

RESOURCE CONFLICTS AND EXPANSION OPPORTUNITIES  
OF SKI AREAS IN OREGON AND WASHINGTON

by

KIRBY WAYNE GILBERT

A RESEARCH PAPER

submitted to

THE DEPARTMENT OF GEOGRAPHY

in partial fulfillment of  
the requirements for the  
degree of

MASTER OF SCIENCE

February 1983

Directed by  
Dr. Philip L. Jackson

TABLE OF CONTENTS

	<u>PAGE</u>
LIST OF FIGURES	
LIST OF TABLES	
ABSTRACT. . . . .	i
INTRODUCTION. . . . .	i
EXISTING SKI AREAS IN OREGON AND WASHINGTON. . . . .	2
Types of Ski Areas. . . . .	6
DEMAND FOR SKI AREA DEVELOPMENT. . . . .	8
Reasons for the Absence of a Destination Resort. . . . .	10
The Need for a Destination Resort. . . . .	12
BASIS FOR SUCCESSFUL DEVELOPMENT. . . . .	14
DEVELOPMENT/EXPANSION OPPORTUNITIES. . . . .	16
The Early Winters Proposal. . . . .	16
Bluewood's Recent Example. . . . .	17
Washington's Local Day Areas. . . . .	17
The Mission Ridge Potential. . . . .	20
The Mt. Bachelor Expansion. . . . .	20
The Mt. Hood Meadows Attempt. . . . .	21
The Mt. Bailey Potential. . . . .	23
The High Wallowas' Prospect. . . . .	23
CONCLUSION. . . . .	24
BIBLIOGRAPHY. . . . .	27

LIST OF FIGURES

<u>FIGURE</u>	<u>PAGE</u>
1. The Significant Ski Areas in Oregon and Washington. . . .	3
2. Skier Visitations in Oregon and Washington. . . . .	6
3. North American Yearly Number of New Ski Area Openings. . .	9
4. Skier Visitation at Selected Ski Areas in Washington. . .	18
5. Primary Market Zones for Puget Sound Local Day Areas. . .	19
6. Skier Visitation at Selected Ski Areas in Oregon. . . . .	22

## LIST OF TABLES

<u>TABLES</u>	<u>PAGE</u>
1. Oregon's Ski Areas. . . . .	4
2. Washington's Ski Areas. . . . .	5
3. The Classification of Ski Areas on the Basis of Market Served. . . . .	7
4. Basic Factors Involved in Successful Development. . . . .	15
5. Ratings for Expansion Potentials. . . . .	28

RESOURCE CONFLICTS AND EXPANSION OPPORTUNITIES  
OF SKI AREAS IN OREGON AND WASHINGTON

ABSTRACT: The ski areas of Oregon and Washington are similar in many respects, especially in that they are predominately local day areas and are located on United States Forest Service lands. The demand for more ski facilities is apparent yet the number of new areas opening has decreased over the years. Due to the specific physical, resource, and economic requirements, only a few sites have the desirable features for growth. While many of the 22 major ski areas within the two have potential for growth, none will probably ever reach the size and status destination resorts such as Sun Valley, Idaho and Vail, Colorado are. Mt. Bachelor, Mission Ridge, and the Early Winters site appear to be the areas that have the greatest potential for growth in Oregon and Washington.

INTRODUCTION

This paper will look at the downhill ski areas of Oregon and Washington along with a recent proposal for a new ski area in terms of expansion opportunities and conflicts. The objective of this study is to compile and present information necessary for evaluating the potential constraints and opportunities for expansion of the ski areas of the two states. This type of assessment is presently done at the local scale for ski areas in the Pacific Northwest, however, since final decisions concerning expansion rest with the regional forester, a region wide study might help in proper management decisions.

Due to many physical site constraints, resource conflicts, and competition among other recreational users only a few ski areas are suitable for expansion into a large regional resort. Many factors

such as size of parking areas, sewage disposal capabilities, amount of available ski terrain, and land-use conflicts hamper expansion plans at many areas.

#### EXISTING SKI AREAS IN OREGON AND WASHINGTON

Oregon and Washington are very similar in terms of their developments in the ski industry. Around seven percent of Oregon's 1980 population of 2,632,663 are downhill skiers and some seven and one half percent of Washington's 1980 population of 4,130,163 are downhill skiers (Oregon State Parks and Recreation Branch 1978; Borgersen 1982). Both states have eleven ski areas of significance (Figure 1)(Tables 1 & 2). Virtually all areas within the two states are located on United States Forest Service (U.S.F.S.) land. It is not all that unusual that ski areas in western states are under U.S.F.S. jurisdiction. What is unusual about Oregon and Washington ski areas is that not only are the slopes and lifts on Forest Service lands, but the base areas of each site are also on Forest Service lands (Stonehill 1969). Thus, the final decision for any development rests with the regional forester in Portland for areas on National Forest land in Oregon and Washington. For each state the figures for skier visitor days are similar. In the 1981-82 season Oregon had around 1.2 million skier days while Washington had around 1.6 million (U.S.D.A. Forest Service 1982). The amount of annual skier days has increased over the years with just brief interruptions due to drought (Figure 2). Other similarities between the two states ski areas include mountain topography and winter climates. Indeed, most of the ski areas are found in the Cascades and all can experience undesirable rain for brief periods in the winter season.

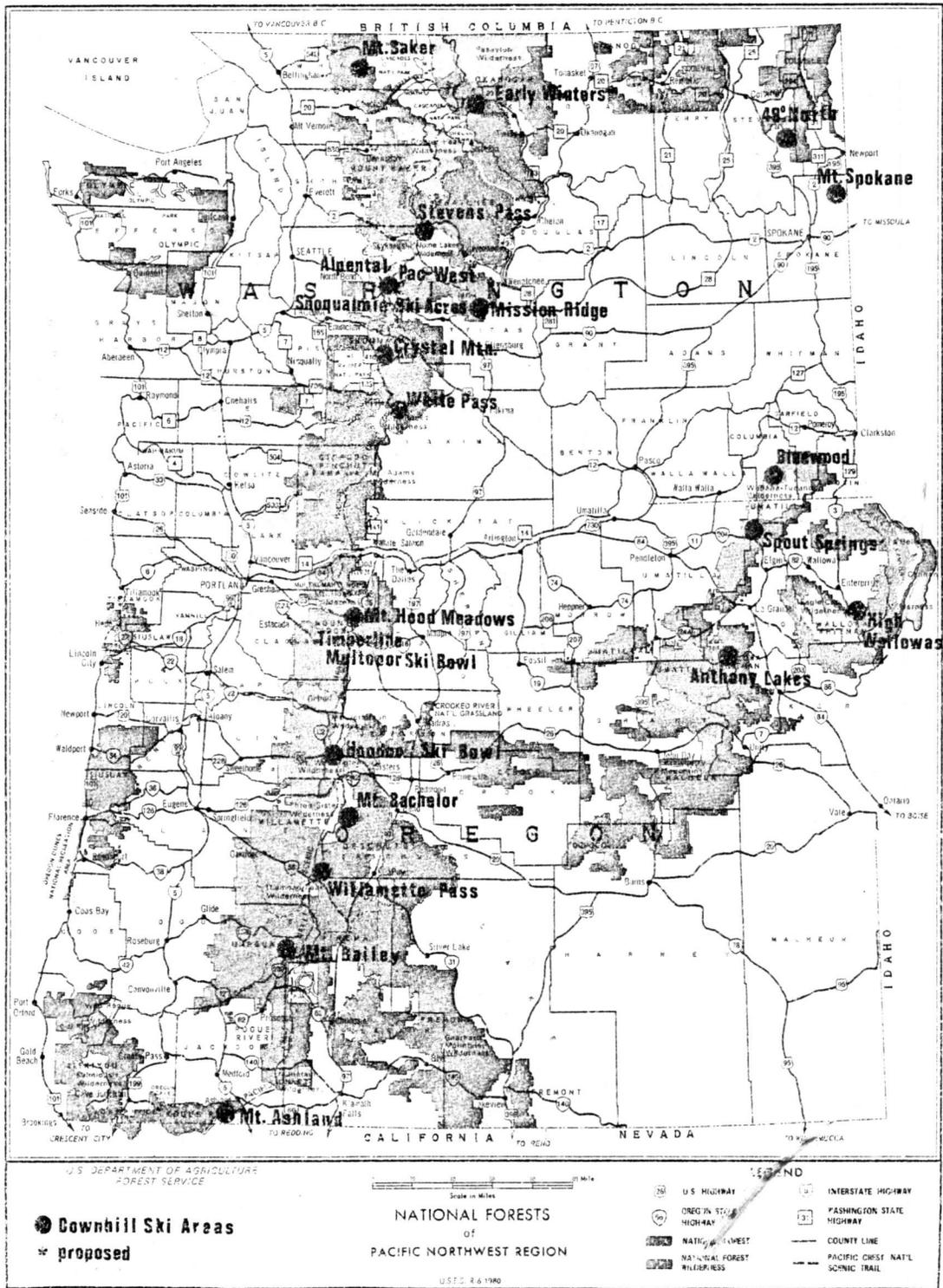


Figure 1 - The Significant Ski Areas in Oregon and Washington.  
 Source: adapted from U.S.F.S. Region 6 base map

