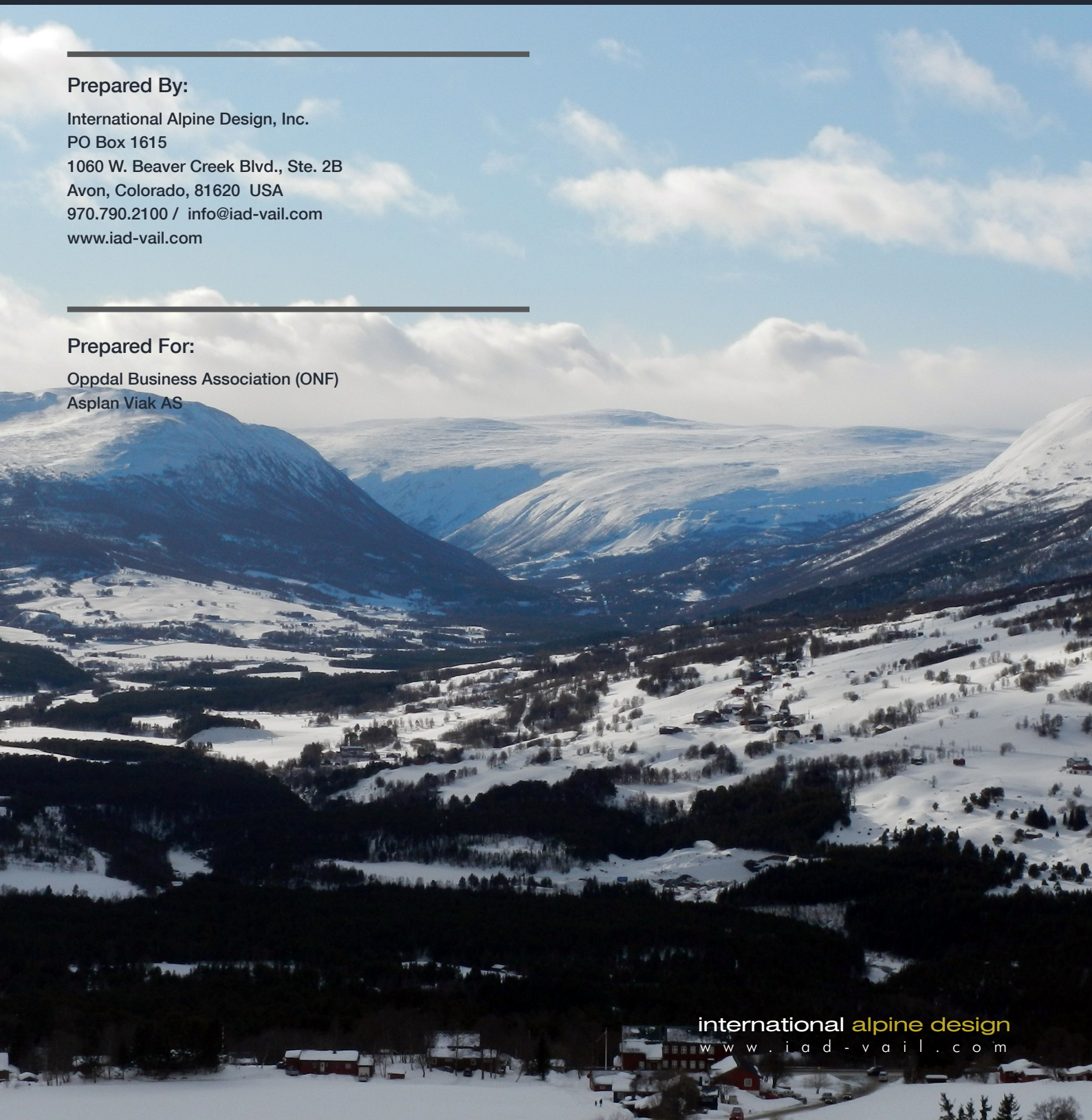
Ski Area Inventory + Technical Assessment

Oppdal Skisenter, Norway

16 May 2013



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Executive Summary

This Ski Area Inventory and Assessment Report provides a comprehensive inventory, analysis and assessment of the ski facilities at Oppdal Skisenter. It considers the current lift, terrain, snowmaking, and base area facilities, among others, in order to identify limitations of the current situation and considerations when planning for the future. This Report generally addresses broad opportunities and principles that should be considered when planning for the future and does not identify the specific or detailed solutions necessary to solve challenges. It is recommended that these site specific solutions and plans should be prepared as part of a subsequent comprehensive resort master plan.

This study finds that due to the combination of historic mountain development and bed base design and location, annual attendance at Oppdal Ski Area is limited to 150,000 - 170,000 skiers per year. Although it has a reasonably balanced lift and terrain capacity (approximately 8,000 skiers per day) during ideal weather and snow conditions, effective daily capacity is dramatically reduced by the following detrimental factors: lack of adequate base area parking and services, lack of snowmaking terrain, and unreliable conditions on the lower mountain terrain. Annual attendance is also reduced by lack of slope-side ski in/ski out accomodations that can be rented to overnight guests for stays of 3 - 7 days.

Lift facilities and ski terrain below 950 meter elevations need to be improved and brought up to standard with other regional resorts in order to grow skier attendance and remain competitive. Priority areas for these mountain and base area improvements have been identified near the base of the Håkerxpressen Lift and in the Gorset area. Additional lift and terrain expansion within the upper mountain zone will have little positive impact on resort attendance until lower mountain facilities are improved. Detailed design of these critical areas is necessary to integrate new base area parking and skier services with warm bed development. Future development must be designed to avoid congestion and lack of skier circulation that have resulted from past approvals and design. Reliable, safe, beginner friendly circulation options between Vangslia, Hovden, and Stølen need to be implemented to improve overall guest experience. Preserving a lift connection option to Oppdal village center is also a key planning and operational consideration.

Kinnpiken in it's proposed configuration would not add value to the existing mountain operation without adequate, reliable terrain or convenient circulation options to the Stølen area. Although, this area represents a significant opportunity to develop and sell cabins and accomodations that can be rented to overnight guests if designed properly. Detailed study and design is necessary to develop a comprehensive master plan for the mountain and base area facilities at the resort, which can be implemented in a cost-effective way to improve economic performance of the ski area, and the surrounding community. If no action is taken in the near future to address the issues identified herein, however, IAD believes that the resort and community will see decreased visitation and signifcant economic losses.

Introduction

This Ski Area Inventory and Assessment Report for Oppdal Skisenter (Resort) has been prepared by the mountain resort planning firm International Alpine Design (IAD) of Vail, Colorado for the Oppdal Business Association (ONF) under the direction of Asplan Viak AS (Asplan).

The primary purpose of this Report is to provide ONF a comprehensive inventory, analysis and assessment of Oppdal Skisenter and the surrounding terrain in order to identify limitations of the current situation and considerations when planning for the future. This Report generally does not identify the specific or detailed solutions necessary to solve challenges facing the resort and community, rather, it addresses the broader opportunities and principles that should be considered when planning for the future. Through the use of narratives, tabulations and conceptual graphic illustrations, the Report communicates the physical features of the resort, the quantity and capacity of existing resort facilities (lifts, trails, base areas), the issues, limitations and challenges of the existing resort and facilities, and general recommendations for future improvement and expansion. While this report is primarily focused on the ski area facilities within the resort, considerations related to surrounding land-uses and the Oppdal Village Center have been made. Following this Report, a subsequent detailed master planning process phase would be required to further continue the project and identify more specific solutions for the upgrade, improvement, and expansion of the resort.

All of the findings and recommendations identified herein have been developed by IAD through detailed study of 5-meter topographic maps, aerial and site photography, on-site inspection, historic documentation and empirical methodology, as well as discussion with the ONF steering committee/ boards, resort personnel and Oppdal community members. IAD specializes in assessment and planning of mountain destinations, resorts and communities worldwide and has over twenty years of direct experience in the Scandinavian market in places such as Hemsedal, Trysil, Åre and Sälen, among others. IAD works completely as a third party consultant and is not directly affiliated with any resort or supplier ownership group, therefore able to offer independent, non-biased observations and recommendations.

II Site Inventory

The inventory section includes the identification, analysis and mapping of the on-site and off-site factors which may affect the development potential and operation of the Resort. Through an understanding of the site's physical characteristics and existing facilities, natural opportunities can be maximized and sensitive areas respected. The natural site physiography and existing ski area facilities are inventoried and analyzed in detail, in order to understand the quantity and quality of the existing resort operation. The size (quantity) of a resort, when combined with proven planning parameters, provides a comprehensive understanding of the suitability and capacity of the resort to meet visitor expectations and internal business projections. The quality of the resort experience is often a driving factor in guest satisfaction and is highly contingent upon the size and efficiency of the operation / layout, as well as the general feeling it provides.

1 Location and Context

Oppdal is a village and municipality in Sør-Trøndelag county, Norway. It is part of the Dovre region. The administrative centre of the municipality is the village of Oppdal. The village of Oppdal is approximately 415 km north of Oslo and approximately 120 km south of Trondheim, Norway. Other villages in the municipality include Lønset, Vognillan, Fagerhaug, and Holan. The Oppdal Airport, Fagerhaug is located in the northeastern part of the municipality. The village of Oppdal is located at the intersection of the European route E6 and Norwegian National Road 70 in the Drivdalen valley. The Oppdal Station on the Dovrebanen railway also is in the village. Oppdal has approximately 6,700 residents.

