes containing a mixture of fast germinating annual rye grasses and other perennial grasses for re-vegetation of the disturbed areas. Mount Sunapee owns an agricultural tractor and a power mulcher for effectively blowing hay over the Vermont Conservation Mix when re-seeding and stabilizing disturbed areas.

Mount Sunapee also protects groundwater resources from fuel and other hazardous materials. Employees are educated on the proper techniques for handling, storing and disposing of hazardous materials. Mount Sunapee meets all regulations governing storage of fuels in excess of 1,100 gallons as required by the State. Mount Sunapee has procedures and technologies in place for protecting and monitoring above and below ground tanks. Beyond regular safety meetings, Mount Sunapee personnel routinely inventory containment systems and materials. These personnel are equipped and trained to respond to fuel spills of less than 25 gallons in a safe and expeditious manner. For spills in excess of 25 gallons, personnel are familiar with procedures for notifying the NHDES Oil Response Team.

### West Bowl Expansion

Within the West Bowl, one unnamed brook is noted moving downhill through the center of the site. The location of this drainage is also noted in on page 30, Figure EMP-2. Pioneer Environmental Associates (see Appendix H), conducted a hydrologic resource inventory along the portions of this unnamed brook within the project site in 2001 and again in 2004. In general, they characterize the drainage as being perennial in nature and having been impacted by intense logging within the private lands.

This brook flows westward then south through a known wetland area into Gunnison Brook (see Photo 1). At this point, Gunnison Brook continues to move westward parallel to Brook Road.

It is important to note that Gunnison Brook does not flow into Lake Gunnison. Lake Gunnison (See Photo 2, next page), also known locally as the “Goshen Ocean,” lies within the Sugar River Watershed area, on Blood Brook. The Blood Brook was dammed in this part of the valley to create the lake. Although Gunnison Brook and Lake Gunnison both lie within the Sugar River Watershed, Lake Gunnison is fed by Blood Brook, and is not hydraulically connected to Gunnison Brook. Chandler Hill and other mountain peaks create a drainage divide between the Gunnison Brook and Blood Brook, separating these two watersheds. Waters from these two brooks meet in Goshen, across Route 10 from Brook Road, where the South Branch of the Sugar River begins.

Due to the hydraulic separation of the lake from Gunnison Brook, there is no potential for the water level or water quality to be affected by snowmelt or runoff from the proposed trails and improvements within the West Bowl area.



**Photo 1 – Confluence of unnamed brook and Gunnison Brook near Brook Road**

A second major water body, Rand Pond, lies within the Gunnison Brook Watershed. The pond's watershed area is approximately 270 acres, and does not receive any runoff from the West Bowl area. Rand Pond is fed by numerous tributaries, and its outflow drains into the Gunnison Brook. Since Rand Pond is hydraulically up-gradient of the Gunnison Brook, its inflows and water quality will not in any way be affected by runoff from the West Bowl area. These watershed areas are depicted in Figure EMP-3, on page 31.

The analysis of the hydrologic conditions within this watershed, prepared by Bruno Associates (see Appendix I), was completed to identify the characteristics of the watershed so that an appropriate BMP strategy for water quality can be created. The results of this study show that Gunnison Brook presents the major drainage in which runoff and snowmelt will flow from the West Bowl area. It also shows that the amount of runoff projected from snowmelt will have little impact on overall stream flows during the spring melt-off period.

Given this background, while Mount Sunapee's efforts within the current leasehold has been to create new solutions within existing developed areas, the expansion with the West Bowl will allow for more proactive efforts to protect and preserve water quality within the new watershed. Mount Sunapee fully anticipates working closely with the NHDES, LSPA, professional engineers and hydrogeologists and our local communities, to develop storm water and erosion control systems that provide the necessary detention and treatment of runoff at all times of the year.



**Photo 2 - Lake Gunnison looking northeastward to Mount Sunapee**

## V. SOLID WASTE DISPOSAL

Although solid waste is generated in many forms at Mount Sunapee, the handling of these wastes is done in accordance with the relevant regulations and guidelines for the disposal of such waste. Federal and State Hazardous Waste Rules (including, Env-WM 110, 211-216, 351-353, 400-1000, effective 8/26/99) are currently followed for the proper disposal of any hazardous waste generated at Mount Sunapee.

Mount Sunapee does not use the transfer stations in the Town of Newbury or Goshen for any of its solid waste. All solid waste removal is done on a contract basis with Casella Waste Management.

The waste reduction and recycling efforts at Mount Sunapee have increased dramatically over the past 10 years. Currently cardboard, glass, maintenance shop waste oils, food service cooking oils, light bulbs, batteries and scrap metals are all recycled.

In the fall of 2010, Casella Waste Management began offering single stream recycling and Mount Sunapee began using that program to increase its recycling efforts. Currently, approximately 20% of all waste generated in our winter operations are recycled through this program. Each year, we try to increase the percentage of recycled waste.

The upgrade plans outlined in the MDP and the increase in Comfortable Carrying Capacity (CCC) of Mount Sunapee should not cause any unmanageable impacts associated with solid waste disposal.

## VI. AIR QUALITY AND TRAFFIC CONGESTION MITIGATION

### A. AIR QUALITY

Air emissions at Mount Sunapee were previously regulated under our State Permit to Operate (#SP-0034, NHDES). That permit was valid through May 2014 for the operation of four diesel air compressors and for four emergency evacuation engines on chair lifts. This permit allowed each of the evacuation engines to run for up to 500 hours per year. This permit also allows up to 90,000 gallons of #2 diesel fuel oil to be used in diesel-powered snowmaking air compressors per year.

The State Permit to Operate was voluntarily terminated by Mount Sunapee in January 2014 following the retirement of all four of the diesel air compressors. During the past five years, only two of the four permitted diesel air compressors were in operation, and the maximum amount of diesel fuel consumed in that period was 20,572 gallons. The average fuel consumption during the period was approximately 12,000 gallons per year. Both well below the permitted allowance of 90,000 gallons per year.

On January 31, 2014, the NHDES's Air Resources Division approved a General State Permit #GSP-EG-0427 to Mount Sunapee for the operation of the four emergency evacuation engines on the chair lifts.

For the past five winter seasons (2009-2010 to 2013-2014), the maximum operation for our emergency evacuation engines has been between 53 and 86 hours. This represents approximately 17% of the allowed operational limits set forth in the permit.

Mount Sunapee continues to investigate ways to reduce fuel usage through both conservation and through capital investment in newer, more fuel efficient technologies.

An example of this was the replacement of the original 1962 boiler in the Spruce Lodge in the summer of 2013. The existing boiler was a single stage, 100% duty, #2 fuel oil boiler. It was replaced with a two stage, propane fired boiler. Only the first stage of the boiler operates when the demand on the boiler is less than 50% of its capacity. Only when the demand is greater than 50% capacity does the second stage come online. It is estimated that the new boiler will generate 40% savings in energy each year.