Table 1 - Oregon's Ski Areas

	Mt. Hood Meadows	Timberline	Multitorpor Ski Bowl	Hoodoo Ski Bowl	Mt. Bachelor	Willamette Pass	Mt. Ashland	Anthony Lakes	Spout Springs	High Willowas	Mt. Bailey
LOCATION (road miles)	68 - Portland	60 - Portland	53 - Portland	86 - Eugene 92 - Salem	22 - Bend 180 - Portland	70 - Eugene	9 - (I-5) 22 - Ashland	42 - La Grande 40 - Baker	44 - Pendleton 40 - Walla Walla	12 - Enterprise 76 - LaGrande	125 - Eugene 85 - Klamath Falls
BASE EL. (ft)	5,300	6,000	3,600	4,668	6,300	5,141	6,600	7,100	4,950	4,400	5,500
EXPOSURE	EAST	SOUTH	NORTH	EAST	NORTH +	SOUTH	EAST	EAST	SOUTH	NORTH	EAST/WEST
VERTICAL (feet)	2,777	2,000 +	1,400	1,035	1,700	1,525	1,150	900	550	3,800	2,800
# and TYPE of LIFTS (chairlifts)	7 Doubles 1 rope	5 Doubles 2 ropes	4 Doubles 2 ropes	3 Doubles 2 ropes	4 Triples 5 Doubles	1 Double 1 rope	2 Doubles 1 T-bar 1 Poma	1 Double 1 poma	2 Doubles 2 T-bars 1 rope	1 Gondola snowcats	Snowcats
VTF <sup>a</sup>	6,860,000	4,233,000	2,744,000	2,279,400	12,690,000	1,448,750	2,448,375	1,043,720	1,718,400	547,200	~100,000
SKIING ACREAGE	980	1,000	440	85	4600 <sup>ground</sup> 3,360 Permit	400 - Permit	80	60 304-Permit	<100	118	650
DAILY <sup>b</sup> CAPACITY	9,600	2,500 800summer	2,500	2,000	10,000	900	3,500	1,000	1,322	~150	20
NIGHT SKIING	YES	YES	YES	SOME	NONE	SOME	NONE	NONE	YES	NONE	NONE
LATEST <sup>c</sup> YEARLY TOTALS	305,210	152,841	81,109	38,114	518,743	6,973	79,253	29,776	19,993	1,300	1,200
PERCENT OUT OF STATE	~10%	~10%	~10%	-	30%	-	20%	28%	-	20%	30%
SEASON LENGTH	165 days	~330	130	~120	175	~120	125-145	121	~120	-	100
SNOWFALL <sup>d</sup> AVERAGES	200 in.	252 in.	300 in.	120 in.	192 in.	300 in.	100 in.	120 in.	110 in.	30 in. base	225 in.
# EMPLOYEES	35 summer 350 winter	125 summer 200 winter	-	-	70 yr. round 500 winter	30	85 - 100	60	-	-	45
LAND OWNERSHIP	Mt. Hood National Forest	Mt. Hood National Forest	Mt. Hood National Forest	Willamette National Forest	Deschutes National Forest	Willamette National Forest	Rogue River Nat'l Forest	Wallowa-Whitman Nat'l Forest	Umatilla National Forest	Wallowa-Whitman & Private	Umpqua National Forest
POTENTIAL EXPANSION PLANS	Yes - extensive	No	Yes - 2 chairs	No	Yes - extensive	Yes - chairlift	No	Yes - chairlift	No	Yes - 3 chairs	Yes - 3 chairs

a - Vertical Transport Feet (Sum of each lift's hourly capacity times its vertical rise)

b - An estimate based on VTF/hr, scope of skiing, difficulty of terrain, & various abilities of the skiers (from each Area)

c - From U.S.F.S. Region 6 statistics (based on ticket sales and car counts)

d - From "The White Book" Inter-Ski Services, 1981

Table 2 - Washington's Ski Areas

	Mt. Baker	Stevens Pass	Alpentail	Snoqualmie-Ski Acres	Pac-West	Crystal Mtn.	White Pass	Mission Ridge	49° North	Mt. Spokane	Bluewood
LOCATION (road miles)	56 - Bellingham	75 - Seattle 55 - Wenatchee	52 - Seattle	53 - Seattle	60 - Seattle	78 - Seattle 39 - Enumclaw	159-Portland 146-Seattle 54-Yakima	13 - Wenatchee 135-Seattle	10 - Chewelah 80-Spokane	35 - Spokane	53-Walla Walla 23-Dayton
BASE EL. (ft)	3,600	4,000	3,200	3,000	2,800	4,400	4,500	4,500	3,928	4,367	4,470
EXPOSURE	NORTH	NORTH	EAST +	NORTH	NORTH	EAST +	NORTH	NORTH-EAST	EAST	SOUTH	NORTH
VERTICAL (feet)	1,500	1,800	2,200	900	1,260	2,600	1,500	2,140	1,845	1,514	1,200
# and TYPE of LIFTS (chairlifts)	6 Doubles 4 ropes	2 Triples 6 Doubles	4 Doubles 1 Poma 2 ropes	2 Triples 12 Doubles 1 Single	3 Doubles	1 Triple 6 Doubles	3 Doubles 1 Poma 1 rope	4 Doubles 3 ropes (snowmaking)	4 Doubles	5 Doubles 1 rope	1 Triple
VTF <sup>a</sup>	7,165,660	6,884,340	4,158,218	8,813,418	2,109,578	10,409,760	3,297,390	4,260,450	4,761,950	5,161,860	2,499,000
SKIING ACREAGE	1,000	1,000 2,209 - Permit	373 700 - Permit	500	371	1,681 4,560 - Permit	300	2,500	790	320	70 700 - Permit
DAILY <sup>b</sup> CAPACITY	5,000	9,000	2,100	10,000	2,000	8,000	2,750	3,000	2,100	3,000	1,500
NIGHT SKIING	No	Yes	Yes	Yes	Yes	Some	Some	Some	No	Yes	No
LATEST <sup>c</sup> YEARLY TOTALS	122,665	340,205	94,334	342,900	68,393	225,161	102,684	99,633	67,848	100,000	33,919
PERCENT OUT OF STATE	65%	2%	-	-	-	~15%	5%	10%	-	-	30-70%
SEASON LENGTH (days)	95	120	120	120	100	130	150-160	120	120	120	100-119
SNOWFALL AVERAGES <sup>d</sup>	500 in.	120 in.	160 in.	170 in.	140 in.	204 in.	100-150 in.	60 in.	120 in.	192 in.	300 in.
# EMPLOYEES	9 Full 35 Part	up to 400	-	-	-	165	80-90	150	-	200	up to 60
LAND OWNERSHIP	Mt. Baker Snoqualmie Nat'l Forest	Mt. Baker Snoqualmie Nat'l Forest	Mt. Baker Snoqualmie Nat'l Forest	Wenatchee Nat'l Forest & Private	Private	Mt. Baker Snoqualmie Nat'l Forest	Wenatchee National Forest	Wenatchee Nat'l Dept. Game & Private	Colville National Forest	Mt. Spokane State Park	Walla Walla National Forest
POTENTIAL EXPANSION PLANS	Almost Fully Expanded	Double Present Capacity	1 or 2 chairs	None Fully Expanded	None	Double Present Capacity	1 Chair in permit boundry	3 chairs- New Base Area	-	none	only if needed

- a - Vertical Transport Feet (Sum of each lift's hourly capacity times it's vertical rise)
- b - An estimate based on VTF/hr, scope of skiing, difficulty of terrain, & various abilities of the skiers (from each area)
- c - From U.S.F.S. Region 6 statistics (based on ticket sales and car counts)
- d - From "The White Book" Inter-Ski Services, 1981

