CAIRNGORM SKI AREA FEASIBILITY ASSESSMENT & STRATEGIC PLAN

November 2018

Prepared by:
SE GROUP

APPENDICES

APPENDIX 1.
SE GROUP COMPANY PROFILE

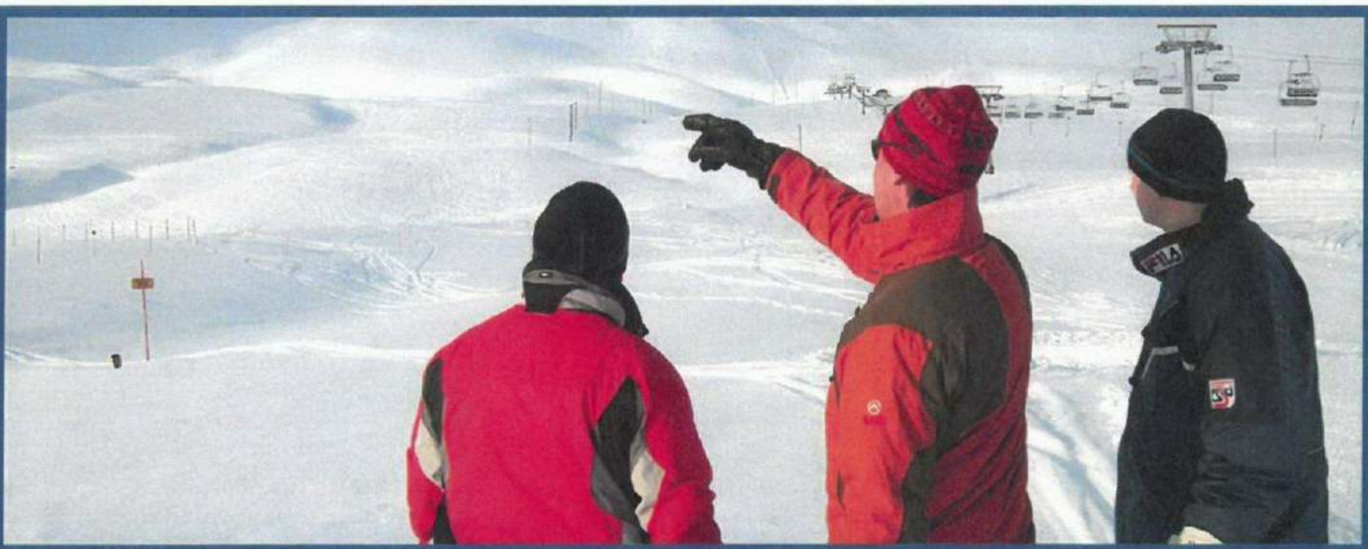
For 60 years SE Group has helped create and sustain some of the world's most successful ski resorts.

We are a strategic planning, permitting, and design firm that has completed more than 2,500 projects at over 600 ski resorts on 6 continents.

Ski Area and Mountain Resort Planning and Design is the historic cornerstone of SE Group.

Our clients benefit from our experience and understanding of how to identify opportunities and address constraints.

We understand how resorts grow and how outdoor recreation is constantly evolving.



We help our clients to envision, develop, and advance their business by providing the following **key services** for new and existing ski areas/mountain resorts, of all sizes and market orientations:

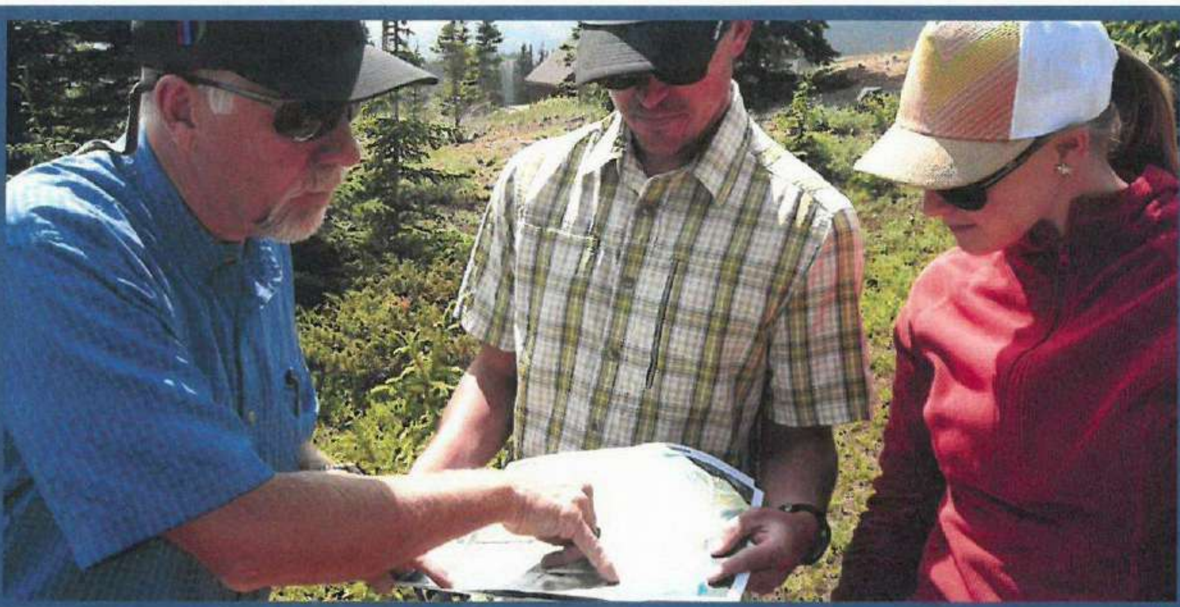
Mountain and Base Area Planning and Design
Multi-Season Recreation Planning
Market and Economic Analysis
Project Execution

The SE Group team has worked on projects throughout the world.
We have a worldly perspective on what it takes to create enjoyable, successful, and sustainable four-season mountain resorts.

Canada • Mexico • Chile • Argentina • Iceland • Norway • Sweden
Greece • Turkey • Azerbaijan • Kosovo • Slovakia • Croatia • Republic of Georgia
Hungary • Spain • China • Japan • South Korea • Micronesia
New Zealand • Australia • South Africa • Scotland

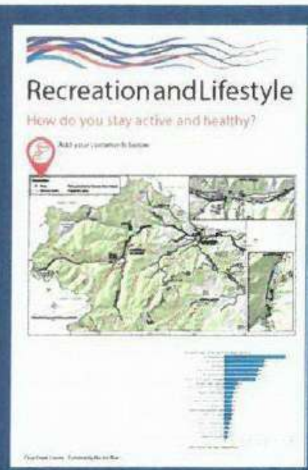
Representative Client List

Alacam Mountain Resort, Turkey
Alta Ski Area
Alyeska Resort
AM Cube, Japan
Angel Fire Resort
Arapahoe Basin
Arizona Snowbowl
Aspen Meadows
Aspen Skiing Company
Attitash
Bankov, Slovakia
Bear Valley Mountain Resort
Beaver Creek Resort
Beitostølen & Raudalen, Norway
Belnatio Atema Kogen, Japan
Blue Mountain (Canada)
Blue Mountain (PA)
Breckenridge Ski Resort
Cannon Mountain
Chang Bai Shan, China
Chengde, China
Chugach Powder Guides
CL Resources, New Zealand
CNL Income Properties, Inc.
Copper Mountain
Cranmore Mountain Resort
Crested Butte Mountain Resort
Crystal Mountain (MI)
Crystal Mountain, Inc. (WA)
Deer Valley Resort Company
Dodge Ridge Ski Area
Falls Creek, Australia
Gaustablikk Modeling, Norway
Geilo, Norway
Giants Ridge
Golsvjellet Area, Norway
Grand Targhee Resort
Gunstock Mountain Resort
Hafjell, Norway
Harahorn & Solheisen, Norway
Heavenly Mountain Resort
Hlidarfjall Ski Resort, Iceland
Hovden, Norway
Hunderfossen Familiepark, Norway
Hunter Mountain
Hyland Hills Ski Area
Hyosung Resort, Korea
Iida Forest Resort, Japan
Iizuna Kogen, Japan
Istria Estate Country Club, Croatia
Itonose Resort, Japan
Jackson Hole Mountain Resort
Jiminy Peak Mountain Resort
Jisan Ski Resort, Korea
Joetsu Kokusai, Japan
Keystone Resort
Killington Resort
Kirkwood Mountain Resort
Kistelek Thermal Spa and Golf Resort, Hungary
L'Aldosa Canillo, Andorra
La Tuca, Spain
Lake Louise Ski Area
Le Massif
Loon Mountain
Lutsen Mountains
Lyngen Fritidspark, Norway
Marble Mountain
Marmot Basin
Minakami Kogen, Japan
Monarch Mountain
Mont Orford
Mont Sutton
Mont Tremblant
Mont-Sainte-Anne
Moonlight Basin
Mount Snow Resort
Mount Sunapee Resort
Mountain High Resort
Mt. Agassiz Ski Area
Mt. Ashland
Mt. Bachelor, Inc.
Mt. Hood Meadows Ski Resort
Mt. Rose Ski Tahoe
Mt. Shasta
Narvik Skisenter, Norway
Niseko, Japan
Norefjell, Norway
Northsta California
Oak Valley Resort, Korea
Okemo Mountain Resort
Olympic National Park
Olympic Regional Development Authority
Omote Manza, Japan
Oppdal, Norway
Osorakan, Japan
Parks Canada
Pats Peak
Ping Tian, China
Poley Mountain
Portillo, Chile
Powderhorn Resort
Red Lodge Mountain
RED Mountain Resort
Red River Ski Area
Resort at Squaw Creek
Revelstoke Mountain Resort
Riksgränsen, Sweden
Rusutsu, Japan
Sahara Ski Area, Japan
Saioto, Japan
Salt Lake Organizing Committee
Seven Springs
Shiga Kogen, Japan
Sierra-at-Tahoe Ski Resort
Ski Bariloche, Argentina
Ski Santa Fe
Smugglers Notch
Snowbasin
Snowbird
Soldier Mountain
Solitude Mountain Resort
Squaw Valley USA
Steamboat Ski & Resort
Stowe Mountain Resort
Stratton
Sugar Bowl Resort
Sugarbush Resort
Sugarloaf
Sun Valley Resort
Sunday River Ski Resort
Sunshine Village
Svandalen Skisenter, Norway
Takano, Japan
Taos Ski Valley
Tatra Mountains, Slovakia
Telemark Region, Norway
Telluride Ski & Golf Resort
The Summit at Snoqualmie
Timberline Four Season Resort
Town of Telluride
Turkish Ski Federation
Turoa, New Zealand
Uludag Resort, Turkey
Uvdal and Dagalifjellet Area, Norway
Vail Resorts, Inc.
Vidauban, France
Vratna Dolina, Slovakia
Wachusett Mountain Ski Area
Waterville Valley Resort
Whistler/Blackcomb
White Pass Ski Area
Whiteface
Whitetail Mountain Resort
Wildcat Mountain Ski Area
Willamette Pass Resort
Wisp Resort
Yabuli, China
Yuzawa Nakazato, Japan



Our team is seasoned and multi-disciplinary:
strategists, planners, economic analysts, and designers.

As a team, we love what we do, and bring that enthusiasm, inspiration, and energy to working with clients —in a truly collaborative and open approach— bringing great ideas to life.



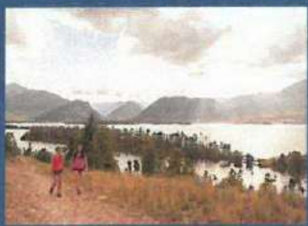
COMMUNITY PLANNING

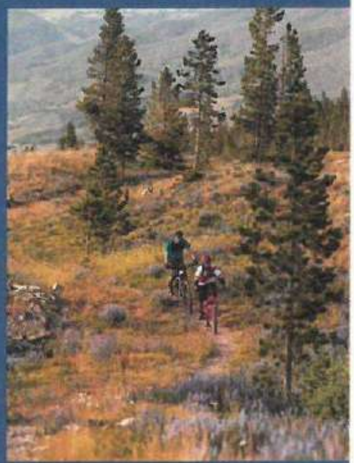
SE Group also has extensive experience with the planning, design, and implementation of community and outdoor recreation projects for governments and non-profits, with a focus on communities in locations influenced by strong natural resource base, visitation and tourism, and seek to promote access to the outdoors.

Comprehensive Plans
Parks, Trails, and Open Space Plans
Public Outreach and Visioning
Zoning Analysis
Design Guidelines and Standards
Economic Development Planning

Town of Silverthorne Comprehensive Plan

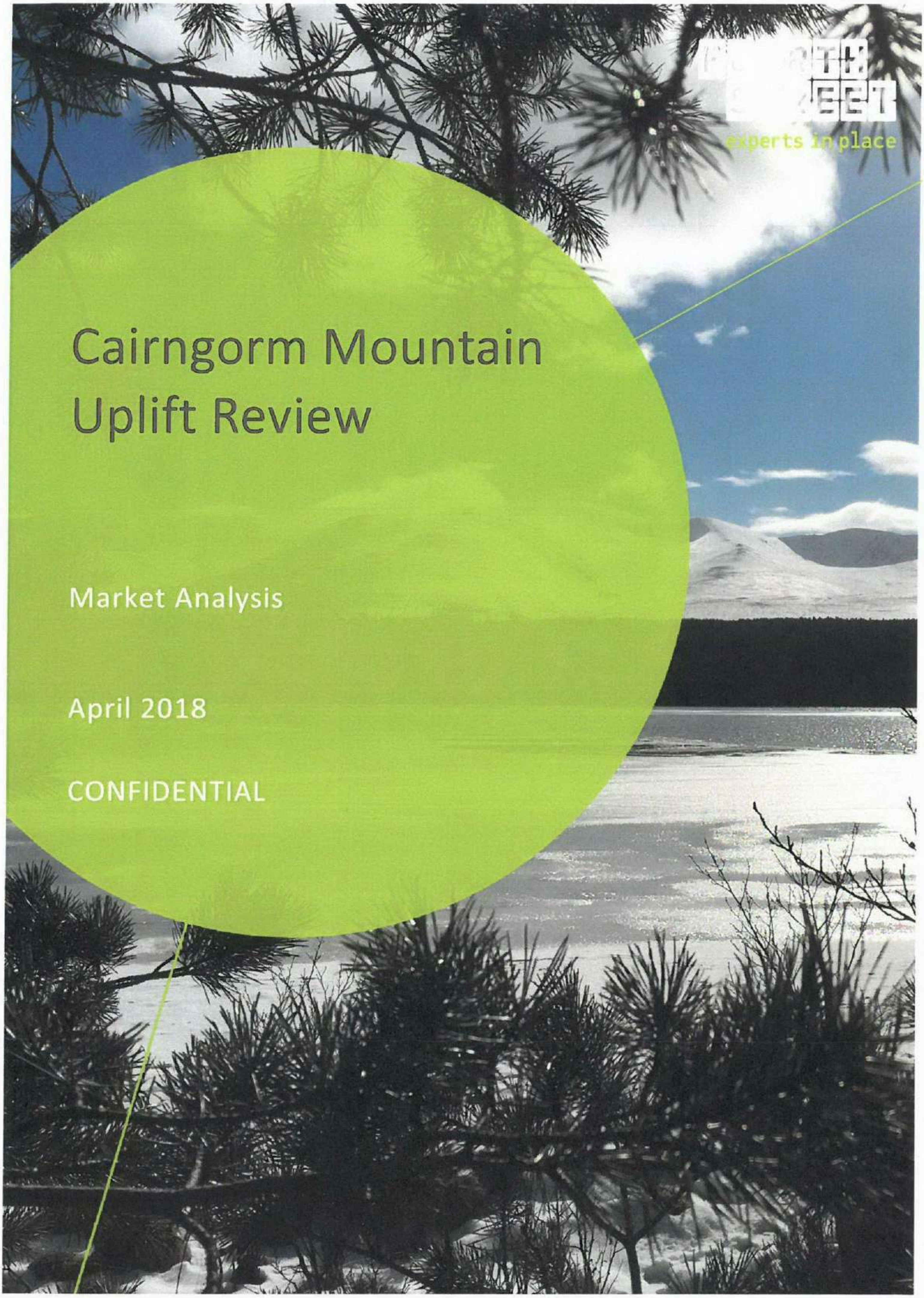
Town of Frisco Trails Master Plan





Estes Valley Recreation and Park District – Comprehensive Master Trails Plan

APPENDIX 2.
CAIRNGORM MOUNTAIN UPLIFT REVIEW: MARKET ANALYSIS



Cairngorm Mountain Uplift Review

Market Analysis

April 2018

CONFIDENTIAL

Contents

1 Introduction

Fourth Street has prepared this market analysis to support SE Group in undertaking the Cairngorm Uplift Review. The analysis has been based on the combination of: desktop research, site visits carried out between the 5th to the 8th March 2018 and stakeholder engagement, in the form of face-to-face meetings and a stakeholder survey. The desktop research has covered a wide range of published reports, industry data and historic performance data for the mountain operation.