Oppdal Skiscenter (The Resort) is located directly north of, and adjacent to, Oppdal Village. The resort is generally segmented into the three existing primary areas of Vangslia (3 km from village), Hovden (1 km), and Stølen (4 km), each of which provides a base area entry portal to the mountain. Beyond these three existing areas, the Kinnpiken area (5 km from village) to the east of Stølen and the village center will be reviewed and considered as part of this study. This zonal segmentation of the resort plays a critical role in this assessment and will be used as a primary reference when discussing and reviewing the resort operation. Combined, the existing resort complex encompasses approximately 430 hectares of skiable terrain on 40 maintained trails (184 ha.) and 16 named off-piste areas (246 ha.) serviced by 18 lifts (see Figure 1.0).

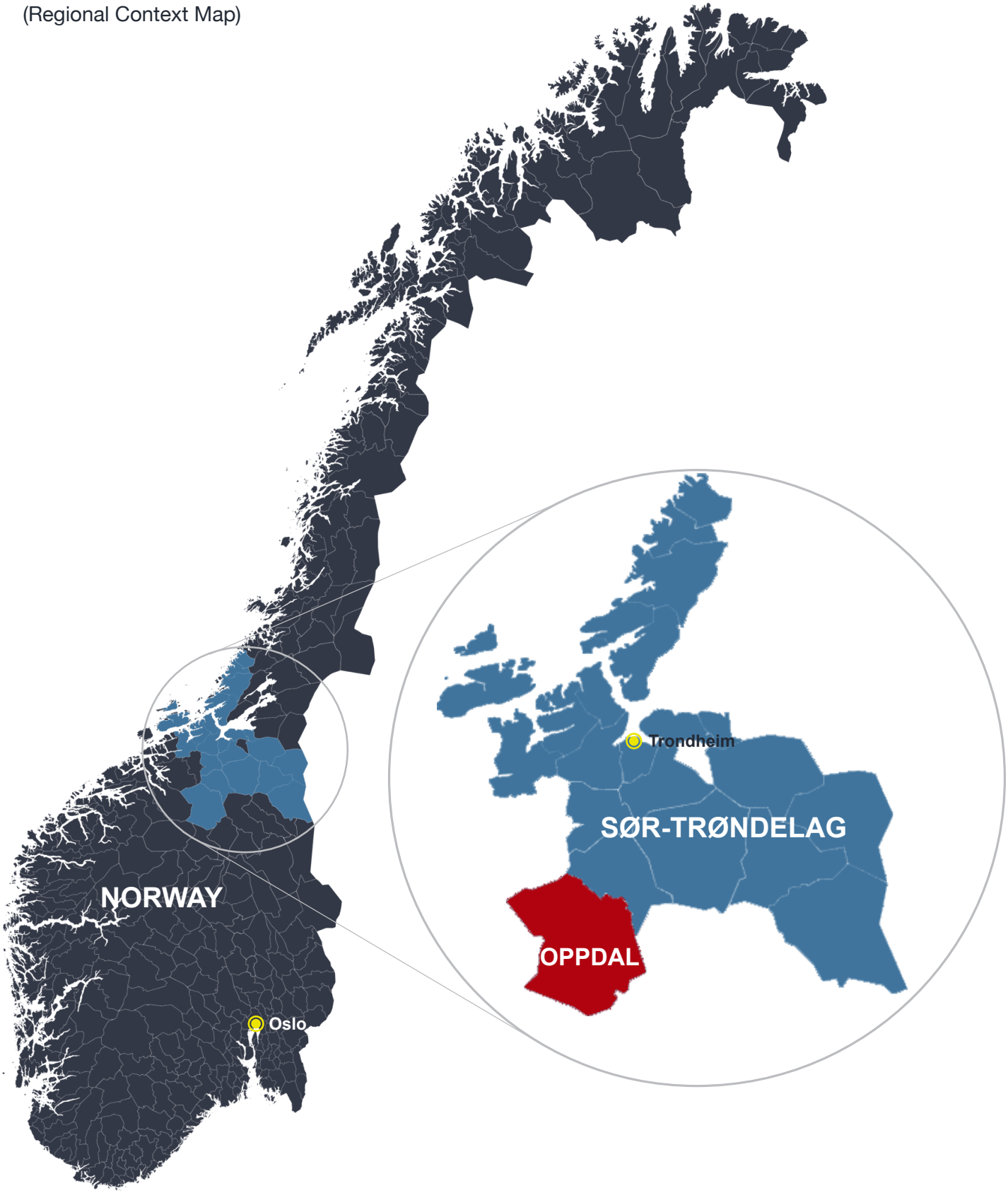
2 Physiography

The quality and feasibility of a winter sports site is highly dependent upon its topographic characteristics. Physiographic features such as slope gradients, elevations and directional aspects all substantially affect ski area development and operations.

» Slope Gradients

A slope gradient analysis provides information on the varying percent slope that exists within and around the study area. This information, combined with natural and man made terrain characteristics, can be used as a template for determining trail difficulty classification. Slope gradient analysis can also provide insight into areas of potential redevelopment and alternative use, where the slope gradient is not well suited for skiing. A standard equation that matches specific slope gradients to trail difficulty classifications, is used as a framework in planning but cannot dictate absolute trail classification. Considerations including, but not limited to, maximum slope gradient, elevation, aspect, fall-line, trail width, glading, and natural or man-made obstacles and hazards, are elemental

(Regional Context Map)



in determining trail difficulty classifications and the suitability of redevelopment. The Oppdal study area (see Figure 2.0) contains slope gradients that match all of the terrain classifications and therefore has the potential to provide a diverse experience for all guests.

» Elevations

Analyzing the range of elevations that exists at the Oppdal site plays a major role in planning for future upgrades and expansion at the resort. Specifically, it helps in determining the total amount of vertical skiable meters available at that site. This study also shows the relative elevations within the site, aiding in identifying current and potential circulation patterns between various parcels. The elevation analysis also provides insight on snow retention characteristics, which can directly affect length of operating season and quality of experience. Typically, snow retention is better at higher elevations where temperatures tend to be lower. The elevations on the site range from 575 m at the base of Hovden, to 1,275 m at the highest accessible points at the ski area, allowing for a potential skiable vertical rise of 650 - 700 m (see Figure 3.0). When bench marked against other local, regional and national resorts, as well as the perceived target market, it was determined that the site provides adequate and competitive vertical rise.

Specific to Oppdal, detailed elevation considerations have been made due to the impact weather imposes on operation of lifts and terrain in the "upper zone". The upper zone at Oppdal has been defined as generally the areas above 950 m. of elevation and is considered less reliable for operation. Conversely, the "lower zone" of elevation (below 950 m.) is generally below treeline and exhibits more reliable weather conditions and operation. This classification plays an important part of this assessment and is a key factor defining the resort capacity.

» Directional Aspects

A directional aspect analysis is critical in understanding the effect of solar exposures on the study area. The sites directional relationship determines the time of day and extent in which the sun will impact ski slopes, restaurants, lodges and base areas. Defining the solar aspects and sun/shade relationships to surrounding landscapes, mountain and base lands, allows for functional planning and design of the site. Ski trails should ideally be placed in cool locations, out of the sun, so that they can retain snow over a longer period of time. Similarly, skier facilities and non-skiing areas should be planned in warm locations, usually in the sun for the majority of the season, to avoid visitors being too cold or uncomfortable for outdoors participation of activities at base areas and mountain facilities. The solar aspects (relationship to the sun) on the site primarily face south to south east (see Figure 4.0). Typically, these aspects are less than ideal for snow retention but very ideal for ‘solar gain’ and in this location offer a more comfortable skiing experience. The fact that nearly all of the ski terrain has southern exposure, however, makes the need for more complete snowmaking coverage a critical factor in all future trail design considerations.

III Existing Conditions

Completion of a thorough resort inventory is the first step in the master planning process and involves the collection of data pertaining to a resort's existing facilities. This inventory includes ski lifts, ski trails, the snowmaking system and base areas (which includes day-use parking and overnight accommodations). The analysis of the inventoried data involves the application of ski industry standards unique to Oppdal's location and demographic.

The overall balance of the existing ski area is evaluated by calculating the skier capacities of various facility components and then comparing these capacities to the ski area's Skier Carrying Capacity (SCC). Ski area facility capacities are quantified using a unit of "skiers per day" (skiers). This examination of capacities allows for all facilities to be easily bench marked against one another, with facilities falling below capacities or standards to be identified. This 'facilities balancing' allows for the identification of improvements which would bring the existing facilities into better equilibrium, and will assist the resort in meeting the ever-changing expectations of its marketplace. Accomplishing these objectives will result in a well balanced resort which provides an adequate array of services and experiences to satisfy guest expectations.

1 Mountain Capacity (SAOT)

The skier capacity of a mountain can be defined by a number of terms, including Skiers-At-One-Time (SAOT), Comfortable Carrying Capacity (CCC), and/or Skier Carrying Capacity (SCC). Whether SAOT, CCC, or SCC is used, it generally defines the capacity of the mountain's lift and trail system, representing the number of skiers the entire resort can comfortably accommodate on a daily basis and still guarantee a high-quality recreation experience. The capacity figure utilizes a complex formula based on a combination of the hourly uphill capacity of the resort's lift system, lift system load efficiency, rate of return skier utilization, and the total amount of time guests spend waiting in the lift line, riding the lift, and skiing down the trails. The accurate estimation of the capacity of a mountain is a complex issue and is one of the single most important planning criterion for the resort.

It is not uncommon for ski areas to experience 'peak days' during which skier visitation exceeds the mountain capacity (SAOT) by as much as 25 percent. However, from a planning perspective, it is not recommended to consistently exceed the 'design day' SAOT due to the resulting decrease in the quality of the recreational experience, and thus the resort's market appeal.