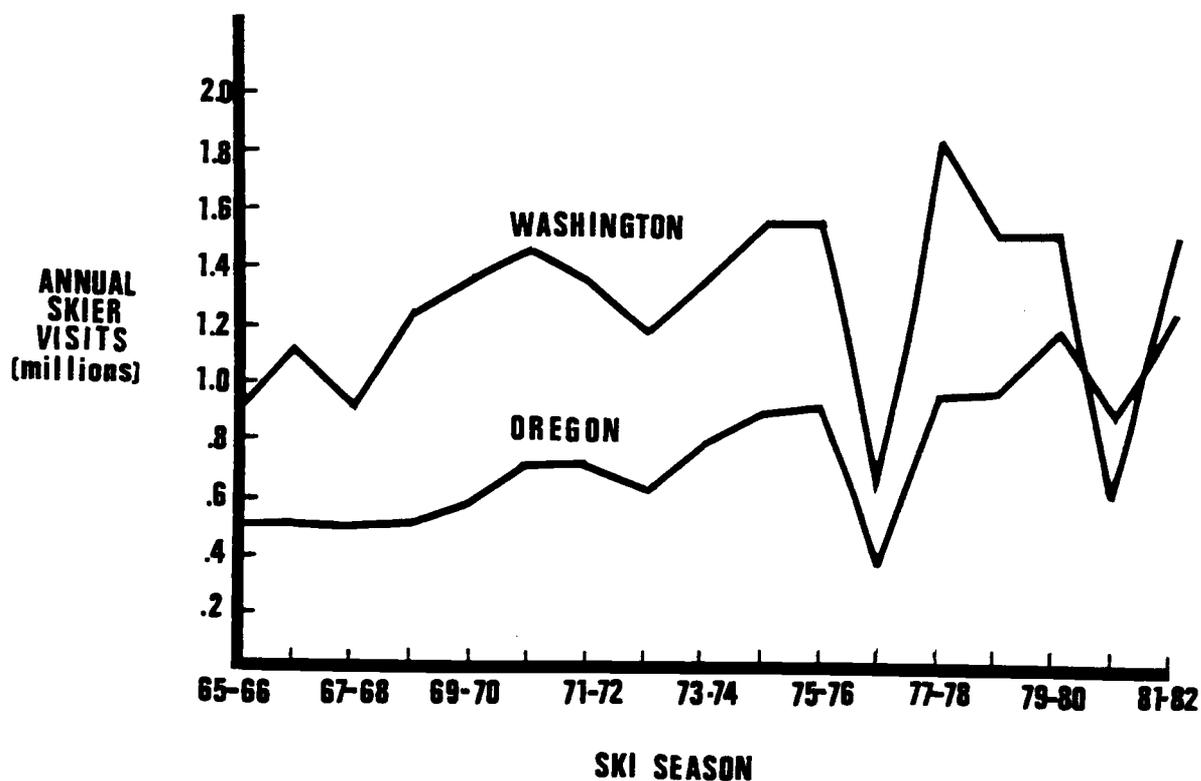


Figure 2 - Skier Visitations in Oregon and Washington.  
Source: U.S.F.S. Region 6 statistics 1982

One major similarity is that almost all areas within the two states are primarily visited by in-state residents. Another similarity is that most areas lack close by lodging and experience low mid-week attendance. Because of these similarities and the proximity of most areas to major population centers virtually all ski areas found here are classified as local day areas (Table 3).

#### Types of Ski Areas

The local day area is usually a small or minor area. Skiers come from residences within two or two and one half hours driving distance (Borgersen 1982). If it is remote enough, it may operate only on weekends and holidays such as is found at Mt. Baker and the High Wallows. All but three ski areas found in these two states are usually classified as local day areas. The exceptions are Mt. Bachelor, Mission Ridge, and Mt. Bailey which are considered regional areas. This type classification is not all that clear cut in that areas such as Timberline and Crystal

Table 3 - The Classification of Ski Areas on the Basis of Market Served

CLASSIFICATION OF SKI AREAS: MARKET SERVED			
	<u>Local</u>	<u>Regional</u>	<u>Destination Resort</u>
1. Sales Promotion	Local	Regional	National- International
2. Size	Small to Medium	Medium	Major
3. Lodging in Area	Not Essential	None or Limited	Extensive
4. Lodging Nearby	Not Essential	Essential	Not Essential
5. Summer Operation	None	None or Limited	Extensive
6. Convention Facilities	None	None or Limited	Extensive
7. Private Homes & Condominiums	None	None or Limited	Extensive
8. Stores & Shops	Small	None or Limited	Extensive
9. Night Skiing	Extensive	Limited	Not Essential
10. Operating Schedule Weekly	2-7 Days	7 Days	7 Days
11. Market Served	125 Miles	300 Miles	Unlimited
12. Other Recreation Opportunities	Limited	Considerable	Extensive
13. Variety of Terrain	Limited	Extensive	Extensive

Source: Borgersen (1982), p. 34

Mountain do attract the vacation skier to some extent besides being local day areas.

The regional area draws on a local population residing within two or three hours driving time, plus a secondary market as far as four or five hours driving distance away. The regional ski area usually relies on a nearby community to provide lodging, supporting facilities and services (Borgersen 1982). Thus, Mt. Bachelor depends on Bend while Mission Ridge depends on Wenatchee. The nearby ski area of Schweitzer Basin, Idaho is also a regional area relying on the town on Sandpoint, Idaho. Schweitzer's market area extends well into Washington state since Spokane is only 75 road miles away.

The destination area, lacking within this region, is often isolated and attracts visitors from great distances. Skiers found here are usually on vacation and spend at least three or more nights (Borgersen 1982). Examples of destination resorts include Sun Valley, Idaho, Vail, Colorado, Mammoth, California, and the Whistler/Blackcomb complex 80 miles north of Vancouver, British Columbia. The proposed Early Winters area in the North Cascades of Washington has the potential of becoming a destination resort. Mt. Bachelor is reaching destination classification in terms of it's drawing on a large California market, yet lack of housing development near it's base area may limit it to being a regional area.

#### DEMAND FOR SKI AREA DEVELOPMENT

The ski industry in the United States has experienced an average annual growth of 10 - 15 percent during the past ten years (Borgersen 1982). Not only have national skier days risen from some 41 million in 1974-75 to 53 million in 1981-82, but the number of skiers has risen from 6.6 million downhill enthusiasts to 15.5 million in the same period (Ahearn 1983). During that same period the number of cross-country skiers has risen from around one million to four million (Ahearn 1983). In 1974-75 roughly 3.2 percent of the American population skied, while in 1981-82 roughly 6.7 percent skied (Ahearn 1983). Around 7.0 percent of the population of Oregon and Washington ski. In the Puget Sound region some 14.8 percent of the population ski.

With these increases in skiers and skier visits, many areas have expanded but the number of new areas opening has not kept up (Figure 3). The opening and developing of new areas is becoming increasingly difficult because of environmental constraints, less favorable locations, access considerations, and high capital costs. The Northwest is no exception to

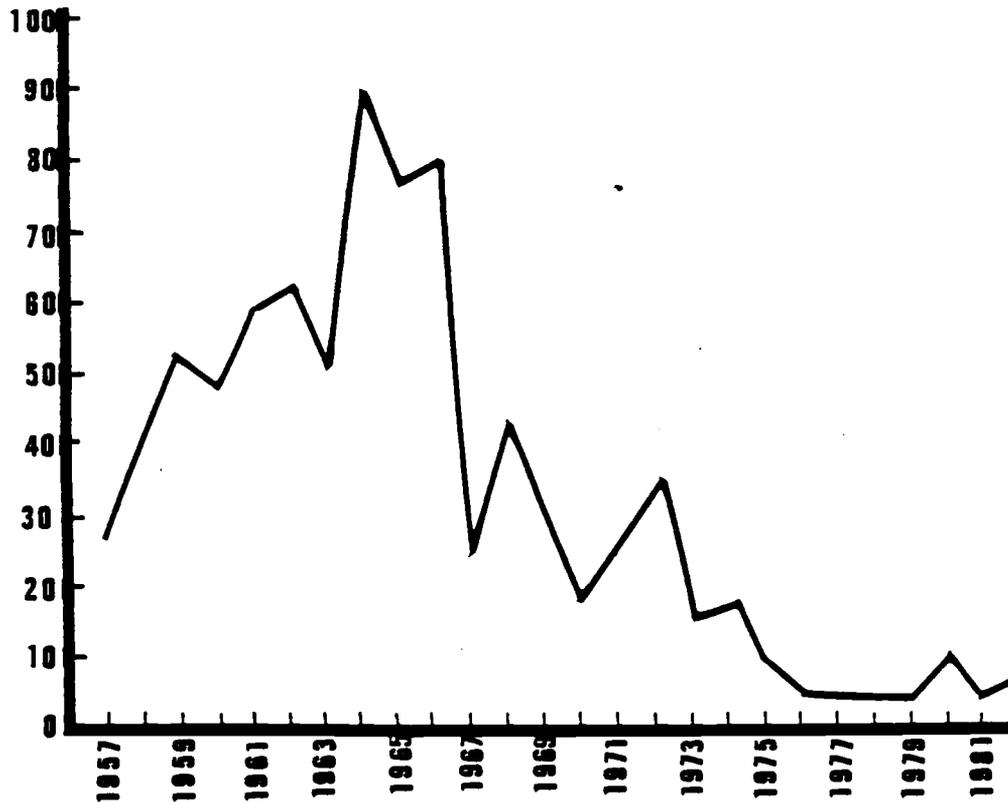


Figure 3 - North American Yearly Number of New Ski Area Openings.  
Source: Borgersen (1982) p. 48

this trend. Bluewood is the newest area in the region, opening in the 1979-80 season. Bluewood, in southeastern Washington, was not only the first area to open on U.S.F.S. land since 1972 but also the first new ski area to open in the Northwest since 1968 (Keil 1982).