2 Market Demand

2.1 Snowsports Participation in Scotland

While there doesn't appear to be a definitive measure of the number of skiers in Scotland, anecdotally, the snowsports market in Scotland is estimated to be made up of 120,000 recreational skiers[1]. Previous Mintel reports[2] put participation levels amongst Scottish adults at 3.5%-4.4% (2005-2009) or 150,000-190,000 adult skiers – suggesting there has been a decline in recent years.

Consultations with stakeholders identified that there are around 37 active Ski Clubs in Scotland with a collective membership of around 5,000. Cairngorm Ski Club, being one of these, is a local club with a focus on actively growing its membership. With around 200 members, they are targeting a tentative 10% annual growth. Of the 200 members, around 120-130 are children and they are actively building relationships with local schools.

The Scottish Ski Club, which also has a hut on Cairngorm Mountain, has around 1,200 members from all over Scotland, with around 200-300 (licensed) racers, the balance being recreational skiers.

The UK overall has a large proportion of national skiers at 6.3 million, this equates to around 10% of the national population[3]. Set against this national figure Scotland's participation level appears low and represents a relatively small market of 'potential' skiers. The UK market is predominantly outbound and foreign skiers to the UK are small, estimated at 1%[3], thus presenting additional challenges for the Scottish ski industry. However worldwide the share of foreign visitors is also limited, at around 12%[3] with most locations dependent on their domestic markets. France has the highest proportion of foreign visitors while Germany and the UK represent the biggest outbound markets[3].

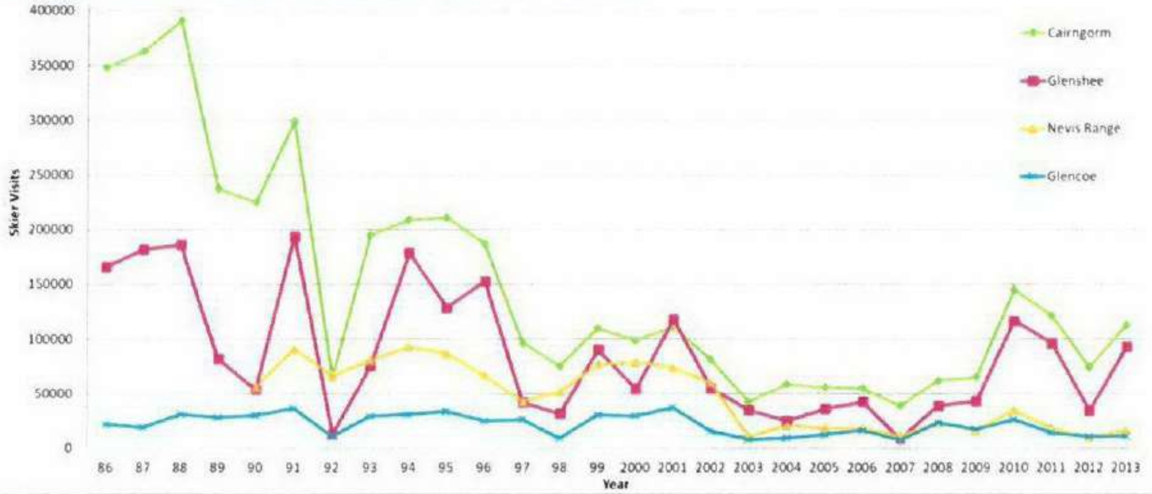
Scotland's five ski resorts have, by and large, shared similar mixed fortunes with overall skier visits, having declined significantly over the last 20 years from a peak in the 1980s (c.600,000 total visits) – as illustrated in Figure 1. Recent figures put visitor numbers across the five resorts at around 270,000 (based on a 3-year average 2013-2015)[4]. The drop off in visitor numbers is attributed to improved access to Europe, by both road and air along with the introduction of low-cost airlines. The 2017 International Report on Snow and Mountain Tourism cites that most of the UK ski business is currently abroad with over 1 million skiers travelling to the Alps or other destinations and that this may well be closer to 2 million allowing for the independent traveller market.

Scotland is not alone in experiencing declining numbers of ski visits and resorts are increasingly diversifying their offer to provide a range of year-round activities. France experienced a decline in skier visits in 2015/2016 of 3.5% from the previous season, the third consecutive season to show a decrease[5].

[1] Reported by Snowsports Scotland and assumed to include all forms of skiing and snowboarding
[2] Snowsports Leisure Intelligence, June 2010
[3] 2017 International Report on Snow & Mountain Tourism, Laurent Vanat
[4] Figures from the five ski resorts – Snowsports Update 2016, HIE
[5] 2017 International Report on Snow & Mountain Tourism, Laurent Vanat

The recent Knight Frank Ski Property Review (2017) reports that 25% of annual visitors to the Alps are non-skiers[6] and that this increasing non-skier market is resulting in resorts delivering a calendar of events and non-ski activities including mountain bike trails, Winter golf, paragliding, zip wires, polo and ice-skating. Many of the major alpine resorts are making significant investments in infrastructure, facilities and year-round offering. This will further drive up consumers expectations in terms of the overall quality of the experience.

Figure 1: Scottish Snowsports Market - Skier Visits Volume



Source: HIE historical information

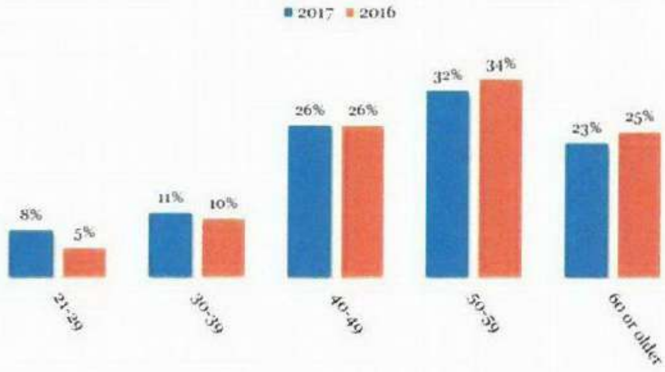
2.1.1 UK Market Generally

In terms of participation, the UK ski market is in decline with an ageing demographic and a need to encourage new younger skiers into the sport. The 2017 Consumer Research Report completed by the Ski Club of Great Britain surveyed over 10,000 skiers and 1,500 non-skiers. Most of the respondents had skied 'last season' or the 'season before' (86%).

Respondents are skewed towards the 40+ age groups with some signs of increases in participation among the younger age groups (Figure 2). Anecdotally, this growth in younger age groups has in part been put down to interest in newer forms of snowsports such as freestyle, slopestyle and 'park and pipe'. The younger age groups are the keenest to ski more in the future; 51% of those aged 21-29 years would like to increase their skiing.

[6] Ski Property Report 2017 - Assessing Property Market Conditions Across Key Alpine Resorts, Knight Frank

Figure 2: Age of Respondents



Source: Ski Club Great Britain, Consumer Research Report 2017

Skiing remains male dominated (70% of respondents) in the UK market in terms of participation, indicating a potential growth opportunity within the female market. 'New skiers' are present in most age bands (especially 40-49 year olds and 21-29 year olds) with further potential participation from 'lapsed skiers' i.e. those intending to ski again in the next three years, being up 4% to 24%[7].

The UK industry continues to face increasing competition from abroad. The majority of the UK market is going overseas, in particular to France[7]. Scotland compares poorly when rated to other destinations with an NPS[8] score of 8 compared to Canada at 69, the highest rated. The NPS rating provides a measure of performance by asking customers how likely they would be to recommend a product, service or company, in this instance Scotland as a ski destination. Scotland also has a low retention rate of 35% (where people skied and where they were likely to ski 'next season') with France highest at 74%[7].

Scotland appears to suffer from poor perceptions as a ski destination and this is one of the key challenges to address in terms of future growth. *What would it take for Scotland to change perceptions and put itself back on the map as a more appealing ski destination?*

2.1.2 Impact of Weather

Skiing in Scotland can be challenging with unpredictable weather patterns and often harsh skiing conditions (notably, caused by high winds and regular freeze / thaw effect). There is a common saying within the local market that *"if you can ski in Scotland, you can ski anywhere". Is there an opportunity to embrace the unique characteristics (and challenges) of skiing in Scotland and market Scotland as a 'collector' destination for example - 'an experience you have to try'?*

The Ski Club 2017 consumer research identified that 'guaranteed snow conditions' continues to top the list of factors in the choice of a ski destination – for Scotland the unpredictability of the weather means this is often an expectation that is hard to deliver. Other top factors include: 'size of the ski area', 'how

[7] Ski Club of Great Britain, Consumer Research Report 2017 – Unique Analysis of the Snowsports Market
[8] Net Promoter Score

busy the slopes are', 'price' and the 'quality of accommodation'. The Ski Club 2017 report refers to these as the "big five" and are considered the factors that it is the most important to get right. Additionally, consumers' expectations in all of these areas continue to increase.

2.1.3 Future Growth

While skiing remains the most participated in snowsports activity at 88%, snowboarding, freestyle and off-piste snowboarding are showing increases from last year, albeit from a low base. Younger age groups tend to be the group who would most like to 'do more skiing' however, across all ages there is a desire to 'keep skiing'[9].

Skiers have a high degree of loyalty to the sport with the large majority (97%) 'intending to ski the following season'. This intention declines to 65% after 3 seasons not skiing[9].

Skiers are enthusiastic about their sport and are potentially important ambassadors and advocates. Participation in skiing is high among groups of friends and families, as it is a sociable activity (and, the propensity to take up skiing is far higher for those whose parents have skied before). Skiing itself achieves a high NPS of 83%[9].

The Ski Club Consumer Research Report 2017 states that *"one of the biggest challenges the ski industry faces in mobilising its advocates to recruit more skiers is that although they love the skiing they don't have such a positive attitude about getting to the slopes, the costs of it and often what is delivered in terms of food and service."*

The 2017 International Report on Snow & Mountain Tourism cites, a 'flattening market' in regard to the Western ski market and considers that while populations have increased, skier visits have not. It suggests that *"besides long-term weather and snow conditions, there are a number of other factors. The evolution of western demographics is a major issue, as well as increased worldwide competition in holiday and leisure activities, the improvement of retention rates and updated ski learning solutions"*. The report identifies a clear need for action suggesting that the ski industry needs to do more to improve the customer experience.

It is generally accepted that the current ski market is at best stagnant and at worst in decline and that there is a recognised need to encourage more people into the sport. Stakeholder consultations repeatedly identified that enabling people to have 'fun' while learning to ski and to progress quickly is key to the enjoyment of the activity.

The Ski Club consumer research identified the high proportions skiing as a family as well as with other families. Skiing as a social experience and whole family activity is an important factor. The same report also identified that 48% seek flexibility in terms of length of stay and travel dates and this may be an area where skiing in Scotland, rather than abroad, may have its advantages for growing the domestic market.

[9] Ski Club of Great Britain, Consumer Research Report 2017 – Unique Analysis of the Snowsports Market

2.1.4 Sports Participation and Olympic Pathway

There is increasing collaboration among professional bodies and a number of initiatives to support young people onto a pathway into snowsports. The consultation process with stakeholders highlighted further opportunities for greater collaboration between the different organisations.

Snowsports Scotland, the national governing body for snowsports has the following mission, "to foster the development of snowsports in Scotland from the simple enjoyment of these sports in their unique environment to their practice at the highest competitive level." Snowsports Scotland have commenced consultation on a new 2018-2022 strategic plan and a draft summary of the plan sets out a number of goals including a 'ski and snowboard facility incorporating a teaching programme within 30 minutes of every population centre of >45,000 people' and '15% of primary schools engaging in snowsports activity every year'.

Consultations highlighted that the current lack of facilities in Scotland remains a concern for these professional bodies, with regular trips abroad (or relocating) for training and development being a necessity. Professional coaches are spending a large proportion of their time trying to create the right facility rather than coaching, with an aspiration for a dedicated performance training facility in Scotland. Consultees cited that there is increasingly a 'Park n Pipe' and freestyle element that is not being reacted to and catered for.

Consultees referenced the breeder and feeder roles as pathways into snowsport. While there are no statistics the view is that there is greater participation amongst those where there has been a family / parental culture of skiing and winter ski holidays – 'breeder'. And that there is also a role for mat / dry slopes as a 'feeder' to the full mountain experience. There have been trials with dry slope facilities that have been successful in particular 'mat to mountain' initiatives with the view that there is the opportunity for greater collaboration between the dry slopes and the resorts, while acknowledging that people do want the real snow and authenticity of the on-mountain experience.

Consultees also felt there were greater opportunities to manage the snow 'as a commodity' and that none of the resorts were currently reacting fully to what technology can offer in terms of managing the snow. In reference to Cairngorm, specific issues were identified in regard to the location of the beginner area at the top of the mountain in the worst of the wind and weather and whether there are future opportunities for operating at a lower level, making snow if necessary.

2.1.5 Key Findings

The key findings from the above section are summarised below:

- Snowsports participation is Scotland represents a relatively small market
- Over the last two decades, the snowsports market in Scotland has shifted significantly. A combination of market forces, compounded by a series of poor winters, has reduced the size of the market and visitor numbers
- The UK overall has a large number of national skiers at over 6 million, however much of the UK market is going abroad, in particular to France

- Scotland is not alone in experiencing a decline in skier visits and with increasing numbers of non-skier visits resorts are diversifying their offer to broaden their year-round appeal
- Snowsports participation in the UK appears to be on a downward trend in terms of participation
- Most participants are 40+, however younger age groups are showing an increase in participation
- An ageing demographic with the need for older skiers to be replaced by new entrants
- While skiing remains the primary activity, snowboarding and freestyle are showing increases
- Across all age groups there is a desire to keep skiing and a high degree of loyalty to ski
- Participation appears to be male dominated
- New skiers are present across all age groups, especially 40-49 and 21-29 year olds
- Those who love to ski are enthusiastic advocates and ambassadors
- Skiing is a sociable activity with appeal to family groups
- Scotland as a snowsports destination scores poorly in comparison to others internationally
- The important factors for a ski holiday continue to focus on guaranteed snow, size of ski area, how busy the slopes are, price and quality of accommodation – 'the big five'
- Industry bodies in Scotland are actively working to encourage young people on a pathway into the sport
- Emphasis on 'fun' is important to encourage new entrants and progression in the sport
- Lack of facilities in Scotland is recognised as an inhibiting factor for growing and nurturing the market.