#### Summer Use

The implementation of the summer Adventure Park as approved in the Operating Plan does not generate any significant use of the emergency evacuation engines in support of uphill conveyance for non-winter activities (i.e., the limited SkyRide's and Zip-Line uses).

### West Bowl Expansion

The proposed chairlift in the West Bowl will be required by the ANSI B77.1 Passenger Tramway Code to include an emergency evacuation engine. This will likely be a 500-600 horsepower diesel engine.

Mount Sunapee will modify its General State Permit with NHDES to include the additional emissions from this engine.

### **B. TRAFFIC CONGESTION**

At present, Mount Sunapee has approximately 1,830 parking spaces to accommodate visitors and employees. This total includes the expansion of Parking Lots #2 and #3 that was approved in the 2000-2004 MDP. This total does not include the 272 spaces in Parking Lot #4 which was approved by DRED and by the Town of Newbury Planning Board (November 2003), but has not been built yet, and would have to be re-permitted as the previous permits have lapsed.

Mount Sunapee has a Special Use Permit from DRED which allows overflow parking at the Lake Sunapee State Beach parking area on peak winter days. Over the past five years this overflow lot has been used approximately five to six days per winter season. During the 2013-14 winter season, the State Beach parking lot was used on eight (8) days of the 136 days that Mount Sunapee was open.

Typically, the State Beach parking lot is used on peak holiday periods such as during the Christmas to New Year's holiday week, the January Martin Luther King weekend, and the February President's Day weekend.

When the State Beach parking lot is used, Mount Sunapee provides employees and guests with shuttle bus service from the beach parking area to the main base area.

As a condition of this permit, Mount Sunapee provides winter plowing of the beach access road and parking area for DRED. Plowing happens regardless of whether or not the parking area is used for overflow during the winter season. Plowing allows public winter access to Lake Sunapee for ice fishing, snowmobiling, hard water sailing and other recreational activities.

Heavy traffic volume at Mount Sunapee is generally associated with a few predictable days throughout the year. During the ski season, perhaps eight to ten days, almost always around the peak holiday periods described above, result in very heavy traffic volumes.

### Summer

Similarly, during the summer months, the nine-day period during the Craft Fair has increased traffic volumes, although it is spread out over a greater part of the day. Peak arrival traffic generally occurs between 8:30am and 10:30am. Peak departure traffic occurs in a more concentrated pattern generally between 3:30pm and 4:45pm. The continued implementation of the summer Adventure Park has not materially changed the observed traffic pattern due to the much lower car counts for the summer operations.

### West Bowl Expansion

In 2004, Mount Sunapee commissioned a study of traffic impacts and site access associated with the implementation of the MDP, including the West Bowl expansion. Conducted by Stephen G. Pernaw & Company, the physical car count on NH Route 103 (see Appendix J) was completed during the Martin Luther King, Jr. holiday weekend in 2004 (January 18th). Traditionally, this weekend period represents peak winter skier visitation. While this particular sampling period was not our peak for a ski season, it does represent a typical weekend day during the ski season. This study also looked forward to project baseline conditions in 2010 (which assumes that all MDP elements are completed) and utilization increases until a horizon year of 2020. While this baseline data has not been updated, Mount Sunapee believes that the underlying traffic conditions sampled and modeled for this study area are still relevant and accurately reflect current conditions at Mount Sunapee. None of the previously approved improvements that have been completed since 2004 have materially altered the magnitude or pattern of visitation to the mountain.

The study projects increases in roadway volumes (number of cars) at a variety of locations within the study area. Notably, increases are seen on Route 103 and Brook Road, with the highest absolute gain occurring on the segment of Route 103 between the traffic circle and the Route 103A intersection. The increases in Brook Road, although large on a percentage basis, reflect the fact that this segment (between Route 103 and the proposed West Bowl access point) had a low base-year traffic volume and projections correctly assume that this is the primary vehicular access to the West Bowl area. The present and projected volume of traffic on Brook Road is relatively low.

While roadway volumes are projected to increase, the study also evaluated the capacity of roadways to accommodate this increase. According to the study, Route 103 currently has an approximate capacity of 2,500 vehicles per hour. The projected volume for Route 103 during 2020 would be, in the worst case, 1,200 vehicles per hour. The study concludes that during all time periods, Route 103 will retain sufficient roadway capacity to handle projected traffic volumes without widening or other structural improvements.

The study also investigated stop and yield-controlled intersection capacity at a variety of locations within the area. At these locations, the study calculated current and future Level of Service (LOS) values for both AM and PM peak periods. LOS addresses the quality of service (amount of delay) for those vehicles turning into and out of intersecting streets. A LOS value of “A” represents the lowest level of vehicular delay (less than or equal to 10 seconds). A LOS value of “F” represents the highest amount of vehicular delay (greater than 50 seconds). A grade level of “F” is considered poor.

At the present time, the NH Route 103B southbound approach to the traffic circle operates at capacity and with a poor LOS during the AM peak hour period. This period coincides to the time when skier arrivals are at peak levels. The study suggests that the cause of this condition is that circulating traffic within the traffic circle has the vehicular right-of-way, and the majority of ski traffic is from points east of the traffic circle. This poor LOS does not occur during the peak PM period when skiers are leaving the resort.

The study projects that for 2010 and 2020, two intersections within the traffic circle will become capacity deficient (LOS value of “F”) during the AM period during both peak and typical weekend days. Projections show that only one area near the “slip ramp” from the Mount Sunapee Access road to Route 103 (eastbound) will become deficient during PM periods on peak weekends by 2020. The study concludes that the other remaining intersections within the study area will operate below capacity and at a reasonably LOS through 2020.

The study recommends several mitigation measures to address these potential traffic congestion areas:

- Use of police officer control during peak AM (arrival) periods on weekends at two intersections within the traffic circle; NH103/NH103-B intersection and the adjacent NH103 (eastbound)/Circulating Ramp intersection. This will assist traffic approaching from the east in traversing the traffic circle more effectively.
- Use of police officer control during peak PM (departure) periods on weekends at the NH103 (eastbound)/Access Road intersection. This will create enough “gaps” between vehicles to allow traffic onto NH103 via the “slip ramp”.
- If needed, the north side of the traffic circle between NH103-B and Beach Access Road could be widened to provide two westbound travel lanes; one shared lane for through movements and right turns, and an exclusive lane for circulating traffic.

Mount Sunapee believes that an effective traffic management and mitigation approach can be developed to service resort customers and the local population through close coordination with the Newbury Police Chief.

