

SUSTAINABLE SLOPES

NATIONAL
SKI AREAS
ASSOCIATION



ANNUAL REPORT

JUNE, 2002



THE ENVIRONMENTAL CHARTER
FOR SKI AREAS

Sustainable Slopes Annual Report 2002

Prepared by

NATIONAL
SKI AREAS
ASSOCIATION



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49 Degrees North Ski Area	Mountain High Resort
Alpine Meadows Ski Resort	Mt. Ashland Ski Area
Alta Ski Area	Mt. Bachelor, Inc.
Anthony Lakes Mountain Resort	Mt. Hood Meadows Ski Resort
Arapahoe Basin	Mt. Rose - Ski Tahoe
Aspen Highlands	Mt. Spokane Ski Area
Aspen Mountain	Northstar-at-Tahoe
Attitash Bear Peak	Okemo Mountain Resort
Badger Pass	Pats Peak
Bear Creek Ski & Recreation Area	Pebble Creek Ski Area
Beaver Creek Resort	Powderhorn Resort
Big Mountain Ski & Summer Resort	Sierra-at-Tahoe Ski Resort
Blue Mountain Resorts	Ski Bluewood
Bogus Basin Ski Resort	Ski Cooper
Boston Mills/Brandywine Ski Resort	Ski Liberty (Liberty Mountain Resort)
Breckenridge Ski Resort	Ski Roundtop
Bretton Woods Mountain Resort	Ski Snowstar Winter Sports Park
Bridger Bowl Ski Area	Smugglers' Notch Resort
Brighton Ski Resort	Snow Summit Mountain Resort
Brodie Mountain Resort	Snowbasin, A Sun Valley Resort
Buttermilk Mountain	Snowbird Ski & Summer Resort
The Canyons	Snowmass Ski Area
Cascade Mountain Ski & Snowboard Area	Squaw Valley Ski Corporation
Cataloochee Ski Area	Steamboat Ski & Resort Corp.
Copper Mountain Resort	Stevens Pass
Crested Butte Mountain Resort	Stowe Mountain Resort
Crystal Mountain, Inc.	Sugar Bowl Ski Resort
Crystal Mountain Resort	Sugarbush Resort
Deer Valley Resort Company	Sugarloaf/USA
Durango Mountain Resort	The Summit At Snoqualmie
Gore Mountain	Sundance
Grand Targhee Ski & Summer Resort	Sunday River Ski Resort
Greek Peak Ski Resort	Taos Ski Valley, Inc.
Heavenly Ski Resort	Telluride Ski & Golf Company
Holiday Valley Resort	Timberline Lodge & Ski Area
Jackson Hole Mountain Resort	Vail Mountain
Jiminy Peak – The Mtn. Resort	Wachusett Mountain Ski Area
Keystone Resort	Waterville Valley Resort
Killington Resort	Whiteface
Kirkwood Mountain Resort	Whistler/Blackcomb Mtn. Resorts Ltd.
Loon Mountain Recreation Corp.	Williams Ski Area
Mammoth Mountain Ski Area	Winter Park Resort
Massanutten Ski Resort	Wintergreen Resort
Mission Ridge	Wolf Creek Ski Area
Mohawk Mountain Ski Area	
Mount Snow Resort	

THE YEAR IN REVIEW

The National Ski Areas Association (NSAA) is pleased to present this second *Annual Report* on the Sustainable Slopes Environmental Charter for Ski Areas. The Environmental Charter, commonly known as Sustainable Slopes, was adopted in June 2000 as a collection of environmental best practices for ski area owners and operators (visit www.nsaa.org for a copy of the Environmental Charter). The purposes of this *Annual Report* are to provide information on resorts' progress in implementing the Environmental Principles of the Charter, highlight the contributions of our partners, and set goals for the future.

Vision:

To be leaders among outdoor recreation providers through managing our businesses in a way that demonstrates our commitment to environmental protection and stewardship while meeting the expectations of the public.

To date, 173 resorts have endorsed the Environmental Charter, representing over 72 percent of the ski resorts nationally by skier visits. Upon endorsing the Charter, these resorts have identified an environmental contact person, assessed their policies and operations against the Environmental Principles in the Charter, and have taken steps toward improved environmental performance. Given variances in size, technical expertise, financial resources, and geographic location, resorts are at different starting points with respect to their environmental programs and implementation of the Environmental Principles. The challenge of this *Annual Report* is to collectively report on resorts' progress to date despite these differences.

NSAA is fortunate to have a committed group of Partnering Organizations—those organizations that support the Environmental Principles and are committed to working with resorts in the future—on board with the Charter. Our Partnering Organizations work with individual resorts and NSAA to help bring the Charter to life. The Partnering Organizations are also helpful in gathering environmental data on resorts, educating resorts on environmental practices and opportunities, and supporting our Sustainable Slopes outreach campaign. More detailed information on the contributions of the Partnering Organizations are presented in Chapter 3.

Consistent with last season, NSAA used an Assessment Tool based on the Principles of the Environmental Charter to collect data from resorts. For a sample copy of the Assessment Tool, visit www.nsaa.org and click on “Environmental Charter.” The Assessment Tool results are the factual basis for this *Annual Report*. A total of 90 resorts completed it this year. The Assessment Tool helps us identify general industry trends and collective results regarding our progress under the Principles. Additionally, the tool is useful to resorts on an individual basis in helping them identify successes and opportunities for improvement, setting priorities for the future, and in benchmarking their progress against other resorts.



The Year in Review

We learn time and time again that the public is keenly interested in our industry's environmental stewardship activities. As a result, ski areas participated in a Sustainable Slopes Outreach Campaign in February of 2002 to highlight the Charter and to educate guests and the public on their role in helping us make sustainable use of natural resources (See Environmental Code of the Slopes in Appendix B). Given the high level of interest in this year's outreach campaign, NSAA already has scheduled next year's Sustainable Slopes Outreach Day for February 22, 2003.

NSAA is committed to raising awareness of environmental issues through this *Annual Report*, the Sustainable Slopes Outreach Campaign, and any other effective methods of informing the public about ski areas and the environment. For example, this year NSAA launched the first ever web-based environmental database for ski areas, called the "Green Room." To enter the Green Room, visit www.nsaa.org and click on "Environmental Charter." The Green Room is available to the media and public for information on innovative actions that resorts are taking under the 21 Environmental Principles--from water quality to wildlife habitat to energy conservation. Resort contact information is provided for each project or program, as well as links to resort websites and environmental web pages. Resorts are using the database as a resource in environmental decision-making and to share ideas on tested programs or projects that will enhance environmental performance. The Green Room also identifies those resorts that have received national environmental excellence awards from Time4 Media's Mountain Sports Media, publishers of *SKI*, *SKIING* and other publications. So far, the Green Room portion of NSAA's website has received over 20,000 "hits." Also on our website, we continue to feature the "Spotlight On" video that featured the Sustainable Slopes program aired on over 300 Public Broadcasting System (PBS) stations last year. Finally, the Sustainable Slopes program received recognition for Outstanding Achievement in Environmental Education in February, 2002 from the Salt Lake Organizing Committee for the Winter Olympic Games of 2002.

We have learned a great deal since the adoption of the Environmental Charter. The Assessment Tool results continue to demonstrate that we are succeeding in taking collective steps toward proactive environmental stewardship. We have many environmental success stories from resorts across the country, and we also have challenges and opportunities for improvement in the future. What remains clear is that we can never underestimate the value of the natural surroundings that ski areas call home. The environment will always be a ski area's number one asset. As an industry, we will continue to make the Environmental Charter one of our top priorities.

***"We are
succeeding in
taking collective
steps toward
proactive
environmental
stewardship."***



On behalf of ski areas across the country, NSAA would like to thank all of the individuals, organizations, and agencies outside the industry that have supported Sustainable Slopes with resources, expertise, and input. Together we can be proud of the accomplishments made over the past year. Your participation encourages us to strive to raise the bar and apply the vision we will need to meet the challenges of the future.

Michael Berry

National Ski Areas Association President

June 2002



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1.0 THE SUSTAINABLE SLOPES ENVIRONMENTAL CHARTER

1.1 HISTORY AND PURPOSE OF THE CHARTER

Every year, millions of people visit ski areas across North America to enjoy snow sports and to experience the natural beauty of the mountain environment. These visitors place a high priority on environmental concerns. In order to continue to offer quality recreational experiences that complement the natural and aesthetic qualities that draw these visitors to the mountains, NSAA and its member resorts have committed to improving environmental performance in ski area operations and management. This commitment is detailed in the Sustainable Slopes Environmental Charter for Ski Areas.

1.2 OVERVIEW OF THE ENVIRONMENTAL PRINCIPLES

The Environmental Charter promotes sound environmental stewardship and, more importantly, offers a comprehensive set of 21 Environmental Principles that enable ski area operators to make sustainable use of natural resources. The Principles cover the following topics:

To see the Charter and its Principles in their entirety, visit the NSAA web site at www.nsaa.org.

1. Planning, Design, and Construction
2. Water Use for Snowmaking
3. Water Use in Facilities
4. Water Use for Landscaping and Summer Activities
5. Water Quality Management
6. Wastewater Management
7. Energy Use for Facilities
8. Energy Use for Snowmaking
9. Energy Use for Lifts
10. Energy Use for Vehicle Fleets
11. Waste Reduction
12. Product Re-use
13. Recycling
14. Potentially Hazardous Wastes
15. Fish and Wildlife Management
16. Forest and Vegetative Management
17. Wetlands and Riparian Areas
18. Air Quality
19. Visual Quality
20. Transportation
21. Education and Outreach

Understanding that ski areas have some unavoidable impacts, the Principles encourage ski areas to adopt the “avoid, minimize, mitigate” approach to natural resource management.



1.3 Partnering Organizations

For each of the 21 Environmental Principles, the Charter identifies a range of "Options for Getting There" that resorts can implement to achieve the Principles. These "Options for Getting There" serve as a menu of realistic actions ski areas can and are taking, all or in part as their resources allow, to continually improve their operations. A complete listing of the "Options for Getting There" for each of the 21 Principles is available at www.nsaa.org.

Because not all resorts have the same concerns and resources, the Charter is designed to allow resorts to use the Principles as a framework and then choose the "Options for Getting There" that make the most sense given their individual circumstances and capacities. We hope that each resort continues to take the challenge to achieve the greatest possible results individually for greater conservation collectively.

It is important to note that the Charter's Principles are voluntary, and in adopting them resorts have committed to going beyond regulatory compliance in those areas where improvements make environmental sense and are economically feasible. Ski areas already should be meeting all applicable federal, state, and local environmental requirements. The Principles are the means by which the industry can collectively *improve environmental performance*. There are many incentives for going beyond compliance. Good environmental practices are good business, and quite simply are expected by resort customers, the Partnering Organizations in the Charter, and other key stakeholders.

1.3 PARTNERING ORGANIZATIONS

The Environmental Charter was developed through a collaborative process where input and awareness, not necessarily consensus on every issue or by every group, were the goals. This process was facilitated by the Keystone Center, an independent non-profit public policy and education organization. Input came from a variety of interests, including federal, state, and local government agencies, environmental and conservation groups, other outdoor recreation groups, and academia. The 12 Partnering Organizations listed below supported the ski industry's development of the Environmental Principles and are committed to working with the industry to implement the Principles.

- Colorado Department of Public Health & Environment (CDPHE)
- Conservation Law Foundation (CLF)
- U.S. Department of Energy (DOE)
- U.S. Environmental Protection Agency (EPA)
- USDA Forest Service (USFS)
- Leave No Trace Inc. (LNT)
- The Mountain Institute (TMI)
- National Fish & Wildlife Foundation (NFWF)
- National Park Service Concession Program (NPS)
- 2002 Olympics Salt Lake City Organizing Committee (SLOC)



- Teton County, Wyoming (TC)
- Trust for Public Land (TPL)

1.4 ENDORSING RESORTS

On an individual basis, ski areas take their stewardship role seriously and continue to take innovative steps every day to address environmental challenges. The Charter represents a *collective* step toward meeting these challenges. To date, 173 ski areas have endorsed the Charter and are committed to implementing its Principles. (See Appendix A for a complete list of endorsing resorts.)

Of the endorsing ski areas, 90 participated in the data collection exercise that is the basis for this *Annual Report*. This is virtually the same participation rate as last year when 88 resorts participated in annual reporting. The data gathered demonstrate the collective progress that the industry continues to make under the Environmental Principles. The data also give insight into environmental priorities for the future for each individual ski area and the industry as a whole.

1.5 MEASURING PROGRESS TOWARD THE PRINCIPLES

NSAA updated and improved the Assessment Tool used last year to help resorts measure their progress under the Environmental Charter during this second year of implementation. The endorsing resorts received this Assessment Tool in April of 2002. Once again, each resort had the option of completing the Assessment Tool on-line at the NSAA web site or submitting a hard copy by fax or mail.

The Assessment Tool consists of 24 forms. Twenty-one of these forms correspond to the 21 Principles of the Environmental Charter (listed above in Section 1.2). Resorts could elect to skip forms that are not applicable to their operation (for example, topics related to snowmaking if their resort does not make snow). Again this year, the results were aggregated across all participating ski resorts and analyzed according to geographic regions and resort size.

The Assessment Tool includes forms describing each of the Principles from the Charter. The first 21 forms contain four sections for the resort to complete:

1. A Checklist of “Options for Getting There”
2. Overall Implementation Status (on a scale of 1-5)
3. Priorities for Improvement
4. “Principles in Action,” or steps taken to implement the Principles

The “Options for Getting There” consist of 177 environmental best practices across all 21 Principles. In total, resorts answered over 200 questions in the Assessment Tool if all 21 Principles were applicable.



1.5 Measuring Progress Toward the Principles

In its second year, the Assessment Tool continues to be a living tool. This year's tool was refined based upon the results of last year's report and feedback from resorts and Partnering Organizations. We will continue to incorporate feedback into the tool so that it improves with each successive year. The Assessment Tool also is a framework that will be useful in moving toward a more quantitative approach for measuring environmental improvement in the future.

Form 22 of the Assessment Tool focused on quantitative measurements of energy use/savings, waste production/reduction, water use/savings, and transportation demand reduction. Our goal was to track these issues as "environmental indicators." These questions allow us to quantify some basic metrics associated with core Environmental Principles. This year, rather than asking resorts to indicate a range of production/reduction associated with certain resources, we asked them to provide actual numbers that reflect their individual operations. Our thinking was that specific numbers, as opposed to ranges, allow better opportunity for year-to-year comparison, which is the purpose of this Annual Report. Unfortunately, many resorts provided feedback that they did not have hard and fast numbers to insert on Form 22, and as a result many "0" figures appear in the data. For this reason, we will revisit for next year's Assessment Tool whether specific numbers are the best approach to gaining quantitative data.



2.1 Implementation Status of Environmental Principles

2.0 CHARTER PROGRESS AND CHALLENGES

...our ultimate goal is to have 100 percent participation from endorsing resorts.

A total of 90 resorts from 26 states have completed the Assessment Tool and have reported on their progress toward achieving the goals of the Charter. Of course, our ultimate goal is to have 100 percent participation from endorsing resorts so that we can develop more representative data for the industry as a whole, and so that we can learn from individual resort successes and move the entire industry forward.

Although the Assessment Tool is more qualitative than quantitative, we can infer trends and indications of what has been accomplished during this second year and what challenges lie ahead for the industry and its Partnering Organizations. One of our goals for the Assessment Tool over the next few years is to gradually shift its focus to more quantitative data collection and reporting.

2.1 IMPLEMENTATION STATUS OF ENVIRONMENTAL PRINCIPLES

The Assessment Tool results show that many resorts are well on their way toward implementing the Environmental Principles. In fact, with the exception of "Energy Use for Lifts" and "Product Re-use," the remaining Principles all scored above a 3 on a scale of 1 (lowest) to 5 (highest)¹ in terms of overall implementation status. The results also demonstrate that room for improvement remains in several of the areas covered by the Principles. Table 2-1 summarizes the most and least implemented Principles for this reporting year.

**Table 2-1
Overall Implementation Status – Most and Least Implemented Principles**

Overall Most Implemented Principles	Overall Least Implemented Principles
Potentially Hazardous Wastes	Education and Outreach
Water Use for Snowmaking	Energy Use for Vehicle Fleets
Planning, Design, and Construction	Product Reuse
Visual Quality	Energy Use for Lifts
Water Quality Management	

- ¹
1. Not started yet on implementation
 2. Investigating, but no action implemented
 3. Some actions implemented
 4. Significant progress made
 5. Principle implemented



2.1 Implementation Status of Environmental Principles

Most Implemented Principles

As Table 2-1 suggests, resorts have excelled in five areas:

- Protecting scenic values or "Visual Quality"
- Optimizing efficiency of water use for snowmaking
- Planning, designing, and constructing facilities and lifts in an environmentally sensitive manner
- Properly handling potentially hazardous waste
- Practicing sound water quality management

On an implementation scale of 1 (lowest) to 5 (highest), resorts scored on average 3.74 for implementing sustainable practices into planning, design, and construction, protecting visual quality and water quality management; 3.75 for water use efficiency in snowmaking; and 4.01 for properly addressing potentially hazardous waste. The benefits of successfully implementing these five Principles include keeping the integrity of the natural landscape intact, protecting scenic vistas, using water efficiently and effectively in a way that is also sensitive to fish and wildlife resources, protecting minimum stream flows, and integrating operations into the natural landscape.

Decisions made in these five areas, such as the siting of lifts or buildings, or measures taken to ensure the health of forests and vegetation, tend to be decisions with lasting implications. They also are the issues that stakeholders and surrounding communities tend to be the most concerned about. In sum, the Assessment Tool results show that resorts have made protecting the health of the landscape a priority in their operations, as well as protecting the scenic qualities that draw visitors to the slopes.

When comparing this year's responses to 2001, three of the most implemented Principles remained the same. The lone changes were two water-related Principles (water use for snowmaking and water quality management) that replaced forest & vegetative management as two of the top Principles. Notably, nearly all status scores for those Principles that did repeat from last year increased. In particular, the average score for protecting visual quality increased from 3.71 (in 2001) to 3.74 (in 2002), or a rise of 0.03. Similarly, the score rose for implementing sustainable practices into planning, design, and construction by 0.11. Overall, resorts scored higher in overall status on 15 Principles when compared to 2001 scores.