2.2 Resident Market

2.2.1 Local and Regional Profile

The local resident market is growing. The Inner Moray Firth area which includes Inverness and surrounding area, has a total population of c.153,293 (2011) and this is increasing. Population has increased by 14.8% since 2001. This growth is significant at almost double the regional average (Highlands and Islands 7.5%) and three times the national average (Scotland 4.6%)[10].

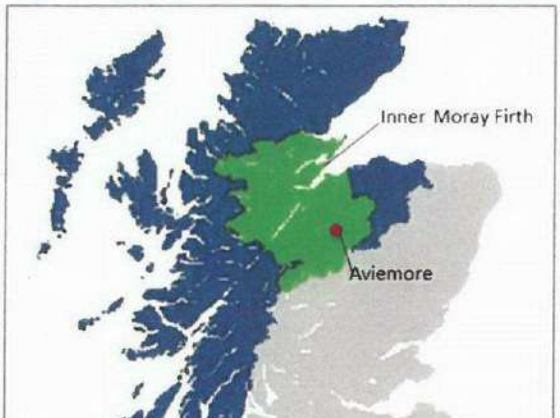
The area typically has a younger age profile than the Highlands and Islands as a whole and conversely, a slightly older profile than Scotland as a whole. 28% are in the age band 0-24 years compared to 27.1% regionally and 29.2% nationally. Inner Moray Firth also has a higher proportion of children (0-14 year olds)[10].

In line with demographic trends across the region and nationally, Inner Moray Firth, has an ageing population. Those aged 65+ increased from 15.9% in 2001 to 17.6% in 2011, and those aged 45-64 years

[10] Inner Moray Firth Area Profile 2014

increased from 26.7% to 29%. Gender split is broadly 50/50, in line with both regional and national average[10].

Figure 3. Map of Inner Moray Firth (green shaded)



At a local level, a major new housing development planned east of Aviemore has received planning permission in principle (March 2014). If this development goes ahead it will deliver a new community at An Camas Mòr comprising 1,500 homes (for up to 4,000 people, including 200 affordable homes) with related business and community facilities. In addition, access to the area is expected to improve considerably over the next few years as the proposed dualling of remaining sections of the A9 is completed.

2.2.2 Drivetime Population and Resident Profile

While the local authority data provides some insight, we have also obtained up to date information on the population within given drive-times. Information has been obtained for a 30-minute, 60-minute and a 90-minute drivetime to provide insight into both the local market and the wider day visit market. From a small local population of just over 5,000 in the immediate area, there is a significant increase in population once over an hour, an incremental increase in population of circa 174,000 between the 60-minute and 90-minute drivetime. This 90-minute drivetime population is representative of the broader day visit market.

Figure 4: Population and Households

	0-30 minutes	0-60 minutes	0-90 minutes
Population	5,404	25,773	199,930
Households	2,416	11,034	87,355

Source: Experian Current year estimates (Mid-year 2016)

The population is projected to increase across all three areas with the immediate 30-minute area projected to see the greatest increase at 5.46% over the next twenty years, broadly in line with the national projection of 5.51 %. In the 0-60-minute area the change is projected to be 4.66% over the next twenty years and over a 0-90-minute drivetime area this is projected to be 3.36%.

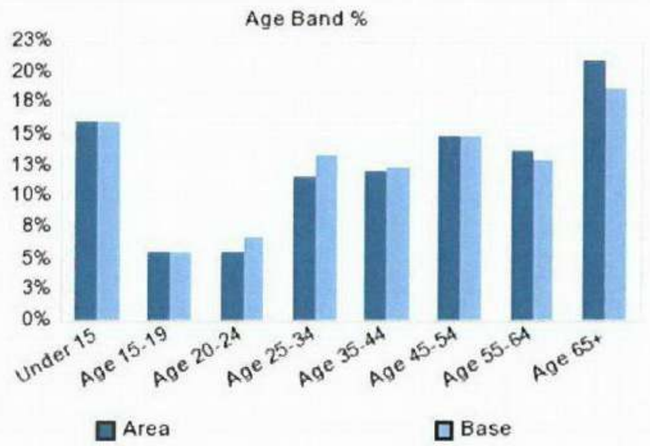
Figure 5: Population Projections

	0-30 minutes	0-60 minutes	0-90 minutes
2016	5,404	25,773	199,930
2021	5,478	26,125	201,949
2026	5,577	26,524	204,181
2031	5,647	26,808	205,677
2036	5,699	26,975	206,652

Source: Experian Population Projections (2016)

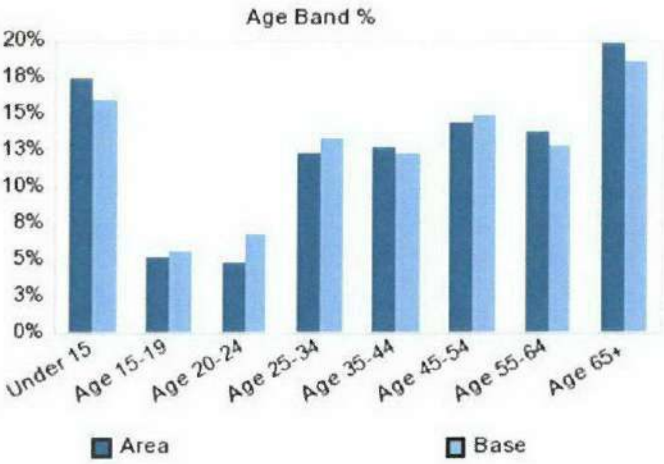
The age profile of the population is slightly older than Scottish average within the immediate 30-minute drivetime and the wider 90-minute drivetime. Within the 60-minute drivetime there is a higher than average proportion of children (under 15s).

Figure 6: Age Profile 30-minute drivetime



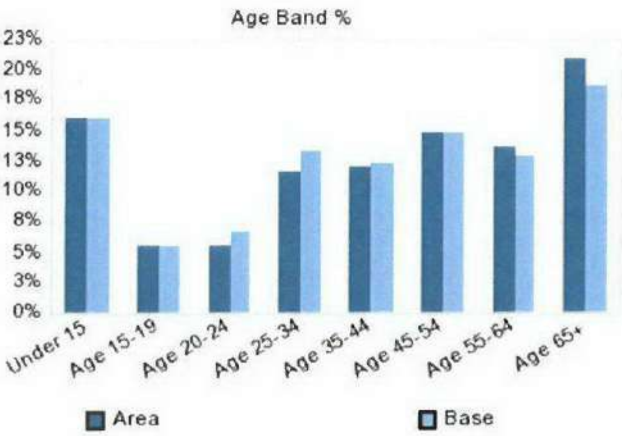
Note: Base refers to Scotland
Source: Experian Age and Gender Estimates (2016)

Figure 7: Age Profile 60-minute drivetime



Note: Base refers to Scotland
Source: Experian Age and Gender Estimates (2016)

Figure 8: Age Profile 90-minute drivetime



Note: Base refers to Scotland
Source: Experian Age and Gender Estimates (2016)

Figure 9: Social Grade

	0-30 minutes	0-60 minutes	0-90 minutes	Scotland
AB	18.4%	20.0%	17.8%	18.9%
C1	31.4%	30.4%	29.8%	31.8%
C2	27.2%	27.8%	26.8%	21.8%
DE	23.1%	21.8%	25.7%	27.5%

Source: Experian Current Year Estimates based on ONS Census Data (2016)
Note: AB - Higher & intermediate managerial, administrative, professional occupations, C1 - Supervisory, clerical & junior managerial, administrative, professional occupations, C2 (Skilled manual occupations
DE - Semi-skilled & unskilled manual occupations, unemployed and lowest grade occupations

Social grade classifies households based on occupation. In this instance the proportion of households in the area within each category is broadly in line with the Scottish average. However, the 60-minute drivetime has a higher proportion of those classified as AB than both the 30-minute and the 90-minute populations and is above the Scottish average. These are typically individuals with higher than average incomes working in professional and higher management occupations. Across the drivetimes there is also a higher than average proportion of those classified as C2, typically individuals working in skilled manual occupations with a mass to lower mass market position.

In terms of lifestyle profile, the area is dominated by two groups, *Rural Reality,* those described as "living in inexpensive homes in village communities" and *Country Living,* "well-off owners in rural locations enjoying the benefits of country life". These households are particularly in evidence in the immediate 30-minute drivetime area. *Rural Reality* tends to be a mix of families, mature couples and older singles with moderate incomes. Meanwhile *Country Living* includes both those still working and retired, primarily affluent people.

In terms of market position and profile the resident population is a mixture of both mid to upmarket households with good levels of disposable income (traditionally more likely to be associated with more expensive outdoor activities such as skiing) and lower income mass market households who will be more price conscious. However, it is worth noting that there is a culture of skiing in Scotland hence there is the view that skiing is not the elitist sport it is often considered to be elsewhere.

Figure 10: Dominant Mosaic Groups

	0-30 minutes	0-60 minutes	0-90 minutes
Rural Reality	2,416 (45%)	9,065 (35%)	51,263 (26%)
Country Living	1,819 (34%)	7,142 (28%)	43,238 (22%)

Source: Experian Mosaic Classification 2016

Much of the area in and around Cairngorm and Aviemore is very rural and therefore the resident population is relatively small. The larger resident populations are found in and around the more densely populated cities. However, Cairngorm Mountain is over a 2-hour drive from these cities in most instances and this will reduce its appeal as a day visit destination. There is however the potential opportunity to improve appeal as a short-break destination. It is worth noting that the planned improvements to the A9 are expected to reduce journey times between Perth and Inverness and between Inverness and the Central Belt (Glasgow and Edinburgh) by around 18-20 minutes, as well as improving the overall journey experience. For those living in Perth this is likely to make a day visit more appealing with a travel time closer to 90 minutes.

Figure 11: City Populations and Drivetimes to Cairngorm Mountain

	Population	Drivetime
Aberdeen	230,000	2 hours 33 mins
Dundee	148,000	2 hours 22 mins
Edinburgh	499,000	2 hours 52 mins
Glasgow	606,000	2 hours 49 mins
Perth	150,000	1 hour 57 mins
Stirling	93,000	2 hours 24 mins

Source: Drivetimes from the AA Route Planner
Population of the council areas of Scotland according to census results and latest official estimates - General Records of Scotland

2.2.3 Key Findings

The key findings from the above section are summarised below:

- Increasing populations are projected locally, regionally and nationally – however, they are starting from a relatively small population base i.e. less than 200k residents living within a 90-minute drive time
- There is a significant step change in population above the 60-minute drivetime, from 5,000 within 30 minutes to just under 200,000 within 90 minutes
- While there are larger urban populations in and around the major cities in most instances these are over a 2-hour drive away
- The immediate local area could see a significant increase in population should the new housing development at An Camas Mòr, east of Aviemore come to fruition, with a proposal to provide housing for around 4,000 people
- In line with demographic trends, the overall population is ageing
- Above average proportions of school age children are present within the 60-minute drivetime - *potentially a source of future skiers?*
- The socio-economic profile is skewed slightly towards those classified as C2DE, however the 60-minute drivetime population has a higher profile with a higher proportion of ABs
- The lifestyle profile is dominated by those described as Rural Reality and Country Living, particularly within the 30-minute drivetime area. These are rural communities, a combination of those living in inexpensive homes and well-off home owners
- In terms of market position the resident population is a mixture of more affluent up to mid-market households and mass market more price driven consumers
- The resident population will have differing levels of discretionary / disposable income and this will have implications in terms of spending power and activities undertaken
- The population located within the 90-minute drive time represents the greater day visit opportunity, with the wider area including the major cities, a target market for short-breaks and overnight stays.

2.3 Tourist market

2.3.1 The Highlands and Cairngorm National Park

The Highlands of Scotland and the Cairngorms National Park are established visitor destinations. The Highlands was the third most visited area after Edinburgh and Glasgow, visited by 23% in the recent Scotland Visitor Survey[11].

Visitors to the Highland Council area were in excess of 6 million in 2016, +5% on the previous year, of which just under 4 million were staying visitors and 2 million were day visitors[12]. While this covers a broad geographic area the number of visitors demonstrates the extent of the appeal of this part of Scotland despite its very northern location. The area includes Aviemore but only part of the Cairngorm National Park.

These visitor numbers broken down by month indicate that while people visit all year round, visits during the Spring and Summer months are the highest, in particular July to September at around 2.7 million visitors and April to June at 1.9 million. The first quarter of the year (Jan-Mar) is the quietest with around 635,000 visitors, followed by the last quarter (Oct-Dec) with just under 950,000 visitors.[12].

Visits to the Cairngorm National Park area are also increasing with 1.8 million visitors in 2016. Total visitor numbers increased by 13% between 2009 and 2016[13]. It is interesting to note that this rise in visitation to the national park has been seen since the decline in skier visits to Scotland indicating that though they may not be skiing an increasing number of people are visiting the national park area.

The Cairngorm National Park Tourism Action Plan makes reference to around three quarters of visitors to the national park coming from the UK and cites domestic markets as the priority for growth.

Visits to the Cairngorm National Park Area are predominantly domestic trips with 54% from Scotland, 25% elsewhere in the UK and 21% from overseas. Most visitors are in family groups of all ages. In comparison to Scotland overall, Cairngorms National Park attracts a higher proportion of visitors from Scotland and a lower proportion from the rest of the UK[14] (although not confirmed, it has been suggested that this might be down to a higher proportion of 'rest of the UK' visitors concentrating their visits on Scotland's larger cities).

2.3.2 Visitor Patterns and Drivers

With peak visit months in The Highlands during the Summer reported hotel occupancy reaches 80-90%. A similar pattern is seen for guesthouses, B&Bs and self-catering accommodation[15].

Beautiful scenery / countryside is cited as the primary reason for visiting the Cairngorms area by 35%[14] in line with visits to Scotland as a whole (50%)[11]. Top activities undertaken while in the Cairngorms National Park area focus on sight-seeing (56%) and low-level walking (44%). 13-14% mentioned more active

[11] Scotland Visitor Survey 2015-2016, VisitScotland, survey carried out May to September

[12] STEAM Final Trend Report 2009-2016, Highland Council, Global Tourism Solutions (UK) Ltd Survey

[13] STEAM Tourism Economic Impacts 2016 Report, Cairngorm National Park, Global Tourism Solutions (UK) Ltd

[14] Cairngorm Visitor Survey 2014-15

[15] Tourism in Scotland's Regions 2016 / Scottish Accommodation Occupancy Survey, 2016

pursuits including skiing / winter sports. When analysed by season, activities undertaken see skiing / winter sports top at 66%, while general sightseeing / relaxing are top during the other seasons at 58%-64%[14]. This high proportion of visitors coming to the Cairngorm National Park for general sight-seeing and more relaxing activities present Cairngorm Mountain with an established target market who are looking for 'less active' pursuits.