Since new areas are not keeping pace with growth in the ski industry, existing ski areas have expanded in response. The overall annual increase in growth, considering new lifts, increased skiers, and increased lift ticket revenues, is estimated at eight percent for the ski industry of the Northwest (Borgersen 1982).

The amount of new lifts installed peaked in 1967 with 13 new lifts in the Northwest (U.S.D.A. Forest Service 1970). Increasingly, ski areas

are installing higher capacity triple chairlifts verses the standard double chairlift found at most areas. Nationally, triple chairlifts accounted for 28 percent of all new chairlifts installed in 1978, 45 percent in 1981, and 64 percent in 1982 (Ski Area Management 1983). This has been a direct response to meeting an increase in demand for skiing. Growth of increased lift capacity in Oregon and Washington has been slower than the national averages (U.S.D.A. Forest Service 1970). This is partly due to the fact that the Northwest has no destination resorts. Destination resorts tend to be the type of ski area which is growing the fastest. It seems that since tourism is the third largest industry in both Oregon and Washington, development of a destination resort would appear to be a profitable endeavor. The absence of a complete ski resort in Oregon and Washington is due to five major factors.

#### Reasons for the Absence of a Destination Resort

The first factor is that the existing ski areas are all close to population centers and easily reachable in approximately a two-hour drive or less. The second factor is that competitive resorts in Idaho, Montana, Colorado, Utah, and California have attracted the large eastern, mid-western, and southwestern markets, which are all closer than west coast ski areas (Borgersen 1981).

A third factor in the absence of destination ski resorts in the Pacific Northwest is that the coastal type climate found here is not ideal for resort development. Weather is the largest single factor affecting the attendance and success of a ski area (Borgersen 1981). Storms, white-outs, winds, rain, excessive icing, and combinations of these factors can adversely affect attendance at any ski area. Most

of the ski areas in Oregon and Washington have snow with a higher water content than snow which falls in the dryer continental climates of Colorado and Utah. This type snow is not as desirable for skiing as the dryer snows of the inter-mountain regions. Not only is the snow heavier and wetter but the amount of sunshine is less than in Rocky Mountain ski resorts. Average sky cover in Ellensburg, Washington is 81 percent in December while Denver, Colorado has a figure of 53 percent in December (U.S.D.A. Forest Service 1970). These types of weather patterns will dictate the success of a regions ski areas to a great extent.

The fourth factor involved in the success of a destination resort is the availability of developable private land within ten miles of the ski area (Stonehill 1969). Private land can be developed into overnight lodging facilities which will increase needed mid-week attendance by attracting vacationers. Not only can lodging help with mid-week attendance, but if developed enough it can also bring in summer attendance, especially if the facilities are capable of holding small business meetings and conferences. The sub-division of private land can also provide the operators a financial base on which to operate the ski area with a reasonable financial return (Stonehill 1969).

Most of Oregon and Washington ski areas are completely (or mostly) on U.S.F.S. land. Restrictions imposed by the U.S.F.S. are not conducive to the development of lodging units on public land. Studies show a positive correlation between the number of beds within a ten-mile radius of an area and the profitability of the area (Closser 1980). Thus many ski areas in Oregon and Washington are not all that profitable. Many ski area operators continue in business hoping for substantial returns in

the future. Another reason for many operators tenaciousness to continue in business has been speculated to be that they enjoy the type of work environment a ski area can offer (Stonehill 1969).

The fifth and final factor involved in the lack of destination resorts in the Northwest is that large weekend and holiday attendance, as found in Oregon and Washington ski areas, is not all that conducive to attracting vacationing skiers from a great distance (Borgersen 1981).

#### The Need for a Destination Resort

Many skiers from Oregon and Washington take short vacations at Whistler/Blackcomb, Schweitzer Basin, Mission Ridge, and Mt. Bachelor. Others prefer their winter vacations at Sun Valley, Aspen, and Lake Tahoe. These trips require considerable time and money and therefore a large portion of the skiing public must forego them. Recent proposals for destination resorts at Early Winters and Mission Ridge represent attempts to meet the needs of all skiers in the Northwest.

The growth of skiing is expected to continue during the next 20 years, though the actual rate of growth may gradually decrease. The greatest growth will probably occur in destination ski areas and in developed cross-country and touring areas (Borgersen 1981). There are many indications that the potential for expansion of destination resorts in Colorado, Idaho, and Utah is limited (Borgersen 1981). Many destination areas capacities can be increased, yet the planned capacity may have already been reached at many destination resorts.

Annual growth of the ski industry in the Northwest is estimated at eight percent. At a rate of ten percent growth in skier days, in an estimated seven years, existing ski areas will all be saturated (Borgersen 1981).

The state of Washington realized that growth was occurring and recently formed the Washington Winter Recreation Commission. Its' key role is to facilitate the development of destination facilities in the state.

The most recent controversy is the Early Winters proposal. Early Winters is the name of a proposed destination ski resort in the Methow Valley, 120 miles north of Wenatchee. The mountain, Sandy Butte, has most of the necessary physical features appropriate for a ski resort. The Aspen Corporation attempted to get a permit to develop a major destination resort on Sandy Butte in the 1970's. Due to strong local opposition, they took their efforts to a cooperative British Columbian Provincial Government (Ski Area Management 1982). In Canada, they helped develop a multi-million dollar destination ski resort; Blackcomb, next to the already well established Garibaldi Whistler Mountain ski area. This development opened in the 1981-82 season with a complete village, 19 lifts, and a combined daily capacity of some 13,500 (Patty 1982). Over 200 million dollars was spent by the private sector while about 11 million dollars was allocated by Federal-Provincial government grants (Patty 1982). This giant complex attracts many skiers from Oregon and Washington. Seattle is only 250 miles away. One big attraction offered by the two areas is the huge vertical drops and long trail skiing serviced by the two mountains' lift systems. Whistler's vertical rise is the greatest found at any North American ski area; 4,800 feet (Patty 1982). Blackcomb's mountain offers the continents third largest vertical rise at 4,019 feet.

All these previously mentioned factors would seem to indicate that a small scale destination resort would be a successfull endeavor in

Oregon or Washington. A ski area can bring many benefits to a local community. Often, small communities experience increased employment, increased tax revenue, and a more diversified economy as the result of a nearby ski area. Many factors are involved in the successful development of a destination resort.

#### BASIS FOR SUCCESSFUL DEVELOPMENT

There are many factors essential for the successful development of a ski area. Some inadequacies can be overcome. For instance, snow-making equipment can supplement snowfall in dryer years. Nevertheless, there are many physical, resource, and economic factors which must be carefully studied. Considering environmental constraints, the high capital investments necessary and the long term land-use commitments a ski area imposes, only a few sites should be developed today. Table 4 identifies the basic physical, resource, and economic/marketing factors involved in the success of a particular area. After a site meets Forest Service approval as to its physical, resource, and economic potentials and has gone through the environmental hearing process, the Forest Service then utilizes four basic criteria to select a permittee to operate a ski facility. The four are (Okanogan National Forest 1982):

1. Kind and quality of services to be offered
2. Financial capability
3. Experience and qualifications in relation to proposed use
4. Ability to perform according to permit terms

When many of the factors in Table 4 are not in the desirable category, a poorly situated area will be forced to close. Some areas in Washington have closed and actually dismantled and sold the chairlifts. Mt. Pilchuck, outside of Everett, was just at too low a base elevation (2,540 feet) to offer much of a ski season. It closed after the drought season of 1976-77. Yodelin, two miles east of Stevens Pass, closed because of drought years