Least Implemented Principles

By contrast, the four least implemented Principles include energy use for lifts and vehicle fleets, product re-use as a means of reducing waste

...resorts have made protecting the health of the landscape a priority in their operations, as well as protecting the scenic qualities that draw visitors to the slopes.



2.1 Implementation Status of Environmental Principles

generation, and education and outreach. In these areas, resorts scored as follows: energy use for lifts - 2.69, energy use for vehicle fleets - 3.08, product re-use - 2.82, education and outreach - 3.09. These four areas represent opportunities for improvement by resorts. The benefits of improvement in these areas are cleaner energy, reduced pollution, reduced energy consumption, less waste going to landfills, reduced emission of greenhouse gases that cause global warming, and maintaining an informed public on environmental matters. NSAA is committed to working with Partnering Organizations with expertise in these areas to help educate resorts and improve performance in these areas over time.

...the most improvement was seen in the scores of energy use for lifts with an overall increase of 0.13 from 2001 to 2002.

Similar to the most implemented measures, we saw repeated themes in the least implemented measures between 2001 and 2002. In fact, all of the least implemented measures remained the same. Again, status scores for these Principles did increase from last year. In particular, the average score for education and outreach increased by 0.06. The score rose for product re-use by 0.08, and by 0.04 for energy use for vehicle fleets. Of all the least implemented Principles, the most improvement was seen in the scores of energy use for lifts with an overall increase of 0.13 from 2001 to 2002.

Specific Environmental Practices

Apart from providing overall results on the status of implementation of the Principles, the Assessment Tool data also highlight specific environmental practices that resorts currently are undertaking. These data show that reporting resorts are doing an exceptional job of implementing specific environmental practices across the board. For example:

- Seventy-nine percent (79%) are engaging stakeholders collaboratively on siting improvements, such as new facilities or lifts.
- Eighty-five percent (85%) are minimizing the removal of trees by carefully siting and designing ski trails.
- Ninety-five percent (95%) are applying sound on-mountain construction practices, such as over-snow transport techniques, stormwater control, or phasing of activities to minimize disturbances to natural habitats.
- Ninety-eight percent (98%) are using appropriate erosion and sediment control practices, such as water bars, revegetation, and replanting.
- Eighty-three percent (83%) are installing water efficient equipment in facilities, such as low-flow faucets and toilets.
- Eighty-five percent (85%) are maintaining stream vegetative buffers to improve natural filtration processes and protect aquatic habitat.



2.1 Implementation Status of Environmental Principles

- Eighty-five percent (85%) are using high-efficiency snow guns and air compressors for snowmaking operations.
- Seventy-nine percent (79%) are conducting activities and construction with sensitivity to seasonal wildlife patterns and behavior.
- Ninety-four percent (94%) are revegetating disturbed areas as quickly as possible following disturbances.
- Eighty-three percent (83%) are inventorying and monitoring wetland and riparian areas.
- Seventy-six percent (76%) are engaging in restoration, remediation, and protection projects for wetlands or riparian areas.
- Eighty-five percent (85%) are planting trees or other vegetation to improve visual quality.
- Ninety percent (90%) are providing shuttles or transportation for guests and employees.
- Seventy percent (70%) are purchasing recycled products.
- Ninety percent (90%) are recycling office paper, cardboard, newspaper, aluminum, glass, plastic, and food service waste.

Analysis by Region

In addition to looking for overall trends, NSAA analyzed the data collected by geographic region and resort size. The regions used for this analysis are defined below:

Northeast (NE)

Maine
Vermont
New Hampshire
Connecticut
Massachusetts
Rhode Island

Mid-Atlantic (MA)

Pennsylvania
New Jersey
New York

Southeast (SE)

Virginia
West Virginia
North Carolina
South Carolina
Tennessee
Georgia

Midwest (MW)

North Dakota
South Dakota
Nebraska
Minnesota



2.1 Implementation Status of Environmental Principles

Midwest (continued)

Iowa
Missouri
Wisconsin
Illinois
Indiana
Michigan
Ohio

Central Rockies (CR)

Colorado
New Mexico

Northern Rockies (NR)

Idaho
Montana
Wyoming
Utah

Pacific Northwest (PN)

Washington
Oregon
Alaska

Sierras (SI)

California
Nevada
Arizona

Canada (CN)

Table 2-2 highlights the average implementation status of each of the 21 Environmental Principles by these regions. The data represent the average response across all reporting resorts for each region on a scale of 1 to 5.

...most regions are leading the industry in implementation of at least one of the Environmental Principles.

For each Principle in Table 2-2, the region that scored the highest is denoted in bold italic font. For each region, the Principle with the highest implementation rate is indicated by a shaded box. The results show that Principle leadership is widely distributed across the industry. All of the regions are leading the industry in implementing at least one of the Environmental Principles.

When comparing the 2002 results of Table 2-2 to the scores of 2001, several regions were noted to have reported improvement in many of the Principles. The following list presents the improvements (based on higher average scores of overall status) in Environmental Charter Principles by region:

- Northeast (NE) reported improvement in 18 Principles
- Mid-Atlantic (MA) reported improvement in 9 Principles
- Southeast (SE) reported improvement in 6 Principles
- Midwest (MW) reported improvement in 12 Principles
- Central Rockies (CR) reported improvement in 11 Principles
- Northern Rockies (NR) reported improvement in 6 Principles
- Pacific Northwest (PN) reported improvement in 10 Principles
- Sierras (SI) reported improvement in 15 Principles
- Canada (CN) reported improvement in 3 Principles



2.1 Implementation Status of Environmental Principles

**Table 2-2
Average Principle Implementation Status
by Region and Overall**

Principle	CR	IN	MA	MW	NE	NR	PN	SE	SI	All
Planning, Design, and Construction	3.94	4.00	3.50	2.50	3.80	4.23	3.50	3.33	3.78	3.74
Water Use For Snowmaking	3.94	4.00	4.33	3.75	4.00	3.31	3.20	4.00	3.36	3.75
Water Use for Facilities	3.33	3.00	3.33	2.50	3.41	3.23	3.00	3.33	2.92	3.17
Water Use for Landscaping and Summer Activities	3.83	5.00	3.25	3.75	3.40	3.63	3.00	4.00	3.10	3.52
Water Quality Management	3.83	4.00	3.33	3.50	3.82	4.00	3.50	4.00	3.62	3.74
Wastewater Management	3.67	1.00	3.50	3.50	3.71	2.92	3.33	4.00	2.85	3.36
Energy Use for Facilities	3.22	3.00	3.50	3.25	3.24	3.08	3.17	2.67	3.08	3.17
Energy Use for Snowmaking	3.29	5.00	3.33	3.25	3.50	3.56	2.00	3.33	3.09	3.35
Energy Use for Lifts	2.94	3.00	2.67	2.50	2.71	2.85	3.00	1.33	2.23	2.69
Energy Use for Vehicle Fleets	3.11	3.00	3.17	3.00	2.88	3.15	3.33	2.67	3.08	3.08
Waste Reduction	3.61	3.00	4.00	3.25	3.06	3.31	3.50	3.00	3.08	3.34
Product Reuse	3.33	3.00	3.17	2.75	2.53	2.85	2.75	2.00	2.54	2.82
Recycling	3.67	4.00	2.83	2.75	3.06	3.23	3.58	3.33	3.38	3.32
Potentially Hazardous Wastes	4.06	4.00	4.00	4.25	3.71	4.23	3.83	3.33	4.38	4.01
Fish and Wildlife	3.83	4.00	3.17	2.25	3.24	3.23	3.50	2.33	2.92	3.28
Forest and Vegetative Management	3.94	4.00	3.20	2.75	3.13	3.69	3.91	3.50	3.25	3.51
Wetlands and Riparian Areas	3.94	2.00	3.25	2.25	3.31	3.73	3.29	4.00	3.30	3.44
Air Quality	3.50	3.00	3.33	2.00	3.24	3.62	3.17	2.33	3.38	3.28
Visual Quality	3.89	4.00	3.50	4.25	3.65	4.23	3.75	2.67	3.31	3.74
Transportation	3.78	3.00	2.83	2.75	3.35	3.62	3.08	2.00	3.69	3.38
Education and Outreach	3.67	3.00	2.50	1.75	3.12	3.15	3.00	2.67	3.08	3.09

It should be noted that regions already reporting high scores overall have less room for improvement. For example, the Canadian region only reports improvements in three Principles for this past year. However, this low number of improvements is not indicative of the regions' progress since these resorts previously attained some of the highest overall scores of any region.



2.1 Implementation Status of Environmental Principles

Table 2-3 presents the highest scoring Principles and lowest scoring Principles in terms of implementation status by region.

**Table 2-3
Regional Status – Most and Least
Implemented Principles**

Region	Most Implemented Principles	Least Implemented Principles
Central Rockies (CR)	Potentially Hazardous Wastes Planning, Design, and Construction Water Use For Snowmaking Forest and Vegetative Management Wetlands and Riparian Areas	Energy Use for Snowmaking Energy Use for Facilities Energy Use for Vehicle Fleets Energy Use for Lifts
Canada (IN)	Water Use for Landscaping and Summer Activities Energy Use for Snowmaking	Wetlands and Riparian Areas Wastewater Management
Mid-Atlantic (MA)	Water Use For Snowmaking Waste Reduction Potentially Hazardous Wastes	Recycling Transportation Energy Use for Lifts Education and Outreach
Midwest (MW)	Potentially Hazardous Wastes Visual Quality Water Use For Snowmaking Water Use for Landscaping and Summer Activities	Fish and Wildlife Wetlands and Riparian Areas Air Quality Education and Outreach
Northeast (NE)	Water Use For Snowmaking Water Quality Management Planning, Design, and Construction Potentially Hazardous Wastes Wastewater Management	Recycling Energy Use for Vehicle Fleets Energy Use for Lifts Product Reuse
Northern Rockies (NR)	Visual Quality Planning, Design, and Construction Potentially Hazardous Wastes Water Quality Management	Energy Use for Facilities Wastewater Management Energy Use for Lifts
Pacific Northwest (PN)	Forest and Vegetative Management Potentially Hazardous Wastes Visual Quality Recycling	Product Reuse Energy Use for Lifts Education and Outreach Product Reuse Energy Use for Snowmaking



2.1 Implementation Status of Environmental Principles

**Table 2-3 (continued)
Regional Status – Most and Least
Implemented Principles**

Region	Most Implemented Principles	Least Implemented Principles
Southeast (SE)	Water Use For Snowmaking Water Use for Landscaping and Summer Activities Water Quality Management Wastewater Management Wetlands and Riparian Areas	Fish and Wildlife Air Quality Product Reuse Transportation Energy Use for Lifts
Sierras (SI)	Potentially Hazardous Wastes Planning, Design, and Construction Transportation Water Quality Management	Water Use for Facilities Fish and Wildlife Wastewater Management Product Reuse Energy Use for Lifts

Analysis By Resort Size

The results of the Assessment Tool also were analyzed by resort size. Ski industry data were used to organize reporting resorts into four size categories:

- Zero to 100,000 skier visits per year
- One hundred thousand to 250,000 skier visits per year
- Two-hundred and fifty thousand to 500,000 skier visits per year
- Greater than 500,000 skier visits per year

Similar to 2002, smaller resorts with less than 100,000 skier visits per year consistently scored below average in terms of overall implementation status of the 21 Principles (see Table 2-4). The same is true for resorts with skier visits up to 250,000 per year. In contrast, larger resorts with greater than 250,000 skier visits per year consistently scored higher than average in terms of overall implementation status of the 21 Principles. These data again reinforce and reflect the reality that smaller resorts have fewer resources to address the practices listed in the Charter. At the same time, smaller resorts also are likely to have less of an impact on the environment.

For each Principle in Table 2-4, the size category that scored the highest is denoted in bold italics. For each size category, the Principle with the highest implementation level is indicated by a shaded box. In all size categories, Potentially Hazardous Waste was the most implemented Principle. As can be seen in Table 2-4, high scores for each respective Principle were quite evenly distributed between the two highest size categories.



2.1 Implementation Status of Environmental Principles

Table 2-4
Principle Implementation Status by Resort Size

Principle	0-100,000	100,000-250,000	250,000-500,000	> 500,000	Avg All
Planning, Design, and Construction	3.57	3.40	4.00	3.93	3.74
Water Use For Snowmaking	3.60	3.67	3.73	4.00	3.75
Water Use for Facilities	3.00	3.09	3.13	3.50	3.17
Water Use for Landscaping and Summer Activities	3.33	3.36	3.68	3.50	3.52
Water Quality Management	3.47	3.68	3.80	3.94	3.74
Wastewater Management	2.88	3.27	3.43	3.78	3.36
Energy Use for Facilities	3.12	2.91	3.30	3.33	3.17
Energy Use for Snowmaking	3.44	3.19	3.32	3.56	3.35
Energy Use for Lifts	2.71	2.27	2.83	2.94	2.69
Energy Use for Vehicle Fleets	3.00	2.73	3.23	3.33	3.08
Waste Reduction	3.35	3.23	3.47	3.28	3.34
Product Reuse	2.88	2.59	2.93	2.83	2.82
Recycling	3.41	3.00	3.50	3.33	3.32
Potentially Hazardous Wastes	3.82	3.68	4.13	4.39	4.01
Fish and Wildlife	2.94	3.05	3.50	3.50	3.28
Forest and Vegetative Management	3.07	3.42	3.76	3.59	3.51
Wetlands and Riparian Areas	2.80	3.06	3.81	3.65	3.44
Air Quality	2.76	3.00	3.60	3.56	3.28
Visual Quality	3.29	3.50	4.07	3.89	3.74
Transportation	2.94	2.77	3.77	3.89	3.38
Education and Outreach	2.71	2.91	3.23	3.44	3.09

When comparing the 2002 results of Table 2-2 to the scores of 2001, all size categories reported improvement in many of the Principles. The following list presents the improvements in Environmental Charter Principles according to resort size category:

- Resorts with 100,000 or fewer skier visits reported improvement in 18 Principles.
- Resorts with 100,000 – 250,000 skier visits reported improvement in 15 Principles.



2.2 Priorities for Improvement

- Resorts with 250,000 – 500,000 skier visits reported improvement in 7 Principles.
- Resorts with 500,000 or more skier visits reported improvement in 12 Principles.

Drawing on the scores presented in Table 2-4, Table 2-5 presents the most and least implemented Principles by resort size.

**Table 2-5
Status by Resort Size – Most and Least Implemented Principles**

Resort Size	Most Implemented Principles	Most Implemented Principles
0-100,000	Potentially Hazardous Wastes Visual Quality Planning, Design, and Construction	Air Quality Energy Use for Lifts Education and Outreach
100,000-250,000	Potentially Hazardous Wastes Water Use For Snowmaking Water Quality Management	Product Reuse Energy Use for Vehicle Fleets Energy Use for Lifts
250,000-500,000	Potentially Hazardous Wastes Visual Quality Planning, Design, and Construction Wetlands and Riparian Areas	Water Use for Facilities Product Reuse Energy Use for Lifts
> 500,000	Potentially Hazardous Wastes Water Use For Snowmaking Water Quality Management	Waste Reduction Energy Use for Lifts Product Reuse

2.2 PRIORITIES FOR IMPROVEMENT

For Principles where resorts self-scored a 3 or lower for implementation status, indicating limited progress toward implementing the Principle, the Assessment Tool asked these resorts to rate the potential benefits if they were to fully implement that Principle. Specifically, resorts were asked to rate each of the following potential benefits as low, medium, or high:

- Increased monetary savings
- Reduced environmental impact
- Reduced regulatory liability
- Increased positive public image

Table 2-6 highlights the average score, on a scale of 1 to 3, of the potential benefits from implementing each of the Charter Principles.



**Table 2-6
Potential Benefits from Fully Implementing Charter Principles**

Principle	Increased Monetary Savings	Reduced Environmental Impacts	Reduced Regulatory Liability	Increased Positive Public Image
Planning, Design, and Construction	1.67	2.27	1.90	2.27
Water Use For Snowmaking	2.07	2.18	1.86	2.21
Water Use for Facilities	2.00	2.38	1.83	2.25
Water Use for Landscaping and Summer Activities	1.84	2.29	1.74	2.13
Water Quality Management	1.44	2.38	2.03	2.18
Wastewater Management	1.59	2.16	1.82	1.93
Energy Use for Facilities	2.43	2.29	1.62	2.21
Energy Use for Snowmaking	2.19	2.24	1.70	1.95
Energy Use for Lifts	1.97	2.10	1.50	1.90
Energy Use for Vehicle Fleets	1.85	2.22	1.63	2.12
Waste Reduction	1.63	2.20	1.45	2.22
Product Reuse	1.72	2.19	1.41	2.07
Recycling	1.80	2.31	1.55	2.16
Potentially Hazardous Wastes	1.57	2.35	2.17	1.96
Fish and Wildlife	1.24	2.16	1.59	2.02
Forest and Vegetative Management	1.43	2.40	1.97	2.09
Wetlands and Riparian Areas	1.26	1.97	1.76	1.88
Air Quality	1.28	2.19	1.74	2.02
Visual Quality	1.39	1.94	1.64	2.09
Transportation	1.42	2.17	1.38	2.19
Education and Outreach	1.32	2.14	1.56	2.49
Overall	1.69	2.21	1.66	2.12

...the industry is motivated to raise the bar beyond environmental compliance and to reduce its environmental impacts through improved performance.

As the scores in the above table demonstrate, the number one motivation for implementing the Principles continues to be Reduced Environmental Impacts. This benefit had the top score in 15 of the 21 Principle categories. Of the remaining categories, Public Image ranked highest in six categories, with one being tied for highest ranking with Reduced Environmental Impacts: Planning, Design and Construction. Resorts perceived economic savings to be the leading benefit for Energy Use In Facilities, yet all other energy-related Principles ranked highest in environmental impacts. These results continue to show that the industry is motivated to raise the bar beyond environmental compliance and to reduce its environmental impacts through improved performance.

2.3 PRINCIPLES IN ACTION

For each of the 21 Environmental Principles in the Sustainable Slopes Assessment Tool, resorts were invited to share related, specific



2.3 Principles in Action

environmental success stories. These successes were reported as “Principles In Action” in the Assessment Tool.