Over half of visitors surveyed in the Cairngorm National Park visitor survey were from Scotland at 54% followed by the rest of UK at 26%, Europe represented 14% and rest of world 7%. Of the 54% coming from Scotland, 28% were from nearby areas in the north and north east with 22% from Central Scotland. Aviemore appears to attract a higher than average proportion from rest of UK at 38%. Origin of visitors by season shows visitors from Scotland peak in the winter months at 66%, especially from the north and north east of Scotland[14]. Half of visitors in the survey were on a longer break (5+ nights), 27% on a short break (1-4 nights) and 19% on a day trip, with day trips and short breaks more common in winter. Notably Aviemore had a higher than average proportion on a short break at 40%.

Cairngorm Mountain funicular railway is the second most mentioned attraction, visited by 21% (those who visited an attraction) after Landmark Forest Adventure Park at 23%[16], which is also located nearby approximately 10-15 minute drive from Aviemore. Visitors are already coming to Cairngorm Mountain to use the funicular, however the current offer beyond a trip on the railway is limited. *This suggests there is an opportunity to extend the current offer, dwell time and appeal - what else could visitors do and enjoy while there?*

Visitors to the national park area tend to have a higher socio-economic profile across a broad range of age groups. Many return to the national park area regularly, while 34% were on their first visit in five years, 19% had visited more than 20 times in that time. High numbers also express an intention to return with 75% citing 'very likely' a significant increase from 58% in the previous survey.[14] This high level of repeat visit indicates the popularity of the Cairngorms as a place to visit and the need to keep evolving the offer to provide visitors with new and fresh experiences.

Visitors to the park are considered vital to local businesses, supporting more than 6,033 full time equivalent jobs, up 19% on 2009[17].

2.3.3 Future Growth

With domestic markets identified as growth areas and UK short-breaks increasing, the park's tourism action plan cites the growth markets as being 'Adventure Seekers' and 'Natural Advocates' based on VisitScotland's segmentation (Figure 12). Typically Adventure Seekers are affluent with a younger profile than other segments (an estimated 55% under 35). Natural Advocates are described as slightly less affluent ('mid affluence') and older (46% in the 35-54 age bracket and 36% over 55). These two groups while they have differing requirements are both important target markets, encompassing both those who want to participate in active pursuits and those who are looking for a more passive experience.

[16] Scotland Visitor Survey 2015-2016, VisitScotland

[17] STEAM Tourism Economic Impacts 2016 Report, Global Tourism Solutions (UK) Ltd

Holiday Trends 2016, an annual report on the intentions, motivations and attitudes of the British holiday-maker (BDRC Continental) cites that for the second year running the proportion of Britons taking a short break at home has increased, with 73% intending to take one that year.

With natural beauty being one of the primary motivations for taking a UK holiday and the Scottish Highlands among the four most popular UK destinations, Cairngorms National Park (and Cairngorm Mountain) is well positioned to continue to grow its domestic visitor market.

Figure 12: Visit Scotland Target Segmentation

Segmentation	Market Size	Description	Location	Key areas
Adventure Seekers	1.2 million UK households, 9% of target UK households	Want an active holiday where they can enjoy both outdoor and cultural activities. They will venture off the beaten track and will be engaged by trying new things and pushing their limits and experiences. Holidays will really energise them	Majority live across England 81%. 13% are based in Scotland	London 26% and the South 9%, North 23%, Midlands 12%.
Natural Advocates	1.1 million UK households, 8% of total UK households	Passionate about Scotland as it offers everything they want from a holiday; breath-taking scenery, a connection with nature and the chance to get away from it all. A holiday in Scotland will really help them to unwind, recharge and enjoy quiet time	59% live across England 35% are based in Scotland	Central Scotland 21% Northern Scotland 11% Northern England 29%

The continued desire for new experiences is also a clear opportunity area and is evidenced in the wide number and variety of activity providers in the Highlands area.

The 2015 HIE Adventure Tourism in Scotland Report identifies that the highest concentrations of Adventure Tourism businesses in Scotland are in the Highlands and Islands region. Of the 350 adventure tourism businesses identified in Scotland more than a third are located in the Highland Council area - 115 businesses representing 35%.[18] The future outlook is also positive with over two thirds of businesses surveyed (68%) looking to expand their turnover in the future. The report also identifies growth areas including 'soft adventure' with tour operators identifying future demand for activities such as walking, self-guided walks, one-week tours, road cycling / mountain biking, skills courses and packages. The report references growth areas for Scotland in terms of adventure sports as; overseas markets, different age groups - in particular, young people / millennials, families and older people, with further opportunity in the domestic markets Scotland and the UK.

The increasing appeal of 'soft adventure' experiences also comes with increased expectations of the overall 'experience' as summarised by one travel writer, *"Adventure travel used to be an all-or-nothing proposition. Not so long ago, outdoor adventures were only for the seriously fit and hardy: people*

[18] 2015 HIE Adventure Tourism in Scotland Research Report

prepared to trek for a week or more, bunking down in a sleeping bag and washing only when they passed a handy river. These days, it seems everyone wants a bit of adventure. What's more, we expect it to come with a healthy helping not just of running water, but also gourmet food and, preferably, a comfortable mattress" (Ute Junker, Traveller.com).

Millennials in particular are widely considered to be an important market for the travel and tourism industry. Visit Scotland's think piece, Millennial Traveller (January 2017) combines research and insight from a variety of sources to provide insight to the Scottish tourism sector on appealing to this important generational group.

While it urges caution in terms of viewing Millennials as a collective group, citing that *"within the generation itself lies an enormous range in their life stage, career and disposable income and therefore there might be a difference in how younger (16-24) and older (25-36) cohorts of this generation behave"*, there is commonality in terms of their desire to enrich their lives through travel with technology playing an important role.

In 2015, the Millennial market generated 3.8 million trips, 18 million nights and £1.269bn of expenditure in Scotland. Millennials spent an average £332 per trip, £70 per night, and stayed in Scotland for 4.7 nights (GBTS, IPS).

Figure 13: Breakdown of Millennial Visits to Scotland 2015

	Trips	Nights	Expenditure	Spend per trip	Spend per night	Length of stay (avg)
Domestic Millennial visitors (aged 16-35)	3m	9.2m	£745m	£250	£81	3.1 nights
Overseas Millennial visitors to Scotland	0.8m	8.8m	£524m	£619	£59	10.4 nights

Source: Millennial Traveller (January 2017), VisitScotland based on figures from GBTS and IPS

Millennials spend money on experiences such as travel rather possessions, with this expenditure expected to increase. With a preference for unique experiences from off-the-beaten track destinations, to adventure activities, quirky accommodation and local food.

While considered to be price sensitive research shows this is selective, indulging and budgeting sometimes within the same trip. They react to recommendations on social media from friends and family rather than direct marketing.

VisitScotland figures cite that over a third of Millennial visitors to Scotland used social media to plan their holiday. They are a highly connected group using social media while away, they have high expectations in terms of Wi-Fi connection. They are highly social, taking holidays with friends and family and mixing with other travellers and locals while they are away.

The travel habits of Millennials combine well with the active pursuits and outdoor offer of the Cairngorms area suggesting that this could be an important target market and growth sector.

2.3.4 Key Findings

The key findings from the above section are summarised below:

- Cairngorm National Park has an established visitor market (1.8 million) with most coming from Scotland and the UK; the primary activity undertaken is sightseeing followed by walking
- Highlands is the third most visited area after Edinburgh and Glasgow when visiting Scotland
- Peak visitor months are through the Summer, however the Cairngorm area attracts visitors all year round
- Visitor profile in the Cairngorm National Park is dominated by higher social profile groups
- Compared to Scottish visitor statistics, the Cairngorms attract a higher proportion of visitors from Scotland and a lower proportion from the rest of the UK. Both markets are important with the opportunity to increase appeal to the wider UK market
- Many visitors to Cairngorm National Park are repeat visitors, emphasising the need to keep the offer fresh and interesting
- Reasons for visiting Cairngorm National Park tend to be focused on the beautiful scenery along with the range of activities available. Activities undertaken vary by season with skiing / winter sports the most mentioned during winter (66%) and general sightseeing / relaxing the remainder of the year
- While the larger visitor numbers are seen through the Summer the skiing / winter sports offer is a visit driver during the winter months and is important in terms of delivering a year-round offer
- The Cairngorm Mountain (Funicular Railway) is the second most mentioned attraction visited in the national park at 21% (of those visiting an attraction). The railway is clearly an established visitor attraction, with the potential to increase appeal to a wider audience
- There is a future opportunity to tap into this established visitor market building further on the 'Highlands' identity, beautiful natural landscape and national park setting more specifically
- Opportunity for Cairngorm Mountain to play a stronger visitor orientation role for the national park - a visit to the Cairngorm National Park should mean a visit to Cairngorm Mountain
- Nationally, short-breaks at home are on the increase and the Cairngorm area already has established appeal with increasing visitor numbers – there is the opportunity to further build on this appeal
- Growing opportunities for adventure tourism including soft adventure with increasing expectations of quality from the supporting offer, e.g. in terms of accommodation and F&B
- Millennials are an important target market, presenting the opportunity to tap into their desire to travel and requirements for new experiences
- Overall the market for 'experiences' is growing
- There are high numbers visiting the area for relaxation and sightseeing as well as those seeking more active pursuits – both are important markets.

3 Market Supply

3.1 Scotland's Ski Offer

Figure 14: Average Visitor Numbers across the Five Ski Resorts 2013-2015 (seasons)

	Snowsports	Non-Snowsports	Total
Cairngorm	101,330	103,100	204,430
Nevis Range	23,942	135,472	159,413
Glencoe	29,740	34,667	64,406
Glenshee	78,567	911	79,478
Lecht	30,872	1,167	32,038
Total	**264,450**	**275,315**	**539,766**

Source: The Five Snowsports Centres

Source: Confidential Snowsports Update 2016, HIE
Note: Respective seasons so average across 2012-13, 2013-14 and 2014-15

Cairngorm Mountain achieves the highest number of visits of the five resorts with a fairly even split of snowsports to non-snowsports visits. Of the five ski resorts Cairngorm is one of the largest with 32 runs and 11 lifts. Cairngorm is also considered to be one of the best known of the Scottish resorts with skiing mostly occurring on the upper mountain. The funicular railway is a unique feature and drives the non-snowsports visits. Other than this the resort has not diversified into other activities. The resort has a no sledging policy for health and safety reasons.

Figure 15: Size of Scotland's Ski Resorts

	Total ski area size	Number of pistes	Lifts
Cairngorm	30km	32	11
Glencoe	20km	20	8
Glenshee	40km	36	22
The Lecht	20km	13	12
Nevis Range	20km	32	11

Source: Resort websites

Glenshee is the largest of the ski resorts and offers extensive skiing over four mountains. The offer is focused on winter snowsports, it is also located in the Caingorms National Park area, towards the south close to Dundee and Perth. Like Cairngorm it is has not diversified into other activities, non-snowsports visits are low.

The Lecht is also located within the Cairngorms National Park area and the smallest of the five – it promotes itself as a 'fun' ski area. It is considered an especially good resort for beginners and intermediates and offers a range of outdoor activities both summer and winter. The Lecht has recently hosted a popular Winter Games event and appears to be successfully targeting a family audience. The Lecht is also cited as having easier access from the car park and an overall easier experience, however there can be access issues with the A939, described as 'infamous' for becoming blocked in winter.

Nevis Range is located close to Glencoe and only a couple of hours from Glasgow. It has 'Britain's only mountain gondola', taking visitors from the base station to the bottom of the slopes, it is considered a visitor attraction in its own right. Nevis Range offers a range of skiing from beginner slopes to advanced off-piste. It has also diversified its summer offer significantly with a mountain bike offer, tree adventure aerial obstacle course, Zoom Trax tubing slide, which is free to use and located outside the gondola top station. It is an internationally acclaimed venue for mountain biking hosting the UCI Mountain Bike World Cup.

Glencoe is the oldest Scottish ski centre and the most southern. It offers skiing for beginners as well as experts with the longest and steepest runs in Scotland. The resort offers free sledging on a 75-metre slope close to the café. Summer activities include mountain biking and tubing. Glencoe also offers on-site accommodation with micro lodges and camping.

Across the five resorts there are variations in offer, pricing and facilities with the average cost of a day pass around £30. Cairngorm Mountain day pass is the highest at £36.

Three of the ski resorts are within the Cairngorm National Park. Despite the slightly differing locations of the resorts all are a 2-3 hour drive from the major cities (and populations) of Glasgow and Edinburgh. Glencoe the most southern of the five is still approximately a 2-hour drive from Glasgow. Cairngorm Mountain is the closest to Inverness Airport, with low cost flights from London Gatwick and a flight time of under two hours it is potentially easily accessible from London and the south east, it is also easily accessible by train via the station at Aviemore.

Figure 16: Scotland's Ski Resorts and Drivetimes

Source: Drivetimes from the AA Route Planner

3.1.1 Indoor and Artificial Slopes

In addition to the ski resorts, Snow Factor in Braehead (Glasgow) houses Scotland's only real indoor snow slope. Facilities include a teaching / instruction slope, a main slope (200m long), four ski lifts, an ice-climbing wall, sledging, Bavarian themed restaurant and ice bar. Snow Factor boasts a figure of 500,000 people having chosen to learn to ski there. It is located a short drive from Glasgow City Centre.

There are five other indoor real snow slopes across the UK from Chill Factor[e] in Manchester to Snow Centre in Hemel Hempstead and the original Snowdome at Tamworth.

Figure 17: Location of Indoor Slopes in the UK

Indoor Snow Slopes		
Snow Factor	Glasgow	Scotland
Snozone	Castleford	West Yorkshire
Chill Factor[e]	Manchester	Greater Manchester
SnowDome	Tamworth	Staffordshire
Snozone	Milton Keynes	Buckinghamshire
The Snow Centre	Hemel Hempstead	Hertfordshire

Source: Ski Club of Great Britain

These facilities, being located nearer to higher density urban populations, provide a more 'accessible' skiing experience than the mountain destinations and are also available year-round. The indoor facilities have the significant benefit of being able to deliver a *consistent* real snow experience, whatever the weather, in direct contrast to the challenges faced at the Scottish resorts. However, the size and capacity of the slopes is a limiting factor for those of an intermediate or advanced ability.

Greater collaboration between these artificial slopes and the mountain destinations was cited by consultees as an opportunity to encourage greater participation in snowsports (it is interesting to note that Snow Factor has largescale advertising within its facility for Jet2.com i.e. promoting foreign travel as opposed to domestic resorts). The 2017 International Report on Snow & Mountain Tourism estimates that around 80 indoor snow centres have been built worldwide over the past 25 years with around 43 centres still in operation at the time of the report. It provides an estimate of 17.2 million skier visits (2015) across these centres, with an estimated yearly attendance of 1-2 million in the UK.

There is also a wide range of dry slope facilities across Scotland and the UK of varying sizes. The 2017 International Report on Snow and Mountain Tourism puts the current number at around 70, having fallen markedly from c.200 in the 1980s, citing reasons for the reduction including the growth of larger regional dry slopes and introduction of real snow indoor slopes along with cuts to public funding. However, this decline in numbers from the 1980s also mirrors the decline in skier visits within the UK and indicates a preference for real snow experiences.