» Daily Attendance & Capacity

The detailed calculation of Oppdal's current mountain lift capacity (SAOT) is provided in table 3.1 and is calculated as an overall total of 7,151 skiers per day under optimal 'design day' conditions where all lifts and trails are operational. The effective, reliable 'low zone' of the mountain has been calculated to only support 5,087 skiers per day. The impacts of this 'low zone' SAOT will be discussed in Section IV.

» Annual Attendance & Capacity

Table 3.2 shows that the ski area has had an average annual visitation of approximately 150,000 skiers per year over the recorded period of 2002 - 2010 (no visitation data was provided to IAD for

(Table 3.1) Mountain Lift Capacity (SAOT)

Map Ref.	Name	Lift Type	Zone	Slope Length (m.)	Vert. Rise (m.)	Rated Capacity (pers/hr.)	Rope Speed (mpm)	Skier Capacity (skiers)
A	Pomaen	PP	Lower	1,080	267	818	100	337
B	Toppheisen	TB	Upper	361	89	910	170	187
C	Vangsheisen 1	TB	Lower	1,719	504	1,205	170	569
D	Vangsheisen 2	TB	Upper	1,635	484	1,195	170	545
E	Barnesheisen	PP	Lower	497	110	725	100	205
F	Båndheis For Barn	MC	Lower	25	1	500	45	77
G	Solheisen	C-4	Lower	1,392	309	1,412	450	474
H	Ådalsheisen	C-4	Upper	1,163	313	1,200	450	366
I	Håkerxpressen	DC-4	Lower	1,335	325	2,880	300	1,068
J	Tverrheisen	TB	Upper	1,044	129	720	170	271
K	Hovdenexpressen	DC-4	Lower	1,736	533	1,800	300	895
L	Hovdenheisen	TB	Lower	1,567	450	500	170	247
M	Toppheisen	PP	Upper	289	95	590	100	132
O	Sletvoldheisen	PP	Lower	455	110	615	100	153
P	Barneheis	PP	Lower	228	38	580	100	120
R	Stølen 1	TB	Lower	1,344	335	1,203	170	458
S	Stølen 3	TB	Lower	1,014	290	1,440	170	485
T	Fjellheisen	TB	Upper	1,634	353	1,232	170	562
Total Resort Wide 'Design Day' Lift Capacity						**19,525**		**7,151**
Total Lower Zone 'Design Day' Lift Capacity								*5,087*
Total Upper Zone 'Design Day' Lift Capacity								*2,083*

years 2010 - 2012). This current year (2012 / 2013), IAD believes that attendance will fall below 130,000 skier visits due to the resort operating in a limited configuration. It has been observed that critical lifts are closed during the midweek periods and that normal operating dates and hours appear to have been reduced.

(Table 3.2) Historic Annual Visitation (2002 -2010)

Season (year)	Annual Visitation (skiers/year)
2002 / 2003	161,186
2003 / 2004	142,000
2004 / 2005	161,249
2005 / 2006	158,283
2006 / 2007	122,100
2007 / 2008	160,635
2008 / 2009	160,709
2009 / 2010	137,485
2010 / 2011	NA
2011 / 2012	NA
Annual Average (2002 - 2010)	**150,455**

Source: Oppdal Skisenter

2 Ski Lifts

Ski lifts should be placed to serve the available terrain in an efficient manner while considering a variety of factors including: wind, visual impacts, natural resources, round trip skiing and access needs, and interconnect-ability between other lifts, trails and facilities. Not only do lifts need to be placed efficiently they also need to be in balance with the downhill capacity of the trails while at the same time maintaining an acceptable total area capacity.

Oppdal is currently operating a total of 18 lifts, including: 2 Detachable Chairlifts, 2 Fixed-Grip Chairlifts, 5 Platter Pull Surface Lifts, 8 T-Bar Surface Lifts and 1 Conveyor Surface Lift. The resort's total uphill lift capacity has been calculated at 19,525 people-per-hour (pph). Of these 18 lifts, however, only 12 are located within the operationally reliable 'low zone' of the mountain while 6 are located in the unreliable 'upper zone'. Table 3.3 summarizes the technical specifications for the existing lifts, and Figure 1.0 illustrates the location of existing lifts.

3 Alpine Terrain

Ski trails should have generally consistent grades to provide an interesting and challenging experience for the ability level of skier that the trail is designed for. Trails should be designed according to topographic conditions and the width should vary based on vegetation characteristics and the ability level of the skier being served. They should also be designed and constructed to maintain consistency with the natural fall-line and avoid off fall-line conditions. Trail networks must also minimize cross-traffic and provide for improved site viewing distances where merging with other trails. Dedicated zones for beginner training and freestyle facilities are critical to ensure as safe and enjoyable experience for those and other specific users.

(Table 2.3) Lift Inventory & Specifications

Map Ref.	Name	Lift Type	Zone	Slope Length (m.)	Vert. Rise (m.)	Rated Capacity (pers/hr.)	Rope Speed (mpm)	Year Installed (year)
A	Pomaen	PP	Lower	1,080	267	818	100	1976
B	Toppheisen	TB	Upper	361	89	910	170	1983
C	Vangsheisen 1	TB	Lower	1,719	504	1,205	170	1981
D	Vangsheisen 2	TB	Upper	1,635	484	1,195	170	1977
E	Barnesheisen	PP	Lower	497	110	725	100	1989
F	Båndheis For Barn	MC	Lower	25	1	500	45	1998
G	Solheisen	C-4	Lower	1,392	309	1,412	450	1987
H	Ådalsheisen	C-4	Upper	1,163	313	1,200	450	1987
I	Håkerxpressen	DC-4	Lower	1,335	325	2,880	300	2006
J	Tverrheisen	TB	Upper	1,044	129	720	170	1987
K	Hovdenexpressen	DC-4	Lower	1,736	533	1,800	300	1988
L	Hovdenheisen	TB	Lower	1,567	450	500	170	1973
M	Toppheisen	PP	Upper	289	95	590	100	1991
O	Sletvoldheisen	PP	Lower	455	110	615	100	1992
P	Barneheis	PP	Lower	228	38	580	100	1998
R	Stølen 1	TB	Lower	1,344	335	1,203	170	1986
S	Stølen 3	TB	Lower	1,014	290	1,440	170	1987
T	Fjellheisen	TB	Upper	1,634	353	1,232	170	1986
Total						**19,525**		

To provide the highest quality guest experience, resorts should offer developed, maintained (groomed) runs of all ability levels and, to the extent available, some undeveloped or off-piste terrain offerings. Typically, the undeveloped terrain is used by Advanced and Expert level skiers during desirable conditions. However, due to the unreliability of undeveloped terrain its overall contribution to the skier capacity of the terrain network should be limited. Specific to Oppdal, considerations related to wind and weather conditions in the 'upper zone' have also been made and influence the true skiers capacity of the terrain network.

Terrain ability level designations are typically based on the maximum sustained slope gradient calculated for each trail. Terrain features unique to each mountain also help determine ability levels, however, considerations related to slope maintenance (grooming) and location also play a factor. Short sections of a trail can be more or less steep without affecting the overall run designation. For example, novice skiers are typically not intimidated by short, steeper pitches of slope, but a sustained steeper pitch may cause the trail to be classified with a higher difficulty rating. It is important to note that, regardless of the slope gradient for a particular trail, if it feeds into a trail that is rated higher in difficulty, its ability level must be rated accordingly. Conversely, if a trail is fed only by trails of a higher ability level than the maximum slope of the trail would dictate, it also must be rated accordingly. The following slope gradients classify the skier difficulty level of mountain terrain. Furthermore, the calculation of capacity for a ski area is based in part on the target number of skiers that can be accommodated, on average, on a typical acre of ski terrain at any one given time. The criteria for the range trail ability and densities for Oppdal are listed below in Table 3.4.

(Table 3.4) Terrain Ability Level and Distribution Parameters

	Ability Level	Slope % Range	Skiers/Hectare
	Beginner	8 - 15%	74
	Novice - Low Intermediate	15 - 25%	55
	Intermediate	25 - 45%	37
	Advanced	45% - 60%	19
	Expert / Off-Piste	Variable	4

Oppdal currently provides 430 hectares of total skiable terrain which includes 184 hectares of developed terrain on 40 trails and 246 hectares of undeveloped (off-piste) terrain over16 named areas (see Table 3.5 and Figure 4.0). Of these 430 hectares of skiable terrain there is snowmaking coverage on 54 hectares. The terrain network supports a total capacity of approximately 8,855 skiers on a 'design day' in optimal conditions where all lifts and trails are open and accessible. However, the reliable 'lower zone' trails on the mountain support only 5,448 skiers, which will be discussed in Section IV of this study. Based on the rationale presented above, and for the purposes of this analysis, only the developed trail network and named undeveloped (off-piste) terrain network is applied to the trail acreage calculations, skier classification breakdown, trail capacity, and density formulas. Off-piste trail areas have been assigned names based on their proximity to developed trails, and account for terrain that is accessible with little or no uphill hiking required. Were this analysis to account for all of the remote, off-piste terrain far outside of the named terrain network, it would have a misleading effect on all calculations.