Detailed information on Principles in Action is now featured in NSAA’s Green Room, an online environmental database that was launched in late 2001. NSAA plans to update this database annually. The Green Room can be accessed through the Environmental Charter Section of the NSAA’s web-site at www.nsaa.org. In addition to details on innovative actions that resorts are taking under the 21 Principles, the Green Room also identifies resorts that have received national environmental excellence awards through Time4 Media’s Mountain Sports Media. The Green Room provides contact information for each of the Principles in Action. Ultimately, this online environmental database is intended to be a resource in environmental decision-making and a place to share ideas on tested programs or projects that will enhance resorts’ environmental performance. In addition to fostering networking among the resorts, the Green Room also is a public resource for anyone interested in the highlighted areas of progress. To date, the Green Room website has received over 20,000 “hits” from interested parties.

The remainder of this section lists several of the specific projects that resorts are undertaking to implement the Principles of the Charter. Note that the Principles In Action identified here are intended to be illustrative of environmental leadership in the industry and do not represent an exhaustive list of all resort environmental projects or programs. Furthermore, this list only includes projects implemented in the timeframe of this Annual Report, 2001-2002.

These Principles in Action, together with the results already shown in the previous sections, indicate that many resorts are well on their way toward implementing the Principles of the Charter.

Principle 1 - Planning, Design, and Construction Snowmass Ski Area, Colorado

Project Title: Snowmass Club Phase II

Project Description: ASC is rebuilding the Snowmass Club golf course, condominiums, and clubhouse. The golf course will need only half the water used by the previous course and weed problems will be eliminated. The resort will use native, drought tolerant plant species and will increase the wetlands fivefold over the previous course. In addition, the resort will reroute Brush creek to improve fish habitat and reduce sedimentation. This project is being undertaken in collaboration with the town. Also, the resort is aiming for LEED Silver certification for the golf clubhouse, which, along with the condos, will be heated and cooled using heat pumps in a nearby lake. The tennis court will have a radically new and efficient lighting system (T5 fluorescent bulbs), making it one of the most efficiently lit sports facilities in the world.



***Principle 2 - Water Use for Snowmaking
Snowmass Ski Area, Colorado***

Project Title: Dirt Halfpipe

Project Description: ASC built the Snowmass halfpipe base out of dirt, rather than snow, saving 3 million gallons of water and \$15,000 in energy from avoided snow making.

***Principle 3 - Water Use for Facilities
Sunday River Ski Resort, Maine***

Project Title: Reduce Pressure Regulator Adjustments

Project Description: During the last year, the resort has been experiencing a drought situation and faces the real possibility of water problems this year with its wells. In an effort to conserve water on the mountain, the resort decided to cut back the water pressure to all buildings by 5 to 10 pounds. With very little labor cost, the resort implemented this adjustment to all regulators to the 50 to 55 pound range. Guests did not notice any difference in water pressure, and the resort experienced fewer complaints on water issues than in years past. The resort also experienced a considerable dollar savings in electricity, water use, and equipment wear and tear by implementing this adjustment. The resort intends to leave the adjustments to all regulators at this range and expects cost savings for the upcoming years.

***Principle 4 - Water Use for Landscaping and Summer Activities
Beaver Creek Resort, Colorado***

Project Title: Grounds Maintenance Programs and Golf Course

Project Description: In 2001, the resort installed over 5 miles of drip irrigation. Each of the resort's 25 irrigation systems are electronically controlled to maximize water use, and half of these systems use raw water instead of domestic water. To further maximize water retention, the resort mulches and composts all flowerbeds, and covers all hiking and biking trails with 300 cubic yards of wood chips obtained from hazard tree removal, beetle kill, and tree pruning. The Beaver Creek Golf Course uses the same main-line piping system to irrigate the course as the snowmaking system. The course uses 100 percent raw water that is gravity fed from Beaver Creek. The resort does NOT take water from a domestic water supply or treatment facility for irrigation purposes.

***Principle 5 - Water Quality Management
Stowe Mountain Resort, Vermont***

Project Title: Water Quality Management and Monitoring Program

Project Description: Stowe Mountain Resort has established a comprehensive water quality management and monitoring program that has identified specific opportunities to improve drainage and stormwater techniques in addition to a systematic stream monitoring program that has been put in place to measure the impact of this practice as on water quality throughout the resort's watershed.



2.3 Principles in Action

Principle 6 - Wastewater Management

Sunday River Ski Resort, Maine

Project Title: Hornpout Addition to Lagoons

Project Description: In September, the resort introduced 120 hornpout fish to #1 and #2 Lagoons at Sunday River. This species of fish is expected to feed on the worms found in the sludge, which will release the humus material back into the aeration layers to be broken up and thereby reduce the sludge density. Over the course of a few years, the resort will determine whether it will see some benefits to sludge reductions in its system. The resort has successfully gas-cleaned twice since the introduction with no adverse effects to the fish. The fish are very strong and will grow approximately 1 inch per month in this environment. The resort will monitor the characteristics of the water as well as the other parameters it monitors for the state to help come up with data to equate efficiency of operation. Next spring, the resort will set traps in these lagoons to physically see how the fish are doing and growing. As the winter months approach, the hornpout will be less active and the resort will likely see less reduction of sludge.

Principle 7 - Energy Use for Facilities

Keystone Resort, Colorado

Project Title: Keystone Information Center

Project Description: Keystone Resort and the Keystone Neighborhood company have recently opened a new River Run Information Center at the gateway leading to the River Run Plaza and Gondola. Keystone is very proud of its first building powered by solar energy and hopes to incorporate more renewable energy initiatives in future construction. The Center incorporates native lumber (lumber from within a 100-mile radius), leftover building materials from other Keystone developments, natural day-lighting instead of conventional lighting schemes, and is powered by a new photovoltaic solar energy system. The system, when in full sunlight, is capable of generating over 800 watts of electricity. During a typical day, this equates to 5 kW/day, or nearly 2 pounds of coal. The Center will serve as a hub of information about the Snake River Basin and Keystone's environmental efforts.

Principle 8 - Energy Use for Snowmaking

Arapahoe Basin, Colorado

Project Title: Snowmaking

Project Description: In the summer of 2002, the resort is installing a gravity fed diversion and an all airless system to dramatically reduce energy consumption.

Principle 10 - Energy Use for Vehicle Fleets

Arapahoe Basin Ski Area, Colorado

Project Title: Biodiesel in Snowcats and other Diesel Equipment

Project Description: Araphaoe Basin is shifting its snowcat fleet to biodiesel. By using an 80 percent/20 percent blend of diesel/biodiesel, the resort hopes to significantly reduce its fleet pollution.



Principle 11 - Waste Reduction

Snowmass Ski Area, Colorado

Project Title: Cormatic Toilet Paper and Paper Towel Dispensers

Project Description: The resort switched to Cormatic dispensers, which reduce waste by 30 percent as well as labor costs. These dispensers also cut the waste associated with disposing of toilet paper stubs and reduce theft.

Principle 13 - Recycling

Bretton Woods Mountain Resort, New Hampshire

Project Title: Bretton Woods Recycles

Project Description: In just one season, the resort reduced its solid waste output by 45 percent (over 27 tons of waste diverted from the landfill). The highest volumes of recycled products consisted of corrugated cardboard and plastic soda bottles. However, the way the resort designed the program, it could even recycle low-volume items, such as office paper, tin cans, and outdated resort brochures. Anything the resort could recycle, it did.

Principle 14 - Potentially Hazardous Waste

Beaver Creek Resort, Colorado

Project Title: Hazardous Waste Technology

Project Description: The resort purchased a "bulb eater" that will reduce Universal Waste Handling costs and provide a more secure storage unit for Mercury-containing fluorescent bulbs. The resort also purchased five aerosol can puncturing units. These units will allow for the disposal of paints and aerosol cans in a more environmentally sensitive manner. The resort now can recycle the cans in its co-mingled stream. Also, the resort will be reclaiming previously disposed materials as usable product.

Principle 14 - Potentially Hazardous Waste

Mt. Bachelor, Inc., Oregon

Project Title: New Shop Solvent Recycler

Project Description: The resort replaced its Vehicle Maintenance Shop's parts cleaner with a new SystemOne solvent recycler. The old tank required bi-monthly cleaning and disposal of solvent waste by Safety-Kleen. The new system uses a self-contained distillation process to provide clean solvent on demand, recover 100 percent of cleaning solvents, and eliminate 100 percent of solvent waste. The resort no longer has to dispose of filled solvent waste bladders or refill the solvent tank. The cost to the resort was \$200 to install the system and a low monthly maintenance fee. This fee is less than the cleaning/waste disposal fees associated with the old system, resulting in a savings of approximately \$500 a year and greatly reducing solvent waste.

Principle 15 - Fish and Wildlife

Attitash Bear Peak, New Hampshire

Project Title: Thorne Pond Preservation and Regeneration Project

Project Description: The goal of this project is to protect and regenerate native plant and animal habitats, as well as animal food sources. In addition, the resort protects native species through measures



2.3 Principles in Action

such as retaining standing snags and downed trees/vegetation and, where feasible, promoting nests and dens.

Principle 17 - Wetlands and Riparian Areas

Loon Mountain Recreation Corporation, New Hampshire

Project Title: Riparian Corridor

Project Description: The resort has established a 50-foot setback of riparian corridor (in perpetuity) extending 1.5 miles along the Pemi River, which abuts the ski and development areas. The benefits of the setback include improved water quality and aquatic habitat.

Principle 18 – Air Quality

Mt. Hood Meadows Ski Resort, Oregon

Project Title: Boiler Conversion

Project Description: Converted boilers serving ski lodge and administration building from fuel oil to propane.

Principle 19 - Visual Quality

Jackson Hole Mountain Resort, Wyoming

Project Title: On-mountain Snowmaking Operations Facility

Project Description: In building a new on-mountain snowmaking operations facility, the goal was to find a location that would enable a design minimizing the visual impact of the building from both the ski trail and the road. The resort painted the building brown, put fans on the backside next to a side hill, and camouflaged them behind a screen of trees. The resort also designed the access road and water and sewer lines so few trees would have to be removed.

Principle 20 – Transportation

Beaver Creek, Colorado

Project Title: Transportation Program

Project Description: The Beaver Creek Transportation Program transported more than 1,200,000 guests last year, saving over 150,000 gallons of fuel and improving air quality and visibility. The resort is purchasing a 20-passenger natural gas bus to promote cleaner energy and conservation.

Principle 20 – Transportation

Arapahoe Basin, Colorado

Project Title: Ride Share

Project Description: The resort promotes the sharing of rides by guests through a “ride board” on its website. The resort also provides discounted lift tickets for guests who carpool.

Principle 21 - Education and Outreach

Arapahoe Basin, Colorado

Project Title: Environmental Fund

Project Description: The resort matches employee donations to grass-roots-level environmental programs, totaling approximately \$2,000 per year. These funds have gone to the Continental Divide Land Trust and Friends of Eagles' Nest Wilderness.



Principle 21 - Education and Outreach Beaver Creek Resort, Colorado

Project Title: Beaver Creek Environmental Education Initiatives

Project Description: In February 2002, the resort opened its on-mountain Environmental Learning Center (ELC). The ELC is dedicated to promoting education and awareness among guests, employees, and area residents. Displays in the ELC include Living with Wildlife, Recycle - Our World Depends on it, Energy the Renewable Resource, Sustainable Slopes, and Resort Management's Role in these efforts. The ELC was designed as an educational resource that incorporates several interactive displays and plays a continuous loop sustainable slope video. Each display portrays one of the many topics the resort's environmental efforts embrace.

Principle 21 - Education and Outreach Mt. Hood Meadows Ski Resort, Oregon

Project Title: New Position and Partnership

Project Description: Created a new position of Sustainable Business Manager to help the operation and development with environmental performance. Partnered with a local environmental education organization called SECRETS, which provides classroom and field instruction about regional environments to local schools.

2.4 SUMMARIES OF RESORT PROGRESS

Each resort that responded to the Assessment Tool was asked to provide a summary of steps taken to implement the Environmental Charter over the past year. Resort summaries are listed below in alphabetical order.

Alpine Meadows Ski Resort California

Throughout this past year, Alpine Meadows continued to build on the past season's groundwork for Sustainable Slopes. The recycling program continues to grow and is supported by both employees and guests. Guests often comment on how appreciative they are to see a recycling program in a winter resort and on such a scale.

In addition, Alpine Meadows has been recognized by state and federal government agencies for its erosion control work on the mountain runs as well as its plans for a retrofit of the parking lot to capture runoff before that runoff enters local creeks and rivers.

This season Alpine Meadows participated in February's Sustainable Slopes Day with displays from the Truckee River Restoration Group, the Tahoe Rim Trail Association, and the League to Save Lake Tahoe. On Arbor Day, the resort co-opted with the USFS in giving away pine and fir seedlings. Also, the resort has continued to partner the local schools with our own Sports School and Kid's Camp, informing and educating everyone who shows an interest in the ecology of our beautiful mountain resort.



2.4 Summaries of Resort Progress

For next year, Alpine Meadows will be investigating the viability of solar power on some of its base facilities as a way to save electricity and also to help offset operation costs.

Alta Ski Area Utah

Over the past year, Alta Ski Area completed a horizontal bore to access water for its snowmaking system. This horizontal bore will allow a gravity feed, which will reduce energy consumption. The resort also computerized the snowmaking system to conserve additional energy.

In addition, every department within the resort has been challenged by upper management to implement environmental practices within the department according to the best management practices of the Environmental Charter.

We planted over 1,000 Engleman Spruce seedlings and 100 bare-root shrubs as part of ongoing revegetation efforts. Also, we conducted several days of weed pulling with the help of volunteers, the USFS, and resort employees. Five years ago, the resort hired a botanist to assess its vegetation efforts and make recommendations for improvement. We have since changed our seed mix to include more native species and have supplemented that with hand-picked native seed from the local area. In the process of updating the Vegetation Plan, we recorded and entered 44 vegetation study plots into a global positioning system (GPS) for future monitoring. These plots, (each 1 meter in radius) are set up in both undisturbed and disturbed areas to include different plant community types and are distributed over a wide range of elevations (8,530-10,540 feet).

The goals this year are to complete the Vegetation Plan and a useable document for educating resort employees, the public, and any USFS personnel as to what our environmental goals are and what we have accomplished over the past 60 years.

Arapahoe Basin Ski Area Colorado

As stewards of an exceptional mountain environment, we are committed to providing quality outdoor recreation experiences. We continually strive to improve our environmental performance in order to provide enjoyment for future generations of snow and mountain enthusiasts.

This season, we dismantled and installed a new lift with minimal environmental impacts. Also, the cafeteria continues to use reusable cups, and we have eliminated paper towels in the restrooms. We have completed our conversion to biodiesel fuel for use in snowcats and other biodiesel equipment at the resort. Biodiesel is a natural, renewable fuel applicable in most situations where diesel would be used. It is produced from crop oils and used fryer oils. A-Basin will use a 20 percent blend of biodiesel mixed with petroleum diesel.



In the next season, we hope to finish our lighting retrofit, and will switch to serving only draft beer in our bar. Also, although only in the planning stage, we are considering switching to compostable flatware and installing a composting unit.

Aspen Skiing Company (Aspen Highlands, Ajax, Buttermilk, and Snowmass Mountains) **Colorado**

In 2001, ASC retrofitted lighting fixtures at all four mountains to eliminate more than a quarter million pounds of pollutants. The company also installed an energy management system in the Little Nell that saves \$13,000 in energy use monthly. In addition, the company produced its second annual sustainability report; undertook a major weed eradication program on all mountains, which included using biocontrols (bugs); established a computer recycling policy; banned Chilean Sea Bass in all restaurants and brought a dozen local restaurants along on the ban; converted to recycled oil in all operations; converted to oxygenated (ethanol blend) gasoline in all operations; established a greenhouse gas reduction policy; and donated \$100,000 to environmental causes through the Environment Foundation.

Plans for 2002 include initiating a company-wide conversion to biodiesel in all operations (260,000 gallons), which will reduce emissions by half a million pounds. The company also plans to triple its purchases of renewables, eliminating another half a million pounds of emissions. And finally, ASC hopes to complete a LEED Silver certified building.

Attitash Bear Peak **New Hampshire**

In 2002, Attitash Bear Peak has achieved:

- Wildlife habitat improvements at the Thorne Pond Conservation Area, Bear Peak and Attitash Mountain.
- Successful implementation of soil conservation efforts
- Closed Loop oil/water separators in maintenance areas

In 2002/2003 the resort's goals are:

- To use the assessment tool's summary report to identify new projects that are high in importance and feasibility to the resort.
- To use the *Greening Your Ski Area Handbook* to guide in the successful implementation of environmental measures.

Badger Pass **California**

Badger Pass Ski Area is owned and operated by Yosemite Concession Services Corporation (YCS) and is located in Yosemite National Park. Operating a ski resort in a National Park requires a higher standard of care in terms of protecting their natural resources and complying with environmental regulations. Badger Pass has always had a strong commitment to environmental protection by practicing water and energy



2.4 Summaries of Resort Progress

conservation, offering guest transportation to and from the ski area, and recycling a variety of products. Last year, YCS adopted an official environmental management system (EMS) that Badger Pass calls GreenPath. Once the GreenPath system was in place, YCS sought and achieved ISO 14001 Registration, which is an international management system recognized for emphasizing environmental protection. What this did for Badger Pass is enhance management's desire to protect the ski area's natural environment. Some of the progress made this last season included:

- Removing a hazardous material in lift maintenance by replacing the solvent parts cleaning machine with a detergent product that consists of warm baking soda.
- Tested biodegradable (made of potato starch) plates, cups, and clamshells in the food and beverage areas to see if products held up to consumer use. Results were positive and products by Earthshell will be used throughout all YCS operations.
- Enhanced the recycling program by purchasing new containers that were easily recognizable by skiers and prompted them to recycle their glass, aluminum, paper, and plastic.
- Trained each staff on GreenPath EMS and conservation initiatives so they could spread the message to guests and skiers.

Goals for next season include:

- Evaluate products to be replaced in our ski maintenance department with such items as canola oil based ATF and re-refined oil.
- Install waterless urinals and other water conservation devices.
- Enhance interpretive programs to educate skiers and visitors about environmental protection.