There are 10 artificial ski slopes in Scotland (Figure 18) and a number of other smaller private slopes typically linked to larger education, training or hospitality offers. In the immediate Aviemore area there are small dry slope facilities at Glenmore Lodge and dry slopes available at both Outdoor Discovery centres at Coylumbridge and MacDonald Aviemore Centre. At Glenmore Lodge and Outdoor Discovery, the dry slope is just one of a wide range of indoor and outdoor activities on offer with ski lessons and equipment hire available alongside the dry slope offer. The Hilton Coylumbridge in particular promotes itself as the 'closest hotel to the Cairngorm slopes' and as a place for 'family skiing'.

Overall available dry slope facilities in Scotland vary from smaller 60m slopes to 120m, with larger centres offering a variety of facilities from standard lessons to children's parties and snow tubing. Most facilities are located a significant distance from Cairngorm. The two nearest (in addition to Glenmore Lodge and Hilton discussed above) are small slopes teaching skiing alongside a broader outdoor offer (Loch Insh Outdoor Centre and Lagganlia Centre for Outdoor Learning).

Figure 18: Artificial Ski Slopes in Scotland

Snowsports Centre	Location	Drivetime from Cairngorm
Aberdeen Snowsports Centre	Garthdee, Aberdeen	2 hrs 30
Alford Ski Centre	Alford, Aberdeenshire	1 hr 50
Bearsden Ski and Snowboard Club	Bearsden, Glasgow	3 hours
Firpark Ski Centre	Tillicoultry, Clackmannanshire	2 hrs 30
Glasgow Ski & Snowboard Centre	Bellahouston Park, Glasgow	2 hrs 50
Insh Hall Ski School & Ski Lodge	Kingussie, Highlands	30 minutes
Lagganlia Centre for Outdoor Learning	Kincraig, Cairngorms National Park	30 minutes
Midlothian Snowsports Centre	Hillend, Nr Edinburgh	2 hrs 40
Newmilns Snow and Sports Complex	Newmilns, Ayrshire	3 hrs 15
Polmonthill Ski Centre	Falkirk, Stirlingshire	2 hrs 35

Source: Visit Scotland[19]

3.1.2 How Skiers Rate Skiing in Scotland

The Consumer Research report by the Ski Club of Great Britain provides some interesting insight into how skiers rate Scotland as a ski destination. This insight is based on a series of NPS scores for different attributes. NPS scores can vary from 100 to -100. The highest rated country is also included to provide additional context. Scotland scores poorly on most attributes with the exception of ski school.

Figure 19: NPS Scores

NPS Scores for Scotland		Highest Rated NPS Country	
Quality of Skiing	-23	Canada	50
Efficiency of Lift System	-30	Canada	40
Accommodation	12	Finland	45
Eating Out	-20	Finland	28
Bars and Nightlife	0	Sweden	24
Activities outside of Skiing	4	Finland	50
Ski School	56	USA and Canada	81
Value for Money	-4	Eastern Europe	34

Source: Ski Club of Great Britain, Consumer Research Report 2017

One of the challenges for Scottish skiing is how to address and change the low perception it currently experiences as a ski resort and to put Scotland more firmly back on the map as a ski destination.

3.1.3 Facilities for Professional Development

Stakeholder discussions highlighted that Snowsports Scotland's professional athlete development programme is now structured around 40% off-snow and 60% on-snow activities (of which 50% of the on-snow activities are reduced risk). Increasingly, indoor facilities for acrobatics, gymnastics, etc. are playing a vital role in the athlete pathway, with opportunities being pursued to develop a national centre of

[19] https://www.visitscotland.com/see-do/active/skiing-snowsports/indoor-slopes/

excellence for snowsports with references to Woodward Centres[20] in the US and links with Glenmore Lodge being explored.

Glenmore Lodge is a Sports Scotland National Training Centre with links to the Aviemore Community sports hub, which works alongside local partners to increase participation in sport generally. The aim of the community sport hub project is *"to bring together all the key partners involved in sport to create a joint approach to its development which will lead to an increase in participation levels locally. The project has a particular focus on supporting Community Sport Clubs to deliver quality sports and physical activity opportunities to the whole community"*.

Woodward Centres and other similar facilities aim to encourage participation in sports in general, not just the development of professional athletes and so helping to also deliver the wider associated health benefits of encouraging people to be more active. Camp Woodward centres offer progression-based facilities for all levels with the emphasis on fun and participation from professional athletes to those with no experience. Facilities on offer range from trampolines and gymnasiums to pump tracks and skate parks.

There are evident aspirations for development of enhanced sports training facilities and these would have benefits in terms of encouraging take up and participation in sports generally. These modern facilities with an emphasis on reduced risk and the availability of a wide variety of different activities potentially have a broad appeal and are therefore more likely to be used by a wider 'public' audience helping to generate important revenue on which many of these facilities rely. This is a key factor in the business model for these facilities.

3.1.4 Key Findings

The key findings from the above section are summarised below:

- Cairngorm Mountain is operating in a competitive market place for both winter and summer activities both at home and abroad
- The five Scottish ski resorts are competing for a relatively small market of skier visits
- Skiing in Scotland suffers from poor perceptions – this is a key area to address
- However, despite its poor perceptions when the conditions are right, people still come to ski
- Scotland's snowsports offer is an important part of its heritage and appeal, as well as being important to the local economy
- The Cairngorm area benefits from visitors all year round, with the winter / snowsports offer a visit driver during the winter months – though not exclusively so
- In contrast to Cairngorm other Scottish ski resorts are increasingly offering a broader range of activities and actively marketing and growing their appeal
- Cairngorm achieves the highest number of visits of the five resorts from a fairly limited range of activities, this indicates potential for further growth

[20] http://www.campwoodward.com

- All five resorts are located at least 2-hours from the major cities of Glasgow and Edinburgh reducing their appeal as day visit destinations to these markets, with greater potential for short-breaks
- In terms of access Cairngorm is has the benefit of being a relatively short drive (approximately an hour) from Inverness Airport and accessible by train via Aviemore Station
- The indoor slopes have broad regional appeal and are easily accessible to the larger urban populations with the ability to deliver a consistent year-round real snow experience
- The location of the indoor slope near Glasgow is therefore both potentially competing and complementary – the guaranteed snow is an advantage but lacks the broader ski and on mountain experience
- There are a number of existing dry slope facilities across Scotland, appealing to local target markets - three are in very close proximity to Cairngorm Mountain and will already be catering for the local Aviemore and Cairngorm market
- There are potentially greater opportunities for partnership and cross-marketing of facilities between the indoor and artificial slopes and the ski resorts themselves
- The funicular railway is a unique attraction for Cairngorm Mountain, however current visitor numbers are small in proportion to overall visitors to Aviemore and the wider Cairngorm National Park area
- Snowsports has an important part to play in both athlete development and get active goals within Scotland
- There are aspirations for improved facilities both for professional development and general sports participation
- A new modern sports facility with an emphasis on reduced risk activities could potentially have a broad, general appeal, providing local facilities for the wider community.

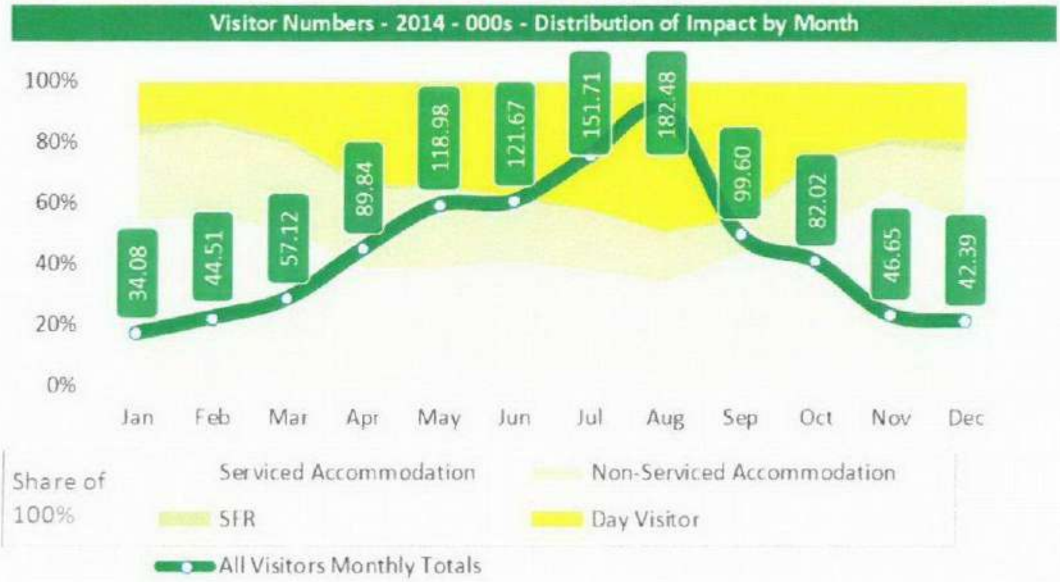
3.2 Destination 'Aviemore'

Aviemore is an established tourist / visitor destination and is a recognised hub for outdoor activities and pursuits built around the natural landscape. It has a long history and heritage. There is a strong local passion from those who have grown up, lived or worked in the area, often founded on a connection with Cairngorm Mountain itself - where many have learnt to ski.

Retail businesses in the town include a number of 'outdoor' specialists as well as a wide range of food and beverage operators, reflecting Aviemore's role as an outdoor activity destination in both summer and winter. Located within the Cairngorm National Park, the park area covers five different local authorities, Aviemore is one of, if not the principal 'gateway' to the national park and potentially has a larger role to play as an orientation point and hub.

The Cairngorm Business Partnership 'Business Barometer' monitors performance across businesses within the Cairngorm National Park and identifies strong performance from the Badenoch and Strathspey area of the park, which includes Aviemore. The 2016/17 report identifies higher increases in visitor numbers and revenue here than other areas, with accommodation providers in this area also reported to have higher occupancy than those elsewhere. Aviemore is also reported to have a higher than average second home market, though this is also considered to have contributed to a lack of affordable homes in the area and in turn has an impact on staffing and staff accommodation.

Figure 20: Badenoch and Strathspey Visitor Numbers (2014)



Source: Steam Final Trend Report 2009-2014 – Badenoch and Strathspey (GTS (UK) Ltd)

Visitor numbers to the Badenoch and Strathspey area total over 1 million per annum with a reported 2.8 million visitor days. The breakdown of visitors is biased towards staying visitors at around 700,000 and day visits at 370,000. Since 2009, the number of day visitors has declined, while the number of staying visitors has increased – up almost 23% from 570,000. Staying visitors account for around 2.4 million day visits, this equates to an average stay of 3.5 days. Visitor numbers peak significantly during the summer months more than tripling, from 45,000 in February (2014) to 152,000 in July and 183,000 in August[21]. Albeit at lower levels there are still over 30,000-40,000 visitors per month to the area over the Winter.

In terms of the number of visitor days spent in the area, summer peaks in August are almost 450,000 (2014), while winter months average 100,000+, November is the lowest at 107,000 (2014) and February highest at just under 150,000. The pattern of visitor numbers and visitor days spent in the area across the year demonstrate the dominance of the summer offering and the area's short-break appeal, while the additional winter offer is likely to be important in helping to create year-round appeal.

[21] Steam Final Trend Report 2009-2014 – Badenoch and Strathspey (GTS (UK) Ltd). Note: Badenoch and Strathspey area includes Aviemore and extends to include Kingussie and Grantown-on-Spey

Figure 21: Badenoch and Strathspey Accommodation and Beds

DISTRIBUTION BY TYPE OF ACCOMMODATION 2014	2014		Change on 2013		Change on 2009	
	Est.	Beds	Est.	Beds	Est.	Beds
All Paid Accommodation Total	644	14,173	+21	+666	+46	+2,945
Serviced Accommodation Share of Total	39%	35%				
Non-Serviced Accommodation Share of Total	61%	65%				

Source: Steam Final Trend Report 2009-2014 – Badenoch and Strathspey (GTS (UK) Ltd)

Serviced accommodation accounts for around a third of the total and includes hotels, guest houses and B&Bs with in the region of 250 establishments, providing just under 5,000 bed spaces. Non-serviced accommodation (self-catering, touring and camping) accounts for just under 400 establishments and over 9,000 bed spaces.

Accommodation in Aviemore itself is dominated by two large resort hotels; MacDonald resort and Hilton Coylumbridge, collectively offering over 600 beds.

3.2.1 Nearby Attractions

The wider Aviemore area boasts a broad range of activities and attractions for families and the outdoor adventure market, from zip wires and quad bikes to water sports and adventure parks. Much of this activity takes place within the Glenmore corridor en route from Aviemore to Cairngorm Mountain. Glenmore Lodge offers a wide range of outdoor activities and has its own dry slope, the Watersports Centre at Loch Morlich offers a range of watersports activities and mountain biking and along with the Reindeer Centre, Glenmore Visitor Centre, Glenmore Forest Park itself, TreeZone and Rothiemurchus Estate and the Hilton Coylumbridge Resort there is a wide range of activities and attractions available within the immediate area, just 10-15 minutes from the mountain.

Figure 22: Nearby Attractions

Attraction	Distance	Drive Time
Outdoor Discovery (Macdonald and Hilton Resorts)	0	0
Strathspey Railway	0	0
Rothiemurchus Estate	3	10
TreeZone (Rothiemurchus Estate)	3	10
The Cairngorm Reindeer Centre	5	20
Landmark Forest Adventure Park	7	13
Glenmore Lodge (National Outdoor Training Centre)	8	20
Watersports centre (Loch Morlich)	8	20
Alvie and Dalraddy Estate	10	17
Loch Insh outdoor centre	10	24
Zip Trek Adventure Park Aviemore	10	17
Highland Wildlife Park, Kincraig	12	20
Craggan Outdoors: Outdoor Activities Centre	14	20
Laggan Wolftrax	30	43

Source: Drivetimes and distances from Aviemore, AA Route Planner

Consultees mentioned the nearby zip park, Zip Trek as very successful and both the Landmark Adventure Park and Rothiemurchus as successfully targeting families. Outdoor Discovery parks at Coylumbridge and MacDonald offer a broad range of activities from climbing walls and quad bikes to grass-sledging, high ropes at Badaguish and river assault at Loch Morlich. Laggan Wolftrax offers over 20 miles of mountain biking trails through the forest, trails are owned and maintained by Forestry Commission Scotland.

The Visit Cairngorms website lists 50 visitor attractions and the Visit Aviemore website lists over 80 'things to do', attractions and activity providers in and around Aviemore. Given the strength of the summer visitor market it is not surprising that the offer is weighted towards outdoor summer activities, the winter / snowsports offer appears supporting and supplementary rather than the main offer / draw.