(Table 3.5) Alpine Terrain Inventory & Capacity

#	Name	Ability Level	Zone	Total Area (ha.)	Skier Density (skiers/ha.)	Skier Capacity (skiers)	Snowmaking Area (ha.)	Snowmaking Capacity (skiers)
Conventional (on-piste) Trails								
1	Danskeløypa	Novice (Blue)	Lower	7.2	55	397		
2	Vestløypa	Beginner (Green)	Lower	4.1	74	306		
3	Pomaløypa	Novice (Blue)	Lower	4.1	55	228		
4	Midtløypa	Novice (Blue)	Lower	6.0	55	331	6	661
5	Vangsløypa	Intermediate (Red)	Lower	7.9	37	294	8	587
6	Terrengparken	Advanced (Black)	Lower	5.6	19	106	6	213
7	Minipark	Intermediate (Red)	Lower	2.6	37	98		
8	Henge - vest	Intermediate (Red)	Upper	3.5	37	129		
8	Henge - øst	Advanced (Black)	Upper	2.9	19	55		
9	Solsvingen - øst	Novice (Blue)	Lower	2.4	55	133		
9	Solsvingen - vest	Beginner (Green)	Lower	3.1	74	229		
10	Barneland	Beginner (Green)	Lower	1.9	74	138	2	276
11	Tverrløypa	Beginner (Green)	Lower	1.5	0	0		*not functional*
12	Vesthenget	Advanced (Black)	Upper	2.6	19	49		
13	Lysløypa	Novice (Blue)	Lower	2.0	55	109		
14	Vesttoppen	Advanced (Black)	Upper	1.7	19	32		
15	Fjellsida	Novice (Blue)	Upper	2.0	37	74		
16	Toppløypa	Intermediate (Red)	Upper	2.1	37	79		
17	Håkerløypa	Novice (Blue)	Lower	8.9	55	492		
21	Bjørndalsløypa	Advanced (Black)	Lower	13.7	19	260	14	521
22	Høgerhenget	Advanced (Black)	Lower	2.2	19	42	2	83
23	Bjerkeløypa	Advanced (Black)	Lower	10.5	19	199		
24	Storstugguløypa	Advanced (Black)	Lower	3.8	19	72		
25	Bualøypa	Novice (Blue)	Lower	1.8	37	67		

(Table 3.5) Alpine Terrain Inventory & Capacity

#	Name	Ability Level	Zone	Total Area (ha.)	Skier Density (skiers/ha.)	Skier Capacity (skiers)	Snowmaking Area (ha.)	Snowmaking Capacity (skiers)
26	Bualøypa	Novice (Blue)	Lower	0.2	37	7		
28	Slettvoldløypa	Intermediate (Red)	Lower	1.5	37	56		
31	Håmmårløypa	Novice (Blue)	Lower	3.9	0	0		*not functional*
32	Jonasløypa	Novice (Blue)	Lower	7.2	55	394		
33	World cup løypa	Intermediate (Red)	Lower	5.4	37	199	5	398
34	Ekkerenget	Intermediate (Red)	Lower	11.0	37	407	11	813
35	Ormhaugen	Beginner (Green)	Upper	6.0	74	441		
36	Parallellen	Novice (Blue)	Upper	7.9	55	435		
37	Storsleppet	Beginner (Green)	Upper	8.6	74	636		
38	Skogsløypa	Advanced (Black)	Lower	3.0	19	57		
39	Trolland	Beginner (Green)	Lower	0.9	93	83		
41	Presten	Intermediate (Red)	Upper	5.0	37	185		
42	Ådalsløypa	Novice (Blue)	Upper	5.6	55	306		
43	Transporten	Beginner (Green)	Lower	1.3	37	47		
44	Hovdensvingen	Beginner (Green)	Lower	3.4	37	126		
45	Elvekanten	Novice (Blue)	Lower	1.2	37	43		
46	Gråbergløypa	Beginner (Green)	Lower	5.3	74	392		
Total Convential Trails				**183.9**				
<u>Named Off-Piste Trails</u>								
8	Henge	Expert	Upper	2.8	4	11		
12	Vesthenget	Expert	Upper	10.7	4	43		
14	Vesttoppen	Expert	Upper	3.8	4	15		
15	Fjellsida	Expert	Upper	14.3	4	57		
21	Bjørndalsløypa	Expert	Upper	13.5	4	54		

(Table 3.5) Alpine Terrain Inventory & Capacity

#	Name	Ability Level	Zone	Total Area (ha.)	Skier Density (skiers/ha.)	Skier Capacity (skiers)	Snowmaking Area (ha.)	Snowmaking Capacity (skiers)
24	Storstugguløypa	Expert	Upper	8.9	4	36		
25	Bualøypa	Expert	Upper	32.2	4	129		
26	Baksida	Expert	Upper	14.9	4	60		
35	Ormhaugen	Expert	Upper	21.7	4	87		
36	Parallellen	Expert	Upper	43.3	4	173		
37	Storsleppet	Expert	Upper	29.7	4	119		
41	Presten	Expert	Upper	34.9	4	140		
42	Ådalsløypa	Expert	Upper	15.8	4	63		
Total Off-Piste Trails				**246.5**				
Total Resort Wide 'Design Day' Terrain Capacity				**430.4**		**8,855**	**54**	**3,552**
Total Lower Zone 'Design Day' Terrain Capacity						*5,448*		*3,552*
Total Upper Zone 'Design Day' Terrain Capacity						*3,407*		*0*

4 Base Areas

An alpine resort's base facilities should be designed to cater to the needs of all skiers and visitors during there stay at the resort. As such, the resorts facilities (buildings, services, parking, etc.) should be designed in concert with the total Mountain Capacity. The primary goal of base lands development should be to create a well-balanced overall facility that provides guests with a positive, memorable experience.

Particular consideration must be given to the relationship of a base area to its mountain facilities. In the case of alpine skiing, skiers should be able to gravitate naturally from the village and residential base areas to the mountain facilities, allowing convenient access to any of the ski lift systems originating in the mountain staging areas. Likewise, they should easily be able to return to their points of origin. Parking lots should be located directly adjacent to lifts, trails and other ski facilities, and should avoid large vertical transitions. Parking lot capacities must be in balance with the day use capacities of the mountain facilities while taking into account the destination and residential parking requirements. Ideally, all parking should be within comfortable skier walking distances or with "ski to / ski from" capability. Dedicated skier drop-off and pick-up zones for both cars and buses must be incorporated into the design of each base area – and must be user-friendly. Due to heavy use on weekends and holidays, parking areas need to be oversized for high visitation days.

The base area facilities of a resort act as the focal point for social and recreational activities. These facilities reinforce and complement the on-mountain skiing facilities (the primary attraction during the ski season). Recognizing this, the base area facilities need to provide a compelling image for the resort, acting as an emotional/physical touchstone for the visitor's experience. The resort experience begins the moment the resort is within sight. The organization of the base area facilities and the design of the resort's "critical mass" determine the sense of arrival. The sense of discovery – the ease of approach, drop-off, and parking followed by the subsequent ease of access to the various services and activities -- determine the guest's initial reactions to the resort. And once established, that first impression generally dictates the general mood of the visit.

Overnight accommodations should be provided at base areas and villages zones. Accommodation capacity is typically measured in beds, defined as the accommodation required for one person to stay overnight. Beds can be publicly available on a night-by-night basis in hotels or apartments (condos) and/or privately available on a permanent basis as second homes (cabins). The amount and type of overnight accommodations are largely dependent upon what the tourist market will support. Whenever possible, accommodations surrounding base areas should be designed for ski-in / ski-out (<75 m walk to or from a ski trail).

As previously identified, Oppdal currently operates 3 primary base zones (see Figure 5.0). In each of these zones, the parking spaces and ski-in / ski-out accommodation units were inventoried to arrive at the capacity of skiers from each. This calculation represents the capacity of the base area component of the resort. As shown in table 3.6, the Vangslia base has a total base area capacity of 2,432 skiers, Hovden has 801 skiers and Stølen has 1,767 skiers for a combined total base area capacity of 5,000 skiers.

(Table 3.6) Base Area Capacity

Location	Skiers from Day Parking (skiers)	Skiers from Accommodations* (skiers)	Total Base Area Skiers (skiers)
Vangslia Base	2,000	432	2,432
Hovden Base**	105	696	801
Stølen Base	1,423	344	1,767
Total			**5,000**

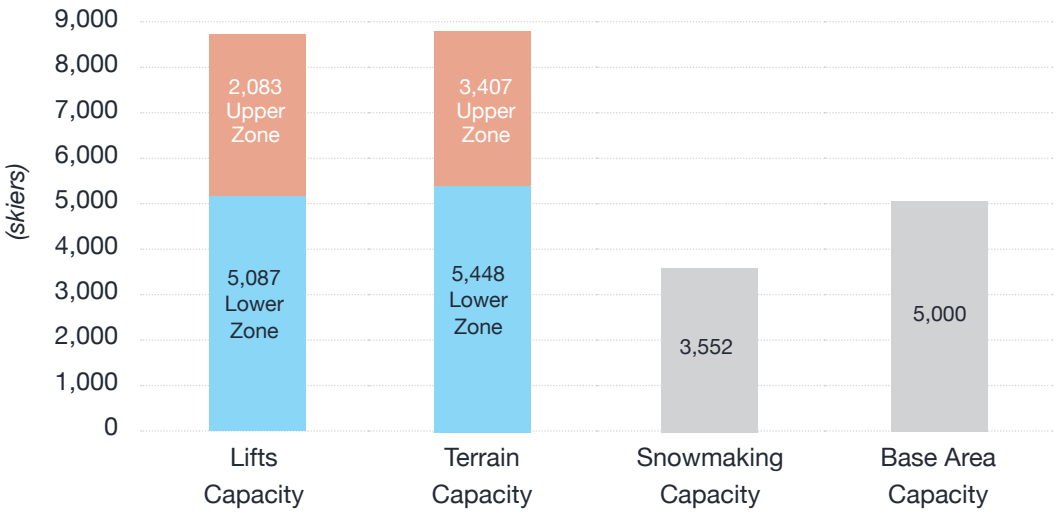
** Skiers from accommodations only includes ski-in / ski-out units located at base, not remote units that require drive to access*

*** Includes Sletvoldheisen area*

5 Balance of Facilities

The overall balance of the existing ski area is evaluated by calculating the capacities of the resort's various facilities as shown in Chart 3.1. Review of the existing facilities balance indicates that the resort can generally support 5,000 skiers per day reliably on the lower mountain. Under optimal conditions where all lift and trails are open, the mountain (lifts and trails) could support upwards of 7,000 skiers, however, the base areas would be significantly pressured and uncomfortably overcrowded. Additionally, and although the terrain capacity of the lower mountain is 5,448 skiers, the snowmaking capacity also provides a significant limitation during early and late season times, as well as in periods of low snowfall such as the 2012 - 2013 season.