Again, while the study was completed in 2004, both the baseline conditions and the elements proposed for the MDP have not materially changed. As the final design of MDP elements is initiated, Mount Sunapee will update and revise the traffic study. It will be included in future EMPs as the information becomes publically available.

## VII. FORESTRY MANAGEMENT

Mount Sunapee recognizes that it must balance natural resources and outdoor recreation. Our identity is linked to how well the natural environment contributes to the sense of being “in” nature. Protection of our forest resources is a critical component in creating this identity.

### A. TIMBER MANAGEMENT

The forest within the Mount Sunapee Ski Leasehold area is not currently managed for timber harvesting nor is timber harvesting an activity in which Mount Sunapee is engaged. Tree clear-cutting is done solely for the purpose of new ski trail construction. Selective cutting of trees and brush is a routine maintenance activity along the edges of existing ski trails. Although large portions of the West Bowl area have been extensively logged in the past, we do not anticipate managing those private lands for timber extraction.

### B. EXEMPLARY NATURAL COMMUNITY FOREST SYSTEMS

Old growth forest characteristics have been identified by New Hampshire Natural Heritage Inventory in portions of two areas of Mount Sunapee known as “polygon 23” and “Polygon 20”. A 1999 report entitled Old Forests and Rare Plants at the Mount Sunapee Ski Lease Area, identified these two old growth forest areas. A more recent study, commissioned by DRED and paid for by Mount Sunapee, was completed in 2003. This report entitled, Natural Heritage Inventory of the East Bowl, provides a full documentation of the characteristics and found “steeper slopes above 2260 feet in the East Bowl is an area of old growth sugar maple-beech-yellow birch forest that totals roughly 50 acres. There is a significant number of red spruce and yellow birch trees over 200 years old in this natural community.”

Consistent with the recommendations of these studies, Mount Sunapee’s management approach to these old growth areas has been avoidance. Lift “K” and the associated ski trail were approved in the 2000-2004 MDP within a portion of “polygon 23” **outside** of the area identified as having “old growth characteristics.” Mount Sunapee will maintain a 200-foot natural wooded buffer between ski trails and areas within “polygon 23” identified as having “old growth characteristics.” Furthermore, Mount Sunapee agreed in 2000 that “Polygon 20” would remain in its current state with no new ski trail or chairlift development.

Mount Sunapee, working cooperatively with the DRED, agreed to abandon their original expansion plans in the East Bowl and took steps to analyze the capacity of the West Bowl for ski potential. The West Bowl was found to have favorable ski terrain potential. Mount Sunapee is seeking expansion within the West Bowl area to avoid the old growth characteristic areas identified within the East Bowl.

Mount Sunapee commissioned a field review of the forest within the West Bowl by W.D. Countryman and Associates (see Appendix K). Completed in May 2004, the study noted that much of the private lands in the West Bowl expansion area have been extensively logged for decades; while the public lands have been left relatively intact. The scientists described the general forest cover as young and sparse.

The Countryman field study did not find any areas of old growth forest or areas with “old growth characteristics.” In the 1999 study by the NH Natural Heritage Bureau, NHB identified several polygons (including portions of the public lands area within the West Bowl) that “appeared to be recovering from previous disturbances” (Old Forests and Rare Plants at the Mount Sunapee Ski Lease Area, page 12).

In the fall of 2004, the New Hampshire Natural Heritage Bureau completed a forest assessment on the state lands in the area of the West Bowl Expansion. That report is included as Appendix M in the EMP. An area of 16 acres, termed “Polygon D,” was identified as an Exemplary Natural Community in that study and was stated to “possibly” have old growth forest characteristics.

In the fall of 2014, the New Hampshire Natural Heritage Bureau again looked at the forests on state land in the West Bowl Expansion area, and specifically looked at the “Polygon D” area. The follow-up survey in 2014 determined Polygon D not to be old growth, but rather a mature forest that is part of the larger exemplary natural community Northern hardwood conifer forest system. That report also looked at private lands owned by Mount Sunapee/Sunapee Land Holdings, LLC. That report is included as Appendix N in the EMP. The Natural Heritage Bureau Datacheck Results Letter is contained in the appendices as Appendix O.

In the fall of 2014, Mount Sunapee retained qualified scientists from Normandeau Associates and Ecosystems Management Consultants to study the forests in the West Bowl Expansion area. Their scientists also determined that old growth forest characteristics were not present in Polygon D in the West Bowl Expansion area. That report is Appendix P in the EMP.

In the fall of 2015, Mount Sunapee again retained scientists from Normandeau Associates and Ecosystems Management Consultants to assess the forests in approximately 260 acres of land privately owned by Mount Sunapee Resort through Sunapee Land Holdings, LLC (see Appendix Q for the Normandeau report).

Mount Sunapee has proposed transferring the ownership of approximately 260 acres of forested lands to DRED as conservation land as a condition of approval of the MDP. These lands would remain as conservation lands in perpetuity and not be included in the ski area leasehold. Our scientists found approximately 70 acres that are said to probably warrant designation as an Exemplary Natural Community. They also found approximately 3 acres of forest that exhibit old growth forest characteristics. They found another 20 acres that may possibly warrant designation as an Exemplary Natural Community. NHB plans to review and verify those assessments for possible Exemplary Natural Community designation.

In the revised MDP, Mount Sunapee has eliminated all ski trails and snowmaking equipment that were originally proposed within the Polygon D area. By eliminating all ski trails in Polygon D, the total impacts were reduced from 4.2 acres to 1.1 acres which is from the width of the chairlift line passing through Polygon D.

In order to minimize the soil disturbance in Polygon D, no stumping of the trees will occur. Mount Sunapee has agreed that trees in Polygon D will be cut for the chairlift line will be flush cut to ground level, and no heavy equipment will be allowed to grade the terrain in

the Polygon D. Additionally, Mount Sunapee will avoid all blasting in Polygon D for the construction of chairlift tower foundations. The chairlift foundations will be excavated by hand, and drilled and pinned to the bedrock.

### **C. RARE PLANT RESOURCE**

In 1998, a population of a state-threatened orchid, bog twayblade (*Liparis loeselii*), was identified on the lower area of the Jetstream slope near the base of the Spruce Triple Chairlift. The growth of the orchid is apparently perpetuated “in part by management of the open ski run.” The proposed MDP will not affect the population. Additionally, the population will continue to be protected by mowing the ski trail after mid-August allowing time for flowering and seed dispersal from the orchid.

According to the inventory of Rare Plants, Rare Animals and Exemplary Communities in New Hampshire Towns (updated in July, 2013) prepared by the New Hampshire Natural Heritage Bureau, no rare plants are noted within the Town of Goshen.