Bear Creek Ski & Recreation Area Pennsylvania

Bear Creek has invested significant time, money, and effort into improving the electrical infrastructure of the mountain. The resort reworked service to the entire mountain and rewired all the slopes, lifts, and lodge feeds to reduce line loss and improve overall efficiency. In doing so, the resort has reduced electrical consumption by 10 to 15 percent, and has reduced electrical operating costs by 30 percent. In addition, the resort has improved mountain drainage and control of storm- and meltwater runoff. A third project that is nearly through the permitting phase is the wastewater treatment facility that will recycle 100 percent of the mountain's wastewater for snowmaking use.

Beaver Creek Resort Colorado

Education is the foundation whereby all other advancements in environmental consciousness and success occur. To this end, Beaver Creek opened the Environmental Learning Center, furthered the Hicology/Skecology programs, and created recycling guidelines and training for over 3,000 employees.



Water is the life force of Beaver Creek. For this reason, Beaver Creek Road Maintenance is committed to reducing sediment fines that reach local waterways. To achieve this goal, the resort used triple-washed granite chips for traction and then collected over 70 percent of the chips used.

Energy conservation requires planning that considers existing as well as future issues. The Beaver Creek Transportation Program transported more than 1,200,000 guests last year, saving over 150,000 gallons of fuel. Also, by using new technology drives and tower guns, Beaver Creek Snowmaking has made substantial strides in energy conservation.

Beaver Creek's Environmental Committee is dedicated to furthering these efforts in the following ways:

- **Education:** By developing a relationship with a Natural Science Learning Center, the resort intends to further the environmental message to all employees and guests.
- **Water Conservation:** Beaver Creek intends to plant over 300 trees this year.
- **Energy Conservation:** The resort is purchasing a 20-passenger natural gas bus to promote clean energy and conservation.

Big Mountain Ski and Summer Resort Montana

A project to include the Leave No Trace Front Country Program is currently being researched to confront ongoing issues we are having with dog management, dog waste, social trail development, picked wildflowers and the potential for over harvesting of huckleberries. The goal for Big Mountain is to use minimum impact education as a proactive, environmentally responsible management tool. A draft of the implementation plan has been read by environmental educators with the Forest Service, and they have agreed to work with us on LNT compliance on our trails and at our summit environmental education center.

Also, we've been approached by a foundation whose mission is to see the restoration of Whitebark Pine ecosystems. Because our mountain supports these trees, it is our hope that we can help the foundation to educate both visitors and employees about their work and the important role the whitebark pines have within this ecosystem.

Blue Mountain Resorts Ontario, Canada

A big accomplishment for Blue Mountain Resort in November 2000 - the Monterra golf course - was designated a certified Audubon Cooperative Sanctuary System. There are only 22 golf courses across Canada and 9 golf courses in Ontario to have received this coveted designation. The Audubon Cooperative Sanctuary System is an international program that



2.4 Summaries of Resort Progress

helps golf courses to enhance wildlife habitat and protect natural resources for the benefit of people, wildlife, and the game of golf.

To achieve this designation, we have to meet rigid standards of management as set out by the program. There are five environmental topics included in the program: 1) Wildlife and Habitat Management, 2) Integrated Pest Management, 3) Water Conservation, 4) Water Quality Management, and 5) Outreach and Education. Under Wildlife and Habitat Management, we now pile twigs in brush piles in wood lots – which reduces burning and creates a natural environment for wildlife. Also, we leave dead or decaying trees that do not pose a safety hazard. These, too, make excellent habitat for birds and other animals. Under Integrated Pest Management, Blue Mountain is now accepting a new look on the golf course where weeds and diseases are still controlled, but not to the point of perfection. Instead of spraying the entire course, we now identify the problem area and spray only the affected area. In addition, we closely monitor the hot spots and deal with them on an individual basis.

Golfers are aware of our program and realize that a fair play surface does not necessarily mean pristine green perfection. By focusing on problem areas, we have dramatically decreased the costs associated with pesticide use while allowing the course to be more natural. These practices also continue to make the golf course a better habitat for wildlife, while reducing environmental impacts.

Breckenridge Ski Resort Colorado

Breckenridge Ski Area has tried new and innovative ways to both benefit its community and environment. For example, alternatives to pesticides are used, such as goat grazing. In addition, wood waste is recycled into mulch for reclamation projects. End of season clothing and appliances are stored for next season's employees. In Breckenridge's words, "Recycling in a seasonal industry calls for creative responses from all members of our workforce, working together to build a more sustainable earth-friendly organization."

Bretton Woods Mountain Resort New Hampshire

Bretton Woods recycling program has been a huge success thanks to employees and guests! In just one season, we reduced our solid waste production by more than 45 percent. That is more than 27 tons of product diverted from the local landfill. The highest volumes of recycled products were corrugated cardboard and plastic soda bottles. However, the system also is designed for small volume items such as office paper and outdated resort brochures. We recycled just about anything we could.

We also had success in our first steps toward energy-efficient lighting systems and high-efficiency tower guns for snowmaking. In the upcoming 18 months, the base lodge will undergo an extensive remodeling and expansion project. As part of this project, we will incorporate green



building principles into the design to reduce electrical, heating fuel, and domestic water consumption.

Bridger Bowl Ski Area Montana

Our biggest change this year was installing waterless urinals in the base lodge. These urinals have proved quite successful in terms of reducing water use and wastewater and are easier to clean and generally more sanitary. We estimate the reduction in water usage will be as much as 25% to 35% of our current yearly volume. The specifications on our current model indicate that each flush amounts to 1.5 gallons. Translating that into yearly traffic flows averaging 170,000 skier visits at Bridger Bowl means water conservation savings of approximately 255,000 gallons per year.

Brighton Ski Resort Utah

Brighton already subscribes to most of the practices and principles promoted in the Environmental Charter, and progress becomes less measurable in succeeding years of implementation. The most significant progress during the past season has been in collecting native plant seed and the hopeful cultivation of those seeds this summer. We hope to build on this program by establishing a seed resource large enough to supplement the seed that we currently purchase.

With the help of local partners, we have done and hope to continue to do a better job in public education through interpretive signage and educational tours in the following year.

Cascade Mountain Ski & Snowboard Area Wisconsin

This past season, we estimated a savings of more than \$16,000 in energy costs by conserving 216,000 kwh of electricity by installing a 119-gun automated snowmaking system. Though we did save 216,000 kwh, we also needed to compress the air for the system by using high-efficiency diesel air compressors that generated air 15 degrees above the ambient temperature. Though the cost of the fuel use for the compressors was about equal to the energy savings, we believe we made the right decision for the environment. This was accomplished by scaling back overall energy use and by using some of the less efficient snow guns less frequently. We believe that we will continue to become more efficient as we become more familiar with the new system, and as we learn better where and when to use its resources.



2.4 Summaries of Resort Progress

Cataloochee Ski Area North Carolina

The Environmental Charter has been a wonderful guideline in helping us understand the need for improvement at the ski area. Assessing ourselves against all of the participants has allowed us to gauge our progress. Over the past year, we have accomplished the following:

- Acquired water-efficient snow guns
- Implemented water recovery
- Planted over 500 trees at the ski area
- Hydroseeded and revegetated areas to decrease erosion

Next year, we plan the following activities:

- Implement a recycling program
- Increase education efforts with guests and employees

Copper Mountain Resort Colorado

Copper continues to utilize the latest GIS technology available on and off the mountain. GIS is an incredible tool for planning future and current projects. We've used it to design roads, ski trails, lift placements, and wetland mitigation sites. A picture is worth a thousand words. A map is worth ten times that when it accurately shows sensitive resources needing to be avoided.

Completion of WestLake pond, which has been under construction for the past three years, will improve water quality and water storage for snowmaking. The pond is designed to capture and hold mountain and village drainage for settlement. It also acts as a secondary water source for snowmaking during low stream flow periods. Copper has a series of lakes in which spring run-off waters move through before reaching local streams. This again improves water quality.

In the future, Copper will focus on employee and guest education and awareness. We've been doing many good things for many years but haven't done a very good job telling our story. We will also begin the task of doing energy audits to create baseline data. The biggest goal for next year is the completion of a new village master plan. In it, there are plans for a village people mover (gondola). Implementation would cut down our reliance on buses by as much as 50 percent.

Crested Butte Mountain Resort Colorado

As a supporting member of the Environmental Charter, Crested Butte Mountain Resort is committed to preserving its beautiful surroundings. We have pledged 4 percent of land sales from the Prospect at Mt. Crested Butte land development to open space preservation. Recipients include the Crested Butte Land Trust, Gunnison Ranchland Conservation Legacy, and the Rocky Mountain Biological Laboratory.



In May 2001, the resort was recognized by Mountain Sports Media publications for its environmental achievements in preserving open space and protecting natural habitats at the NSAA Annual Convention in Palm Springs, California. The resort was awarded the Silver Eagle Award for Environmental Excellence for fish and wildlife habitat protection, and was a finalist for a Silver Eagle award for visual impacts.

Crystal Mountain, Inc. Washington

Crystal Mountain started water conservation in 1985, and since that time we have saved over 25,900,000 gallons of water by converting conventional flush toilets to low-flow models that use only 1.5 gallons per flush. As a side benefit of this program, we reduced the effects to existing drainfield systems. In addition, the Parking Lot Shuttle tandem trailers we use for picking up and dropping off guests from remote lots have saved many unnecessary miles. We worked out a promotion with a local dealership for three new pickups to pull these 70-passenger, open-air trailers. They are very efficient as they load and unload in seconds. Finally, our most dramatic improvements were vehicular safety, along with water and air quality. We eliminated broadcasting over 5,600 yards of road sand annually by using a chemical de-icing agent on 6 miles of the access road. This change improved vehicle traction and reduced accidents from an average of 60 to less than 3 per season! Next year, our goal is to implement the ski school "Kids Club" Environmental Education and Enjoyment of the Outdoor Programs.

Deer Valley Utah

One of our biggest strengths is our snowmaking storage. We implemented a new snowmaking reservoir pond last season that holds 15 million gallons of water. Gravity allows the water to be filtered down to the Snow Park base area where it is pumped back into the pond, which acts as a reservoir. The reservoir has been so successful that a new pond is planned for the upcoming season. In addition, the existing pond has created a fish habitat for Rainbow trout.

A new pond that will be created this summer will provide a wetlands habitat at the Snow Park base area.

Durango Mountain Resort Colorado

When Durango Mountain Resort first participated in Sustainable Slopes, the process heightened our awareness. In completing the 2002 assessment, we feel a sense of pride in the progress we have made within the past year. As with all ski areas, environmental sensitivity is an issue of great concern. As a result of Sustainable Slopes, Durango Mountain Resort has developed and/or expanded on the following items:

- A partnership with San Juan Mountains Association
- Improving their education and outreach programs
- A recycling center for the resort as well as for North La Plata County



2.4 Summaries of Resort Progress

- An on-mountain spill containment program
- Purchase of a weed sprayer to better their noxious weed control
- Continuing state highway and resort clean-up efforts
- Purchased high-efficiency snowmaking equipment
- Oil filter disposal program through Safety Clean

49 Degrees North Ski Area

Washington

49 Degrees North Ski Area has continued to work on their Environmental Learning Center. Two million dollars has been set aside for construction this year. All looks good to start for 5/15/02.

Grand Targhee Ski & Summer Resort

Wyoming

The resort's most important achievements this past year include the following:

- Installed pool ionizers in pool and two spas to reduce chemical treatments to a fifth of what they were while reducing labor costs. Additionally, guests now find the pool more pleasant.
- Expanded the recycling program to include plastic #2, and expanded paper recycling across the resort.
- Purchased two new four-stroke snow machines with great success. The resort plans to purchase more in the future.
- Implemented an employee "Environmental Charter Education" program that included monetary incentives for making operational changes and for educating all employees about the Charter.
- Continued to replace all light bulbs with fluorescent ones, install motion sensor switches where possible, and repair leaky doors and windows.
- Switched 75 percent of office supplies to environmentally preferable ones, such as processed chlorine-free paper with a 50 percent recycled content.
- Donated money to local environmental groups.
- Offered free environmental education programs to local school groups.
- Expanded the linen re-use program to include bed linens (previously just towels).
- Encouraged guests to conserve energy by switching off lights.



- Re-adjusted laundry chemical use to the least possible amount and decreased non-environmentally preferable chemical use.

Future projects include the following:

- Introducing a food waste composting program.
- Switching to environmentally preferable food service utensils, cups, plates, and bowls (such as disposable plates made from corn starch).
- Expanding our recycling program to include newspaper and plastics #1.
- Increasing our shuttle service.
- Outlining and implementing environmentally preferable purchasing guidelines throughout the resort.
- Working with suppliers to identify and implement ways to reduce packaging waste.
- Planning all future building projects to meet standards for green building and design.

Greek Peak Mountain Resort New York

At the beginning of the 2001-2002 ski season, Greek Peak Mountain Resort completed a 2-year restroom renovation project aimed at water conservation. The result was a savings of more than 500,000 gallons of water from January through March. In addition, we have worked closely with various agencies and organizations to promote protection of the aquifer and to adopt a Town Comprehensive Plan. Also, we revised and improved our waste reduction and recycling programs.

This past year was our first year as a contract operator for the Virgil Town Park, which is within the resort area on the newly created Hope Lake. This has given us an opportunity to implement principles affecting Fish, Wildlife, and Wetlands. A large portion of our Education and Outreach program now is based on park activities. Agreements also were reached establishing criteria for stream flow management for fisheries protection.

Among the targeted principles for next year are improving stormwater management practices and erosion control, de-icing materials control, and further snowmaking efficiency.

Heavenly Ski Resort Nevada

Heavenly's ongoing commitment to achieving the principles and practices outlined in the environmental charter include actions taken at the resort as well as throughout the Lake Tahoe community. At the resort, Heavenly continued to implement and monitor the watershed/water quality



2.4 Summaries of Resort Progress

restoration program. Several key projects were implemented. Last summer, Heavenly crews re-forested an existing 3,000 linear foot ski lift line clearing that was visible from Lake Tahoe and other key public viewpoints. Within the community, Heavenly played a leadership role in securing federal funding for the Lake Tahoe Basin's Environmental Improvement Program. Heavenly's staff served as the primary lead in organizing the federal government's annual Lake Tahoe Summit, which is held each year to report progress and discuss upcoming challenges facing the collaborative effort to restore Lake Tahoe's famed clarity.

Holiday Valley Resort New York

Holiday Valley continues to be a solid supporter of Sustainable Slopes. Rather than any one grand project, we are maintaining our commitments to the environment, our customers, and the future. We have made progress on our mountaintop water reservoir; however, meeting government regulations is time consuming, and this project is still a year away. Also, we are in the planning stages of a cogeneration plant with a local manufacturing business. The plant will use clean burning natural gas from local gas wells, generate electricity for the resort, and provide heat for the manufacturing plant. In addition, our new Learning Center will incorporate environmental and conservation education, along with childrens' and adults' ski and snowboard lessons.

Jackson Hole Mountain Resort Wyoming

Jackson Hole Mountain Resort is constantly working to lessen its impact on the environment while still providing the skiing, lodging, dining, and shopping visitors expect. Our six guiding values developed in 1995 include the environment, saying, "through respect and individual responsibility our company will grow in harmony with its environment; we will educate and train others to do the same." The resort won a Golden Eagle Award, largely for open space preservation, in the mid-1990s from Times Mirror and adopted NSAA's Sustainable Slopes Environmental Charter when it was developed 2 years ago. We recognize that we depend on the natural beauty of the area for our visitors and must do what we can to keep that beauty untarnished.

We are constantly working on a comprehensive environmental strategy and audit, and have shown our environmental commitment this past year with several projects that were submitted in six of seven Silver Eagle Award categories. Some of these projects include wetland rehabilitation; Ske-cology expansion and a partnership with the Teton Science School; improved visual impacts in constructing a new on-mountain snowmaking operations building and in constructing mountain biking trails; and the use of recycled products in offices, restaurants, and maintenance. In the coming year, we plan to expand our recycling program, revegetate denuded areas on the mountain, and further improve the Ske-cology education program.



Keystone Resort Colorado

This year, Keystone Resort received a Mountain Sports Media Silver Eagle Award for Environmental Excellence in waste reduction and management. Sustainable Slopes has served as an invaluable tool for Keystone's environmental efforts. We have been able to use Sustainable Slopes as an addendum to our current management system, and have been able to develop corporate goals by identifying successes and shortcomings. Currently, our environmental goals are as follows:

- Meet or exceed environmental regulatory compliance through training and documentation
- Improve environmental education
- Effectively communicate environmental successes
- Quantify, measure, and report on environmental indicators (solid waste, recycling, hazardous waste, fuels, electricity)
- Reduce energy consumption (and greenhouse gasses) by 5 percent

To ensure regulatory compliance, we performed a comprehensive environmental audit of operations, identifying many improvements that we have already initiated. On the educational front, we have, through a resort-wide grant, developed a series of educational displays around the resort highlighting topics from fish species and identification to the history of the Snake River Basin. By keeping track of current operations and constantly searching for ways to improve them, we have begun many initiatives, such as upgrades to low-flow fixtures, lighting audits and retrofits, and exploring alternative fuel use in our transportation operations.

Kirkwood Mountain Resort California

We have included (for the first time) state-of-the-art sediment removal systems and extra deep manholes for two major projects - Ice rink and Palisades subdivision. For the Palisades subdivision, we are designing natural sediment removal systems that blend with site. Next year, we will include language on all trail maps asking guests to save maps for re-use or to give them to someone else rather than throw them away.

Loon Mountain Recreation Corp. New Hampshire

We consider ourselves a steward of the natural environment at Loon Mountain and strive to offer high quality recreation in a manner that protects the environment. We had a complete waste management audit done this winter and we intend to expand on our recycling program. Our goals are to reduce our waste stream by 16%, reduce our consumptive water use, and our electric energy use.



2.4 Summaries of Resort Progress

Mammoth Mountain Ski Area California

In calendar year 2001, Mammoth Mountain Ski Area realized growth and achievement in environmental awareness and protections. Environmental Programs separated from the resort's Planning Department in July, gaining strength to help ensure the inclusion of environmental considerations within all operations.