Figure 23; Visit Cairngorms 'Attractions'

Summary	Total
Museums	8
Indoor Attractions/Activities	27
Castles and Historic Sites	11
Gardens and Garden Centres	2
Breweries/Distilleries	12
Arts Venues	23
Leisure Centres	9
Tours in the Cairngorms National Park	13
Tourist Shops	11
Visitor Attractions	50

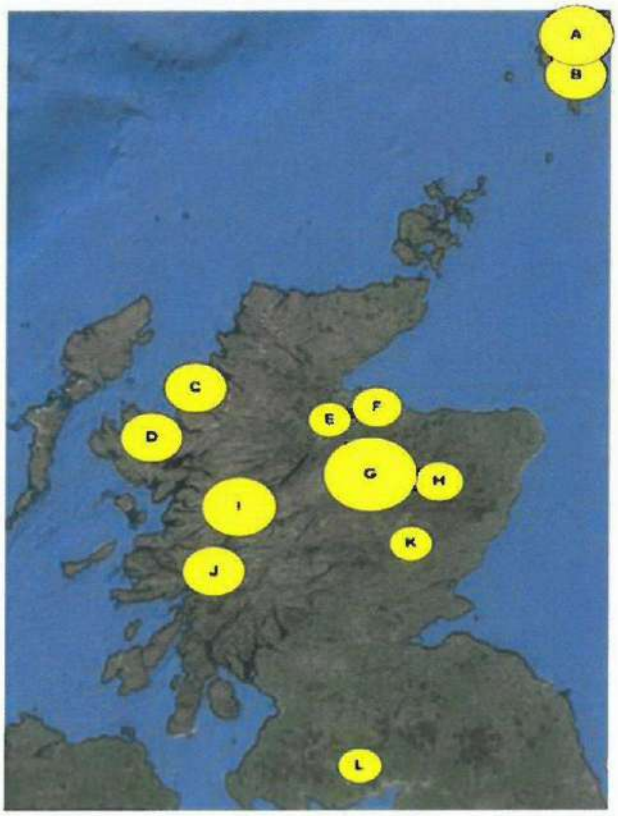
Source: Visit Cairngorms https://visitcairngorms.com/

The 'right to access'[22] laws in Scotland enable a wide number of businesses to offer a range of guided walks and activities, with an emphasis on the outdoors.

3.2.2 Adventure Tourism

The 2015 Adventure Tourism Research Report maps clusters (over 5) of adventure tourism businesses in Scotland. As can be seen below the largest cluster is in Aviemore (Figure 24). Aviemore is also home to the Glenmore Lodge, Scotland's national outdoor training centre. The lodge offers accommodation and a broad range of facilities. These facilities include; bike training skills area, roller ski track and range, outdoor climbing and ski slope. Indoor facilities including; climbing walls, a gym, rolling pool and wet area. Glenmore Lodge is located close to the base of Cairngorm Mountain, it is a nationally recognised facility and presents an opportunity for greater integration with the mountain.

Figure 24: Clusters of Adventure Tourism Businesses



A = Shetland (mainland) (11)
B = Lerwick (8)
C = Gairloch (8)
D = Portree (8)
E = Inverness East (5)
F = Forres (6)
G = Aviemore (15)
H = Ballater (6)
I = Fort William (11)
J = Oban (9)
K = Blairgowrie (5)
L = Castle Douglas (5)

Source: Adventure Tourism in Scotland, Research Report August 2015 (HIE)

[22] The Land Reform (Scotland) Act 2003 (which came into force in 2005) gives everyone rights of access over land and inland water throughout Scotland, subject to specific exclusions set out in the Act and as long as they behave responsibly. These rights are sometimes referred to as 'freedom to roam' (source: Scotways.com)

While Scotland has a strong adventure tourism offer the 2015 Adventure Tourism report identified opportunities for the offer to be sold and marketed better. Similarly, in Aviemore itself many businesses appear to operate 'piecemeal' with opportunities for greater collaboration and collective destination marketing.

3.2.1 In-town Resort Offer

The size and scale of the present MacDonald Aviemore Resort, comprising three hotels, 464 bedrooms, 18 Woodland Lodges and a 1,150-capacity conference centre is testament to the size of the visitor and conference market present in Aviemore. The resort facilities include an 18-hole golf course, cinema, activity centre (leisure pool and soft play) and its own shopping centre. However, the resort 'sits apart' from the town and tends not to reflect or integrate very well with the traditional role and history of Aviemore.

The Hilton, Coylumbridge a 175-bedroom hotel appears to actively target families. The hotel has a Fun House play centre on site, kids club, outdoor play park, dry slope and swimming pool. The hotel promotes a range of family rooms and has its own on-site spa. The hotel has recently been sold to Starwood Capital, a global hotel investor based in the US. Described in the press release (Christie & Co) as a 'highly profitable business' and 'one of the region's most popular and consistently busy family resorts'.

While the importance of the tourist / visitor market is much in evidence, the customer experience can be mixed. Discussions with stakeholders identified issues with inconsistent service standards across businesses and anecdotal reports suggest a lack of training and leadership which Cairngorm Business Partnership are seeking to address in conjunction with other partners. While there is evidence of recent investment with new arrivals trading from modern retail units and shop fronts, much of the town looks quite dated in appearance.

Historically the Aviemore Centre, previously located on the site of the Macdonald resort offered a wide range of activities and facilities aimed at the winter ski market. This resort centre and its 'public offer' has disappeared, seeming to have been replaced by individual hotels / resorts and businesses operating independently and this collective critical mass has been lost. It appears that this 'place' performed an important role as a focal point for the town however today the current offer tends to feel fragmented.

Aviemore is an established visitor destination with a long history, synonymous with skiing and winter sports it also benefits from year-round appeal, with a wide range of attractions and activities on offer, enhanced by its location within the Cairngorms National Park. Aviemore has many individual attributes in place to drive visits, however to compete more effectively as a true 'resort' destination will require greater collaboration between businesses and stakeholders and a desire to improve the overall collective appeal and quality of the Aviemore product.

3.2.2 Road Infrastructure Improvements

Aviemore is likely to benefit in the future from planned improvements to the road infrastructure, with the proposed A9 dualling from Perth to Inverness cited for completion by mid-2020s. The A9 is considered an important strategic link in Scotland, connecting Inverness to Perth and from there onwards to the Central Belt and the rest of the UK.

The upgrading of remaining sections to dual carriageway is expected to cut journey times, with forecast reductions of between 18 and 20 minutes between Perth and Inverness and beyond with similar time reductions between Inverness and the Central Belt.

The A9 is a major link road and access point for Aviemore. The dualling is also expected to generate improvements in perceptions, with Aviemore viewed as easier to get to and overall delivering a safer / less stressful journey experience. As the major route north-south past Aviemore this shorter journey time and more pleasant driving experience is likely to improve the areas appeal both to visitors and locals.

In addition to the A9 improvements there are early proposals to look specifically at local access in and around Aviemore. There is an accepted view that access and transport in and around Aviemore could be improved, the need for this is further driven by the development of the new NHS hospital and the potential additional housing. The work is being carried out in conjunction with the Active Aviemore project and the Cairngorm and Glenmore Strategy.

3.2.3 Resort Development and Investment

It is widely recognised that consumers across all sectors are increasingly seeking 'experiences' with associated higher expectations of the broader overall offer. The implications for ski resorts being that in *addition* to a good snowsports experience other factors are becoming increasingly important. This is driving up expectations of the overall visit experience in a number of areas. The annual top resort ratings reported by SKI Magazine now include a wide variety of off-mountain factors and attributes including, accessibility / ease of travel, lodging, dining, après-ski / nightlife, off-hill activities, kid friendliness, scenery, character/ambiance and overall satisfaction. These are considered to be important factors for any destination ski resort.

Research conducted by RRC Associates tracks resorts across these factors with many resorts actively responding and adjusting their offer to meet consumers growing needs and expectations. These include providing more information prior to visit on their website regarding accommodation, food and drink and non-skiing activities and offering packages and bundles to provide a better value all-inclusive experience (combining lift ticket, accommodation, rentals, etc.). In addition, the RRC research identifies the desire for a "more holistic and authentic mountain experience" with resorts developing their own USP / brand to differentiate their offer in a competitive market place. Examples in North America included; Aspen – high end, Jackson Hole - Western and rugged, Big Sky - vast terrain, Steamboat - family-friendly feel, Taos Ski Valley - New Mexican culture, Deer Valley - its guest service, and Crested Butte - the extremely challenging terrain.

While there is a clear role for Aviemore as a stronger resort destination, it is worth considering this in the context of these resort trends and other existing resort destinations, in terms of what needs to be delivered and what it means to be a resort destination.

While America is the second biggest destination worldwide accounting for 21% of skier visits, The Alps is the biggest accounting for 43% of skier visits worldwide[23], however as previously identified it too is experiencing declining skier visits and has a significant non-skier visitor element. Many of the major resorts have seen a variety of recent investment with future investment also in the pipeline. Recent improvements across the Alps have been seen in snow canons, lift improvements and the development of non-ski offers.

The Knight Frank Ski Property report cites the importance of investment in resorts and the need for them to adapt and deliver what the new generation of skiers want, making reference to higher expectations in terms of reliability of snow, quality of accommodation and facilities on offer. There are lessons to learn here in terms of the level and type of investment being seen elsewhere. Additionally, these improvements, particularly in France, will be fuelling consumers' expectations in terms of quality and overall experience, which will only serve to exacerbate the current poor perceptions of the Scottish resort offer.

Figure 25: Resort Investment

Resort	Recent Investment (last 5 years)
Chamonix	Renovation of the Montenvers Site (€6.5m), new La Parsa chairlift and new beginners area at Planpraz (€330m over 40 yrs), Compagnie du Mont-Blanc now majority shareholder in Megève-Mont d'Arbois ski lift system (€14m)
Courchevel	New snow making system, Aquamotion park (€70m), Ski lifts upgraded (€120m), New night sledging in Moriond (3km)
Méribel	New snow making system, new mountain bike trails (€500,000)
Megève	New ski cannons, lifts, retail (€200m), Four Seasons Hotel €80m) Sports centre (€37m)
Val D'Isere	The new Solaise Centre (Gondola, day lodge, magic carpets, new 4-seater chairlift and beginners' area) (€20m), New mountain restaurant (L'Étincelle)

Source: Ski Property Report 2017 - Assessing Property Market Conditions Across Key Alpine Resorts. Knight Frank

3.2.4 Key Findings

The key findings from the above section are summarised below:

- Cairngorm Mountain and Aviemore have a shared regional history and heritage
- There is a strong sense of local passion amongst those who have grown up or relocated to Aviemore and its surrounding area
- There are opportunities to build further on the history and heritage of the area and mobilise the passion of local people and businesses
- There is the opportunity for Aviemore to play a stronger 'destination' role as part of the larger destination
- Currently businesses appear to be working in siloes, with little collective critical mass
- The town currently lacks a clear resort centre and focal point

[23] 2017 International Report on Snow & Mountain Tourism, Laurent Vanat

- Aviemore and the surrounding area (including Cairngorm) is a year-round tourist / visitor destination, characterised by its breadth of outdoor activities and pursuits
- Customer service standards and the overall quality of the experience could be improved
- Road access to Aviemore via the A9 dualling is set to improve perceptions in terms of how easy Aviemore is to get to
- Resort improvements and investments in America and Europe are raising the bar and further emphasising the gap with the Scottish resort offer
- Consumers increasing expectations are continuing to fuel changes to resort offers and are important considerations for any resort destination.

3.3 Cairngorm Mountain

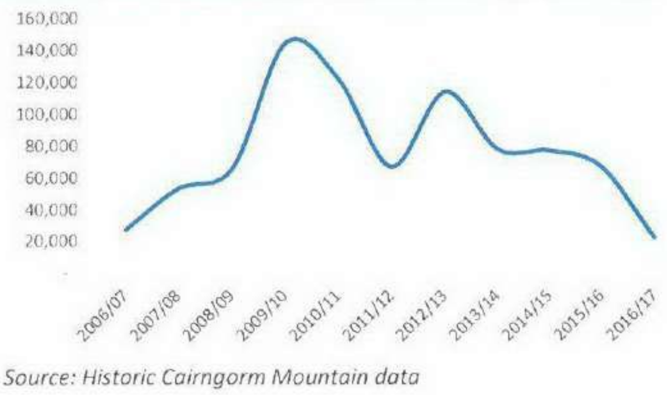
Cairngorm Mountain has a long history dating back to its conception in the 1960s. In the 1990s the ski market shifted significantly due to a combination of new technologies, increased competition from abroad and budget airlines – and this coincided with a series of poor winters.

In 2008 HIE stepped in to purchase the existing Cairngorm Mountain operating company and the property after it ran into financial difficulties and since 2014 the mountain operation has been leased to Natural Retreats, operating as Cairngorm Mountain Limited.

3.3.1 Overview of Performance and Customers

Skier visits over the last ten years have varied significantly from year to year rising from 23,000 in 2006/07 to a peak of 144,000 in 2009/10 and falling back to 21,000 in 2016/2017. Performance is extremely weather dependent illustrated by the low ski numbers last season which was a poor season in terms of snowfall.

Figure 26. Skier Visits to Cairngorm Mountain, 2006 to 2017

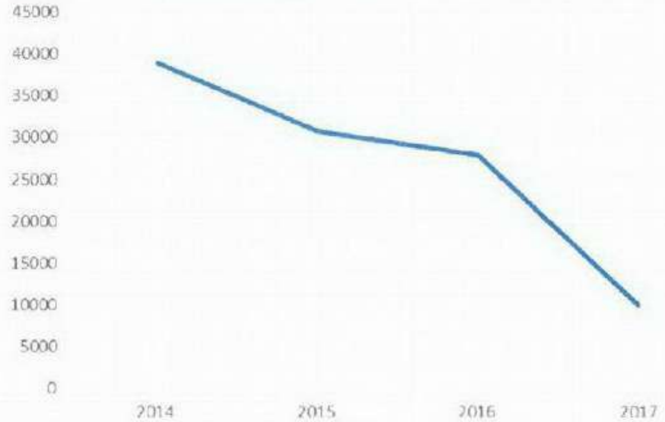


Source: Historic Cairngorm Mountain data

February, driven by half term, is the peak month in the winter season achieving ski visits in excess of 46,000 in 2009/10, more than the total season in some years. February averages 30-40,000 in most seasons. Being able to flex up and cater the operation to fully capitalise on these peaks is an important consideration.

Sales of one-day passes are the most popular accounting for in the region of 60% of ski tickets sold per year on average (excluding season passes) confirming usage of the mountain as a day visit destination. Around 30,000-40,000 one day passes are sold annually, however sales appear to be on a downward trend in line with findings elsewhere.

Figure 27: Sales of One-day Passes



Source: Natural Retreats Sales Information (confidential)

Anecdotal suggestions are that the majority of day skiers originate from the north i.e. Inverness and surrounds and that more affluent communities around the north east (Aberdeen), tend not to ski in Scotland but instead ski solely overseas due mainly to the combination of snow assurance, quality of offer and experience and ease of access with short-haul flights.

Figure 28: Season Passes and Usage

Winter Season	Season Passes	Single Ride	Total Rides	Unused Passes
17/18	1,423	9,159	42,607	103
16/17	748	2,945	14,960	157
15/16	2,154	12,516	56,585	133
14/15	1,962	13,310	80,343	160

Source: Natural Retreats Sales Information (confidential)
Note: Single Ride = Number of times they have visited and used their pass on the mountain. Total Rides = Record of the total number of times their pass has gone through the Ticket Gates on the Mountain

Figures for season passes appear to have declined this year, this may reflect the poor previous season with fewer opting for a season pass but preferring to 'wait and see'. The operations team indicated that most season ticket holders originate from within 50-60 miles of the mountain and are focused around the Inverness / Elgin area.

Analysis of data captured on the mountain suggests that season pass holders visit on average 6-7 times per annum[24]. Visits by season ticket holders (excluding the poor season in 2016) at around 13,000 represent a relatively small proportion of overall skier visits.