To better verify this inventory, Mount Sunapee retained W.D. Countryman and Associates to complete a field review. During their two-day field visit in May of 2004, their field ecologist did note only one species of potential concern. According to this study, “One species listed on the New Hampshire Natural Heritage Bureau proposed list of Endangered, Threatened, Watch, Extirpated and Intermediate Plant Species was noted during field work. A single butternut tree (*Juglans cinerea*) occurs on the north side of the existing access road off Brook Road. The area appears to have been an old house site, and there are likely to be additional butternuts nearby. Butternut is of concern because of the threat posed by canker dieback (*Melanconis juglandis*), a widespread fungus disease that weakens and then kills the tree. The tree noted at Brook Road can likely be avoided and therefore not be affected by the project.” The summary of this field work can be found in the Appendix (see Appendix K).

## VIII. WETLANDS IMPACTS

Wetlands at Mount Sunapee are regulated by Local, State and Federal rules, and Mount Sunapee will comply with these guidelines in any proposed projects. In general, wetlands will fall under the jurisdiction of the NHDES and the U.S. Army Corps of Engineers.

### West Bowl Expansion

The National Wetlands Inventory mapping (see Figure EMP-2) shows a wetland complex on the western edge of the West Bowl area. This complex is identified as a scrub-shrub/forested wetland.

Pioneer Environmental Associates conducted onsite field investigations in 2001 and 2004 confirming this known wetland feature (see Appendix H). These field investigations concentrated their efforts on the lower portions of the mountain, where the majority of potential development impacts could occur.

The wetland scientists concluded that the majority of the West Bowl area has been heavily impacted by logging activities that have continued within the parcel for decades. Hardwood species identified include northern red oak (*Quercus rubra*), American beech (*Fagus grandifolia*) and paper birch (*Betula papyrifera*). In general, the site is comprised mostly of saplings with a limited overstory. The study also noted that the National Resource Conservation Service (NRCS) soils survey for Sullivan County, New Hampshire identified the soils within the site from Mondadock (well-drained) to Lyme-Mooskilauke (somewhat to poorly drained).

The site has several small, unnamed streams and drainages moving downhill. The largest of these was observed to flow toward Brook Road through the known Class II wetland and into the Gunnison Brook south of the site. Along this and other smaller drainages some potential riparian wetlands (forested and scrub-shrub) were noted. Some potential wetland areas were observed within obviously constructed drainage ditches. The quality of these wetlands appears to have been largely influenced by the logging activities of the site.

The Best Management Practices (BMPs) employed by Mount Sunapee rely on two basic techniques: avoidance where possible and minimization of impacts elsewhere. The resort has attempted to minimize wetlands impacts within the existing leasehold. The proposed West Bowl expansion provides Mount Sunapee with a new opportunity to implement our BMPs from the earliest point. As the design phase for improvements move forward within the West Bowl, Mount Sunapee will seek ways to avoid or minimize wetland impacts.

Mount Sunapee will update and complete a more detailed delineation of regulated wetlands within the West Bowl as design plans are refined. Based upon our current understanding of the site, and with effective design and use of our BMPs, plans for the West Bowl area can be completed with minimal disruption to natural wetlands systems as possible.

## IX. WILDLIFE HABITAT PRESERVATION

As identified in the Town of Newbury Master Plan, several important benefits are imparted by wildlife resources as follows:

- “An abundant and diverse supply of wildlife and plant resources provides opportunities for education, entertainment, leisure, and recreation, including hunting, fishing, photography, bird watching, nature studies, art and similar activities.”
- “The presence or absence of native wildlife species, sensitive to pollution or loss of habitat, helps to indicate the condition of the natural environment.”
- “Abundant and healthy wildlife and plant resources help attract visitors and support entertainment, educational and recreational business opportunities.”

Mount Sunapee Resort supports these values and is committed to managing the leased lands in a manner that will not threaten the wildlife habitat. This includes not only the protection of the habitat, but also the implementation of programs that enhance and educate the public about the resources and the value of their protection.

No rare, threatened or endangered wildlife species were found to be present in the 2015 NHB Datacheck Letter (see Appendix O).

Mount Sunapee will consult with NH Fish and Game Department as it moves forward through the required permitting process.

### **West Bowl Expansion**

Both the public and private lands within the proposed West Bowl expansion have also been screened for potential wildlife habitat. A field analysis by W.D. Countryman and Associates, completed in May of 2004, more fully evaluated these issues within the West Bowl area. This study confirmed that the observed wildlife is typical of large wooded tracts within the State of New Hampshire. Evidence of deer and moose was noted during the site walk, most commonly in areas where prior logging had occurred. The field investigators found no evidence of tree scaring by bears at the time of their visit, in the locations that they visited during their field work. Some potential denning areas were seen at upper elevations along the southern edge of the proposed ski terrain in the West Bowl. The study document can be found in the appendix (see Appendix K).

The field investigation also reviewed the site for the presence of bird species. Due to the timing of the fieldwork, migratory species were not observed in large numbers. The majority of species observed were resident and common to northern hardwood forests. The forests are expected to support a wide variety of both resident and migratory species. Evidence of two twig nests near the Summit Hiking Trail was also noted. These nests were not complete and did not suggest recent use. The field scientists suggest that great blue herons (*Ardea herodias*)

were most likely responsible rather than raptor species, due to their position in the canopy. It is noteworthy that these nests were located adjacent to the hiking trail, an area of persistent human presence.

Mount Sunapee is committed to environmental stewardship. We will continue to be vigilant during the implementation of the MDP to address wildlife issues. From our previous analyses, we believe that the implementation of our MDP, including the West Bowl area, will not adversely impact critical wildlife habitat.

During the permitting process for the West Bowl expansion, studies will be updated as required and current information will be utilized from DRED, NHB and NH Fish and Game.

## X. SCENIC AND AESTHETIC QUALITIES

The proposed MDP has carefully considered the aesthetic character of Mount Sunapee. Lift and trail improvements are consistent with the existing visual characteristics of the mountain as a ski area. New trail and lift clearing will be performed in a manner that is consistent with the recreational character of the ski area.

Night skiing and lighting were previously approved in the 2000-2004 MPD for the South Peak area, Elliot Slope, Billy Goat (Pipeline), Duckling (Jet Stream), Eggbeater, Upper Flying Goose, Lower Flying Goose, and Lynx trails. Although night skiing has not been implemented since its approval, it remains an option that may be pursued. These trails are low on the mountain, which will minimize off-site lighting impacts.

Mount Sunapee will comply with the design standards for ski slope lighting as established by the Illuminating Engineering Society of North America (IESNA) and the National Ski Area Association (NSAA). Additionally, other design techniques will be employed to limit the off-site visibility of the proposed lighting. These techniques may include:

1. Limiting the height of light poles.
2. Locating light poles within the tree line and below the forest canopy.
3. Light is directed downward and limited above the horizontal by utilizing high cut-off, shielded and louvered luminaires.