Table 4 - Basic Factors Involved in Successful Development

<u>PHYSICAL FACTORS</u>	<u>DESIRABLE</u>
Temperature Ranges	0 - 30°F (Winter)
Wind Characteristics	Light
Cloud Cover Frequency	No more than 50%
Amount of Snowcover	100 inches
Period of Snowcover	Nov. - May
Snow Texture	Dry at least 50% of Season
Vertical Rise	3,000 feet
Slope Aspect	Primarily North
Slope Topography	Wide ranges of challenge
Slope Continuity	Consistent fall-lines
Avalanche Potentials	Low frequencies
Density of Vegetation	Low densities and scattered
Slope Protection	Natural wind breaks
Ground Surface Conditions	Stable with porous surfaces
Base Area Topography	Flat and large
<u>RESOURCE INTERACTIONS</u>	<u>DESIRABLE</u>
Land Use Compatibility	Zoned recreation, some residential
Transportation Systems	All weather roads, Airport
Electrical Power Availability	Near by source
Water Supply	Available in winter
Sewage Treatment Capabilities	Sewage treatment access
Soil Resources	Stable from slumpage
Air Quality	Few climatic inversions
Visual Resources	Out of visual corridors etc.
Vegetation	No endangered species
Wildlife	Mostly grazer species
Mineral Resources	None or already exploited
Cultural Resources	Few archeological sites
Public Services	Large local infrastructure
Sociological/Demographic Structure	A need for employment
Recreational Resources	Demand for winter sports
<u>ECONOMIC AND MARKETING FACTORS</u>	<u>DESIRABLE</u>
Ease of access	Quality roads, proximity to Pop.
Availability of private land at base area	Lots of sub-dividable land
Demand for skiing in market area	Disposable income, leisure time
Financing	Low interest rates
Market areas economy	Not depressed
Local acceptance	Little opposition
Cost/Return ratio	Adequate
Current land-use	Compatible
Esthetic qualities	Scenery attractive
Management capabilities	Employee training, efficiency
Services provided	Numerous i.e. Child Care, rentals
Amount of grooming	Extensive
Other recreational opportunities	Nordic/Ice skating/other
Summer operation	Conferences, summer activities
Mid-Week attractiveness	"Village development"-Vacationers
Lodging capabilities	Extensive
Après ski amenities	Restaurants, lounges, dancing
Parking and local transportation	Nearby and convenient
Other amenities	Video services, mtn. hostesses

and severe competition with the Stevens Pass ski area (Personal communication with William Fessel). The nearby Mt. Shasta ski area, in northern California, closed permanently after the 1977-78 season. Destructive avalanches were just too common within the ski area boundary.

Some of the more important factors concerning expansion of existing ski areas in the Northwest are sewage disposal capabilities, availability of close by parking terrain, road access capabilities, and public opposition.

#### DEVELOPMENT/EXPANSION OPPORTUNITIES

##### The Early Winters Proposal

The Early Winters proposal is attractive in terms of many physical, resource, and economic factors. The preferred alternative, as identified in the Draft Environmental Impact Statement, is for the area to eventually have about 4,000 feet of vertical rise, 695 acres of skiing terrain, 16 chairlifts, and a daily capacity of 10,500. Some 700 employees will be needed and the projected skier visitation figures are expected to reach 683,000 annually by the year 2000 (Okanogan National Forest 1982). The site chosen does have the much needed large flat private land parcels at the base. This land is probably developable in that the area has been identified as a recreation area by the Okanogan County Comprehensive Plan (Okanogan National Forest 1982). A major problem with the proposed development is that the North Cascades Highway is closed in the winter making the area less easily accessible from the heavily populated western side of the Cascades. Other problems include local opposition from a small group of residents who moved to the Methow Valley to get away from the pressures of population growth and the urban-residential way of life. The site is also in an area that could be harvested for timber resources. A one time yield of 6.6 million board feet would be gained but the acres devoted to skiing will be removed from long term timber harvest (Okanogan National Forest 1982). As is usually the case, the sewage disposal factor

represents an important issue to be dealt with. High mountain soils are generally thin and human sewage fed into septic tanks and drain fields can find it's way into streams far more easily than in low-land locations (White 1978).

#### Bluewood's Recent Example

The recent development of Bluewood has shown how many mitigation factors associated with development have to be worked out to satisfy all interested parties. Since the area is located in an important mountain watershed, water quality was of prime importance (Umatilla National Forest 1973). Sewage is stored in tanks and transported weekly to nearby treatment facilities in Dayton, Washington (Umatilla National Forest 1973). Since the area had a limited amount of flat base area and water quality was an important issue, an upper tributary of the North fork of the Touchet river had to be diverted in a mile long culvert. Electric power was not readily available so a large generator was installed to power the operation (Keil 1982). Due to these and other constraints, the area will probably always remain a local day area. This applies to many existing ski areas in the Northwest.

#### Washington's Local Day Areas

For many reasons, the day areas of Stevens Pass, Crystal Mountain, Mt. Baker, White Pass, 49<sup>o</sup> North, Mt. Spokane, Mt. Ashland, Anthony Lakes, Spout Springs, Willamette Pass, Hoodoo Ski Bowl, the Mt. Hood areas (Multnorpor-Timberline-Mt. Hood Meadows), and the Snoqualmie Pass areas (Alpental, Snoqualmie/Ski Acres, Pac-west), are all probably destined to remain local day areas for nearby communities. Stevens Pass, Crystal Mountain, and Mt. Hood Meadows have all dramatically increased their annual skier visits in recent years through the installation of

more lift capacity (Figures 4 & 6). Stevens Pass and Crystal Mountain

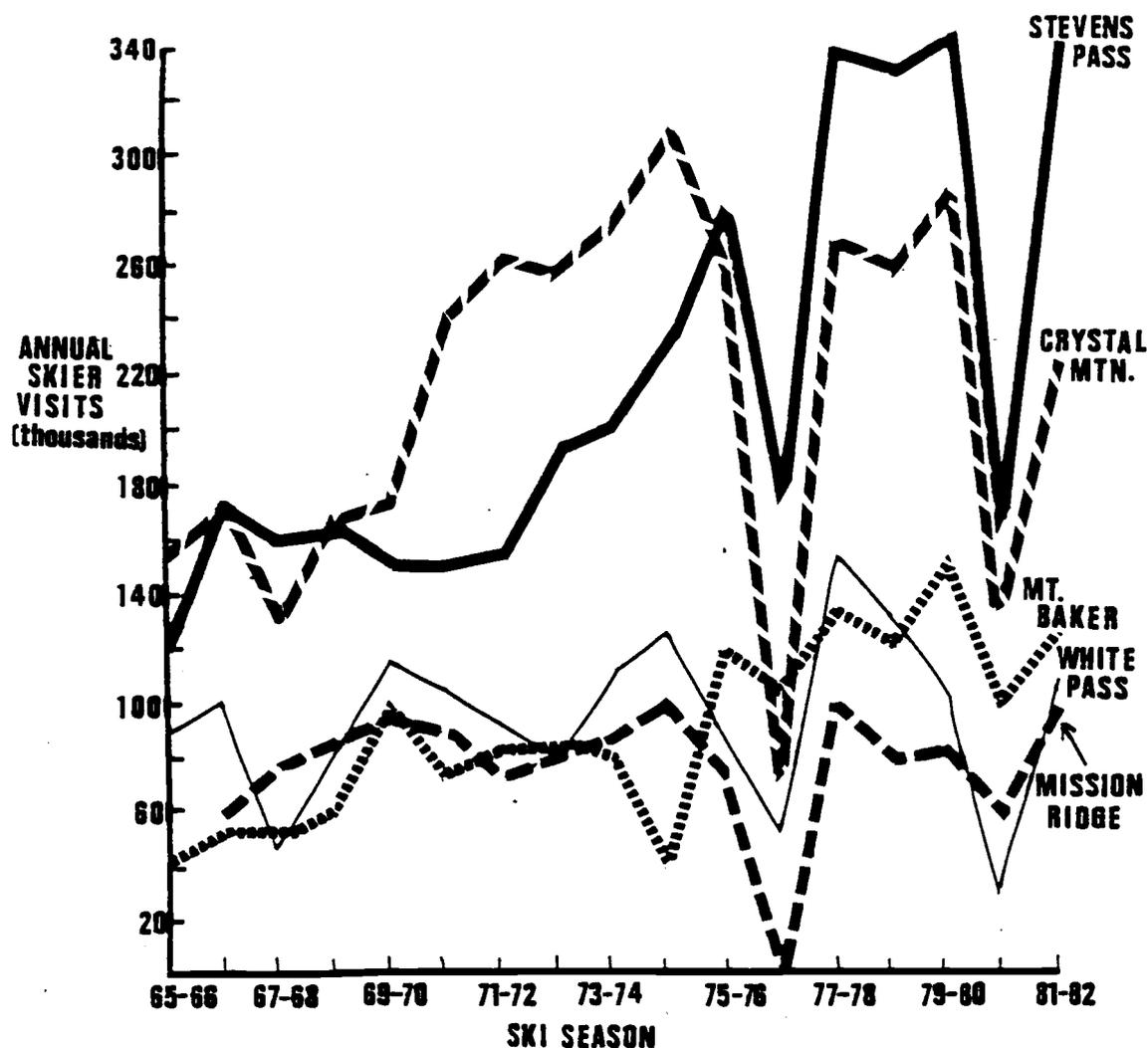


Figure 4 - Skier Visitation at Selected Ski Areas in Washington.  
Source: U.S.F.S. Region 6 statistics 1982

both have the potential for more expansion and in spite of their lacking private land they are attempting to increase overnight housing capabilities. The major markets for these two areas and other day areas in Washington is depicted in Figure 5. Mt. Baker has almost reached it's potential expansion possibilities, while White Pass has little room for expansion due to the nearby Goat Rocks Wilderness boundry (Personal Communication with Mike Dolfay). The Snoqualmie Pass areas have just about reached their physical potential for expansion, while Alpentel, in the Snoqualmie Pass region,