Our main efforts and achievements included education, waste reduction, and energy savings. Waste reduction appeared the most visible. With recycling common in all facilities, we diverted some 1,217 tons of waste from the landfill for re-use or reprocessing, chasing a goal of a 50 percent reduction from 1999 amounts by December 2002. Recognizing these efforts, the state government gave us a 2001 Keep California Beautiful Award. Education touched thousands with a variety of programs specific to employees, guests, and community members. Our outreach efforts reached over 3,000 local school children, while sports instructors incorporated fun environmental topics into lessons with thousands of young students. In addition, nature guides led hundreds of guests on complimentary tours, including hiking, downhill and cross-country skiing, snowboarding, and snowshoeing. Over 2,000 employees also were targeted by efforts focusing on increasing awareness and delivering information relevant to their positions, interests, and guest contacts. And affecting everyone, we realized substantial energy savings through many fixes and upgrades following audits on all buildings.

Massanutten Ski Resort Virginia

Our biggest environmental achievement is that we are able to divert over 80 percent of our waste from the landfill. Eighty-one percent of our waste either is burned for steam energy at a local university or recycled.

Currently, our biggest challenge is to capture more stormwater runoff to be used for snowmaking.

Mission Ridge Washington

Even though Mission Ridge is a small ski area in the northwest and currently is for sale, we have done as much as possible with limited funds to be environmentally progressive.

Mohawk Mountain Ski Area Connecticut

Mohawk Mountain Ski Area is not perfect, and there is always room for improvement. However, environmental stewardship is essential to a healthy company. We rely on the outdoors for our livelihood. To us, the Principles represent steps that every resort should take as they appeal to customers, enhance the scenic potential of the areas and save money.



Mount Snow Resort Vermont

Over the last year, Mount Snow has completed three projects under the goals of the Environmental Charter:

- Renovated the women's restroom in the Main Base Lodge and at the Golf Club with automatic flush and low-volume equipment. The goal is to renovate one restroom per year by installing this type of equipment.
- Installed new energy-efficient lighting. Mount Snow worked with Green Mountain Power and was able to get some funding through the company for this improvement.
- During the summer of 2001, Mount Snow widened one of the main trails from the Summit. Mount Snow worked with the USFS and put into place strict measures during construction to meet water quality standards. Part of the project included revegetating a non-use ski trail.

Mt. Hood Meadows Ski Resort Oregon

Progress:

- Expanded our recycling program.
- Increased community outreach through our partnership with environmental educational organization named SECRETS.
- Purchased a 14-acre conservation easement to restore a degraded wetland.

Goals:

- Investigate green power options.
- Explore a new employee housing project that links to mass transit.
- Develop and begin implementation of a new corporate sustainability initiative.
- Install a stormwater management system at the parking lot.

Mountain High Resort California

The largest impacts that Mountain High Resort has seen while operating under the Environmental Charter are in the areas of hazardous waste reduction and employee awareness. We are moving forward in reducing the types of hazardous materials used in day-to-day operations while educating employees that their air is cleaner and there are more environmentally friendly ways of doing things.



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Mt. Ashland Ski Area Oregon

We have made key progress this last season in the following ways:

- Increased Summer Service Program (more participants)
- Started a new program, Classroom in the Mountains, for next year that teachers can use for educational field trips
- Reduced wastes to the landfill by eliminating 50 percent of food service paper products by using reusable baskets
- Improved recycling of plastics, glass, and tin
- Reduced other wastes to the environment
- Converted to biodegradable solvents and improved oil containment from the vehicle shop
- Reduced fuel consumption by using employee shuttles and installing fuel-saving devices in snow cats

Mt. Bachelor, Inc. Oregon

We successfully maintained our strong environmental programs during the 2002 season. This season the Vehicle Maintenance Shop upgraded its parts cleaner and solvent tank. The old system required disposal and off-site recycling of used solvent. The new SystemOne Solvent Recycler recovers 100 percent of cleaning solvents and eliminates 100 percent of solvent waste. Our goals for next season include maintaining our current environmental programs and investigating green power (renewable energy) options with the utility companies. In addition, we plan to begin a comprehensive study of an alternative fuel program for the grooming cats.

Mt. Rose – Ski Tahoe Nevada

With a record season at Mt. Rose - Ski Tahoe also came significant improvements in regards to the Environmental Charter. Not only did we monitor existing programs like recycling and waste management more closely, we raised heightened awareness on energy and water issues caused by major increases in snowmaking ability. Employee transportation from off-site lots took a positive turn during the extensive holiday periods with the new location being closer to town and more convenient for staff.

Future plans include the potential for vastly improved wastewater management as the possibility of connecting with the municipal sewer system becomes evermore a reality. In addition, we have submitted development plans for new lift placement to have minimal visual impacts.



Mt. Spokane Ski Area Washington

Mt. Spokane Ski Area continues to grow its environmental program. Even with an increase of skier visits this year, we reduced electrical use, kept even on the amount of waste, and reduced fuel use.

Our goals for the coming year are to increase the recycling program and develop education and environmental awareness programs.

Northstar-at-Tahoe California

We are proud of our status as a Certified Audubon Cooperative Sanctuary for the golf course and the revegetation programs that we have underway in conjunction with local regulatory agencies.

Okemo Mountain Resort Vermont

Throughout our history of development and operations, we have maintained a sense of balance and commitment to environmental stewardship. Our vision for the future always has been to create a four-season recreational facility that will promote economic growth and vitality in a manner that supports sound environmental protection.

Our resort innovations and "firsts" for the industry over the past 20 years have included a 73-million-gallon snowmaking pond, comprehensive land swaps with the state, and innovative energy contracts. Okemo's Jackson Gore is now underway and will incorporate new innovations in environmental protection to help maintain our commitment and sense of balance.

Pats Peak New Hampshire

As with all things, the Principles of the Environmental Charter take time and money to implement. However, we are making significant progress in reaching our goals. The company is focused on the bottom line and believes that good environmental practices contribute significantly toward reaching that goal. We have dramatically changed the way we do business over the last decade. Procedures and ideas that were either "way out there" or "not cost efficient" have become second nature as both attitudes and technology evolve, thereby making implementation easier.

Pebble Creek Ski Area Idaho

The goals of the Environmental Charter have helped our staff focus on recycling as well as soil conservation during the planning and construction of new runs. We are particularly proud of an erosion control project that combined community involvement with an innovative way to recycle old snow cat belts. With guidance from the USFS soil scientist and hydrologist, we embedded lengths of old snow cat belting in the ground as waterbars to control runoff on the newly recontoured area of a large, steep run. The work was done as an Eagle Scout project involving a local Scout



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troop interested in environmental awareness. We also seeded and mulched the area, and so far this spring it all looks great.

Sierra-at-Tahoe Ski Resort California

This past year, we have really focused on recycling and waste reduction. For the sixth year in a row, the resort has won the California Integrated Waste Management Board's WRAP (Waste Reduction Award Program) Award. WRAP winners are California businesses that have an active waste reduction program while saving money through resource efficiency and conserving landfill space. To be able to reduce waste and recycle more efficiently, we have purchased an industrial-size trash compactor. It is amazing how much waste can be reduced simply by compacting. In addition, we placed recycle bins throughout the resort. Also, we recycle white paper. The average recycling numbers for the resort are as follows:

- Glass - 7 tons
- Cardboard - 11-12 tons
- Paper - 3/4 ton
- Aluminum - 685 pounds
- Plastic - 175 pounds

Ski Bluewood Washington

The Environmental Charter continues to raise awareness of the environment and provides a framework of goals for us to achieve. We had already implemented some of the Principles, and we had not even considered others until the Charter was adopted. Specifically, we made strides in the Water Resources, Energy Conservation and Use, and Waste Management areas of the Charter. We were able to evaluate our current environmental awareness and develop plans to strengthen that awareness in the years to come. Overall, our progress toward implementing the Principles of the Charter has been successful; however, we look forward to finding better and more creative ways of implementing the Environmental Charter, including those areas already addressed, as well as areas that have yet to be implemented.

Ski Liberty (Liberty Mountain Resort) Pennsylvania

We had high expectations for this past season, but Mother Nature did not cooperate as much as was hoped, thus limiting both funding and staffing to help us reach our goals. However, we did install low-flow showerheads and toilets in all of our hotel rooms. In addition, we joined in a collaborative effort with the Surf-rider/Snow-rider Foundation to improve guest awareness of our commitment to the environment. We are hoping to designate someone on staff this year to be our environmental advocate and help to oversee environmental efforts. The focus next season will be dedicated to education and outreach, waste reduction, recycling, and product re-use.



Ski Roundtop Pennsylvania

Our pond expansion project is still on-going from last season. Construction has not yet begun. Also, we continue to expand our recycling program. This year, we are introducing recycling containers to the lodge and base area for cans and bottles. In addition, we also will try to reduce solid waste by issuing all employees hot/cold mugs for their personal use while on duty.

Ski Snowstar Winter Sports Park Illinois

Everything has a cost and a benefit, and the Environmental Charter demonstrates that there is more than this month's or this year's budget to think about. Long-term costs and benefits need to be part of the decision making process. Keeping that attitude is an important goal.

Snowbasin, A Sun Valley Resort Utah

Since 1995 when the Olympic Winter Games were awarded to Salt Lake City and Snowbasin was chosen as the site for the speed events, the area has experienced considerable construction. This construction has included 4 lifts, 40 miles of snowmaking, 3 restaurants, skier services, and maintenance and office buildings. Through cooperation with the USFS, Snowbasin has managed construction and rehabilitation in an environmentally sensitive manner. The resort will continue to be a showcase for managed development and environmental stewardship.

Snowbird Ski & Summer Resort Utah

During this past year Snowbird has taken several steps to save energy in their snowmaking program. We have also implemented some programs to insure the health of the area's eco-system.

We installed a gravity-fed water line from the source to the pump station. This line has greatly reduced pumping expenses. In addition, the water line has allowed us to eliminate the use of culinary water for snowmaking. The energy and financial savings for using rain water is substantial.

We have implemented a monitoring program to quantify the effects of snowmaking water on the terrestrial and aquatic habitats in the area. This monitoring includes macro-invertebrate counts and fish surveys.

In this coming year, we would like to implement water use audits and research the possibilities of purchasing green power.

Squaw Valley Ski Corporation California

June 2002 marks the start of the summer improvement season at Squaw Valley USA. We are set to begin work on a series of environmental improvement projects representing an investment of over \$500,000 by the Ski Corporation. Projects include eradicating several roadways, planting hundreds of trees and shrubs, and re-establishing vegetation



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using native seed to stabilize soil. We continue our implementation of Best Management Practices and the maintenance of several sediment basins.

Steamboat Ski & Resort Corporation Colorado

In its annual review of the comprehensive and diverse environmental initiatives currently in place at the Steamboat Ski Resort, the corporation remains clearly positioned as one of the industry leaders in the environmental arena. The effort is longstanding, company-wide, and infiltrates nearly every department.

The Steamboat Ski and Resort Corporation and its employees have a long, well documented history of actively working with many partners within and outside of the Steamboat community in the interest of promoting environmental education, a healthy ecosystem, and proper stewardship of natural resources. This year we received a Silver Eagle Award for Environmental Excellence in Environmental Education from Mountain Sports Media.

Highlights of the resort's accomplishments this year include improved snowmaking efficiency; continued implementation of a very successful recycling program; continued ecosystem management; and implementation of best practices in planning, design, and construction and maintenance.

However, there is no finish line and the resort continues to strive for improvements system-wide. Some areas the resort intends to look at this year are an updated energy audit; a review of new fuel products on the market, such as bio-diesel; increased education for guests and employees on water conservation; and enhanced education outreach, especially in schools.

We are proud to participate in the Sustainable Slopes program and will continue to help lead the charge in this all-important area of our industry.

Stevens Pass Washington

Now in its second season, the Sultan Shuttle provided a free, scheduled park-and-ride service based at the Mountain View Chevron in Sultan. The program was designed to reduce single vehicle use of the upper Stevens Pass Highway, reduce parking demand at the resort, and provide a transportation service giving guests an option to driving snow-covered mountain roads. This past season the program operated on 18 days—the weekends of January and February and the two Monday holidays. Eight buses provided service every 20 minutes between 7:20 am and 11:00 am for the uphill run, and between 3:30 pm and 7:20 pm for the downhill run. The service averaged 482 riders daily, with a peak of 701, very close to the system's capacity. A total of 8,681 guests used the free shuttle system for 2001-2002.



Complementing the guest shuttle program is a massive employee transit program that brings employees to the resort from the west side (beginning at Monroe) and from the east side of the Cascades (beginning near Leavenworth). This free service provides six scheduled departures up and down the mountain. During peak times (early morning and early evening), two 45-passenger buses travel each direction (east and west). During the 2001-2002 season, over 2.2 million employee passenger miles were logged, 37 percent greater than the previous winter! With an average ride distance of 75 miles round trip and a typical seasonal employee working 90 days, this equates to a reduction of over 3,000 miles on a personal vehicle, assuming that employees would otherwise carpool with a partner for every trip. Daily rider counts indicated a total of 60,413 filled seats for uphill and downhill riders combined! With convenient arrival and departure times, modern, comfortable buses, and free service, the program is successful beyond our most optimistic projections.

Stowe Mountain Resort Vermont

Stowe continued to implement the Principles throughout both the Resort's operations and planning. Improvement is still needed in regards to guest environmental education opportunities during the winter season. Currently, Stowe is investigating the establishment of a children's environmental education program. We will begin to see significant progress as our Master Plan project begins construction during the summer of 2003. We are working to achieve designation as a Vermont Partner in the State's Environmental Business Partner Program.

Sugar Bowl Ski Resort California

We have made significant progress toward implementing the Principles of the Environmental Charter, but perhaps most importantly in increasing our environmental awareness in general.

Since the last reporting period, Sugar Bowl has formed an Environmental Committee consisting of management and staff who are dedicated to the principles of the Charter. The committee works to increase awareness and education, set resort-wide and departmental goals, and measure and report progress.

Resort progress over the last year includes implementing a paper, cardboard, and beverage container recycling program; conducting a resort-wide energy audit; converting the heating system from diesel to propane; and implementing an extensive summer erosion control/revegetation program, including hiring a full-time summer staff and investing in new equipment and technology for the program.

Sugarbush Resort Vermont

At the beginning of the 2001/2002 season, Sugarbush Resort became a property of Summit Ventures. Sugarbush Resort has participated and undertaken several environmentally friendly tasks over the years. However, the new ownership has put a new emphasis on environmental



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participation within the resort and around the community. The Green Team has been re-established in order to ensure Sugarbush Resort stays on track. The resort is promoting programs that have already been put in place and researching new ways to become more environmentally friendly. Throughout the summer of 2002, the Green Team will be planning for the upcoming season and hopes to set goals that can be accomplished during the 2002/2003 season.

Sugarloaf USA

Maine

Sugarloaf/USA continues to use the Environmental Charter to help strengthen its environmental programs. We understand the impacts we have on the natural environment and strive to incorporate environmental considerations in all of our mountain operations.

This past year, we have achieved many environmental accomplishments. For example, the recycling rate continues to increase, and the food composting program continues to expand to include more of the food service areas. The finished compost provides a nutritious soil amendment that is used on the golf course and throughout the resort. In addition, we engage all of our employees in environmental education at the bi-annual training sessions. Also, we provide many environmental education opportunities to our guests, our community, and our local schools. The drought experienced this past year was a challenge, but we worked to educate employees and guests about water conservation.

In the year ahead, we look forward to increasing our efforts to become more energy efficient. This next year, we will increase this focus to learn more about conservation and look at ways to bring new types of energy to the resort. A goal is to decrease the amount of energy used and to use alternative, renewable sources of energy as often as possible.

We look forward to the challenges of implementing more of the goals of the Environmental Charter. Increasing environmental successes will help Sugarloaf/USA to work in harmony with the environment.

Sundance

Utah

We began to monitor energy use, and will have better data for next year on energy conservation efforts. We continue to make strides in all areas, especially monitoring and measuring the effectiveness of our programs.

Telluride Ski & Golf Company

Colorado

The 2001 expansion into Prospect Basin is an excellent example of Telski's ability to create a ski resort that is both economically successful and environmentally sustainable for the region. The approach taken was sensitive to both the ecosystem and the community through strategic design, careful implementation, and stakeholder collaboration - a model for future resort developments has been created. Telski has successfully created a paradigm shift within the company and has incorporated environmental protection into each department's goals and objectives.



Telluride has managed to gain invaluable respect and trust from the local community as well as regional governmental and conservation entities. This year, Telski is the proud recipient of Mountain Sports Media's Golden Eagle Award for Environmental Excellence.

Goals for the upcoming year will focus on energy reduction as well as an on-mountain environmental education center and continued watershed protection programs.

The Canyons

Utah

As an immature resort in its growth period, The Canyons has been involved with the majority of the regulatory agencies that govern all aspects of development within the Park City area. We are pleased to work with these agencies in conjunction with our planning. It is refreshing to compromise with one another and always keep the most valuable resource protected - the environment. We have been able to apply best environmental practices with each phase of development. We look forward to continuing development of this area and to working side by side with all outside agencies that could have an influence concerning future impacts on the environment.

The Summit At Snoqualmie

Washington

We executed an extensive electricity audit with Puget Sound Energy to better understand where our current demand is being used (both by building and time of day/week/year). We also began collaborating a "shut-down" manual of all facilities so that lights, heaters, etc. are not left on. In addition, we began retrofitting older light fixtures with fluorescents.

We implemented an environmental education program with local public schools. Our Nordic Center provided free snowshoes, free trail passes, and free education to the school groups. The education was blended into one of their classroom units. We hope to grow this program consistently the next couple of years and eventually expand into other seasons.

Working with the Forest Service, we enhanced the visual aesthetics of a new base facility and plaza area by designing granite stone and cedar siding on a new building. As an added bonus, we plan to plant native trees in landscaped areas of the new plaza. We also worked with the Forest Service to provide an extensive sediment erosion/stormwater management plan for the construction of this project.

Timberline Lodge

Oregon

Most of Timberline's progress has come in previous years. We have already implemented programs such as recycling, water conservation measures, and energy saving devices. However, we have scheduled to build a new lift this season or possibly next year. During this construction, we will follow the Principles of the Charter. More specifically, we will minimize land disturbance and employ reclamation



2.4 Summaries of Resort Progress

practices where necessary. Timberline Lodge is committed to maintaining an environmentally friendly relationship with the surrounding areas.