### Summer Use

The existing and expected uses associated with the summer Adventure Park are wholly compatible with the aesthetic character of Mount Sunapee as a resort area. Contemporary resorts routinely include activities such as canopy tours, zip lines and similar features which are woven around the natural features of the mountain setting and enhance the public's ability to appreciate the natural beauty of the setting. These features and activities are placed low on the mountain and are indiscernible from off-site vantage points.

### West Bowl Expansion

The West Bowl expansion presents the opportunity for new recreational skiing terrain at Mount Sunapee which is consistent with the formation and use of Mount Sunapee as a ski area in 1948. Mount Sunapee has always been and will continue to be a leader in alpine skiing recreation in New Hampshire. New architecture and building additions will be designed to be consistent with the recreational and historic character of the region and the surroundings. The use of indigenous materials and colors will be incorporated into new structures.

With the exception of upper lift terminal, new buildings within the West Bowl will be placed on the lower elevation portions of the mountain. This, coupled with appropriate setbacks from Brook Road, will make views of the project very limited in scope and intensity. As the master plan process continues, Mount Sunapee will address local aesthetic concerns and issues through landscaping and site design.

Night skiing and lighting are not proposed for ski trails in the West Bowl area.

An analysis of potential visibility of the West Bowl area has also been completed. The first step in this process was to determine the general topographic characteristics of the area and define the extent of likely views. This was accomplished by examining the United States Geologic Survey 1:24,000 topographic contour maps of the area surrounding the West Bowl.

Based upon this analysis (see Figure EMP-4 on page 32), we believe that the base area improvements will be seen from very few vantage points. These areas are mostly within the short stretch of Brook Road between NH103 and just south of the site. Even within these areas, the extensive roadside canopy creates effective screening of the project. Other manmade elements, such as those at the Goshen transfer station, are also visible in the foreground within these areas. Photographs from these various vantage points can be found on Figure EMP-5. We also believe that although the proposed ski terrain will likely be visible from a variety of vantage points around the region, they will be viewed at a great distance. In general, the areas to the south and west will have better views of the proposed ski terrain.

Mount Sunapee has worked with the Sunapee-Kearsarge-Ragged Greenway Coalition (SKRGC) to address ski trail crossings with the Summit Hiking Trail within the West Bowl, and will continue to work with them in the future. The revised 2016-2020 MDP reduces the number of ski trail crossings from as many as six to three. Hikers will be allowed to cross ski trails during the winter ski season and Mount Sunapee will have signs to warn skiers of the hiking trail crossing. Through the efforts of the SKRGC, DRED and Mount Sunapee, a Cooperative Maintenance Agreement (CMA) has been developed that supports year round hiking, reduces the number of ski trail crossings, and provides for spring maintenance and clean-up on the Summit Trail each year by Mount Sunapee Resort.

Mount Sunapee believes that the implementation of the MDP including expansion into the West Bowl area will not create a significant impact to the scenic or aesthetic qualities of the region. Although ski trails and the West Bowl lift may be visible from distant vantage points, these elements are consistent with the scenic context of Mount Sunapee and its role as a winter recreational destination within the region. Base area improvements will be screened from offsite views due to extensive woodland cover and setbacks. Mount Sunapee has proposed transferring 260 acres of land to be dedicated as conservation land to ensure the long-term protection of other areas surrounding Mount Sunapee. On balance, these measures seem reasonable and consistent with appropriate management of the aesthetic resource.

In addition to the above categories specifically mentioned in the Lease Agreement, Mount Sunapee Resort has also addressed the following categories in the Environmental Management Plan:

## **XI. ARCHAEOLOGICAL AND HISTORICAL RESOURCES**

Past discussions with the State of New Hampshire Division of Historical Resources (NHDHR) have not identified any known or documented archeological and/or historical resources within the lease lands or within the private lands proposed for the West Bowl expansion. Furthermore, a review of the state and federal register of historic places found no structures designated as historic. NHDHR has been asked to comment on the MDP in the past and will be involved in future cultural resources updates.

The Town of Newbury has several historic town monuments that denote the town's boundary line between Newbury and Goshen. These monuments have been mapped, using GPS technology, and their locations have been added to the MDP maps. The new ski trails in the West Bowl expansion area will be designed so that the monuments are not located on the new ski trails.