(Chart 3.1) Balance of Facilities - Existing Resort



6 Alternate Winter and Summer Activities

Beyond alpine skiing, many resorts are offering multi-season activities to complement the resort offering and adapt to shifting market trends, expectations and opportunities. Specifically, summer activities often are planned to make use of the base area and alpine infrastructure already in place. With global temperatures rising, alpine resorts are becoming a more popular summer retreat to escape the hot temperatures in lower elevation areas. In the summer months, activities such as golfing, adventure trails (hiking, biking & sightseeing), mountain bike parks, scenic chairlift rides and zip lines are popular offerings. In the winter, activities include cross-country skiing, snow tubing, big air events, snowbiking, snowmobiling (scooters) and ice skating. There are many other activities that can be offered year-round such as mountain coasters, climbing walls and bungee trampolines, as well as passive activities like concerts and festivals, conference retreats, weddings and reunions, wine & food tasting and cultural events. Alternate winter and summer activities should be planned carefully to consider the specific resort and market under consideration. While they often can provide additional energy and income to some resorts, they can conversely be a high operational expense with lower return for others.

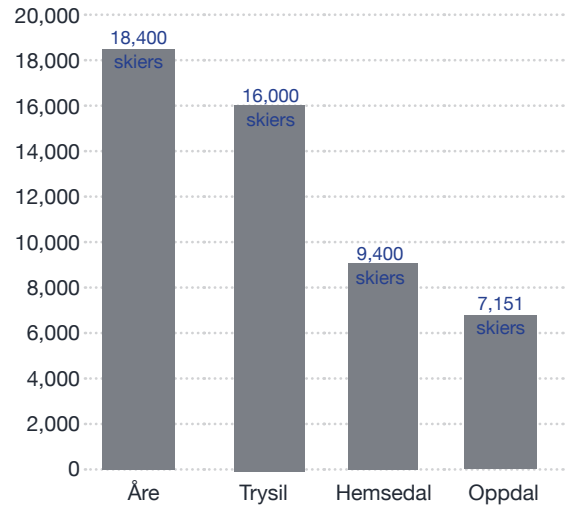
At Oppdal, cross-country skiing is the most notable existing alternate activity for visitors. Originating directly out of Oppdal Village is a fairly extensive, groomed trail system that traverses across the bottom of the mountain in the east and west directions (see Figure 1.0). There are several other smaller loops offered on the south side of the village. Oppdal provides ice skating, curling and biathlon training in and around the village area. Beyond these activities, Oppdal does not offer many other defined winter or summer activities besides miscellaneous events, scenic lift rides and basic hiking / biking trails. Most of the alternative offerings at Oppdal are focused on spending time in nature and engaging with the natural beauty of the area.

7 Competetive Resorts Comparision

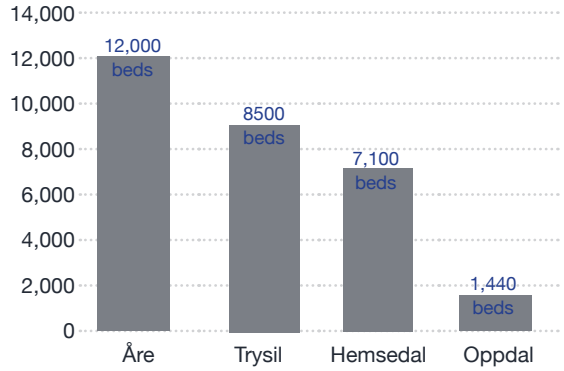
The following charts provide a comparision of successful national and regional resorts (Åre, Trysil, and Hemsedal) that IAD has prepared detailed studies for in the past. These resorts provide a relative benchmark of the quantity of skier capacity, ski-in / ski-out rental warm beds, trail area and snowmaking coverage area.

(Chart 3.2) Competetive Resorts Comparision

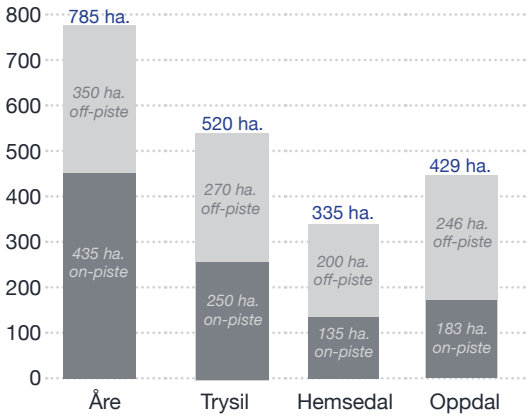
- Existing Daily Capacity (SAOT)



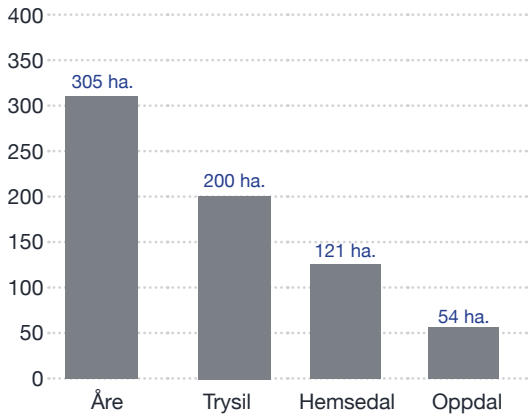
- Existing (Ski-in/Ski-out) Warm Beds



- Existing Terrain



- Existing Snowmaking Coverage



IV Resort Assessment

The purpose of this section is to summarize the findings of IAD's Technical Assessment, identify problem areas and suggest considerations for future study and planning at the resort. The reader should note that IAD has been retained to only provide a technical inventory and assessment of the existing alpine skisenter operation at Oppdal primarily related to the lift, trail and base areas. As such, this assessment provides critical observation of these facilities and offers general concepts that need to be studied in greater detail during a later phase of work. This assessment is the first step in the mountain master planning process but does not constitute a comprehensive Resort Master Plan for Oppdal. It is IAD's recommendation that a comprehensive Resort Master Plan should be completed to identify the detailed improvements, upgrades and/or expansions required at the resort.

As identified earlier, the resort is generally segmented in the 3 primary areas - Vangslia, Hovden and Stølen (see Figure 5.0). These areas are have been categorized below accordingly for ease of discussion areas followed by a resort wide discussion. Also as identified earlier and within the framework of the overall resort and specific areas, the 'upper zone' (above 950 m.) and 'lower zone' (below 950 m.) play a critical factor in the overall assessment of Oppdal and are referenced herein. **It is IAD's opinion that resort is only consistently reliable in the 'lower zone' and should be primarily analyzed accordingly.** Included in these discussions are land-use recommendations related to proposed critical base area development, critical ski terrain, possible ski terrain expansion and low priority (see Figure 6.0). Additionally, general observations related to the proposed Kinnpiken area and Oppdal Village area are provided.

1 Vangslia Area

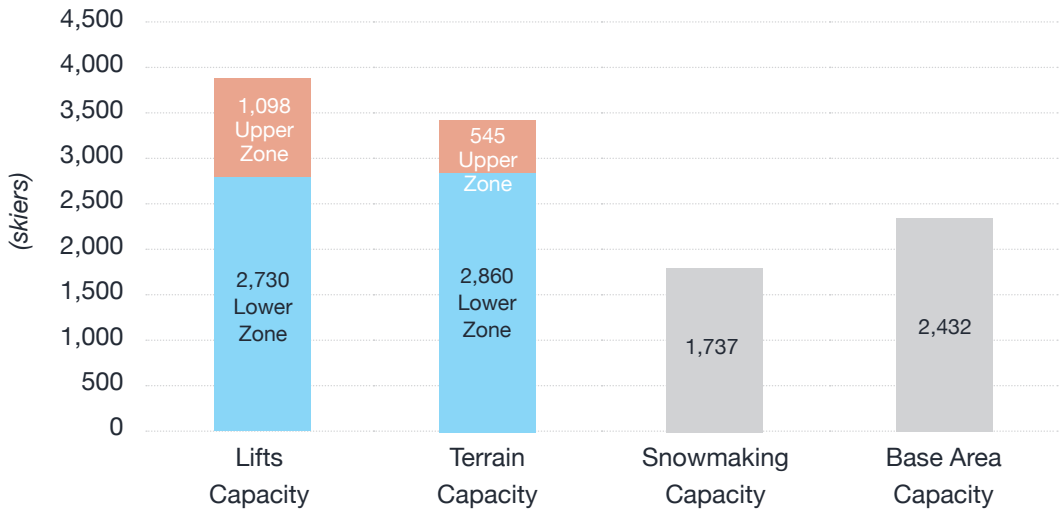
The Vangslia area is the most western area at the resort and is located approximately 3 km from the village center (see Figure 7.0). This area is historically the primary arrival base and most highly utilized area of the resort. The lifts and associated mountain capacity of each in the area are shown on Table 4.1.