Vail Mountain Colorado

During the calendar year 2001, Vail made Sustainable Slopes a more dynamic creature by attempting to get everyone involved through education and processes. We conducted a self-audit with the help of outside consultants. We identified areas of improvement, and make every effort to meet environmental goals. We made improvements to the snowmaking systems by purchasing more efficient guns and compressors. In addition, we installed auto-flushing mechanisms for 50 percent of facility restrooms. We will upgrade the remaining facilities in 2002. In the future, the resort's recycling effort will continue to gain momentum. In addition, we are investing more capital dollars in environmental aspects of the resort, and employee education will take a more expanded role.

Waterville Valley Resort New Hampshire

During the 2002 season, Waterville incorporated more low-flush toilets, purchased more tower guns, and heavily insulated new additions. Unfortunately with the warm weather, it was difficult to run low power guns, causing more electric use with ground guns. However, lower skier volume meant less water consumption. We also cut back on non-groom-running hours for a fuel savings. Timers placed in lift shacks also helped to reduce electric use on heat, and balancing the airflow in the base lodge has helped to keep heating costs down.

Whistler & Blackcomb Mountains British Columbia, Canada

This year, Whistler\Blackcomb joined other members of the Whistler community as an Early Adopter for the "Whistler. It's Our Nature." Sustainability Initiative. It is our goal to work together to move Whistler towards sustainability, using the Natural Step framework. With this group, Whistler\Blackcomb sponsored a speaker series where well-known sustainability writers and practitioners gave presentations to the community. We also co-wrote sustainability toolkits for households, schools and small businesses. The household toolkits were mailed out to every residence in Whistler. Two Whistler\Blackcomb staff members participated in an intense 10-week facilitators' course on the Natural Step and are currently implementing the framework throughout the company on a department-by-department basis. For more information, visit www.naturalstep.ca or www.whistleritsournature.ca.

Another focus for the year was to re-assess and improve our recycling program. Between 2000 and 2001, we reduced our garbage by 420 metric tons or 29%, and saved nearly \$50,000 in waste hauling and tipping fees. Since 1997, our garbage hauling costs have gone from \$240,000 to \$130,000 per year as a result of our waste reduction and recycling efforts.



In 2001, the Whistler/Blackcomb Foundation Environmental Fund completed its first project. To date, we have raised nearly \$25,000 for local environmental projects.

In early 2002, we completed a comprehensive energy audit on five of our largest facilities. It is estimated that we could see 20-25% savings in these buildings. We have secured capital for the first phase of our retrofit and are working with BC Hydro as part of their Power Smart program to secure further funding for the energy savings opportunities identified in the audit.

Whiteface Mountain Ski Center New York

The Ausable River, a heritage "Blue River Trout Stream," is the source of water for Whiteface snowmaking operations. Out of a concern that withdrawals from the river during low-flow periods could damage the aquatic habitat and wildlife, we constructed a run-of-the-river WEIR to monitor stream flows and regulate snowmaking withdrawals. The project was completed using sound environmental practices and with the cooperation of various state and government agencies, as well as local and national fisheries and conservation groups. As a result, Whiteface received a Silver Eagle Award this year for Environmental Excellence in Fish & Wildlife Habitat Protection.

Our primary goal for this season is to complete a new 5-year Unit Management Plan, which must be approved by the New York State Department of Environmental Conservation (NYSDEC) and the Adirondack Park Agency (APA). The plan will include many development projects using sound environmental concepts and practices.

Williams Ski Area Arizona

The Forest Service has stalled all of our plans and efforts to expand the area. Williams Ski Area has therefore been unable to implement any of our plans for conservation in nearly every category. We had significant conservation plans in all categories except "transportation/vehicle use," which is not an issue for us.

Winter Park Resort Colorado

The work done in Little Vasquez Creek is showing great success. The remnant population of a pure strain of Colorado River cutthroat trout appears to be attaining sustainability. Young-of-year fish have been seen and counted for the first time since surveys were started. The total useable population of the creek is greatly expanded for the benefit of the fish by the mitigation of natural and man-made barriers.

Winter Park completed a land exchange with the USFS in which the resort acquired 13.6 acres in exchange for 1,774 acres. The land that is now in the public domain was so important for habitat that the land exchange won The Chief's Land Exchange Award within the USFS.



2.5 Environmental Indicators

Winter Park will begin this summer to establish habitat in Jim Creek for the boreal toad, a threatened species within the state of Colorado. In addition, Winter Park will begin this summer replacing aerosol cans with reusable/refillable sprayers.

Wintergreen Resort Virginia

In addition to creating an environmental task force to support and enforce the Charter, Wintergreen Resort has successfully completed several environmental projects including a major plant relocation in May of 2001.

Wintergreen's environmental efforts are being recognized by many, including Virginia's Department of Environmental Quality.

Specific successes in 2001 pertain to:

- (1) environmental mission statement
- (2) wildflower and shrub conservation relocation effort took place in May, 2001
- (3) Virginia's Department of Environmental Quality (DEQ) presenting Wintergreen with "Environmental Lodging Certification"

2.5 ENVIRONMENTAL INDICATORS

Similar to the Assessment Tool's inaugural year of 2001, environmental indicators were again used to estimate the environmental impacts, or footprint, of the ski industry from just a few data points. These indicators were again employed to determine an order of magnitude estimate of industry impacts by aggregating information on industry-wide energy use, water use, and waste generation. In addition, this year's tool included transportation demand reduction as an added environmental indicator.

The Environmental Charter encourages resorts to establish systems for routinely quantifying both their environmental impacts, in terms such as resource use and waste generation, as well as their avoided impacts, i.e., transportation demand reduction, through their collective projects. At the same time, the Charter continues to recognize that detailed measurement of resource consumption takes expertise and resources that may not be available for all resorts. NSAA continues to pursue work with Partnering Organizations to provide training to resorts on establishing tracking systems and more robust metrics for evaluating their environmental programs.

Overall, the Assessment Tool used for this second year of implementation moved toward a more expanded and quantitative assessment. NSAA selected four environmental indicators to characterize the environmental state of the industry for the second *Annual Report*: 1) water conservation and use, 2) electric energy conservation and use, 3) waste disposal and diversion, and 4) transportation demand reduction.

As mentioned previously, changes in this year's expanded assessment included asking resorts to quantify transportation demand reduction



through avoided vehicle miles traveled (VMT). An additional evolution of this year’s tool included breaking out water conservation and use into two categories: snowmaking operations (non-consumptive) and all other operations (consumptive). By definition, non-consumptive water use indicates the resource is *returned to the watershed* following its use.

In order to achieve more quantitative results and to foster comparison of data from year to year, NSAA asked responding resorts for specific quantities in each topic area (versus using the discrete ranges selected for the 2001 tool). Using specific quantities, resorts provided their total use of the particular resource is, or in the case of waste, their total generation. Resorts then indicated what they are conserving through their collective best environmental practices. In the case of transportation demand reduction, the resorts were asked only to indicate the number of VMTs avoided through conservation efforts related to transportation. Table 2-7 summarizes the overall results of resort responses and indicates the low, high and average response for each environmental indicator. (It should be noted that a “o” response may be indicative of lack of data for this measurement rather than lack of any use of the resource in question.)

**Table 2-7
Environmental Indicators Response Summary**

Environmental Indicator	
Snowmaking Operations Water Use	
Low (Gallons)	0
High (Gallons)	500,000,000
Average (Gallons)	57,239,864
Snowmaking Operations Water Savings	
Low (Gallons)	0
High (Gallons)	200,000,000
Average (Gallons)	6,136,398
Consumptive Water Use	
Low (Gallons)	0
High (Gallons)	64,240,000
Average (Gallons)	6,486,898
Consumptive Water Savings	
Low (Gallons)	0
High (Gallons)	12,000,000
Average (Gallons)	590,762
Electric Energy Use	
Low (kWh)	0
High (kWh)	73,000,000
Average (kWh)	6,125,983
Electric Energy Savings	
Low (kWh)	0
High (kWh)	7,174,653
Average (kWh)	459,394
Waste Disposed	
Low (tons)	0
High (tons)	150,000



2.5 Environmental Indicators

Table 2-7 (continued)
Environmental Indicators Response Summary

Environmental Indicator	
Waste Disposed	
Low (tons)	0
High (tons)	150,000
Average (tons)	2,262
Amount Recycled	
Low (Percentage)	0
High (Percentage)	80
Average (Percentage)	13
Avoided Vehicle Miles Traveled (VMT)	
Low	0
High	18,092,184
Average	611,313

Extrapolating to an Industry-Wide Footprint

Table 2-8 totals each of the quantitative questions in the Assessment Tool based on information from reporting resorts. This information tells us that reporting resorts collectively are conserving or diverting the following volumes:

- Approximately 515 million gallons of water for snowmaking per year
- Approximately 48 million gallons of water for consumptive uses per year
- Approximately 38 million kWh per year of electric energy
- Approximately 50 million VMTs per year
- Averaging a solid waste diversion rate of 13% (or just over 24,000 ton per year based on overall total)

In addition, the reporting resorts collectively use or generate the following:

- Approximately 4,646 million gallons of water for snowmaking per year
- Approximately 532 million gallons of water for consumptive use per year
- Approximately 502 million kWh per year of electric energy
- Approximately 185,515 tons per year of solid waste

Interpreting the Data



Although the quantitative aspects of the Assessment Tool are approximate, the results do offer some useful information. Table 2-8 also quantifies usage indices based on skier visits for each of the Assessment Tool questions. Endorsing Resorts can use these indices to compare their own performance against other industry-wide and regional norms.

For example, the normalized indicator of water use in snowmaking operations for the Northern Rockies (NR) region is 76.3 gallons per skier visit. A resort in that region, then, with approximately 200,000 skier visits is projected to use approximately 15.3 million gallons of water each year for snowmaking operations. Actual usage quantities can then be applied to determine if the resort's use is greater than or less than this benchmark.



2.5 Environmental Indicators

**Table 2-8
Usage Totals and Indices by Region**

Environmental Indicator	CR	IN	MA	MW	NE	NR	PN	SE	SI	All ³
Snowmaking Operations Water Use										
Total Use (M Gallons) ¹	1,142.1	200.0	842.1	193.1	1,563.1	247.6	13.2	153.0	332.3	4,646.3
Normalized Indicator (Gallons/Skier Visit)	108.9	1,732.1	660.2	335.5	293.3	76.3	4.1	476.3	56.6	152.7
Snowmaking Operations Water Savings										
Total Use (M Gallons) ¹	46.3	20.0	69.1	13.0	319.3	33.7	1.4	1.0	13.4	515.5
Normalized Indicator (Gallons/Skier Visit)	4.4	173.2	54.2	22.5	59.9	10.4	0.4	3.1	2.3	16.9
Consumptive Water Use										
Total Use (M Gallons) ¹	79.2	N/A	22.9	50.5	62.3	134.5	54.9	64.7	62.9	531.9
Normalized Indicator (Gallons/Skier Visit)	7.6	N/A	18.0	87.8	11.7	41.5	17.1	201.5	10.7	17.5
Consumptive Water Savings										
Total Use (M Gallons) ¹	2.7	N/A	2.8	0.2	10.7	7.0	9.1	12.1	3.8	48.4
Normalized Indicator (Gallons/Skier Visit)	0.3	N/A	2.2	0.4	2.0	2.2	2.8	37.7	0.6	1.6
Electric Energy Use (kWh/Skier Visit)										
Total Use (MWh)	158.0	N/A	42.1	10.0	131.3	47.0	36.1	7.6	70.3	502.3
Normalized Indicator (kWh/Skier Visit)	15.1	N/A	33.0	17.4	24.6	14.5	11.2	23.5	12.0	16.5
Electric Energy Savings (kWh/Skier Visit)										
Total Use (MWh)	9.6	N/A	3.7	0.8	3.3	5.8	2.1	0.3	12.2	37.7
Normalized Indicator (kWh/Skier Visit)	0.9	N/A	2.9	1.4	0.6	1.8	0.6	0.9	2.1	1.2
Waste Disposed (Tons/Skier Visit)										
Total Use (Tons)	13,831	N/A	780	795	7,258	3,044	1,600	387	7,870	185,515
Normalized Indicator (Tons/Skier Visit)	0.001	N/A	0.001	0.001	0.001	0.001	0.0005	0.001	0.001	0.006
Avoided Vehicle Miles Traveled (VMT)										
Total Use (M VMT) ²	34.4	N/A	0.3	0.7	0.2	2.3	7.2	0.03	4.9	50.1
Normalized Indicator (VMT/Skier Visit)	3.3	N/A	0.2	1.2	0.04	0.7	2.3	0.1	0.8	1.6

¹ M gallons = 1 million gallons.

² M VMT = 1 million VMT.

³ Overall results include some data from resorts of unknown location.



3.1 Why Partnering Organizations Are Participating

3.0 CONTRIBUTIONS OF PARTNERING ORGANIZATIONS

NSAA and the endorsing resorts are fortunate to have outside organizations playing a key role in Sustainable Slopes. These Partnering Organizations were instrumental in the initial development of the Environmental Principles, and continue to provide their expertise and perspectives as the Charter evolves.

- Colorado Department of Public Health & Environment (CDPHE)
- Conservation Law Foundation (CLF)
- U.S. Department of Energy (DOE)
- U.S. Environmental Protection Agency (EPA)
- USDA Forest Service (USFS)
- Leave No Trace Inc. (LNT)
- The Mountain Institute (TMI)
- National Fish & Wildlife Foundation (NFWF)
- National Park Service Concession Program (NPS)
- 2002 Olympics Salt Lake City Organizing Committee (SLOC)
- Teton County, Wyoming (TC)
- Trust for Public Land (TPL)

3.1 WHY PARTNERING ORGANIZATIONS ARE PARTICIPATING IN SUSTAINABLE SLOPES

There are several common reasons why the Partnering Organizations are involved in Sustainable Slopes:

- The Charter fits in well with the mission and goals of the Partnering Organizations.
- The Charter provides a vehicle for Partnering Organizations to get their environmental information and technical assistance out to those who may benefit.
- Partnerships and collaboration are a large part of how many of the Partnering Organizations do business.

...the number one reason for supporting Sustainable Slopes...is that it leads to improved environmental performance.

However, the number one reason for supporting Sustainable Slopes, expressed either directly or indirectly by all Partnering Organizations, is that it leads to improved environmental performance. As one individual put it, "Regulations can prevent the worst in the ski industry, but they can't bring out the best." -- Mark Sinclair, CLF



3.1 Why Partnering Organizations Are Participating

Testimonials on motivations for partnering are provided below.

Getting Their Message Out

Without the Sustainable Slopes program, most resorts would not be able to learn about and take advantage of EPA's voluntary programs and other available assistance.-(EPA).

The Charter offers a vehicle for us to get our Responsible Use message out to visitors who enjoy these destination spots.- (LNT).

Fitting in with Their Missions and Goals

The concepts fit in well with our own missions and goals (TC).

Sustainable Slopes as a concept is on point and on mission with what we are trying to promote where we work in mountain communities (TMI).

We are very interested in seeing the process because we are building our program ground up now too. The Charter also is very consistent with the NPS mission of protecting the environment and developing evaluation tools that can be applied to our winter sport programs (NPS).

Energy is a thread that touches almost all aspects of ski areas' operations. This certainly fits within our strategic plan of leading the nation in the research, development, and deployment of affordable, advanced, clean energy (DOE).

Improving Environmental Performance

Improved environmental performance by ski areas translates into improved environmental and health benefits to citizens and the state (CDPHE).

The Charter allows us to move away from our historical regulatory battles with the industry to a more cooperative dialogue. Regulations can prevent the worst in the ski industry, but they cannot bring out the best. The Charter raises the bar for environmental performance beyond compliance toward true sustainability (CLF).

Whatever we can contribute to help the ski industry improve its environmental performance directly benefits us because it maintains high environmental quality on national forest service lands that are permitted to ski areas (USFS).

We are supporting it because we are hosting a lot of events at ski resorts and, as a consequence, want to be sure those resorts are participating in this project (SLOC).

EPA's mission is to protect human health and the environment. Actions a ski area take through Sustainable Slopes helps to achieve this goal. With

"The Charter raises the bar for environmental performance beyond compliance toward true sustainability" (CLF).



3.2 How Partnering Organizations Are Getting Involved

greater participation and effort, the ski industry is capable of reducing its impacts in a measurable and significant way. The ski industry could play an exemplary role for improved, quantified environmental performance both nationally and worldwide for the tourism and recreation industry. The Sustainable Slopes partnership, and this *Annual Report* are a step toward that end (EPA).

Collaboration is the Key

Our whole charter is to embrace and underwrite public/private partnerships on both public and private lands (NFWF).

In our partnering with other industries, we have seen excellent results when this type of proactive visioning occurs. (DOE)

"In partnering with other industries, we've seen excellent results when this type of proactive visioning occurs" (DOE).

3.2 HOW PARTNERING ORGANIZATIONS ARE GETTING INVOLVED

Not only do Partnering Organizations have valuable expertise to share, they are providing other key services as well:

- Resources
- Direct technical assistance to resorts
- Training
- Communication/education/outreach
- Referrals to relevant programs and resources
- Integration of Charter Principles into development reviews
- Initiation of regional and resort-level projects

A brief summary of the contributions of the Partnering Organizations to Sustainable Slopes is provided below.

Resources

NFWF has provided grants to NSAA for the past two years to develop and implement the data collection and self-assessment process that serves as the basis for this *Annual Report*. NFWF also participated in this year's Sustainable Slopes Outreach Campaign in Colorado on February 23, 2002.

DOE partnered with Aspen Skiing Company, Jiminy Peak Ski Area, and NSAA to sponsor the educational PBS show "Spotlight On: The Environment," which featured Sustainable Slopes and aired on 300 PBS stations for 3 months during the 2001 ski season. The show aired 991 times and was seen by 5 million viewers.