# FIGURES

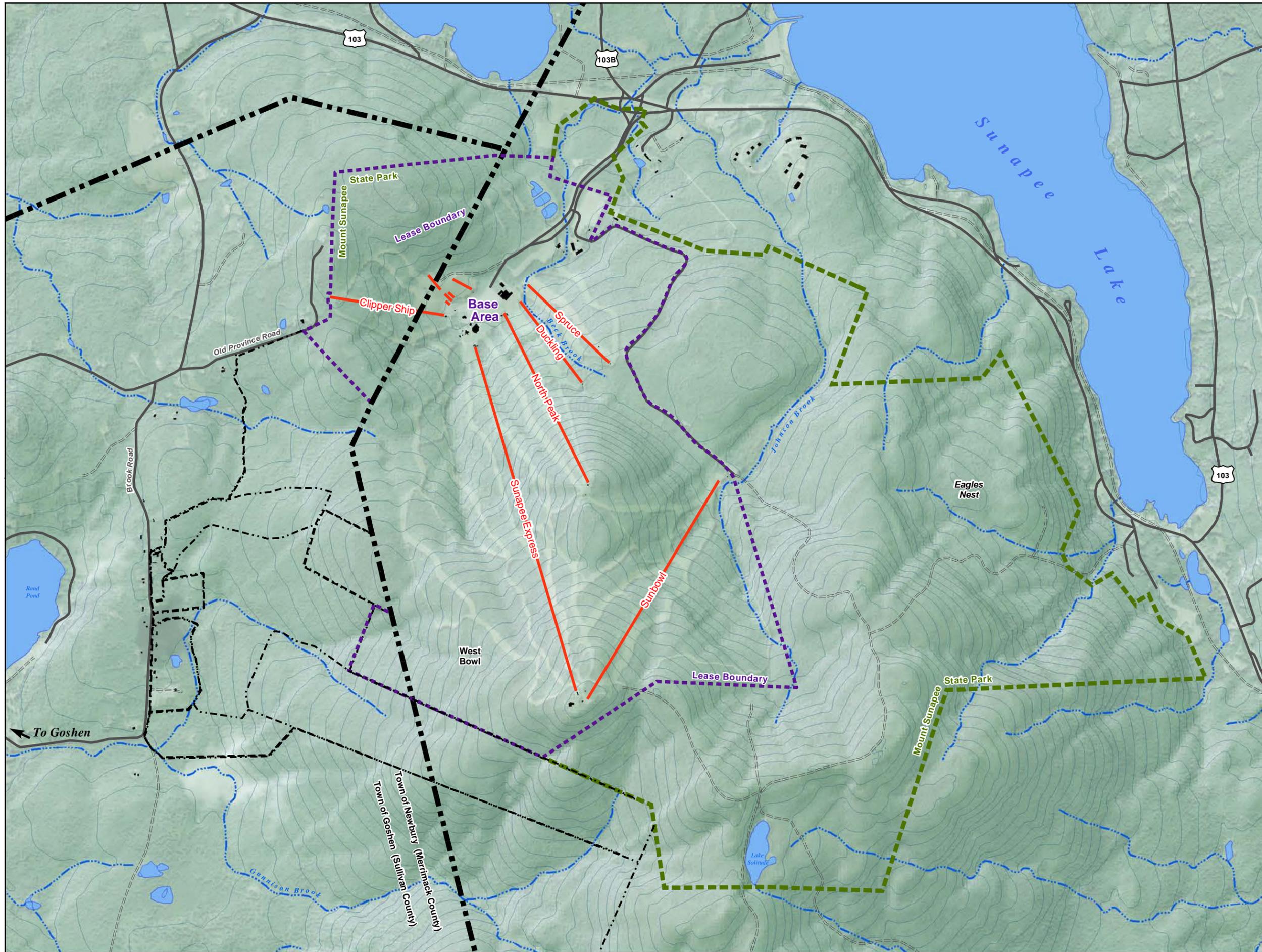
**Figure EMP-1: Base Map**



# MOUNT SUNAPEE

## Environmental Management Plan

-  Existing Lift
-  Existing Trail
-  Ski Area Lease Boundary
-  State Park Boundary
-  Property Line
-  Town Boundary
-  Road
-  Water Body
-  Stream



Scale: 1 In = 1,500 Ft  
 Contour Interval: 50 Ft  
 Date: December 1, 2015  
 Drawn By: LHR  
 Checked By: MDK  
 Prepared By:



Title  
 Base Map  
 Sheet Number  
**EMP - 1**

Project Number: 14002001  
 File: Sunapee\_Existing.mxd

**Figure EMP-2: Resource Map**



# MOUNT SUNAPEE

## Environmental Management Plan

-  Existing Lift
-  Proposed Lift
-  Existing Trail
-  Proposed Trail
-  Ski Area Lease Boundary
-  State Park Boundary
-  Property Line
-  Town Boundary
-  Road
-  Known Wetland
-  Water Body
-  Stream

### Notes:

-  1 Unnamed drainage within West Bowl Area
-  2 Known wetland area
-  3 Confluence of unnamed drainage and Gunnison Brook
-  4 Beck Brook Drainage
-  5 Johnson Brook Drainage
-  6 Gunnison Brook Drainage

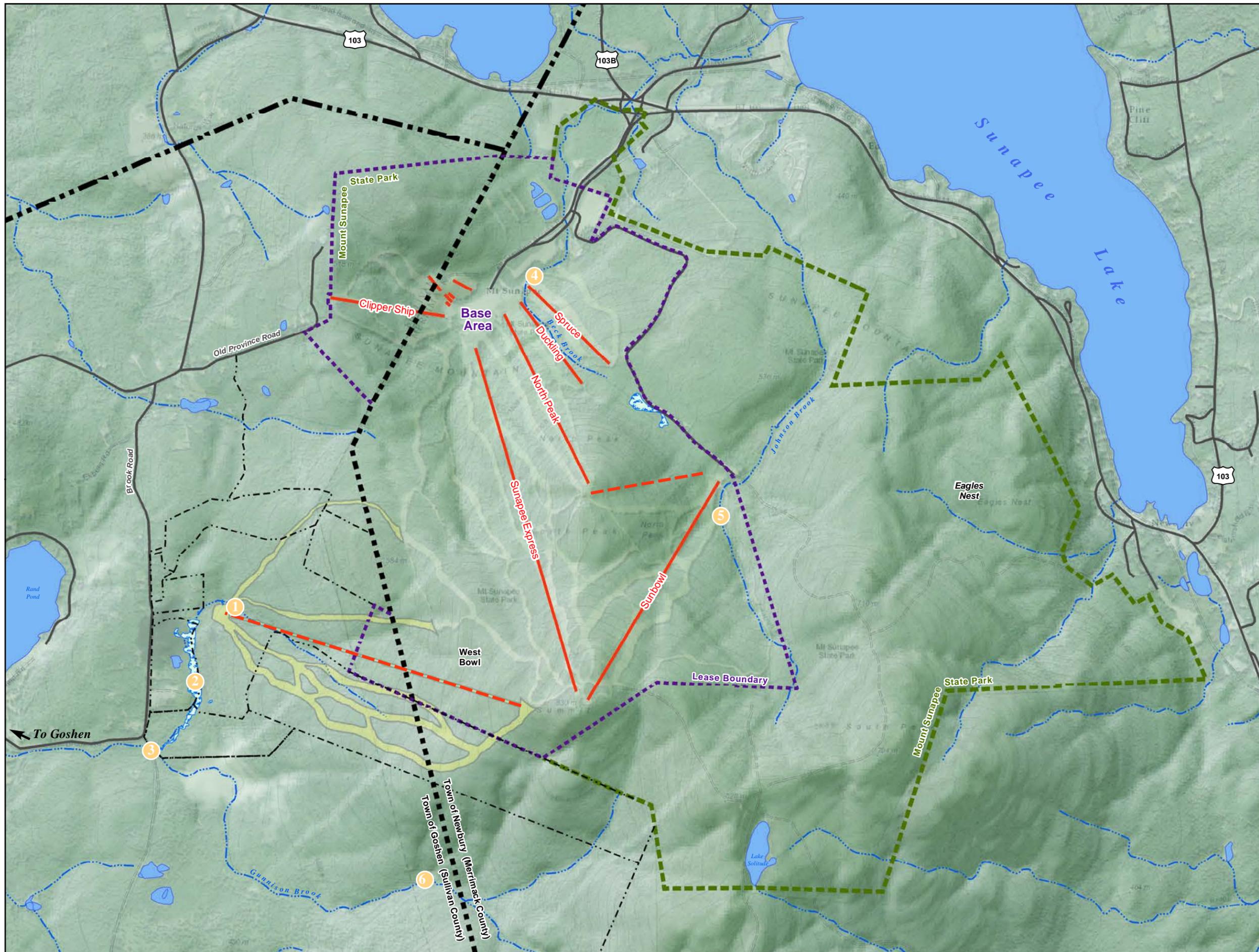


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 Checked By: MDK  
 Prepared By:



Title  
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 Sheet Number  
**EMP - 2**