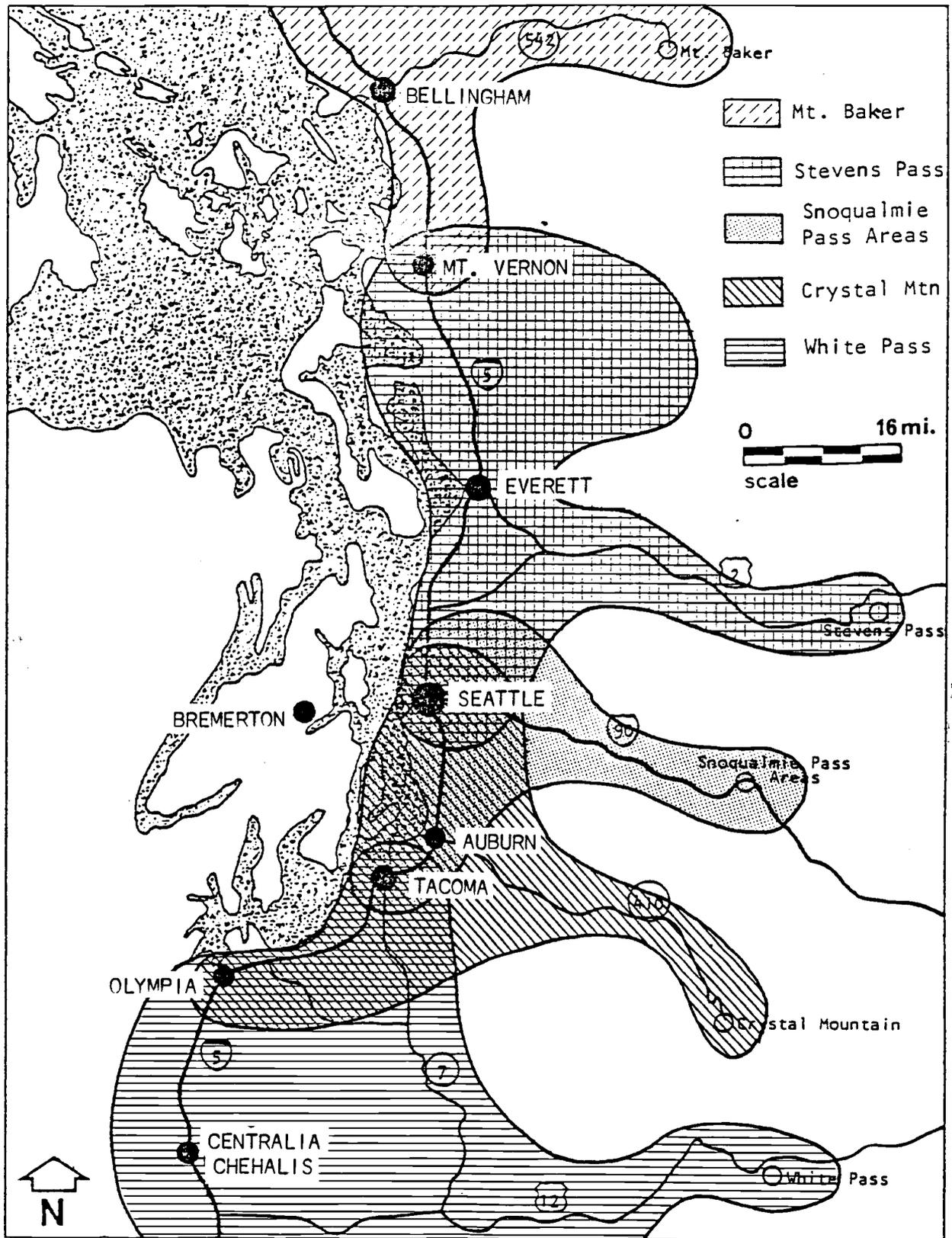


Figure 5 - Primary Market Zones for Puget Sound Local Day Areas.  
Source: Borgersen (1982), p. 37

is lacking adequate parking areas and also has a nearby Wilderness boundary constraining further development.

#### The Mission Ridge Potential

Mission Ridge is an area with good potential to develop into a small destination facility. It has the necessary flat private land within a mile of its present base area (Borgersen 1981). Due to its location east of the Cascade crest, the area also enjoys dryer snow than most other areas in the Cascades. With Wenatchee nearby, some 2,000 beds are available (Borgersen 1981). It is proposed that if the area is to expand at all, a village development will be necessary to increase mid-week attendance and subsequently, lift revenues. As is true with most Northwest areas, mid-week attendance must be increased to economically substantiate development. The main constraint to development so far has been the limited size of the parking area.

#### The Mt. Bachelor Expansion

Mt. Bachelor, in central Oregon, has probably the greatest potential for expansion in the Northwest. With recent Forest Service approval, the area is planning on doubling their present daily capacity (Personal correspondence with Cindy Low). A new chairlift is planned to reach the summit of Mt. Bachelor by next year. This lift will not only just about double the present vertical rise, but also allow late spring and early summer skiing. The capacity of the access road to the area (Century Drive) is not sufficient to carry the expected loads more skiers will impose. Therefore, the criteria Mt. Bachelor must meet is to increase mass transit from the Bend area by some 30 percent. Other options include the staggering of lift openings and closures (Deschutes National Forest 1981). The Mt. Bachelor expansion of recent years has brought

a dramatic increase in annual skier visits to the area (Figure 6). Recent extensive summer grooming, combined with the areas high base elevation have brought about good skiing conditions and a dramatic rise in attendance, even during the drought year of 1980-81. Mt. Bachelor's influence on the community of Bend is significant. About 16 percent of the Bend' areas work force is directly related to the ski industry (Personal correspondence with Cindy Low). By 1995, Mt. Bachelor's expansion program will be complete. With two new base areas and eight new lifts, the daily capacity will be 22,000. An estimated 5,000 new jobs will be created as a result of the expansion.

#### The Mt. Hood Meadow's Attempt

The Mt. Hood Meadows area, recognizing the need for increased mid-week attendance, has recently attempted to develop nearby private land in Parkdale, Oregon (17 miles away). Currently, Government Camp offers limited housing opportunities for skiers in this region. Mt. Hood Meadows owns some 840 acres of land in the Parkdale area which they have tried to develop a portion of into a small village resort. They have been denied a development permit under Oregon Land Conservation and Development Commission's preservation of agricultural land goal (Oregonian 1979). Local opposition by area orchardists and the 1,000 Friends of Oregon group has also hampered prospects for development. This project would be expected to bring some 110 new year around jobs to the area besides generating an estimated one half million dollars in annual property tax payments to the county of Hood River (Oregonian 1979). The Mt. Hood Meadows ski area has experienced increased visitation in the last few years (Figure 6) and has plans for expansion in the next 10 - 12 years. A new base area and eight new lifts are allowed