Direct Technical Assistance to Resorts

CDPHE, with joint funding from the EPA, has provided direct technical assistance to two Colorado ski resorts, Arapahoe Basin and Aspen Skiing



3.2 How Partnering Organizations Are Getting Involved

Company, through a multi-year pilot program. The pilot program included a top to bottom audit of resort practices and analysis of improving environmental performance and efficiencies. The results of the project were compiled in the “*Greening Your Ski Area--A Pollution Prevention Handbook*” and disseminated to the industry nationally through NSAA this year. (A link to a copy of the *Handbook* is available on NSAA’s website at www.nsaa.org. Click on “Environmental Charter” to find it. Hard copies are available through NSAA by emailing katep@nsaa.org.) With the assistance of **CDPHE**, Tetra Tech EM Inc. and The Brendle Group, NSAA provided training to resorts on the *Handbook* during our Eastern and Western Winter Conferences in January, 2002, and also through a special training workshop hosted by Keystone Resort in April, 2002. The training sessions were well received and have sparked further progress toward improving environmental performance in the industry.

The *Handbook* includes chapters on most of the on-mountain aspects of the Charter, including Lift Operations, Snowmaking, Vehicle Maintenance, Buildings, and Construction. It also offers guidance on program elements, such as setting performance goals and metrics, marketing successes, and public relations. Finally, the *Handbook* details demonstrated cost savings by the participating resorts in an unprecedented manner. At this time, NSAA is exploring options for making the *Handbook* training program available on-line through an interactive training program so that more resorts can benefit from it.

Last year, **DOE's Office of Industrial Technologies** provided energy audits at Aspen Skiing Company and Stratton Mountain Ski Resort in conjunction with the **CDPHE** Pilot Program so it can provide the industry with two case-specific audits. Contacts for the ski industry have been provided to DOE's regional offices for alternative fuel vehicle programs (Clean Cities). DOE's regional offices will continue to provide front-end support to ski resorts interested in deploying alternatively fueled vehicles and wind power purchases.

Although it has not worked directly with ski resorts yet, **TMI** has technical expertise available for hire on a contract basis. TMI's mission and expertise is three-fold: 1) protecting habitat, 2) protecting culture, and 3) advancing the economics of the regions. TMI is poised to help resorts with an objective outside environmental audit or to help design a constructive program around the three principles listed above. TMI's services include auditing, planning, and fine-tuning environmental programs.

Training

DOE conducted training seminars for ski areas during NSAA's 2000 Fall Education Seminars. The training sessions were held in eight regions across the country, and helped resorts identify opportunities for becoming more energy efficient and for applying clean energy technology.



3.2 How Partnering Organizations Are Getting Involved

EPA conducted training workshops on waste reduction, energy and water efficiency for resorts, and environmental management systems (EMS) in conjunction with NSAA's Eastern and Western Winter Conferences in January of 2001.

CDPHE, as part of its joint project with **EPA** (see description under technical assistance above), shared the results of its project with the rest of the industry in resort training workshops held in conjunction with NSAA's Eastern and Western Winter Conferences in January of 2002.

Communication/Education/Outreach

LNT provided materials on outdoor ethics to resorts for Sustainable Slopes Day in February of 2001 and 2002. In the future, it would like to create some educational pieces, (booklets, hang tags, signage, etc.) that more actively present the sustainability message to the end user. This would be done in partnership with NSAA or even with particular resorts in a more customized fashion.

SLOC sponsored the printing of Sustainable Slopes postcards containing the "Six Steps to Sustainable Slopes" educational message in conjunction with the February 2001 and 2002 Outreach Campaigns. **SLOC** included the postcards in media kits at the 2002 Salt Lake City Winter Olympic Games. **SLOC** recognized the Sustainable Slopes program for "*Outstanding Achievement in Environmental Education*" in February 2002.

EPA sponsored environmental outreach materials for the Sustainable Slopes Outreach Campaign in February 2001.

SLOC, **TPL**, and **NFWF** were judges for the 2002 Golden Eagle Awards for Environmental Excellence. The award program recognizes resorts that have excelled in particular areas of environmental concern and is managed by Time4 Media's Mountain Sports Media, publishers of *SKI*, *SKIING*, and other magazines.

DOE partnered with Aspen Skiing Company, Jiminy Peak Ski Area, and NSAA to sponsor the educational PBS show "Spotlight On: The Environment," which featured Sustainable Slopes and aired on 300 PBS stations for 3 months during the 2001 ski season. The show aired 991 times and was seen by 5 million viewers.

Referrals to Programs and Resources

During training at NSAA's 2001 conferences, EPA highlighted four programs that can provide direct technical assistance to ski resorts: 1) WAVE (water alliance for voluntary efficiency - www.epa.gov); 2) Energy Star program, which has a broad array of energy efficiency information, software tools, product lists, and a certification program; 3) Waste Wise, which is a waste reduction and recycling technical assistance program; and 4) Environmental Management Systems (EMSs), a tool for

...four EPA programs that can provide direct assistance to ski resorts:

- **WAVE**
- **Energy Star**
- **Waste Wise**
- **EMS**



3.3 Future Work With Partnering Organizations

identifying, prioritizing, and addressing environmental impacts. EMS is the holistic tool that can provide a systematic structure for resorts to completely implement the Environmental Charter. These are just four of EPA's voluntary programs; there are many other resources and programs available to resorts through the EPA.

Integration of Environmental Principles into Development Reviews

Teton County uses the Environmental Charter as guidance in interacting with ski resorts on their Master Development Plans.

The **USFS** continually works with public land resorts on planning new developments, and provides its specialized expertise to enhance the environmental performance of these specific projects. This year NSAA and the **USFS** will renew a national Memorandum of Understanding (MOU) on their Partnership, and will highlight the agency's support of the Sustainable Slopes program in the updated MOU. USFS anticipates that a case-by-case learning tool on resort environmental practices can be used and distributed by NSAA to the member organizations.

Initiation of Regional-level Projects

CLF and the **NFWF** hope to get more involved in partnering with eastern resorts on climate change-related projects.

TMI is trying to establish a presence in the San Juan Mountains in Colorado. It is proposing to create the Center for Mountain Studies in the San Juans either in Durango or Silverton. The aim is to create a cumulative body of literature and research on mountain living and ecology, including recreation and tourism, which could be useful to resorts.

3.3 FUTURE WORK WITH PARTNERING ORGANIZATIONS

While the contributions outlined in Section 3.2 are in themselves impressive, another major benefit from Partnering Organizations' involvement in Sustainable Slopes comes from putting their expertise to work in the continued improvement of the Charter and the Assessment Tool. Many of the Partnering Organizations have more to offer, such as:

- Direct experience with developing voluntary environmental programs for other industries
- A long history of working with ski resorts and/or mountain communities on environmental issues
- Technical expertise in specific subject areas covered by the Environmental Principles

In combination, this experience is invaluable toward improving the Sustainable Slopes program. NSAA is open to gaining new Partnering



3.3 Future Work With Partnering Organizations

Organizations for the Sustainable Slopes program in the future as well. We are particularly interested in partnering to address the important issue of climate change.



4.0 GOALS FOR THE FUTURE

**The
fundamental
goal of the
Charter is to
improve
environmental
performance.**

The fundamental goal of the Charter is to improve the environmental performance of the ski industry. Implicit in that goal is broad industry participation and the ability to measure the increased environmental performance of the industry. Reflecting on what is now two years worth of environmental data and reporting, we can state with confidence that we have made tremendous progress to date. But we also have considerable room for improvement.

As noted below, many of our goals from last year have been met or are in the process of being met. We will continue to strive to meet these goals over the next year to keep on pace with our commitment to achieving sustainability.

Increase Industry Participation

- *Recruit more resorts to endorse the Charter*
Result: Three new endorsing resorts signed on this year. NSAA will continue to create incentives and send encouraging reminders to those resorts that have not yet endorsed the Sustainable Slopes program.
- *Increase participation in the self-assessment process*
Result: We were only able to increase participation by two resorts this year over last, as the number of participating resorts was 90 this season and 88 last season. In an effort to increase participation, this year we added a new feature to the Assessment Tool: instant feedback. Each resort that completed the tool automatically received an email report identifying their top three strengths and top three priorities for future improvement. Additionally, we let resorts know that responses would be included automatically in the Green Room, NSAA's environmental database. Although we received great feedback from resorts on these features, they did not help drive up participation numbers as we had hoped. We will consider new incentives for participation next year.
- *Improve sharing of information among resorts*
Result: In November, 2001, NSAA launched the "Green Room" on its website (www.nsaa.org). The Green Room is an on-line environmental database of ski resort environmental projects. It covers 21 different environmental topics, and includes information from resorts of all sizes and regions of the country. The Green Room not only provides the media and public access to resort environmental information, but it serves as an excellent resource for resorts that are researching or considering specific environmental programs or projects. The level of cooperation and willingness to share data among



4.0 Goals for the Future

resorts for this purpose is unprecedented. The Green Room website has received over 20,000 hits to date. NSAA will update the database annually.

- *Provide assistance to resorts in establishing environmental programs and projects*

Result: As mentioned above in Chapter 3, NSAA brought an excellent training opportunity to our member resorts this year through the CDPHE/EPA/Aspen Skiing Company/Arapahoe Basin pollution prevention pilot program. The pilot program produced a “Greening Your Ski Area Pollution Prevention Handbook.” Training on the Handbook was provided to resorts at NSAA’s Eastern and Western Winter Conferences in January 2001, and was extremely beneficial for the industry. NSAA will look for similar training opportunities in the future.

Foster Existing Partnerships and Build New Ones

- *Increase the number of Partnering Organizations*

Result: We did not add any new Partnering Organizations this year. We hope to add new partners in the coming years to address the important issue of climate change.

- *Increase participation from Partnering Organizations*

Result: Each year we can expect different participation levels from the Partnering Organizations, depending on our set priorities and their abilities to devote time and energy to the Sustainable Slopes program. This year we saw increased participation from a number of the Partnering Organizations, and will continue to encourage increased participation in the future. NSAA would like to give special recognition this year to the Colorado Department of Public Health & Environment (CDPHE). CDPHE’s contributions with respect to training resorts on the “Greening Your Ski Area Pollution Prevention Handbook” were invaluable.

- *Work with Partnering Organizations to provide more training, direct technical assistance, and resources to endorsing resorts, particularly in those areas identified as having the greatest need for improvement*

Result: As mentioned above, we worked with two partners—CDPHE and EPA—in providing an excellent training opportunity for resorts in the area of pollution prevention. NSAA hosted resort training on the “Greening Your Ski Area Pollution Prevention Handbook” this year in three locations. The training was invaluable in helping resorts identify opportunities for efficiency and improving environmental performance across the media of energy, waste, water and air.



Increase Communications and Outreach

- *Disseminate successful case studies to ski resorts*
Result: The endorsing resorts received copies of the 2001 *Annual Report* upon its release, allowing them to review what their peers had reported as “environmental success stories” or “Principles in Action” for the 2000/01 season. NSAA also posted the *Annual Report* on our website so that all resorts—not just endorsers—would have access to case study information.
- *Enhance the NSAA web site to include successful examples, case studies, tools, and resources for endorsing resorts*
Result: As highlighted above, NSAA added the “Green Room” environmental database to its website in November 2001. The Green Room is an excellent resource for endorsing resorts and non-endorsing resorts. The Green Room will be updated annually using data submitted by resorts through the Assessment Tool. It is a popular site and has received over 20,000 hits to date.
- *Improve outreach and awareness programs on Sustainable Slopes*
Result: This year, NSAA organized a Sustainable Slopes Outreach Day on February 23, 2002. The campaign is designed to raise the visibility of Sustainable Slopes at resorts across the country. Resorts participated in unique ways—from donating lift ticket proceeds to environmental causes to cutting the ribbon on new Environmental interpretive centers located on mountain. Press coverage of this year’s campaign was helpful in raising awareness among resort guests. Next year’s campaign has already been set for February 22, 2003. To encourage resort participation in Sustainable Slopes Outreach Day, NSAA issued a “special award” during the past two seasons recognizing the resort that has excelled in raising the visibility of Sustainable Slopes.

Improve the Assessment Tool

- *Refine the Assessment Tool on the basis of this year's results*
Result: We refined the Assessment Tool in a number of ways this year in response to knowledge gained through the inaugural year’s tool. Some of those changes are highlighted below. We envision refining the tool once again for next year, as there is always room for improvement.
- *Expand the environmental indicators to other important topics and analyze resource use and waste generation per skier visit*
Result: This year we added transportation as an environmental indicator to measure how resorts are reducing demand for vehicle miles traveled through shuttles, buses and other



4.0 Goals for the Future

innovative transportation programs. The results are analyzed in Chapter 2. This year we also moved from “ranges” to specific figures on Form 22 of the Assessment Tool so that we could calculate resource use and waste generation per skier visit.

- *Evaluate how to measure changes from year to year and move toward a quantitative assessment*

Result: This year we moved from “ranges” to specific figures on Form 22 so that we could not only calculate resource use and waste generation by skier visit, but also better compare one year’s collected data to the next. We learned after year one that numeric ranges make comparisons from year to year less meaningful. The downside to this change, however, was that many resorts were not able to provide specific figures for water or energy use or savings. As a result, many resorts inserted a “o” in the place of a specific figure on Form 22. We will need to revisit the decision to ask for specific figures on Form 22 as a result of this trend.

Long-Term Goals

Our long-term goals for the Sustainable Slopes Program are as follows:

- *Set quantitative goals industry-wide over time and track progress toward those goals*
- *Evaluate third-party audits for verification and the funding needed to support it*
- *Update over time the list of “Options for Getting There” in the Charter to reflect emerging best practices*
- *Develop quantitative benchmarks for resource use and waste generation per skier visit*

In conclusion, NSAA remains extremely pleased with the progress made to date under the Sustainable Slopes Program. Resorts have been successful in implementing the Environmental Principles and can set goals for future improvement using the results of this and last year's assessments. We welcome further input and participation as we continue to enhance the Sustainable Slopes program in the coming year.



APPENDIX A
LIST OF ENDORSING RESORTS
AND CONTACT INFORMATION

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
49 Degrees North Ski Area	WA	John Eminger	(509) 935-6649	ski49n@ski49n.com
Alpine Meadows Ski Resort	CA	Fern Elufson	(530) 583-4232	info@skialpine.com
Alta Ski Area	UT	Onno Wieringa	(801) 359-1078	onnow@alta.com
Alta Ski Area	UT	Mark Polish	(801) 359-1078	markp@alta.com
Alyeska Resort	AK	David Wilson	(907) 754-1111	dwilson@alyeskaresort.com
Angel Fire Resort	NM	Jon Mahanna	(505) 377-6401	jmahanna@angelfireresort.com
Anthony Lakes Mtn Resort, Inc.	OR	Amy Barnes	(541) 856-3277	abarnes@anthonylakes.com
Arapahoe Basin	CO	Rusty Pawlikowski	(970) 468-0718	rpawlikowski@dundeerealty.com
Arapahoe Basin	CO	Alan Henceroth	(970) 468-0718	ahenceroth@dundeerealty.com
Arizona Snowbowl	AZ	Eric Borowsky	(928) 779-1951	
Ascutney Mountain Resort	VT	John Plausteiner	(802) 484-7711	
Aspen Highlands	CO	Auden Schendler	(970) 925-1220	aschendler@aspensnowmass.com
Aspen Mountain - Ajax	CO	Auden Schendler	(970) 925-1220	aschendler@aspensnowmass.com
Attitash Bear Peak	NH	Tom Chasse	(603) 374-2368	tchasse@attitash.com
Attitash Bear Peak	NH	KatherineGadman	(603) 374-2368	kgadman@attitash.com
Badger Pass	CA	Stewart Collins	(209) 372-8430	scollins@dncinc.com
Balsams Wilderness	NH	Richard Harris	(603) 255-3951	psiadix_03576@yahoo.com
Bear Creek Ski & Recreation Area	PA	Mark Schroetel	(610) 682-7100	markse@skibearcreek.com
Beaver Creek Resort	CO	John Gitchell	(970) 949-5750	jgitchell@vailresorts.com
Beaver Creek Resort	CO	Mark Tirone	(970) 949-5750	mtirone@vailresorts.com
Beaver Mountain Ski Area	UT	Travis Seeholzer	(435) 753-0921	beaver@cache.net
Berthoud Pass Ski Area	CO	Marise Cipriani	(303) 569-0100	mcipriani@solvista.com
Berthoud Pass Ski Area	CO	Charles Mayfield	(303) 569-0100	cmayfield@solvista.com
Big Bear Mountain Resort	CA	Brent Tregaskis	(909) 585-2519	btregaskis.bm@boothcreek.com
Big Mountain Ski & Summer Resort	MT	Michael Collins	(406) 862-1900	wsixec@bigmtn.com
Big Mountain Ski & Summer Resort	MT	Andrea Martinez	(406) 862-1900	wsixec@bigmtn.com
Big Sky Resort	MT	Madeleine Bessire	(406) 995-5000	
Black Mountain Ski Area	NH	John Fichera	(603) 383-4490	johnf@blackmt.com
Blacktail Mountain Ski Area	MT	Steve Spencer	(406) 844-0999	skiing@blacktail.com
Blue Mountain Resorts	ON	Gordon Canning	(705) 445-0231	gcanning@bluemountain.ca
Bogus Basin Ski Resort	ID	Steve Shake	(208) 332-5100	steve@bogusbasin.com
Bolton Valley Resort	VT	Jim Bauman	(802) 434-3444	jbauman@boltonvalley.com
Boreal Mountain Resort	CA	John Booth	(530) 426-3666	castle@thegrid.net
Boston Mills/Brandywine Ski Resort	OH	Dick Ludwig	(330) 467-2242	rjludwig@aol.com
Boston Mills/Brandywine Ski Resort	OH	Sue Kananen	(330) 467-2242	
Breckenridge Ski Resort	CO	John Gitchell	(970) 453-5000	jgitchell@vailresorts.com
Breckenridge Ski Resort	CO	Karl Grubbe	(970) 453-5000	kgrubbe@vailresorts.com
Bretton Woods Mountain Resort	NH	Chris Ellms	(603) 278-3320	cellms@brettonwoods.com
Bridger Bowl Ski Area	MT	Terry Abelin	(406) 587-2111	bridgerbowl@imt.net