(Table 4.1) Vangslia Lifts Capacity (SAOT)

Name	Lift Type	Zone	Skier Capacity (skiers)
Pomaen	PP	Lower	337
Toppheisen	TB	Upper	187
Vangsheisen 1	TB	Lower	569
Vangsheisen 2	TB	Upper	545
Barnesheisen	PP	Lower	205
Båndheis For Barn	MC	Lower	77
Solheisen	C-4	Lower	474
Ådalsheisen	C-4	Upper	366
Håkerxpressen	DC-4	Lower	1,068
Total Vangslia 'Design Day' Lift Capacity			**3,828**
Total Lower Zone 'Design Day' Lift Capacity			*2,730*
Total Upper Zone 'Design Day' Lift Capacity			*1,098*

As shown below in Chart 4.1, the existing lift capacity can support 2,730 skiers in the lower mountain zone and 1,098 skiers in the upper mountain zone. Existing trail capacity can support 2,860 skiers in the lower mountain zone (1,737 skiers on snowmaking terrain) and 545 skiers in the upper mountain zone. When considering existing parking facilities (400 cars, 20 buses), day skier services, and bed base (approximately 432 beds) in the Vangslia area, the total base capacity is estimated at 2,432 skiers.

(Chart 4.1) Balance of Facilities - Vangslia Zone



» Vangslia Constraints

The Vangslia base area is challenged by the steep access road and grades in the parking areas. Vehicles are often getting stuck or losing control along this steep entry road when snowy or icy conditions exist. Moreover, conflicts between cars, buses and pedestrians are common on busy days due to a lack of defined circulation routes and drop-off areas resulting in safety issues and guest confusion. No defined arrival, parking or drop-off management strategy or enforcement seems to be present at the base.

The majority of skier service facilities (tickets, rentals and restaurant), along with the primary lifts (Vangsheisen 1/ 2 and Pomaen) and beginner training (Barneheisen and Båndheis) area are located 15-25 meters (vertical) above the parking. These facilities are difficult to reach and no maintained walkway or stairs are present, therefore creating a negative first impression for guests. The skier arrival, rental and ticketing area is located directly in conflict with the staging and access area for (Vangsheisen 1/ 2 and Pomaen) lifts, all of which is too congested, narrow and dangerous causing congestion and safety issues.

Although 'beginner training areas' (Barneheisen and Båndheis) are provided at Vangslia, they are difficult to access, undersized, too steep in slope percentage and do not meet design criteria for comparable beginner training facilities in Scandinavia. Higher ability skiers have no direct access from the base or parking to a modern detachable chairlift and are required to ride a surface lift prior to reaching Håkerxpressen, the only detachable lift available in the area. Moreover, it appears that Håkerxpressen, the newest and most modern lift at the resort (also in the reliable lower zone), is currently in limited operation and not being run during the midweek. This lift appears to be under utilized due to lack of snowmaking and the number and variety of trails it services. It also has a difficult unloading area at the top lift terminal which is limiting and/or preventing use of it by lower ability skiers. Cabin development at the base between the parking area and Håkerxpressen have severely limited skiable connection from the base to Håkerxpressen. The planned development (purple zones N9, N7 and N6 on the land-use Kommune plan) could also present additional loss of and problems for skiing in this zone.

The Vangslia area is also challenged by a lack of snowmaking coverage and in poor snow conditions skiing can only be provided for 1,734 skiers. Due to the popularity of this area, there also appears to be an over-concentration of high speed skiers within the limited terrain. Access out of this area to the Hovden zone is difficult, requiring use of the Vangsheisen lifts in the high zone to reach trail 15. This Hovden access trail (skiway) is generally too steep for beginners, limiting use to intermediates and advanced skiers only. Trail 11 off of the Solheisen lift is too flat to be considered an access trail to Hovden. Return to Vangslia from Hovden is only possible via trail 45 through the drainage area. This skiway requires skiers to sidestep or walk uphill nearly 100 meters after the drainage, which is considered unacceptable for a modern ski area.

» Vangslia Opportunities

Vangslia is one of the popular areas of the resort and acting as a primary portal to the mountain. It is recommended that notable improvements to both the base area and ski terrain be made here. The highest priorities for the alpine area would be to expand and improve snowmaking capabilities given that this is a limiting factor in the capacity or the area and one of the primary reasons for under utilization of the Håkerxpressen lift / terrain. Improved access and return from Hovden to better

integrate the resort is also critical. This improved access should be focused in the reliable lower zone and would include improved or new skiways that are designed to acceptable standards (8 - 12% downhill slope gradients), as well as a potential direct lift connection (see H-01 area on Figure 7.0).

The area west of the Håkerxpressen (VA-03 area) has been classified as one of the high priority potential ski terrain expansion areas. In combination with snowmaking improvements in this zone, it presents a notable lower mountain opportunity to improve the existing ski product and utilization of the Håkerxpressen lift. An area even further west (VA-04 area) has been identified as a medium priority expansion area and would not be considered a priority for the resort but could be considered in the future. A larger, modern and acceptable beginner training area should be also be developed at Vangslia and considered a high priority. IAD has identified an acceptable location for this training area that would work in combination with future base area improvements.

The base area requires significant improvements to solve traffic, congestion, parking and access issues. The analysis indicates that it is a limiting factor in the capacity of the area, thus indicating that additional parking, skier services and ski in-ski out accommodations should be planned here. Several areas have been designated at the Vangslia base as high priority base lands (see VA-01 and VA-02 areas on Figure 7.0). **IAD recommends that detailed design of these critical base lands zones occur as part of the subsequent master plan prior to any construction of previous or future proposals or plans created for them.** It is considered that these high priority base lands could include parking, skier services, commercial and high-quality ski in-ski out (warm bed) accommodation development that carefully integrates with existing and proposed ski area facilities. Additional, poorly located cabin development in these critical areas will reduce future ski circulation.

2 Hovden Area

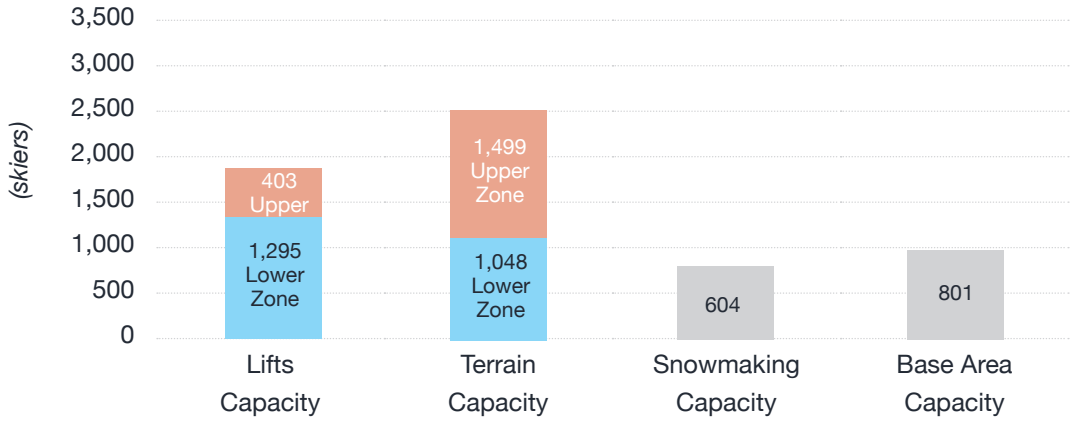
The Hovden area is the most central area at the resort and is located approximately 1 km from the village center (see Figure 8.0). This area is most closely located to Oppdal Village but does not get utilized to its lack of connection to the village, lack of parking and access to predominately difficult terrain. The lifts and associated mountain capacity of each in the area are shown on Table 4.2.

(Table 4.2) Hovden Lifts Capacity (SAOT)

Name	Lift Type	Zone	Skier Capacity (skiers)
Tverrheisen	TB	Upper	271
Hovdenexpressen	DC-4	Lower	895
Hovdenheisen	TB	Lower	247
Toppheisen	PP	Upper	132
Sletvoldheisen	PP	Lower	153
Total Hovden 'Design Day' Lift Capacity			**1,698**
Total Lower Zone 'Design Day' Lift Capacity			*1,295*
Total Upper Zone 'Design Day' Lift Capacity			*403*

As shown below in Chart 4.2, the existing lift capacity can support 1,295 skiers in the lower mountain zone, and 403 skiers in the upper mountain zone. Existing trail capacity can support 1,048 skiers in the lower mountain zone (604 skiers on snowmaking terrain) and 1,499 skiers in the upper mountain zone. Base area parking is generally limited in the Hovden base area. When considering existing parking (approximately 35 cars) and bed base (approximately 870 beds) in the Hovden zone, the total base capacity is estimated at 801 skiers/day. For the purposes of this analysis, the hotel and cabins in the Sletvoldheisen area has been considered part of the Hovden zone.

(Chart 4.2) Balance of Facilities - Hovden Zone



» Hovden Constraints

The primary Hovden area was originally developed as a race training area and supports only advanced skiers on the frontside trails. This presents a limitation for commercial use of the lift and trail system here. As such, Hovden acts as a critical skier connection between Vangslia and Stølen, as well as for off-piste skiing in the vast upper mountain area to the north (Adalsheisen). However, the critical connections of both skiways (44, 31) which provide the only alternative access from Vangslia, Adalheisen and Stølen areas are not constructed to high quality standards. Neither skiway provides

a safe, reliable ski route in low snow and poor weather conditions. As mentioned in Vangslia discussion, access to (skiway 45) and from Vangslia (skiway 15) is also severely problematic. This factor severely limits lower zone connectivity between the 3 major zones unless skiers can use the upper mountain lifts.