Project Number: 14002001  
 File: Sunapee\_Condition3.mxd



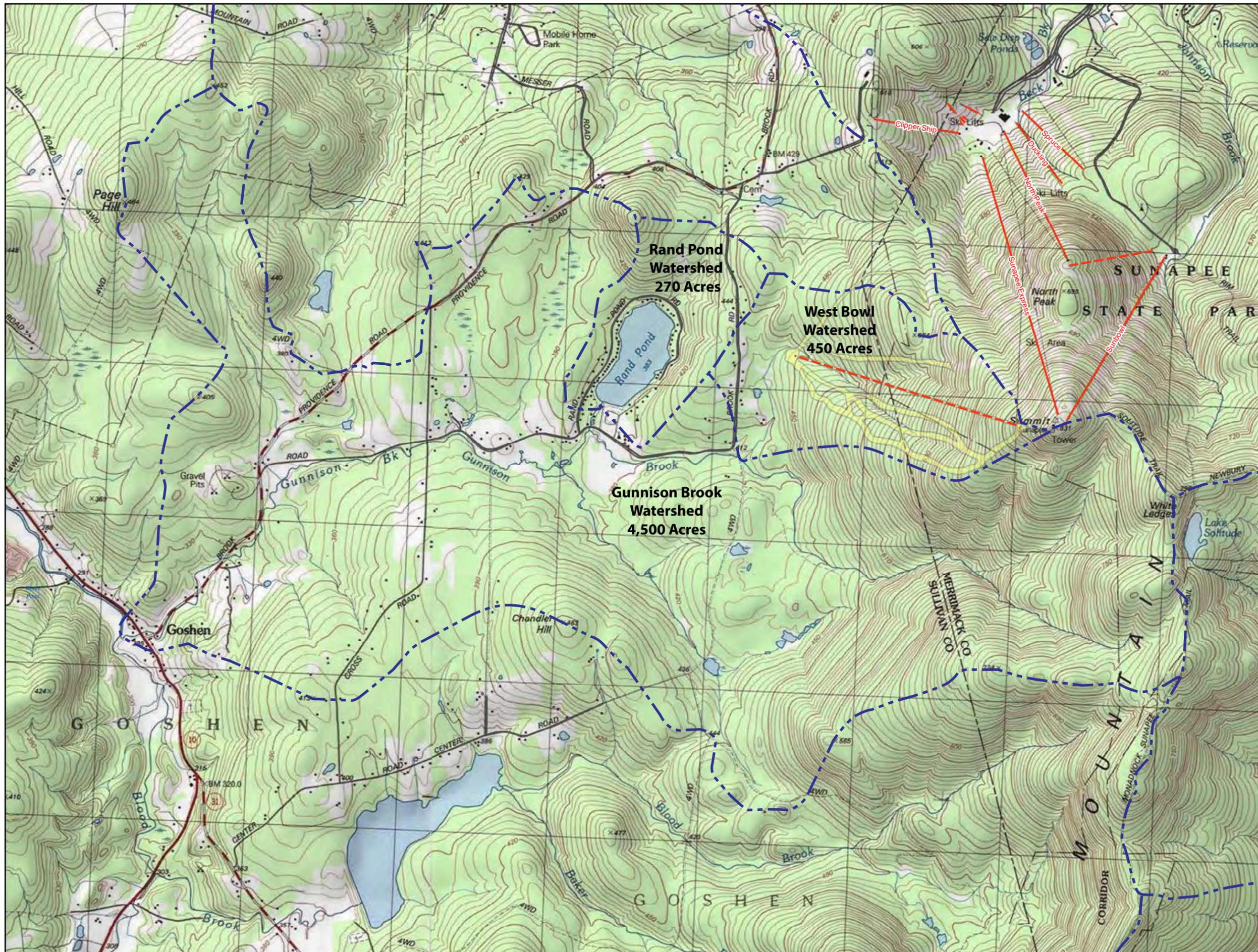
**Figure EMP-3: Watershed Map**



# MOUNT SUNAPEE

## Environmental Management Plan

-  Existing Lift
-  Proposed Lift
-  Existing Trail
-  Proposed Trail
-  Watershed Boundary



Scale: 1 In = 2,000 Ft  
 Date: December 1, 2015  
 Drawn By: LHR  
 Checked By: MDK  
 Prepared By:



Title  
 Resource Map  
 Sheet Number  
**EMP - 3**

Project Number: 1400201  
 File: Sunapee\_Condition3.mxd

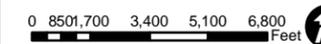
**Figure EMP-4: Viewshed**



## Environmental Management Plan

 Existing Lift

- ① View Point 1:  
3.5 Miles Southwest of Mount Sunapee
- ② View Point 2:  
4.3 Miles Northwest of Mount Sunapee
- ③ View Point 3:  
1.4 Miles West of Mount Sunapee
- ④ View Point 4:  
6.7 Miles North of Mount Sunapee



Scale: 1 In = 1 Mile  
 Contour Interval: 50 Ft  
 Date: December 1, 2015  
 Drawn By: LHR  
 Checked By: MDK  
 Prepared By:



Title  
 Viewshed  
 Sheet Number  
**EMP - 4**

Project Number: 14002001  
 File: Sunapee\_Condition3.mxd

**Figure EMP-5: Photographs**



# MOUNT SUNAPEE

## Environmental Management Plan



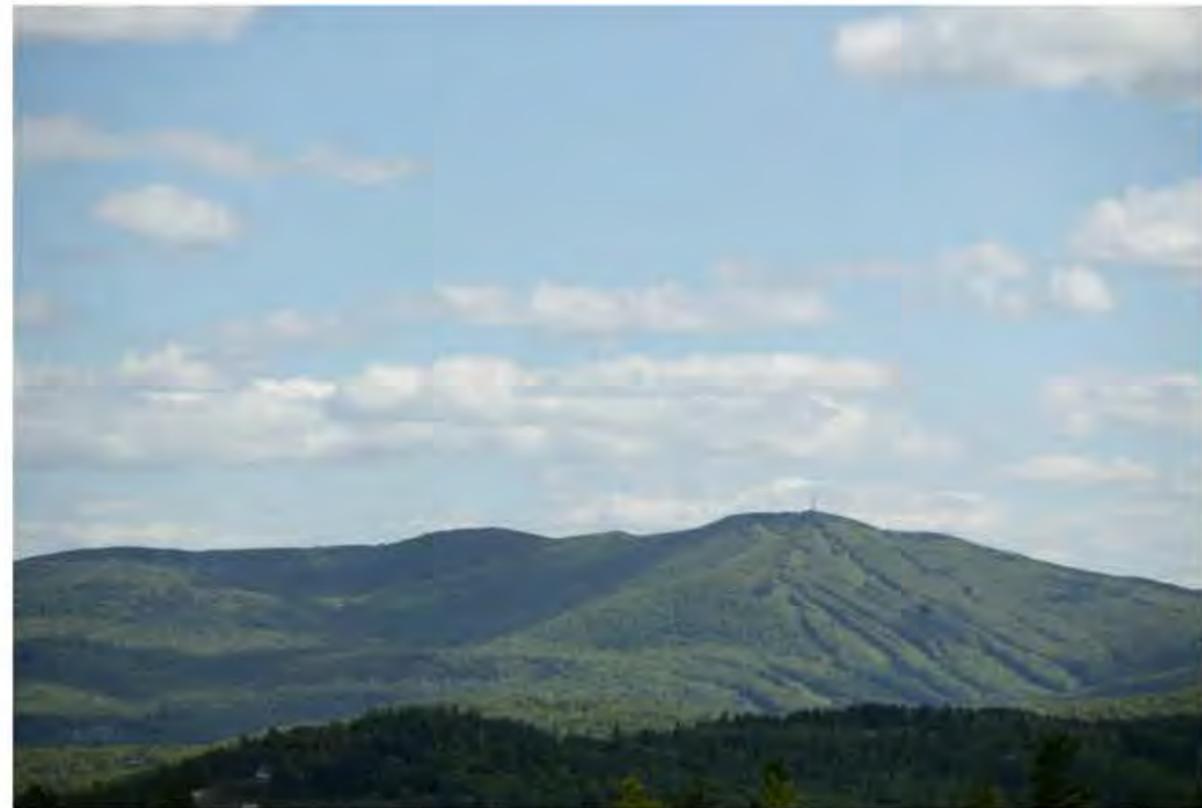
VIEWPOINT #1: View looking north and east from Lake Gunnison towards Mount Sunapee (left) and the West Bowl Area (left-center).



VIEWPOINT #2: View looking south and slightly east from Bradford Road near Newbury towards Mount Sunapee and the West Bowl (slightly right of center).



VIEWPOINT #3: View looking east from Brook Road towards the West Bowl area. Note that the lower elevations are largely screened by foreground vegetation.



VIEWPOINT #4: Long-range view looking south and east from Brown Hill area towards Mount Sunapee (right) and the East Bowl / Eagles Nest area (Center and left).

Date: December 1, 2015  
Drawn By: ZP  
Checked By: MDK  
Prepared By:

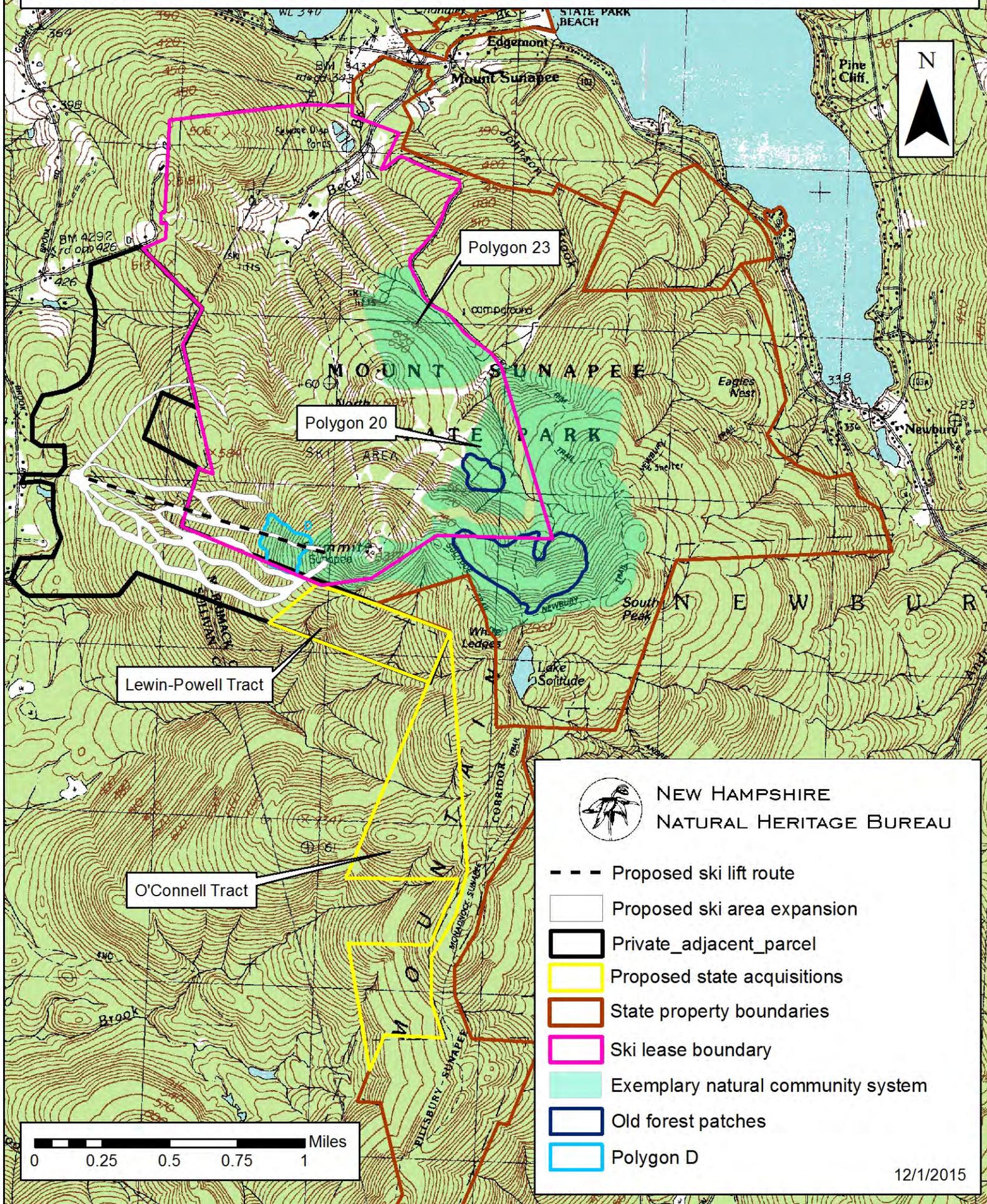


Title  
Photographs  
Sheet Number  
EMP - 5

Project Number: 09033-001  
File:

**Figure EMP-6: Exemplary Natural Community System – Mt. Sunapee State Park**

# Exemplary Natural Community System - Mt. Sunapee State Park



Polygon 23

Polygon 20

Lewin-Powell Tract

O'Connell Tract



NEW HAMPSHIRE  
NATURAL HERITAGE BUREAU

- - - Proposed ski lift route
- Proposed ski area expansion
- ▭ Private\_adjacent\_parcel
- ▭ Proposed state acquisitions
- ▭ State property boundaries
- ▭ Ski lease boundary
- ▭ Exemplary natural community system
- ▭ Old forest patches
- ▭ Polygon D