Skier numbers over the last couple of seasons demonstrate the current instability of the operation and weather dependence of operating the ski resort at Cairngorm. Even when fully operational the weather can change quickly and the wind is often strong. These are challenging conditions both for those operating the mountain and those skiing.

Meanwhile the funicular appears to attract more consistent visitor numbers and to be performing as an alternative when there is no opportunity to ski. Observations and anecdotal feedback identified difficulties with catering to these two very differing consumer groups over the winter season; skiers and non-skiers. Skiers just want to 'get up the mountain and ski', while non-skiers seek a more relaxed, slower paced, leisure experience – the current experience for the non-skier at peak times is likely to be fairly uncomfortable.

Interestingly while there are small decreases in retail customer numbers, and slightly more so F&B, this was achieved from a much smaller number of skier visits, indicating that good numbers of non-skiers are visiting the shop and the cafes.

Figure 29: Winter Performance

Winter Performance	2015/16	2016/17
Funicular Customer Numbers	55,695	66,970
Skier Customer Numbers (not including seasons)	47,205	15,372
Catering customer numbers (excl events)	83,885	56,819
Catering Events Customers	20	-
Retail Customers	16,547	15,466

Source: Natural Retreats End of Season Reports
Note: Funicular customer numbers are only customers on foot, therefore no skiers are included in these numbers

Latest figures for 2018 have been obtained from Natural Retreats although the season is still ongoing. Figures compared to last year show funicular numbers down and ski numbers up. Ski numbers for 2018 to date already exceed the total for the previous season (2016/17). While it is acknowledged that 2016/17 was a poor year for skiing on the mountain, it also demonstrates that when the conditions are right, people are still coming to ski.

[24] Single ride total divided by number of season passes sold

Figure 30: Figures for 2018 to date

Latest Figures for 2018	Jan-18	Feb-18	Jan-17	Feb-17
Funicular Numbers	7,339	7,743	10,101	10,709
Skier Numbers (excl. seasons)	7,530	17,094	665	8,119
Retail Numbers	1,912	2,658	1,900	2,753
Catering Numbers	13,340	20,217	7,900	14,498

Source: Natural Retreats
Note: Funicular customer numbers are only customers on foot, therefore no skiers are included in these numbers

In contrast to the winter performance the summer operation appears relatively stable. Users of the funicular over the summer months are around 90,000-100,000 with peak months in July and August. There appears to be a small decline from 2016 to 2017. The number of 'walk' customers and 'catering' customers attending events are showing small but steady increases albeit, from low bases.

Guest Surveys are revealing in terms of usage, with a high proportion of first time visitors (85% - Summer 2017). 'Guided walking' and a 'trip on the funicular railway' are the most commonly undertaken activities during spring and summer, reflecting the limited range of activities available.

Figure 31: Summer Performance

Summer Performance 2015-2017	2015	2016	2017
Funicular Customer numbers (walks not included)	83,017	96,099	91,304
Walk Customers	1,364	1,832	1,838
Catering customer numbers (excluding events)	52,257	53,313	52,256
Catering Events Customers	258	1,066	1,142
Retail customer numbers	18,199	21,093	20,646

Source: Natural Retreats End of Season Reports

3.3.2 Operational Considerations

2017 saw the resort fully operational for 353 days compared to 322 to 2016 (Figure 32).

To staff the mountain during the winter season requires high numbers of staff and the differential between high and low trading is small, potentially exposing the business to greater financial risk. Anecdotally, the operating team report that 165 staff are required to be fully open midweek compared to 180 staff on a busy day at the weekend. In addition, around 20 staff are required when closed, however those on permanent contracts are still paid and staff taken on for the winter season on zero hours contracts receive 2 hours pay. The financial implications of closing the resort for a day are significant.

Figure 32: Operational Days

	Jan to Dec 2016	Jan to Dec 2017
Days open	322	353
Partial closure	40	3
Full closure	3	9
Total	365	365

Source: Natural Retreats End of Year Reports

Consultations with the mountain operations team, wider stakeholders and user groups (including the local ski clubs) identify problems at peak times with car parking, significant queues for lifts, equipment hire, and pinch points at the top at the Ptarmigan in particular for food. Issues were also identified with the funicular train trying to service two very different groups both, skiers and tourists.

3.3.3 Key Findings

The key findings from the above section are summarised below:

- Skier visits to Cairngorm Mountain have varied significantly over the past 10 years, peaking at over 140,000 in 2009
- Skiing at Cairngorm is a very weather dependent business. The weather not only affects the ability to operate but also the visitor experience, in particular strong winds
- Ski numbers in the last 10 years fluctuate significantly season to season from over 100,000 to just over 20,000
- However, it is also clear from this fluctuating performance that when the conditions are right people are still coming to ski
- School holidays, especially February half term are peak periods
- The funicular railway is the primary visit driver during the Summer months, however with 1.8 million visits to the national park, Cairngorm Mountain is only getting a small percentage share of the market
- Customer numbers show a slight decline year on year across activities with small exceptions for walks and events
- Non-skier visitor numbers are matching and, in some instances, overtaking skier numbers across the year
- High staff numbers are required to operate the mountain over the winter with little differential between high and low season
- The financial implications of the mountain being closed for a day are significant both in terms of lost revenue and staffing costs
- The primary market is a day visit market, with one-day passes the larger proportion of tickets sold
- There is a consistency to the summer operation in terms of visitor numbers that is missing over the winter due to the weather
- Programming and renewable multi-season activities are future opportunities.

Appendices

1 Reference Documents and Publications

- 2017 International Report on Snow & Mountain Tourism, Laurent Vanat
- Adventure Tourism in Scotland, Research Report August 2015 (HIE)
- An Outstanding National Park – Cairngorms National Park infographic
- Cairngorm Visitor Survey 2014-15
- Cairngorms National Park STEAM Tourism Economic Impacts 2016 Summary
- Cairngorms National Park: 2020 Delivering the National Tourism Strategy – Tourism Action Plan Summary Infographic
- Consumer Research 2017 - A unique analysis of the snowsports market, Ski Club of Great Britain
- Holiday Trends 2016, BDRC Continental
- Inner Moray Firth Area Profile 2014
- Natural Retreats End of Season Reports
- Our Visitors – Cairngorms National Park infographic
- Scotland Visitor Survey 2015 & 2016 - Regional Results Cairngorms National Park – summary document
- Scotland Visitor Survey 2015 & 2016 - Regional Results the Highlands of Scotland – summary document
- Scotland Visitor Survey 2015 & 2016 (Jump Research) – short version presentation
- STEAM Tourism Economic Impacts 2016 Report, Global Tourism Solutions (UK) Ltd – summary
- STEAM Final Trend Report 2009-2014, Badenoch and Strathspey, Global Tourism Solutions (UK) Ltd
- Tourism in Scotland's Regions 2016 - VisitScotland's Insight Department, information from tourism monitors and other national statistics / research
- Tourism Scotland 2020 'The Future of Our Industry in Our Hands' - a short summary of the new tourism strategy for Scotland by the tourism leadership group
- Tourism: Action + Change Tourism Action Plan for the Cairngorms National Park 2017-2022 - Published by the Cairngorms National Park Authority
- VisitScotland 2015 GB Tourism Survey and International Passenger Survey
- VisitScotland's Target Segments - VisitScotland's Insight Department, an overview of the target segments and segmentation model
- Millennial Travellers, January 2017 - VisitScotland Insight Department
- Ski Property Report 2017 - Assessing Property Market Conditions Across Key Alpine Resorts. Knight Frank

2 Nearby Attractions and Activities

Main nearby attractions and activities in and around Aviemore, typically within a 10-20 minute drive (with the exception of Wolftrax at Laggan over 40 minutes).

Attraction	Description	Website
Outdoor Discovery Macdonald and Hilton Resorts)	Superjumpers, Climbing Walls, Dry slopes, Quad Bikes, LaserQuest, Surf Simulator, River Assault, High Ropes, Big Air, Bike Hire, Ski and Snowboard hire, ice and roller rink, skateboard park, glass sledging - Outdoor Discovery parks at Coylumbridge and MacDonald High Ropes at Badaguish and river assault at Loch Morlich.	http://www.outdoordiscovery.co.uk/
Strathspey Railway	10 mile long 1950s branchline between Aviemore, Boat of Garten and Broomhill. Special events including Peppa Pig, easter events and santa express, dining experience and afternoon tea	https://www.strathspeyrailway.co.uk/
Rothiemurchus	Wide choice of outdoor activities on offer (walks, fishing, Ranger led tours, wildlife photography, pony and quad bike treks, clay shooting, tree top adventures, biking, archery, segways)	http://rothiemurchus.net/outdoor-activities-at-aviemore/
TreeZone (Rothiemurchus Estate)	Aerial adventure course, rope walk, zip wires,	https://iye.scot/treezone-prices/
Landmark Forest Adventure Park	Theme park rides, butterfly house, rope activities, climbing wall, parachute jump simulation, forest safari driving, woodland walks, immersive experiences, shooting gallery, mini diggers, shop, F&B,	https://www.landmarkpark.co.uk/
Loch an Eilein (Rothiemurchus)	UK's best picnic spot, walks through the ancient forest, views of island castle and mountains, visitor centre	
Alvie and Dalraddy Estate	Range of activites; zip wires, clay pigeon shooting, archery, horse riding, walking, fishing, bird watching, segways, zip trek park, extreme sports with G2 outdoors (canyoning, white water rafting), pony trekking, deer feeding, estate tours, paintballing	https://www.alvie-estate.co.uk/
Zip Trek Adventure Park Aviemore	Zip line	https://www.zippark.co.uk/book-now/
Craggan Outdoors: Outdoor Activities Centre	Most activities take place on-site, archery, art and creativity, bushcraft, clay pigeon (laser clays), disc golf, fishing, footgolf, golf, gorge walking, high ropes, kayaking, lasertag, mini quads, mountain biking and bike hire, paintball, pony trekking, raft building, River Spay canoe trips, rock climbing, team problem solving, white water rafting and a zip wire	https://www.cragganoutdoors.co.uk/
Glenmore Lodge (National Outdoor Training Centre)	Kayaking, canoeing, mountaineering, ski touring, mountain biking, first aid & work safety courses, accommodation, meeting and events	https://www.glenmorelodge.org.uk/
Highland Wildlife Park, Kincraig	Wildlife Park set in the Cairngorms National Park	http://www.highlandwildlifepark.org.uk/
The Cairngorm Reindeer Centre	Reindeer paddock, exhibition, quizzes and crafts for children	http://www.cairngormreindeer.co.uk/visit/
Watersports centre (Loch Morlich)	Sailing, windsurfing, stand up paddleboarding, kayaking, canoeing, mountain biking, mountain biking	http://www.lochmorlich.com/
Loch Insh outdoor centre	F&B, accomodation, skiing, snowboarding, paddle courses, powerboating, sailing courses, windsurfing courses,	https://lochinsh.com/
Laggan Wolftrax	Mountain biking trails, walking trails, cycling, F&B	http://scotland.forestry.gov.uk/visit/laggan-wolftrax

Things to do in Aviemore. https://www.visitaviemore.com/activities/

Cycling	Total: 16
Active Outdoor Pursuits - Mountain Biking	
Backcountry Biking	
Biking at Rothiemurchus, Inverdruie, Aviemore	
Cairngorm Adventure Guides	
Cyclewild Scotland	
Glenlivet Mountain Bike Trails Centre	
Glenmore Lodge-Mountain Biking	
Glenmore Shop - Electric Bike Hire	
In Your Element Bike Hire and Guided Mountain Biking	
Loch Morlich Watersports	
Mikes Bikes Aviemore Ltd Guided Mountain Bike Rides + Hire	
Mountain Biking - Full On Adventure	
Outdoor Discovery @ Macdonald Aviemore Highland Resort and Bike Hire	
TREKnTRAIL	
Wilderness Scotland, Mountain Biking (Small Group)	
Wolftrax in Strathmashie Forest at Laggan with 35km of all year round trails for mountain bikers	

Walking	Total: 9
Active Outdoor Pursuits - Walking	
Backcountry Survival - Winter Survival (survival skills)	
Cairngorm Adventure Guides	
In Your Element: Climbing, Mountaineering, Guided Walks	
Out In The Hills (guided walking)	
Rothiemurchus Walking and Countryside Rangers	
TREKnTRAIL	
Walking - Cairngorm Mountain	
Wilderness Scotland - Tailor-made, Photography (small group), Self-guided, Winter walking (small group)	

Watersports	Total: 11
Active Outdoor Pursuits - Canyoning - Cairngorms Adventure Centre, White Water Rafting	
Canyoning | Gorge Walking - Full On Adventure	
G2 Outdoor Canyoning/Gorge walking - Alvie Estate	
In Your Element: Gorge Swimming and Walking, Whitewater Sledging	
Loch Morlich Watersports	
Outdoor Discovery - River Assault - Loch Morlich	
Raft | Canoe | Kayak - Full On Adventure	
Rafting with G2 Outdoor - Alvie Estate	
River Tubing - Full On Adventure	
Watersports at Rothiemurchus	
Wilderness Scotland - Sailing	

On Land Activities	Total: 11
Active Outdoor Pursuits - Orienteering and Navigation	
Alvie and Dalraddy Estate - Segway Treks	
Aviemore Kart Raceway	
Clan Warfare (Paintball)	
Glenmore Lodge-Orienteering and Navigation Skills	
In Your Element: Archery, Off-road segways	
Outdoor Discovery - High Ropes (Badaguish Outdoor Centre)	
Outdoor Discovery - Junior Quad Bikes (Hilton Coylumbridge)	
Rothiemurchus Clay Shooting and Archery, Fishing Centre, Quad Bike Trekking, Highland Pony Trekking	
Treezone (aerial adventure course) - Inverdruie	
Zip Trek Adventure Park - Alvie Estate	

Golf	Total: 1
Macdonald Spey Valley Championship Golf Course	

Wildlife Watching	Total: 9
Glenmore Forestry Commission Visitor Centre	
Highland Wildlife and Birdwatch Safaris	
Mountain Garden - Cairngorm Mountain	
Rothiemurchus Ranger Led Activities	
The Cairngorm Reindeer Centre	
UK Wildlife Safaris	
Walking - Cairngorm Mountain - Summit Walk	
Wilderness Scotland, Self-guided, Wildlife Holidays	
Wildlife Watching with Speyside Wildlife	

Swimming Pool / Leisure	Total: 2
Aviemore Activity Centre - MacDonald Resort	
Hilton Coylumbridge Hotel	

Visitor Attractions	Total: 18
Aviemore Children's Funfair	
Cairngorm Brewery	
CairnGorm Mountain - Skiing and Snowboarding	
Camera Obscura - Cairngorm Mountain	
Craggan Outdoors: Outdoor Activities Centre (broad range)	
Funicular Railway - Cairngorm Mountain	
Glenmore Forestry Commission Visitor Centre	
Highland Folk Museum	
Landmark Forest Adventure Park	
Loch an Eilein at Rothiemurchus (castle and picnic area)	
Mountain Garden - Cairngorm Mountain	
Outdoor Discovery @ Macdonald Aviemore Highland Resort	
Rothiemurchus Centre and Estate	
Strathspey Steam Railway Aviemore	
The Cairngorm Reindeer Centre	
The Fun House (Hilton Coylumbridge)	
The Highland Wildlife Park	
Wildlife Watching with Speyside Wildlife	