The frontside lifts are usually operational in adverse weather but novice skiers are challenged by steep sections of trails 25 and 26 on the backside of Hovden, again limiting skier utilization and access to Vangslia and Stølen. The primary on-mountain restaurant located at the top of the Hovdenxpressen is also limited to intermediate and advanced skiing guests due to this same rationale. Although the Hovden area is most closely located to the village center, no lift or skiing connection exists between the two.

» Hovden Opportunities

The primary opportunities in the Hovden area should focus on connectivity of the resort complex, allowing for beginner access to and from all areas. Primarily, skiways 44 (H-01) and 31 (H-03) need to be improved and made reliable. While it appears difficult due to the rocky terrain, additional study should be made to determine if a viable beginner skiway is possible from the top terminal of Hovdenxpressen to trails 25 and 26, therefore allowing a complete beginner access to from all areas of the resort. Furthermore, study of additional (transport and/or skiing) lifts on the back side (north) of the Hovden summit should be made to determine if a direct connection between Vangslia and Stølen could be made. While the Tverrheisen and Fjellheisen generally offer this connection currently, it is required to move through the unreliable upper zone and would be generally considered uncomfortable for beginners.

Oppdal Village Lift and Ski Connection Opportunities

IAD has studied in detail, the potential corridors to provide lift access from the town center to the Hovden base area (H-02 area). It is felt that unless this lift could be located within the village center, the viability of yet another remote base areas would not make economic sense. If a lift is to be considered from the town center, it should be seen as a way to provide improved ski area access to Oppdal residents and support the existing and planned overnight accommodations in the town center. It does not seem feasible to build another day skier arrival area within the village center. There is inadequate space for surface parking spaces and it is advisable to plan major parking expansions at either Vangslia or Stølen base areas where open, flat land is available. IAD would not recommend structure parking or increasing vehicle traffic in the existing town center.

A lift connection project from town would be estimated to accommodate 200 - 400 local residents and 500 - 800 overnight guests. For this reason and due the difficulty of surface lift alignments, a lower capacity fixed grip chairlift or pulse gondola would be recommended to meet a demand of 700 – 1,200 skiers/day. Two primary lift alignment options have been considered and would require a more detailed future study for complete viability (see Figure 9.0).

Option 1 would utilize the existing open space walkway area that passes past the hospital site. The lower terminal could be placed at the existing childrens day-care facility or extend further down towards the village to the home adjacent to the Alpine Hotel. Only the day care center would be directly impacted by the northern / higher terminal location. If the lift were extended down to the hotel location then1-2 additional home sites would be impacted. The upper terminal of this lift would terminate in the (Bjørkgrend) farm area east of and above the Hovden base. This upper terminal

location would provide sufficient access to slide across to the Hovdenxpressen. Return skiing to the village could be accomplished from the farm location, through an underpass of the road and down the open space corridor (approximately 740 – 800 meters in length). It is IAD's recommendation that the Kommune immediately preserve the land required to implement a town center lift and ski connection in the future. The critical land to be considered and preserved has been identified on Figure 9.0.

Option 2 would start from Jon Erik Schønheyder's house and run parallel to or down Bjerkvegen street to a point just above the existing apartments at the Hovden base (approx. elevation 600 m). This option would require removal of approximately 3 existing home sites at the bottom terminal and would likely impact approximately 13 other home sites along Bjerkvegen street. This lift would be approximately 750 m. in length. Skiers would be required to 'download' this lift if no return ski access was provided through the open space zone.

The primary benefitof a village lift connection would be to allow all resort skiers to visit town facilities and businesses during the day and return to the Hovden base. Although this solution is not critical to pure ski area operations, it does provide a direct village connection for guests residing downtown and may help energize commercial operations in the village core.

3 Stølen Area

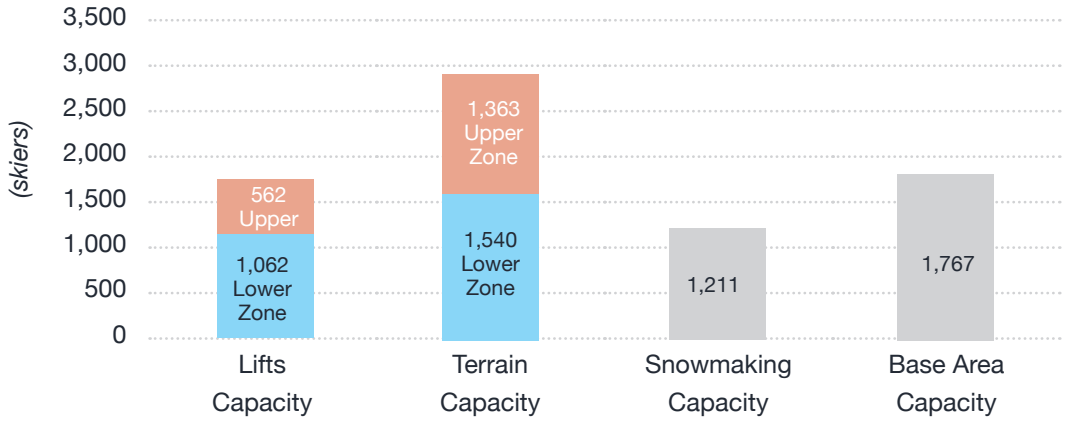
The Stølen area is the most eastern area at the resort and is located approximately 4 km from the village center (see Figure 10.0). This area has two primary lower zone trails that provide excellent intermediate skiing but again feels generally disconnected from the Hovden and Vangslia areas. The lifts and associated mountain capacity of each in the area are shown on Table 4.3.

(Table 4.3) Stølen Lifts Capacity (SAOT)

Name	Lift Type	Zone	Skier Capacity (skiers)
Barneheis	PP	Lower	120
Stølen 1	TB	Lower	458
Stølen 3	TB	Lower	485
Fjellheisen	TB	Upper	562
Total Stølen 'Design Day' Lift Capacity			**1,642**
Total Lower Zone 'Design Day' Lift Capacity			*1,062*
Total Upper Zone 'Design Day' Lift Capacity			*562*

As shown below in Chart 4.3, the existing lift capacity can support 1,062 skiers in the lower mountain zone, and 562 skiers in the upper mountain zone. Existing trail capacity can support 1,540 skiers in the lower mountain zone (1,211 skiers on snowmaking terrain) and 1,363 skiers in the upper mountain zone. When considering existing day skier parking and skier services and bed base (approximately 230 beds) in the Stølen zone, the total base capacity is estimated at 1,767 skiers/day.

(Chart 4.2) Balance of Facilities - Stølen Zone



» Stølen Constraints

The Stølen area was originally developed and operated by the Kommune to compete with the other two mountain operations. Although this zone is reasonably balanced within the lower zone, it is limited to 1,062 skiers in adverse weather. Under adverse weather conditions and closure of the upper zone, connections to and from Hovden and Vangslia are limited. Primarily, skiway 31 must be accessed from upper mountain lifts and although marked on the trail map and signed, the access from trails 32 and 33 (to 31) is unacceptable in its current condition. Additionally, trail 32 is currently under utilized due to its lack of snowmaking and maintenance. The lack of an chairlift in this area also limits the true potential of the terrain and optimization of the area.

The base area at Stølen provides reasonable parking and access but generally feels constrained and undersized. Beginner skiing in this area is generally adequate under current volumes but additional beginner training offerings should be provided in the future. Similar to the Vangslia base area, new cabin and apartment approvals (currently under construction) directly west of the Barneheis lift have severely limited base area and skiing growth and have further constrained this base. Moreover, this development could have been planned to provide extremely high quality ski in - ski out warm beds. However, the implemented plan did not consider any of these issues.

» Stølen Opportunities

IAD would recommend relocation and improved construction of Skiway 31 to immediately allow all ability levels to access across the lower zone to Hovden (H-03). As mentioned above, Stølen has two primary trails which provide excellent intermediate ability terrain with good snowmaking coverage. There appears to be additional high quality intermediate and beginner terrain located directly west of trail 32 and could provide for several additional trails, as well as lift service (see ST-02 area on figure 10.0). This lift(s) may have the potential to service this skiing out of an expanded base (Gorset) farm area along the road (see ST-01 zone).

In order to avoid additional development conflicts, as have already happened at this base, the high priority base land areas (see ST-01 area on Figure 10.0) should be carefully preserved in future land use plans. **IAD recommends that detailed design of these critical base lands zones occur as**

part of the subsequent master plan prior to any construction of previous or future proposals or plans created for them. It is considered that these high priority base lands could include parking, skier services, commercial and high-quality ski in-ski out (warm bed) accommodation development that carefully integrates with existing and proposed ski area facilities.

Kinnpiken Observations

IAD has thoroughly reviewed the Kinnpiken area during the course of this study. The approach of the local landowners in this area to work together as one collective group (Kinnpiken Utvikling) is commendable and important. This type of collaboration between landowners has worked well at other resorts and allows for thoughtful land planning practices that maximize the opportunities for integrated ski area and real estate development. This collective landowner approach should be more widely considered and implemented wherever possible at Oppdal, particularily within the base area zones identified by IAD as part of this study.

From a physical capability perspective, the Kinnpiken site presents a decent opportunity for the development of ski in / ski out cabins and other accommodations within a strategic zone surrounding the Kings Road (see K-01 area on Figure 11.0). In order to maximize the value of the land and real estate, careful planning of the lifts, trails, and ski-in / ski-out access skiways will be required and should remain withhin the reliable low zone (see K-02 area). Most importantly, the success of this area will be dependent on the reliable skiing connection to and from the existing resort (Stølen). As such, the absolutely critical connection area has been defined and will require careful, detailed planning to ensure that the Kinnpiken area is not blocked off from future integration (see ST-03 area).