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
Brighton Ski Resort	UT	Zane Doyle	(801) 532-4731	rdoyle@skibrighton.com
Bristol Mountain Ski Resort	NY	Daniel Fuller	(716) 374-6000	dfuller@bristolmt.com
Brodie Mountain Resort	MA	Jim Van Dyke	(413) 443-4752	jvandyke@jimony.com
Bromley Mountain Resort	VT	John Cueman	(802) 824-5522	jcuman@bromley.com
Brundage Mountain Resort	ID	Larry Shake	(208) 634-4151	larry@brundage.com
Buttermilk Mountain	CO	Auden Schendler	(970) 925-1220	aschendler@aspensnowmass.com
Camelback Ski Area	PA	Richard Wiseman	(570) 629-1661	wiseman@skicamelback.com
Cannon Mountain	NH	Lorri Souza	(603) 823-8800	cannonmt@ncia.net
Cannon Mountain	NH	Richard Andross	(603) 823-8800	cannonmt@ncia.net
Cascade Mountain Ski & Snowboard Area	WI	Robert Walz	(608) 742-5588	robwalz@jvlnet.com
Cataloochee Ski Area	NC	Chris Bates	(828) 926-0285	cbates@cataloochee.com
Copper Mountain Resort	CO	Mark Burnell	(970) 968-2882	burnellm@coppercolorado.com
Cranmore Mountain Resort	NH	Kevin Donovan	(603) 356-8500	kdonovan.mc@boothcreek.com
Crested Butte Mountain Resort	CO	Mary Jo Somrak	(970) 349-4000	msomrak@cbmr.com
Crystal Mountain Resort	MI	Michael Call	(231) 378-2000	michaelcall@crystalmountain.com
Crystal Mountain, Inc.	WA	Lorna Fluegel	(360) 663-2265	mainoffice@skicrystal.com
Crystal Mountain, Inc.	WA	Bill Steel	(360) 663-2265	comments@skicrystal.com
Dartmouth Skiway	NH	Bill Ulinski	(603) 795-2143	
Deer Valley Resort Company	UT	Bob Wheaton	(435) 649-1000	bwheaton@deervalley.com
Devil's Head Resort & Convention Center	WI	Joe Vittengl	(608) 493-2251	joe@devils-head.com
Discovery Ski Area	MT	Peter Pitcher	(406) 563-2184	peter@skidiscovery.com
Dodge Ridge Ski Area	CA	Frank Helm	(209) 965-3474	frankhelm@dodgeridge.com
Durango Mountain Resort	CO	Mike McCormack	(970) 247-9000	mmccormack@durangomountain.com
Eaglecrest Ski Area	AK	Gary Mendivil	(907) 586-5284	gary_mendivil@ci.juneau.ak.us
Gore Mountain Ski Area	NY	Darin Homer	(518) 251-2411	darin@goremountain.com
Gore Mountain Ski Area	NY	Michael Pratt	(518) 251-2411	mpratt@telenet.net
Grand Targhee Ski & Summer Resort	WY	Larry Williamson	(307) 353-2300	lwilliamson@grandtarghee.com
Grand Targhee Ski & Summer Resort	WY	Sauny Sewell	(307) 353-2300	ssewell@grandtarghee.com
Greek Peak Ski Resort	NY	Scott King	(607) 835-6111	greekpeak@lightlink.com
Gunstock Area	NH	Douglas Irving	(603) 293-4341	gunstock@gunstock.com
Heavenly Ski Resort	NV	Dennis Harmon	(775) 586-7000	dharmon@skiheavenly.com
Heavenly Ski Resort	NV	Andrew Strain	(775) 586-7000	astrain@skiheavenly.com
Hidden Valley Ski Area	MO	Kent Graham	(636) 938-5373	kgraham3@swbell.net
Holiday Valley Resort	NY	Jane Eshbaugh	(716) 699-2345	jeshbaugh@holidayvalley.com
Holiday Valley Resort	NY	Dennis Eshbaugh	(716) 699-2345	deshbaugh@holidayvalley.com
Hoodoo Ski Area	OR	Chuck Shepard	(541) 484-6595	umbrella96@aol.com
Hunter Mountain	NY	Russell Coloton	(518) 263-4223	rcoloton@huntermtn.com
Hyland Ski and Snowboard Area	MN	Fred Seymour	(952) 835-4250	fseymour@hennepinparks.org
Jackson Hole Mountain Resort	WY	Tom Spangler	(307) 733-2292	toms@jacksonhole.com

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
Jackson Hole Mountain Resort	WY	Jerry Blann	(307) 733-2292	jerryb@jacksonhole.com
Jiminy Peak - The Mtn. Resort	MA	Jim Van Dyke	(413) 738-5500	jvandyke@jiminy.com
Keystone Resort	CO	John Gitchell	(970) 496-2316	jgitchell@vailresorts.com
Keystone Resort	CO	Dylan Hoffman	(970) 496-2316	dhoffman@vailresorts.com
Killington Resort	VT	John Cole	(802) 422-3333	jcole@killington.com
Liberty Mountain Resort	PA	Lonny Whitcomb	(717) 642-8282	lwhitcomb@skiliberty.com
Lookout Pass Ski Area	ID	Phil Edholm	(208) 744-1301	phil@skilookout.com
Loon Mountain Recreation Corp.	NH	Ted Sutton	(603) 745-8111	tsutton.lm@boothcreek.com
Lost Trail Ski Area, Inc.	MT	Bill Grasser	(406) 821-3742	ski@losttrail.com
Loveland Ski Area	CO	Ken Abrahamson	(303) 569-3203	kena@skiloveland.com
Mammoth Mountain Ski Area	CA	Rusty Gregory	(760) 934-2571	rusty@mammoth-mtn.com
Mammoth Mountain Ski Area	CA	Lisa Isaacs	(760) 934-2571	lissacs@mammoth-mtn.com
Massanutten Ski Resort	VA	Steven Showalter	(540) 289-4954	ssnow@shentel.net
Mission Ridge	WA	Michael Bourton	(509) 663-6543	mbourton@nwi.net
Mohawk Mountain Ski Area	CT	Carol Lugar	(860) 672-6100	mmtn1@mohawkmtn.com
Monarch Ski and Snowboard Area	CO	Rich Moorhead	(719) 539-3573	moorrich@amigo.net
Mont Ste-Marie Resort	PQ	Steve Paccagnan	(819) 467-5200	spaccagnan@intrawest.com
Montana Snowbowl	MT	Bradley Morris	(406) 549-9777	brad@montanasnowbowl.com
Mount Bohemia	MI	Jim Rempel	(906) 289-4105	bear@up.net
Mount Snow Resort	VT	Scott Reeves	(802) 464-3333	sreeves@mountsnow.com
Mount Snow Resort	VT	Gina Sarlo	(802) 464-3333	gsarlo@mountsnow.com
Mount Sunapee	NH	Jay Gamble	(603) 763-2356	jgamble@mtsunapee.com
Mount Tone Ski Area	PA	Ray Handley	(570) 842-2544	mail@mttone.com
Mountain Creek	NJ	Beth Watts	(973) 827-3900	bwatts@mountaincreek.com
Mountain High Resort	CA	Paul Bauer	(760) 249-5808	pbauer@mthigh.com
Mt. Abram Family Resort	ME	Josh Burns	(207) 875-5002	burns@skimtabram.com
Mt. Ashland Ski Area	OR	Jeff Hanson	(541) 482-2897	jhanson@mtashland.com
Mt. Bachelor, Inc.	OR	Chip Hill	(541) 382-2442	chill@mtbachelor.com
Mt. Bachelor, Inc.	OR	Don Rutherford	(541) 382-2442	drutherford@mtbachelor.com
Mt. Hood Meadows Ski Resort	OR	David Riley	(503) 337-2222	driley@skihood.com
Mt. Hood Ski Bowl	OR	Todd Wheeler	(503) 272-3206	htodd@aol.com
Mt. La Crosse	WI	Todd Schini	(608) 788-0044	info@mtlacrosse.com
Mt. Rose - Ski Tahoe	NV	Paul Senft	(775) 849-0704	ps@skirose.com
Mt. Shasta Board & Ski Park	CA	Gary Nordell	(530) 926-8600	skipark@snowcrest.net
Mt. Spokane Ski Area	WA	Randy Chambers	(509) 238-2220	randychambers@worldnet.att.net
Northstar-at-Tahoe	CA	Terri Viehmann	(530) 562-1010	tviehmann.ns@boothcreek.com
Northstar-at-Tahoe	CA	John Loomis	(530) 562-1010	jloomis.ns@boothcreek.com
Nub's Nob Ski Area	MI	James Bartlett	(231) 526-2131	bart@nubsnob.com
Okemo Mountain Resort	VT	Pam Cruickshank	(802) 228-4041	pamc@okemo.com
Otis Ridge	MA	Al Hewett	(413) 269-4444	oridge@vgernet.net

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
Panorama Resort	BC	Gordon Ahrens	(604) 343-6941	gahrens@intrawest.com
Paoli Peaks, Inc.	IN	Felix Kagi	(812) 723-4696	fkagi@skipeaks.com
Park City Mountain Resort	UT	Vern Greco	(435) 649-8111	verng@pcski.com
Pats Peak	NH	Kris Blomback	(603) 428-3245	kris@patspeak.com
Pebble Creek Ski Area	ID	Mary Reichman	(208) 775-4452	info@pebblecreekskiarea.com
Pebble Creek Ski Area	ID	Dana Lucid	(208) 775-4452	info@pebblecreekskiarea.com
Peek 'n Peak Resort & Conf Ctr	NY	Brad Gravink	(716) 355-4141	info@pknpk.com
Pomerelle Mountain Resort	ID	A.W. Anderson	(208) 673-5599	andrwood@atcnet.net
Powder Ridge Ski Area	CT	Kenneth Leavitt	(860) 349-3454	leavittkr@aol.com
Powder Ridge Ski Area	MN	Jerry Wahlin	(320) 398-5295	prfun@cloudnet.com
Powderhorn Resort	CO	Steven Bailey	(970) 268-5700	sbailey@powderhorn.com
Powderhorn Resort	CO	Jim O'Loughlin	(970) 268-5700	jimo@powderhorn.com
Red Lodge Mountain	MT	Rob Ringer	(406) 446-2610	rringer@redlodgemountain.com
Red River Ski Area, Inc.	NM	Alex Filiss	(505) 754-2223	redriver@newmex.com
Saddleback Ski Area, Inc.	ME	Tom McAllister	(207) 864-5671	saddleback@saddlebackskiarea.com
Seven Springs Mountain Resort	PA	Scott Bender	(814) 352-7777	sbender@7springs.com
Shawnee Peak Ski Area	ME	Chet Homer	(207) 647-8444	chet@shawneepark.com
Sierra Summit Mountain Resort	CA	Richard Kun	(559) 233-2500	
Sierra-at-Tahoe Ski Resort	CA	Marie Sweeney	(530) 659-7453	msweeney.st@boothcreek.com
Ski Bluewood	WA	Bruce Goodell	(509) 382-4725	bruceg@innw.net
Ski Cooper	CO	Clint Yant	(719) 486-3684	anned@skicooper.com
Ski Denton	PA	Joyce Knefley	(814) 435-2115	skidentn@penn.com
Ski Plattekill Mountain Resort	NY	Laszlo Vajtay	(607) 326-3500	plattkil@catskill.net
Ski Roundtop	PA	Gayle Kosyk	(717) 432-9631	gkosyk@skiroundtop.com
Ski Roundtop	PA	Lonny Whitcomb	(717) 432-9631	lwhitcomb@skiliberty.com
Ski Snowstar Winter Sports Park	IL	Ed Meyer	(309) 798-2666	snowstar@qconline.com
Sleepy Hollow Sports Park, Inc.	IA	Rick Flatt	(515) 262-4100	
Smugglers' Notch Resort	VT	Mark Delaney	(802) 644-8851	mdelaney@smuggs.com
Snow Creek Ski Area	MO	David Grenier	(816) 640-2200	dgrenier@swbell.net
Snow Summit Mountain Resort	CA	Richard Kun	(909) 866-5766	rck@snowsummit.com
Snowbasin, A Sun Valley Resort	UT	Michael Jenkins	(801) 620-1000	mjenkins@snowbasin.com
Snowbasin, A Sun Valley Resort	UT	Gray Reynolds	(801) 620-1000	greynolds@snowbasin.com
Snowbird Ski & Summer Resort	UT	Jim Baker	(801) 742-2222	jbaker@snowbird.com
Snowmass Ski Area	CO	Auden Schendler	(970) 923-1220	aschendler@aspensnowmass.com
Snowshoe Mountain Inc.	WV	Bruce Pittet	(304) 572-1000	bpittet@snowshoemtn.com
Soda Springs Ski Area	CA	John Booth	(530) 426-3901	castle@thegrid.net
Solitude Mountain Resort	UT	Katie Day	(801) 534-1400	Katie@skisolitude.com

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
SolVista Golf and Ski Ranch	CO	Marise Cipriani	(970) 887-3384	mcipriani@solvista.com
Spirit Mtn. Recreational Area	MN	Rick Certano	(218) 628-2891	rcertano@spiritmt.com
Squaw Valley Ski Corporation	CA	Katja Dahl	(530) 583-6985	kdahl@squaw.com
Steamboat Ski & Resort Corp.	CO	Lyn Halliday	(970) 871-5454	lynh@steamboat.com
Stevens Pass	WA	Chester Marler	(206) 812-4510	cmarler@stevenspass.com
Stowe Mountain Resort	VT	Robert Apple	(802) 253-3000	rapple@stowe.com
Stratton Mountain	VT	Graham Wood	(802) 297-2200	gwood@intrawest.com
Sugar Bowl Ski Resort	CA	Chris Parker	(530) 426-9000	cparker@sugarbowl.com
Sugarbush Resort	VT	Margo Mears	(802) 583-6300	mmears@sugarbush.com
Sugarbush Resort	VT	Bob Ackland	(802) 583-6300	backland@sugarbush.com
Sugarloaf USA	ME	Kimberly Truskowski	(207) 237-2000	ktruskowski@sugarloaf.com
Sunburst Ski Area	WI	James Engel	(262) 626-8404	jengel@skisunburst.com
Sundance	UT	Mary Morrison	(801) 225-4107	mmorrison@sundance-utah.com
Sunday River Ski Resort	ME	Mari Grover	(207) 824-3000	mgrover@sundayriver.com
Sunday River Ski Resort	ME	Marvin Collins	(207) 824-3000	mcollins@sundayriver.com
Sunlight Mountain Resort	CO	Thomas Jankovsky	(970) 945-7491	tomj@sunlightmtn.com
Swain Ski & Snowboard Center	NY	Jon Gorton	(607) 545-6511	swain@infoblvd.net
Taos Ski Valley, Inc.	NM	Gordon Briner	(505) 776-2291	gbb@newmex.com
Telluride Ski & Golf Company	CO	Deanna Belch	(970) 728-6900	deanna@telluridecolorado.net
Tenney Mountain	NH	Hans Witte	(603) 536-4125	
The Canyons	UT	Scott Pierpont	(435) 649-5400	spierpont@thecanyons.com
The Homestead	MI	Adriene Kokowicz	(231) 334-5000	akokowicz@thehomesteadresort.com
The Summit At Snoqualmie	WA	Trevor Kostanich	(425) 434-7669	tkostanich.sl@boothcreek.com
The Summit At Snoqualmie	WA	Dan Brewster	(425) 434-7669	dbrewster.sl@boothcreek.com
The Temple Mountain Ski Area	NH	Thomas Dill	(603) 924-6949	templemntskiarea@monad.net
Timberline Four Seasons Resort	WV	Tom Blanzzy	(304) 866-4801	tomblanzzy@usa.net
Timberline Lodge & Ski Area	OR	Jon Tullis	(503) 622-7979	jtullis@timberlinelodge.com
Timberline Lodge & Ski Area	OR	Eric Merritt	(503) 622-7979	emerritt@timberlinelodge.com
Tremblant Resort	PQ	Michel Aubin	(819) 681-2000	maubin@intrawest.com
Triple M-Mystical Mountain	NM	Chris Sparling	(505) 682-2205	res@hauns.com
Vail Mountain	CO	John Gitchell	(970) 476-5601	jgitchell@vailresorts.com
Vail Mountain	CO	Jeffrey Babb	(970) 476-5601	jeffb@vailresorts.com
Wachusett Mountain Ski Area	MA	Tim McGuire	(978) 464-2300	tim@wachusett.com
Waterville Valley Resort	NH	Larry Hoffman	(603) 236-8311	lhoffman.wv@boothcreek.com
Welch Village Ski Area, Inc.	MN	Leigh Nelson	(651) 222-7079	
Whistler & Blackcomb	BC	Allana Ham	(604) 932-3141	ahamm@intrawest.com

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
Mountains				
Whistler & Blackcomb Mountains	BC	Arthur DeJong	(604) 932-3141	adejong@intrawest.com
White Pass Ski Area	WA	Kevin McCarthy	(509) 672-3101	kevin@skiwhitepass.com
Whiteface Mountain Ski Center	NY	Jay Rand	(518) 946-2223	jrand@whiteface.net
Whitetail Mountain Resort	PA	Lonny Whitcomb	(717) 328-9400	lwhitcomb@skiliberty.com
Wildcat Mountain Ski Area	NH	Tom Caughey	(603) 466-3326	tcaughey@ncia.net
Willamette Pass Ski Corp.	OR	Charles Wiper	(541) 345-7669	cw3@willamettepass.com
Williams Ski Area	AZ	Laird Moody	(928) 635-9330	
Windham Mountain Resort	NY	Daniel Frank	(518) 734-4300	dfrank@skiwindham.com
Winter Park Resort	CO	Jack Mason	(970) 726-5514	jack_mason@mail.skiwinterpark.com
Wintergreen Resort	VA	Bob Ashton	(434) 325-2200	bobashton@wintergreenresort.com
Wolf Creek Ski Area	CO	Davey Pitcher	(970) 264-5639	wcadmin@pagosa.net

APPENDIX B
ENVIRONMENTAL CODE OF THE SLOPES



SUSTAINABLE SLOPES

The environmental charter for ski areas

WHAT YOU CAN DO 6 Steps To Sustainable Slopes

1. PACK IT IN — PACK IT OUT

Leave nature how you found it.

2. RESPECT WILDLIFE

by observing trail closures and ski area boundaries.

3. SHARE A RIDE

so we can breathe fresh air and see the views.

4. BE CONSIDERATE

of others' experiences and let nature's sounds prevail.

5. GET INVOLVED

in your local resort or community's environmental programs.

6. SPREAD THE WORD

to your liftmates, friends and family.

www.nsaa.org

Get online at www.nsaa.org for participating resorts and events that promote Sustainable Slopes.