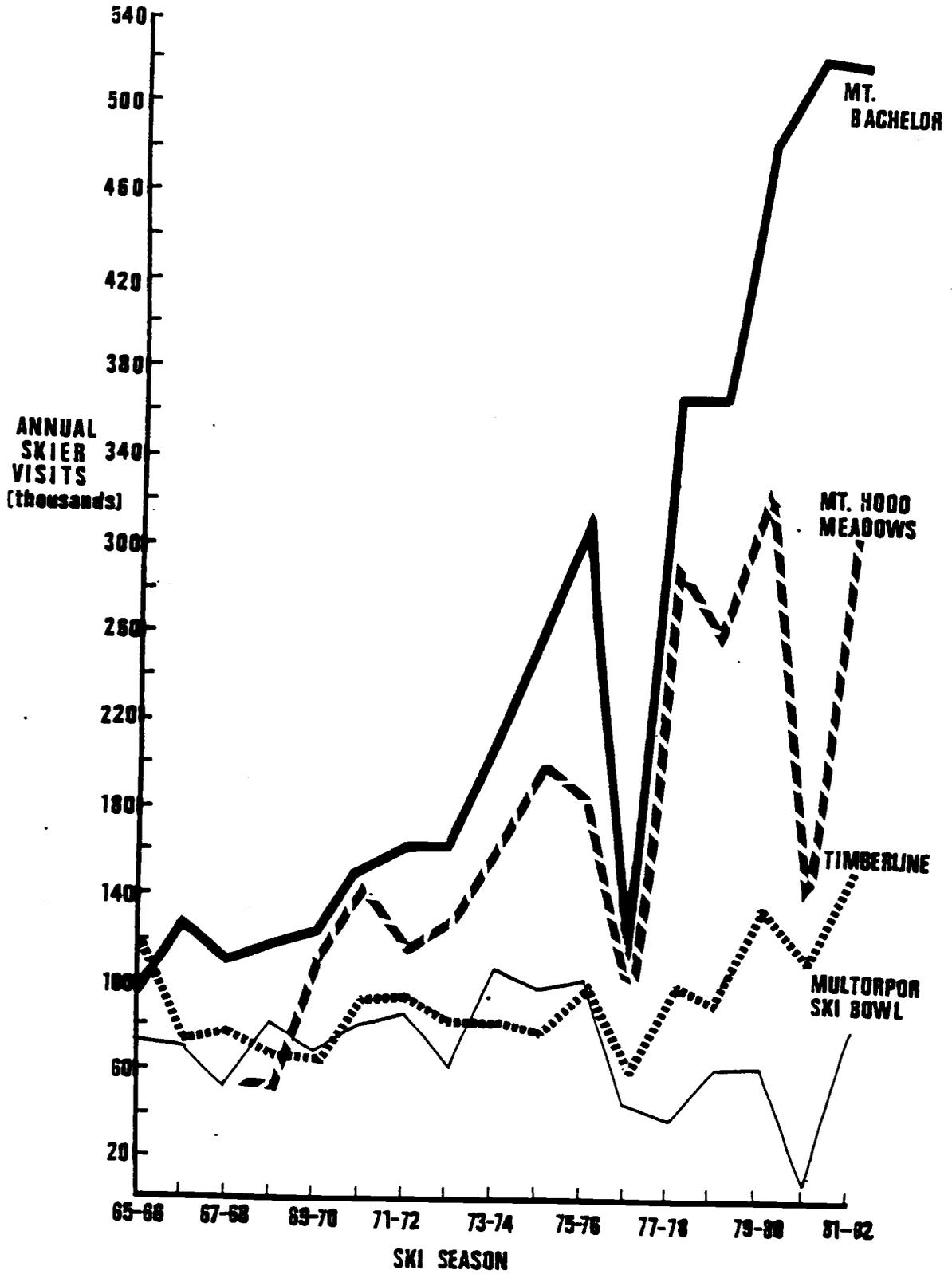


Figure 6 - Skier Visitation at Selected Ski Areas in Oregon.  
Source: U.S.F.S. Region 6 statistics 1982

Under their current special-use permit from the Mt. Hood National Forest (Personal correspondence with Karen Dubroth).

#### The Mt. Bailey Potential

Mt. Bailey, in southern Oregon, also has potential of becoming a destination resort. Currently only a small number of skiers can be accommodated on the mountain due to the lack of lifts, lodges, and parking. The area currently only offers snowcat skiing for more advanced skiers. The main constraints to development of Mt. Bailey are lack of a large local population to draw on and competition among other recreational use of the mountain (Umpqua National Forest 1982). There is no private land available near the base of the mountain. Diamond Lake Resort is the nearest lodging unit and is also the owner of the present ski operation. The area is in the Diamond Lake Recreation Composite of the Umpqua National Forest, so some development of lifts might take place in the future. The mountain possesses most of the physical requirements necessary for a modest destination resort (Umpqua National Forest 1982).

Bluewood, Anthony Lakes, and Spout Springs are all day areas serving the local population in the Tri-cities, Baker, La Grande, and Pendleton areas. Anthony Lakes is currently waiting for adequate financing before it goes ahead with installation of its' proposed \$725,000 double chairlift (Personal correspondence with Alice Trindle).

#### The High Wallowas' Prospect

The High Wallowas is an unusual area in that currently it has limited skiing opportunities and was really designed as a summer tourist attraction. A 19 car gondola, rope tows, and a snowcat serve the skiing terrain. Preliminary approval for three chairlifts has been granted by the Forest Service. The current economic conditions are not favorable for their expansion. The non-profit corporation of High Wallowas, Inc.

has failed to secure necessary loans from the Farmers Home Administration (Wallowa-Whitman National Forest 1980). Another potential constraint to expansion is that the base area of Mt. Howard receives on the average only two and one half feet of snow annually. This amount would probably have to be supplemented by snowmaking equipment. A further constraint is the existence of some potentially endangered plant species on the mountain (Wallowa-Whitman National Forest 1980).

### CONCLUSION

Of all the twenty-two ski areas in the two states, only a few are really capable of expansion into a larger destination resort. Most of the local day areas will probably expand if there is sufficient financing, demand, available terrain, and no environmental or political constraints. However, considering recent growth patterns, available terrain, and recent expansion, only a few sites in Oregon and Washington are really capable of growth into a destination resort facility. Table 5 attempts to rate nine such areas in the Northwest. A scale from one to ten indicates the relative importance of each area in terms of the physical, resource, and economic/marketing factors which are involved in successful expansion. The most significant detracting factor is identified next to each rating.

Each area is assessed in terms of how its specific physical, resource, and economic/marketing factors match up in terms of the desirable factors as mentioned in Table 4. Some factors are of more importance than others and are therefore, very crucial to any development scheme.

Factors such as aspects of climate, base area topography, amount and type of terrain, and avalanche potentials are the most important

physical factors. A high rating of ten points would indicate a site with favorable climatic conditions, plenty of flat base area, an abundant variety of skiing terrain, and low avalanche potentials. Each area was assessed in terms of these important physical factors. The most significant detraction factor involved was identified. A maximum of three points was taken off for each detraction factor depending on the degree the particular factor might hamper successful development. Thus one point was taken off for a problem that is minor or rare and possibly counteracted with mitigation efforts. Two points were taken off if the problem is common and will definitely detract from successful development. Three points were taken off if the problem is major when compared to the other nine areas.

Thus at Mt. Bailey and Early Winters the climatic factor of potential rain and fog is the most significant in terms of unfavorable physical factors. Compared to the other areas the problem is of minor significance so only one point was taken off. The most significant physical detraction factor at Stevens Pass and Crystal Mountain is the limited base area available. Two points were taken off for that factor and one point for probable rain and fog. Mt. Hood Meadows had two points taken off for probable rain and fog because it appears to be a frequent and common problem there. White Pass had two points taken off for lack of enough terrain for expansion, and one point was detracted for probable rain and fog. Mt. Bachelor's most significant physical problem is probable high winds on the upper half of the mountain, but in comparison with other areas it is only a minor factor. Mission Ridge had two points taken off for a limited base area and one point off for frequent high winds. The High Wallows had the maximal three points

off for the lack of enough snow cover at the base area.

Resource factors were assigned ratings in a similar manner. The most common detraction factors are road access limitations, sewage disposal capabilities, visual conflicts, and competition among other recreational resources. Virtually all resource factors are important and, thus, a one to three point detraction could be assigned to each factor.

Early Winters has transportation access difficulties which should not be too severe a problem since the area will be a destination type resort. Thus only one point was taken off. Stevens Pass is in a historic district, and such a designation could possibly constrain any major development. Two points were taken off for that consideration. Crystal Mountain has little sewage disposal capabilities and so two points were taken off there. Another point was detracted because of road access capabilities. White Pass is surrounded by Wilderness areas which is a severe constraint to development. The maximal three points were taken off for that, and one point was taken off for access considerations since nearby Cayuse Pass, an important access route from the Puget Sound area, is closed in winter. Mt. Hood Meadows' expansion area must compete with land suited for other recreational pursuits; thus, two points were taken off. Two more points were detracted for potential land-use conflicts on nearby private land. Mt. Bachelor had one point taken off for conflicts in visual resources, especially on the higher slopes above timberline. Mission Ridge has no apparent resource conflicts in terms of their expansion potential. Thus no points were detracted. Mt. Bailey is an area where other recreational pursuits are in potential conflict with ski area development; thus, two points were

taken off. The High Wallows has two potentially endangered plant species that could jeopardize future development. Three points were taken off for that problem. Economic factors were also assigned deductions in a similar manner. The most important factors are questions of demand for use of facilities, amount of private land available, amount of development necessary, and financing problems. Other factors such as management capabilities are important, but, since this factor is variable and can constantly change, it was not considered in the rating table.

Early Winters had two points taken off because of a significant demand question, especially when considering its location. Stevens Pass, Crystal Mountain, Mt. Hood Meadows, and Mt. Bachelor are all lacking, to some extent, nearby private land: thus, one point was detracted for each of those areas. White Pass has a location that is far enough away from population centers that the demand question is important so two points were taken off. This is compounded by lack of private land so another point was taken off there. Mission Ridge needs a significant amount of development to make the investments justifiable so two points were taken off. Mt. Bailey has many economic constraints. Two points were taken off for demand considerations, and the maximal three points were taken off for lack of private land since there is absolutely none available near the base area. The High Wallows had two points taken off for the question of sufficient demand and two points off for the financing problem with which the non-profit corporation must deal.