The entire upper mountain area surrounding the Kinnpiken and Stølhøa summits has also been studied extensively for lift and trail development. Various different alternatives have been presented for ski facilities in this upper mountain zone in the past and still remain on the current Kommune and Kinnpiken Utvikling plans. A primary component of these plans was the integration of an olympic downhill course from the Kinnpiken summit. IAD's study concludes that this entire upper mountain zone is extremely difficult to develop for commercially viable ski facilities and/or a downhill course (see K-03 area). This entire upper mountain area is generally steep, rocky, windy, and interspersed with large cliffs and drainages. Construction of ski facilities here would be difficult and expensive and would only service more advanced level skiers in the unreliable upper zone of the resort. IAD would place very low priority on pursuing lifts, trails or a downhill course in this area and generally does not recommend that it be further pursued in the near future.

Overall, IAD does not see the reliable Kinnpiken areas (K-01 and K-02) as a high priority at this time yet should be preserved in the future after completion of the other improvements at Vangslia, Hovden and Stølen. It has the potential to further segment the resort area by creating yet another poorly connected resort base if implemented too quickly or aggressively without proper planning. The current Kinnpiken Utvikling plans provided to IAD do not reflect an optimal solution that optimizes connection with the existing resort or ski-in / ski-out real estate development. The Kinnpiken area can be a nice ski-in / ski-out cabin development if planned properly. IAD does not see that this area provides a commercial skiing expansion for the resort, rather an independent ski-in / ski-out development that connects with the resort.

4 Overall Resort Observations and Recommendations

Ski Facilities

The resort is highly segmented between the Vangslia, Hovden and Stølen areas. These areas were originally developed to compete with one another and adequate, easy skier connections were not planned or implemented to make a cohesive resort experience. High zone lifts provide the most convenient interconnection options but are constrained by adverse weather and limited reliable access between lower zones. In adverse weather, future lift and trail operations should be designed to accommodate all skiers in the lower mountain zones. Furthermore, these lower zones tend to provide the most commercially viable ski product for all ability levels.

IAD believes that significant improvements of the existing resort need to be made in order meet market expectations. Currently, the quality of product and guest experience is lacking when compared to competitive regional, national and international (Swedish) resorts. Most importantly, lower zone skiways, trails and transportation lifts need to be improved or installed to ensure reliable, safe and convenient access between all three areas. Additionally, snowmaking coverage in the lower mountain zone must be expanded to meet the demands of approximately 5,000 skiers per day (from current 3,552). All trails and skiways must be constructed to higher standards prior to snowmaking installation. All skiways at the resort need be improved to a minimum 8 - 12% consistent grade and 8 – 10 m width. Earth grading will be required to remove obstacles (rocks, tree stumps, etc.) and provide adequate water control for drainage. These improvements will allow for better grooming and maintenance in low snow conditions and a generally more reliable skiing product.

The Kommune should immediately preserve the last remaining critical ski terrain zones that IAD has identified (VA-03 and ST-02). These areas provide the most viable opportunities for lift and trail development on the lower mountain to increase skier visits. In the longer-term, the resort should consider a strategy for replacement or supplement of surface lifts with modern detachble equipment to remain competitive and meet guest expectations. Once all lower mountain improvements and expansions are made, upper mountain expansion zones (VA-05 and H-04) could be considered for additional ski terrain development. It is estimated that development of these areas would not occur for 10 to 15 years. In the current Kommune approved land use plan, nearly all new expansion of lift and trails are indicated in these upper mountain zones. All planning and land use approvals could retain the possibility of upper mountain development but IAD would not recommend future expansion into these zones until the guest experience on the lower mountain areas is improved.

Base Areas

Base area land use plans previously approved by the Kommune have never adequately addressed the need for day skier parking with direct access to lifts and skier services. Residential cabin and overnight accommodations have also never been designed as true ski-in / ski-out units that can provide warm bed rental capacity. It is critical that future base area design and approvals must allow for adequate parking and guest services, as well as integrate accommodation development which does not severely limit trail development and skier circulation (i.e. recent real estate areas on Stølen's west side). IAD believes that the critical base area lands identified (VA-01, VA-02 and ST-01) represent the best remaining opportunities to provide improved and expanded base areas that properly integrate all the necessary elements. It is absolutely necessary that the Kommune preserve these areas and restrict any further development of them until detailed site plans have been prepared during the subsequent master planning phase of this process.

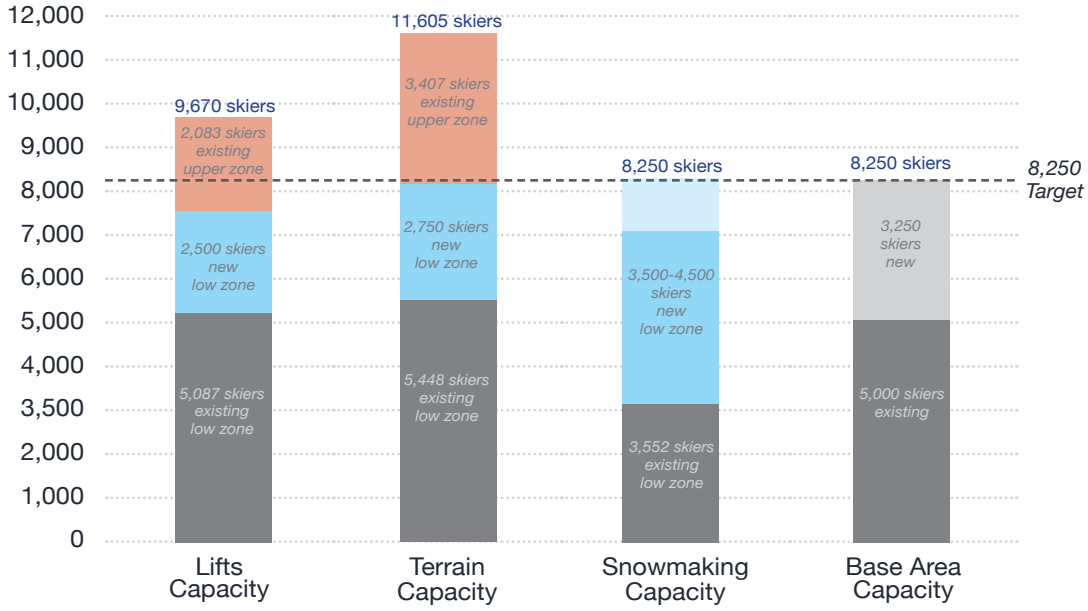
The integration of the resort to Oppdal Village could be enhanced through the described ski and lift connection, which should also be carefully preserved. The village should remain, and could be further enhanced, as a focal point of non-skiing, night-time and summer activity at the resort. However, improvement and expansion of the base areas at Vangslia and Stølen remain a critical priority regardless of whether a village connection is implemented. Kinnpiken represents a less immediate but decent opportunity for ski area and accommodation development. Nonetheless, critical connections should be preserved by the Kommune so the opportunity isn't lost in the future and more detailed plans should be prepared for the entire Kinnpiken area.

Capacity and Growth

Lift capacity is currently adequate to support approximately 5,000 skiers on the lower mountain (7,151 skiers combined lower and upper mountain). On the busiest days of the season, base areas limit the total number of skiers to approximately 5,000. Although total trail capacity on the lower mountain is approximately 5,448 skiers, the trail capacity is further limited to approximately 3,552 skiers or less on trails with snowmaking coverage. Current design of existing facilities limits reliable skier attendance to less than 5,000 skiers on busiest days and with these limitations lead to annual attendance limits of 150,000 – 170,000 skiers visits per year. In a poor snow year when the resort is dependent on snowmaking trails, only approximately 130,000 skiers per year could be accommodated.

The limited amount of snowmaking on lower mountain trails, base area parking, guest services, and ski-in / ski-out warm beds are the biggest limiting factors to growth of the skier market at Oppdal. If the necessary improvements were made to address these issues, it may be possible to increase the daily attendance from 5,000 skiers per day (reliable lower mountain) to approximately 8,250 skiers per day (reliable lower mountain). It would be estimated from this daily capacity that the resort could practically reach 300,000 - 350,000 skier days annually. In order to reach this target, the following projects would be necessary: Improvements to existing lower mountain trails and connections; 50 - 60 hectares of new lower mountain zone trails; 2 new lower mountain zone detachable chairlifts; 55 - 70 hectares of additional snowmaking coverage on existing and new trails; 500 - 650 new base area parking spaces; Improvement and expansion of guest services; and 1,500 - 2,000 new ski-in / ski-out, rental (warm) beds. It is possible that this target could be exceeded in the long-term through the expansion of Kinnpiken and other long-term upgrades, improvements or expansions.

(Chart 4.3) Projected Capacity Growth



Overall, Oppdal is currently challenged and must make significant improvements to remain in operation and competitive. In order to fill beds and increase mid-week attendance, the quality of ski terrain, guest services, and day skier facilities must be dramatically improved to meet current competitive resort standards. IAD believes that all of the recommendations made herein provide realistic, achievable and economically viable opportunities to improve attendance in both the short and long-term. Achieving these goals will require consistent and thoughtful improvements over the next 10-15 years. There appears to be no single solution or project that comprehensively addresses the constraints at the resort. If no action is taken in the near future, however, IAD believes that the resort and community will see decreased visitation and signifcant economic losses.

It is recommended that as an immediate next step that a comprehensive, detailed Resort Master Plan be prepared to further refine all the opportunities identified herein.