After adding up the ratings across Table 5 the high ratings will determine areas which represent the overall best location for successful

Table 5 - Ratings for Expansion Potentials

	PHYSICAL FACTORS	RESOURCE FACTORS	ECONOMIC FACTORS	TOTAL
Early Winters	9 - probable rain/fog	9 - access problems	8 - demand question	26
Stevens Pass	7 - limited base area	8 - in historic district	9 - lack of private L.	24
Crystal Mountain	7 - limited base area	7 - road access sewage dis.	9 - lack of private L.	23
White Pass	7 - lacking terrain	6 - Wilderness boundries	7 - demand question	20
Mt. Hood Meadows	8 - probable rain/fog	6 - other rec. users	9 - lack of private L.	23
Mt. Bachelor	9 - probable high winds	9 - visual problems	9 - lack of Private L.	27
Mission Ridge	7 - limited base/winds	10 - no real conflicts	8 - amt. devel. necessary	25
Mt. Bailey	9 - probable rain/fog	8 - other rec. users	5 - demand ques. lack Pr. L.	22
High Wallowas	7 - lacking snowfall	7 - potential Endang. Sp.	6 - demand ques. Financing	20

ski area expansion. Indeed, many of these areas have reasonably good potential for expansion. Nevertheless, the higher ratings indicate the better suited sites for development. The highest ratings have been assigned to Mt. Bachelor, Early Winters, and Mission Ridge.

As we have seen, growth is occurring in the ski industry of the Pacific Northwest. Nevertheless, the Northwest has failed to keep up with nearby states of Idaho, Utah, Colorado, and California in the development of destination ski resorts. Nationally, the destination resort is the type of ski area which has expanded the most in the last few

years. Both Oregon and Washington have recently seen the successful new development at the Blackcomb/Whistler complex in neighboring British Columbia. Realizing that the development of a destination resort can help diversify local economies, increase tax revenues and employment, Washington has recently formed the Winter Recreation Commission which specifically will facilitate the development of a destination resort in Washington. Due to the high capital costs involved in construction and operation of a ski resort and profitability most local day areas experience, the destination resort appears to be the size and magnitude of development necessary to meet adequate financial returns. Destination resorts enjoy a high mid-week attendance, which is important in proper and profitable utilization of the area. Resort presence also brings more year-around employment to local communities and helps stimulate their economies. Large resorts also can have many environmental problems such as sewage disposal conflicts and erosion/siltation problems. Social disruption and a mass seasonal inflow of people can strain local public services.

This study finds that Mt. Bachelor, Early Winters, and Mission Ridge have the greatest potential for expansion into a destination type resort. Sound planning principals will be necessary in any expansion attempt to make sure that this recreational resource is managed on the basis of responsive allocation of resources and development of facilities.

## BIBLIOGRAPHY

- AHEARN, JOHN, Ski Area Management Vol. 22 No. 1 Jan. 1983 p. 10
- BORGERSEN, MEL & ASSOCIATES, "Mission Ridge/Sawyer Ski Resort Master Plan" January, 1981 Seattle, Washington
- BORGERSEN, MEL & ASSOCIATES, "Stevens Pass Ski Resort Master Plan" February, 1982 Seattle, Washington
- CLOSSER, BRUCE M., "Appraising the Ski Area" The Appraisal Journal Vol. 48 No. 3 July, 1980
- DESCHUTES NATIONAL FOREST, "Draft Environmental Impact Statement for the Mt. Bachelor Recreation Area Master Plan" U.S.D.A. Forest Service PNW Region 1981
- DESCHUTES NATIONAL FOREST, "Environmental Assessment of the Mt. Bachelor Summit Road" U.S.D.A. Forest Service, Bend Ranger District 1982
- ECHELBERGER, HERBERT E., ELWOOD L SHAFER, "Snow + (X) = Use of Ski Slopes" Journal of Marketing Research Vol. 22 Aug. 1970
- ELSNER, GARY H., "A Regression Method for Estimating the Level of Use and Market Area of a Proposed Large Ski Resort" Journal of Leisure Research Vol. 3 No. 3 1971
- EMETAZ, ROLAND V., RONALD M. WALTERS, FRED L. HENLEY, "Winter Sports Site Base Area Study" U.S.D.A. Forest Service PNW Region
- ENGLAND, J. LYNN, "The Impact of Ski Resorts on Subjective Well Being" Leisure Sciences Vol. 3 No. 4 1980
- HOPE, JACK, "\$160 Boots, \$66 Suites, and Wild Canyons" Audubon March, 1974 pp. 85 - 93
- INTER-SKI SERVICES, INC., The White Book Rand McNally and Co. 1981
- JOHNSTON, WILLIAM OSCAR, "This Could be the Last Resort" Sports Illustrated Vol. 53 No. 25 Dec. 15, 1980
- JUBENVILLE, ALAN, "Winter Sports Site Complexes" from Outdoor Recreation Planning W. B. Sanders Co. 1976 Philadelphia
- KEIL, BILL, "Newcomer to the Pacific Northwest" Skiing Vol. 35 No. 4 Dec. 1982
- LEUSCHNER, WILLIAM A., ROSCOE B. HERRINGTON, "The Skier: His Characteristics and Preferences" Recreation Symposium Proceedings U.S.D.A. and State University of New York College of Forestry 12 Oct. 1971

- MOUNT HOOD NATIONAL FOREST, "Final Environmental Impact Statement for the Multitorpor Ski Bowl" U.S.D.A. Forest Service PNW Region Feb. 23, 1981
- OKANOGAN NATIONAL FOREST, "Draft Environmental Impact Statement for the Early Winters Sports Study" U.S.D.A. Forest Service PNW Region July, 1982
- OREGON STATE PARKS AND RECREATION BRANCH, "Oregon Comprehensive Outdoor Recreation Plan" Department of Transportation 4th edition 1978
- OREGONIAN, THE, "LCDC Deals Blow to Ski Resort Project" Feb. 9, 1979 pB 8 c 1 The Oregonian Newspaper Portland, Oregon
- PATTY, STANTON H., "Whistler" The Seattle Times Newspaper Section G - Travel August 22, 1982
- ROMERO, ANTHONY E., ROY M. DUCHAN, DOUGLAS G. FOX, "A Study of Air Pollution from Fireplace Emissions at Vail Ski Resort" Journal of Environmental Health Vol. 41 Sept/Oct 1978 pp.117-119
- SKI AREA MANAGEMENT, article out of Ski Area Management Vol. 21 No. 3 July, 1982 p.16
- SKI AREA MANAGEMENT, article out of Ski Area Management Vol. 22 No. 1 January, 1983 p.60
- STONEHILL, ARTHUR, PHILIP SCHARY, JAMES NOTEBOOM, "The Oregon Ski Areas Study" School of Business and Technology Oregon State University November 1969
- UMATILLA NATIONAL FOREST, "Final Environmental Impact Statement for the Skyline Basin Winter Sports Development" U.S.D.A. Forest Service PNW Region 1973
- UMPOUA NATIONAL FOREST, "Draft Environmental Impact Statement for the Mt. Bailey Winter Sports Site" U.S.D.A. Forest Service PNW Region July, 1982
- U.S.D.A. FOREST SERVICE, "North Cascades Winter Sports Study" PNW Region Portland, Oregon 91pp. 1970
- U.S.D.A. FOREST SERVICE, "Planning Considerations for Winter Sports Resort Development" U.S.D.A. Forest Service and National Ski Areas Association 1973
- U.S.D.A. FOREST SERVICE, "Growth Potential of the Skier Market in the National Forests" Research Paper WO-36 February, 1980
- U.S.D.A. FOREST SERVICE, "Annual Skier Visits: Region 6" 1982
- WALLOWA-WHITMAN NATIONAL FOREST, "Final Environmental Impact Statement for the Mt. Howard Expansion and Wing Ridge Development" U.S.D.A. Forest Service PNW Region Oct. 31, 1980

WHITE, CARLETON S., JAMES R. GOSZ, DOUGLAS U. MOORE, "Impact of a  
Ski Basin on a Mountain Watershed" Water, Soil, and Air  
Pollution Journal Vol. 10 March, 1978

PERSONAL CORRESPONDENCE

DOLFAY, MIKE, Recreation Officer for the Wenatchee National Forest.  
Personal communication in Wenatchee, Washington January, 1983

DUBROTH, KAREN, Marketing Director for Mt. Hood Meadows, Ltd.  
Personal correspondence in January, 1983.

FESSEL, WILLIAM, Recreation Officer for the Mt. Baker-Snoqualmie  
National Forest. Personal communication in Seattle, Wash-  
ington January, 1983.

LOW, CINDY, Communications Manager for Mt. Bachelor, Inc.  
Personal correspondence in January, 1983.

TRINDLE, ALICE, Marketing Director for Anthony Lakes Corporation.  
Personal correspondence in December, 1982.