Indoor Attractions	Total: 6
Loch an Eilein Gallery at Rothiemurchus	
Macdonald Aviemore Resort - Activities	
Smarty Art (ceramic painting studio, Macdonald Resort)	
Spey Valley Cinema (MacDonald Resort)	
The Fun House (Hilton Coylumbridge)	
The Laundry Gallery	

Attractions and activities in the wider Cairngorm National Park area. https://visitcairngorms.com/attractions

Museums	**Total: 8**
AA Box 472 'Mini Museum'	
Antholl Country Life Museum	
Clan Macpherson Museum	
Flying Carpets Kingussie	
Grantown Museum and Heritage Trust	
Highland Folk Museum (Newtonmore)	
Speyside Antiques	
Tomintoul and Glenlivet Discovery Centre	

Indoor Attractions/Activities	**Total: 27**
1895 Gallery and coffee shop	
Balmenach Distillery – Home of Caorunn Gin	
Balmoral Castle	
Blair Atholl Water Mill	
Blair Castle and Gardens	
Clan Macpherson Museum	
Cookery Workshops with Ghillie Basan	
Dalwhinnie Distellery	
Flying Carpets	
Fused and Light (glass fusing workshops)	
Handmade 'n' Braemar	
Loch an Eilein Gallery at Rothiemurchus	
Macdonald Aviemore Resort Activities	
Persie Distillery at Auchenflower	
Rothiemurchus Centre	
Smarty Art	
Spey Valley Cinema	
The Braemar Gallery	
The Fun House at Hilton Coylumbridge	
The Glenlivet Distillery Visitor Centre	
The Laundry Gallery	
The Lost Gallery	
The Pagoda	
Tomatin Distillery	
Tomintoul and Glenlivet Discovery Centre	
Tomintoul Art Gallery	
Whisky Castle and Highland Market	

Castles and Historic Sites	**Total: 11**
Ballindalloch Castle	
Balmoral Castle	
Blair Castle and Gardens	
Blair Castle Trekking Centre	
Braemar Castle	
Corgarff Castle	
Drumin Castle	
Glenbuchat Castle	
Kildrummy Castle	
Loch an Eilein at Rothiemurchus	
Rutheven Barracks	

Gardens and Garden Centres	Total: 2
Drumin Castle	
Mountain Garden – Cairngorm Mountain Garden	

Breweries/Distilleries	Total: 12
Angles' Nectar Blended Malt Scotch Whisky	
Balmenach Distillery – Home of Caorunn Gin	
Cairngorm Brewery	
Dalwhinne Distillery	
Inshariach Gin	
Persie Distillery at Auchenflower	
Royal Lochnagar Distillery	
Speyside Distillery	
The Glenlivet Distillery Visitor Centre	
Tomatin Distillery	
Tomintoul Distillery	
Two Thirsty Men	

Arts Venues	Total: 23
1986 Gallery and Coffee Shop	
Boat of Garten Community Hall	
Carrbridge Artists Studio	
Flying Carpets	
Frank Bruce Sculpture Collection	
Fused and Light	
Glenshee pottery and visitor centre	
Grantown Museum and Heritage Trust	
Handmade 'n Braemar	
Lark's gallery	
Loch and Eilein Gallery at Rothiemurchus	
Riverdell Art Studio	
Smarty Arty	
Speyside antiques	
Spindrift of Tomintoul	
St Margaret's Trust Braemar	
The black rock gallery	
The Braemar Gallery	
The Iona Gallery	
The Laundry gallery	
The Lost Gallery	
The Pagoda	
Tomintoul art gallery	

Leisure Centres	Total: 9
Abernethy Nethybridge	
Aviemore Activity Centre	
Blair Atholl Curling and Bowling Club	
Craig Maclean Leisure Centre	
Hilton Coylumbridge Hotel	
Hughland Physiotherapy	
Lochanhully Woodland Club	
Macdonald Aviemore Resort	
Swimming at the Bridge of Tilt Caravan Park	

Visitor Attractions	Total: 50
AA Box 472 'Mini Museum'	
Aviemore Children's Funfair	
Ballindalloch Castle	
Balmoral Castle	
Balmoral Estate	
Blair Atholl Water Mill	
Blair Castle and Gardens	
Braemar Castle	
Braemar Highland Experience	
Burn O Vat Visitor Centre	
Bygone Drives – vintage experience tours in the Cairngorms National Park	
CairnGorm Mountain Skiing and Snowboarding	
Cairnwell Chairlift at Glenshee	
Camera Obscura - Cairngorm Mountain	
Carrbridge Carriage Driving	
Corgarff Castle	
Craggan Outdoors: Outdoor Activities Centre	
Dalwhinnie Distillery	
Frank Bruce Sculpture Collection	
Funicular Railway – Cairngorm Mountain	
Glenmore Forestry Commission Visitor Centre	
Glenshee Pottery and Visitor Centre	
Glenshee Ski Centre - Skiing and Snowboarding	
Highland Folk Museum (Newtonmore)	
Highland Wildlife Park	
Kildrummy Castle	
Landmark Forest Adventure Park	
Lecht Chairlift	
Loch an Eilein at Rothiemurchus	
Mini-quads at Craggan Outdoors	
Mountain Garden - Cairngorm Mountain	
Open top bus around Royal Deeside - Stagecoach North Scotland	
Outdoor Discovery @ Macdonald Aviemore Highland Resort	
Persie Distillery at Auchenflower	
Rothiemurchus Centre	
Spindrift of Tomintoul	
Strathspey Steam Railway Aviemore, Boat of Garten, Broomhill	
The Cairngorm Reindeer Centre	
The Craggan All Golf Centre	
The Fun House	
The Glenlivet Distillery Visitor Centre	
The Iona Gallery	
The Lost Gallery	
The Strathspey Railway - Festive Dining	
The Wildcat Experience	
Tomatin Distillery	
Tomintoul Art Gallery	
Wild Alba Tours - wildlife and bird watching walks	
Wildlife Watching with Speyside Wildlife	
Working Sheepdogs	

Tours in the Cairngorms National Park	Total: 13
Balmenach Distillery Home of Caorunn Gin	
Braemar Highland Experience	
Bygone drives – vintage experience tours in the Cairngorms National Park	
Cairngorm Brewery	
Funicular railway – Cairngorm Mountain	
G2 Outdoor – paddle puffer and pint	
Glenesk Wildlife	
Rothiemurchus land rover safaris, tours, osprey photography and wildlife watching	
Speyside Whisky Tours	
Strathspey Steam Railway Aviemore, Boat of Garten, Broomhill	
The Cairngorm Reindeer Centre	
UK Wildlife Safaris	
Wilderness Scotland – Road Cycling, Canoeing or Kayaking (small group), Mountain Biking (small group)	

Tourist Shops	Total: 11
Carrbridge Artist Studio	
Glenmore Forestry Commission Visitor Centre	
Highland Wildlife Park	
Loch and Eilein Gallery at Rothiemurchus	
Rothiemurchus Centre	
Speyside Antiques	
Spindrift of Tomintoul	
The Braemar Gallery	
The Laundry Gallery	
Tomintoul and Glenlivet Discovery Centre	
Whisky Castle and Highland Market	

3 Experian Drivetime Reports

APPENDIX 3.
SE GROUP RESORT PLANNING DESIGN CRITERIA

SE GROUP

A. RESORT PLANNING DESIGN CRITERIA

Design criteria is an important concept in resort master planning. By design, these criteria are general in nature, and related to the concept of resort master planning, rather than to Cairngorm specifically.

A variety of design criteria, each of which helps to create a quality ski experience, influence the upgrading and expansion of ski areas. At mountain resorts, guests have a variety of expectations—to participate in recreation associated with mountains, to enjoy dining and shopping opportunities, and to enjoy a mix of other vacation experiences in a mountain setting. Thus, a destination resort must offer a multitude of services, amenities, and experiences that are designed to allow a guest to "re-create" their spirit. Design parameters that guide the development of everything from the pedestrian-oriented, social environment, to the alpine experience, all contribute to the success of a destination resort.

Along with design guidelines, awareness of consumer preferences is crucial to the overall performance of a resort—for both recreational amenities and real estate product. Accordingly, detailed market research and user group surveys are effective tools to help guide the development of a successful resort. Resort innovation must be pursued to: (1) attract and retain target customers; (2) satisfy unmet needs; and (3) improve a resort's overall market effectiveness and efficiency.

The following discussion describes the principal base lands and mountain design criteria that lead to the development of a successful resort.

1. BASE AREA DESIGN

The relationship between planning at a resort's base area developments and on-mountain lift and terrain network is critically important. This relationship affects the overall function and perception of a resort.

Design of the base lands at a mountain resort involves establishing appropriate sizes and locations for the various elements that make up the development program. The complexion and interrelationship of these elements varies considerably depending on the type of resort and its intended character. However, fundamental objectives of base area planning are to integrate the mountain with the base area for the creation of an attractive, cohesive, and functional recreational and social experience. This is essential to creating the feeling of a mountain community, and can only be achieved by addressing base area components such as (but not limited to): multiple mountain portals, guest service locations, skier/rider circulation, pedestrians, parking/access requirements, and mass-transit drop-offs.

Planners rely on resort layout as one tool to establish resort character. The manner in which resort elements are inter-organized, both inside the resort core and within the landscape setting, along with architectural style, help to create the desired character.

Skier service facilities are located at base area and on-mountain buildings. Base area staging locations, or portals, are "gateway" facilities that have three main functions:

- Receiving arriving guests (from a parked car, a bus, or from adjacent accommodations)
- Distributing the skiers onto the mountain's lift and trail systems
- Providing the necessary guest services (e.g., tickets and rentals)

2. MOUNTAIN DESIGN

a) Trail Design

Slope Gradients and Terrain Breakdown

Terrain ability level designations are based on slope gradients and terrain features associated with the varying ability terrain unique to each mountain. Ability level designations for this analysis are based on the maximum sustained gradient calculated for each trail. 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. The following general gradients are used by SE Group to classify the skier difficulty level of the mountain terrain.

Table A-1. Terrain Gradients

Skier Ability	Slope Gradient
Beginner	8 to 12%
Novice	to 25%
Low Intermediate	to 35%
Intermediate	to 45%
Advanced Intermediate	to 55%
Expert	over 55%

Source: SE Group, Mountain Planning Guidelines

The distribution of terrain by skier ability level and slope gradient is compared with the market demand for each ability level. It is desirable for the available ski terrain to be capable of accommodating the full range of ability levels reasonably consistent with market demand. The market breakdown for the Rocky Mountain skier market is shown in Table A-2, illustrating that intermediate skiers comprise the bulk of market demand.

Table A-2. Central Rocky Mountain Skier Ability Breakdown

Skier Ability	Percent of Skier Market
Beginner	10%
Novice	20%
Low Intermediate	25%
Intermediate	30%
Advanced Intermediate	10%
Expert	5%

Source: SE Group, Mountain Planning Guidelines

Trail Density

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 of trail densities for North American ski areas that SE Group utilizes are listed below in Table A-3.

Table A-3. Skier Density per Acre

Skier Ability	Trail Density
Beginner	25 to 40 skiers/acre
Novice	12 to 30 skiers/acre
Low Intermediate	8 to 25 skiers/acre
Intermediate	6 to 20 skiers/acre
Advanced Intermediate	4 to 15 skiers/acre
Expert	2 to 10 skiers/acre
Alpine Bowls	0.5 skier/acre

Source: SE Group, Mountain Planning Guidelines

These density figures account for the skiers that are actually populating the ski trails and do not account for other guests who are either waiting in lift lines, riding the lifts, using the milling areas or other support facilities. SE Group's observations and calculations indicate that on an average day approximately 40 percent of the total number of skiers at the resort are on the trails at any given time. Additionally, areas on the mountain, such as merge zones, convergence areas, lift milling areas, major circulation routes, and egress routes, experience higher densities periodically during the ski day.

SE Group has observed that recent trends in trail density design criteria tend to provide for a less crowded skiing experience. As witnessed at many resorts, there is a segment of the market that has a preference for more natural, unstructured, semi-backcountry types of terrain commonly referred to as off-piste.[1] Demand is increasing for alpine open bowls, glades, and other similar types of terrain. Skier density per acre numbers are not necessarily applicable to these types of terrain, particularly as there often is not a defined edge to these areas like on a traditional ski run. However, skiers are attracted to these areas for the un-crowded feel, and the experience and challenge that it affords. Planning and design should provide these types of areas if possible.

Trail System

A resort's trail system should be designed to provide a wide variety of terrain to meet the needs of the entire spectrum of ability levels as well as the resort's particular market. Each trail should provide an interesting and challenging experience within the ability level for which the trail is designed. Optimum trail widths vary depending upon topographic conditions and the caliber of the skier/rider being served. The trail network should provide the full range of ability levels consistent with each level's respective market demand.

In terms of a resort's ability to retain guests, both for longer durations of visitation and for repeat business, one of the more important factors has proven to be variation in terrain. This

[1] "Piste" is a term commonly borrowed from French vernacular which refers to a groomed, maintained, defined ski trail. "Off-Piste" therefore refers to the ungroomed, less defined natural style of skiing commonly found in high Alpine areas and bowls.

means providing developed runs for all ability levels: some groomed on a regular basis and some not—bowl, trees, and terrain parks and pipes.

In summary, a broad range of terrain satisfies skiers/riders from beginner through expert ability levels within the natural topographic characteristics of the ski area.

Terrain Parks

Terrain parks have become a vital part of most mountain resorts' operations, and are now considered an essential mountain amenity. The presence of terrain parks at mountain resorts has changed various operational and design elements. The demand for grooming can increase, as terrain parks often require specialized or dedicated operators, grooming machines, and equipment (such as half-pipe cutting tools). Terrain parks typically require significant quantities of snow, either natural or man-made, often increasing snowmaking demand. Terrain parks can affect circulation on the mountain, as the parks are often points of destination.

Current trends in park design are focused on quality and creating progression, so that less experienced riders have the means and ability to learn how to use the more difficult features. Beginner parks are typically located on wide trails and have features that are lower in height, softer, and rounder. The next step usually has small tabletops and more difficult rails. From there, parks will progress up to showcasing huge jumps and technical rails.

b) Lift Design

The goal for lift design is to serve the available ski terrain in an efficient manner, while being sensitive to environmental considerations. A myriad of factors are considered including wind conditions, visual impacts, wetlands, round-trip skiing, access needs, interconnect ability between other lifts and trails, and the need for circulation space at the lower and upper terminal sites. The vertical rise, speed and length of ski lifts for a particular mountain are important measures of overall attractiveness and marketability of a ski area.

c) On-Mountain Guest Services

On-mountain guest service facilities are generally used to provide food service (cafeteria-style or table service), restrooms, and limited retail, as well as ski patrol and first aid services, in closer proximity to upper-mountain terrain. This eliminates the need for skiers and riders to descend to the base area for similar amenities. It has also become common for resorts to offer ski/board demo locations on-mountain, so skiers and riders can conveniently test different equipment throughout the day.

3. CAPACITY ANALYSIS AND DESIGN

In ski area planning, a "design capacity" is established, which represents an at-one-time guest population to which all ski resort functions are balanced. The design capacity is a planning parameter that is used to establish the acceptable size of the primary facilities of a ski resort: ski lifts, ski terrain, guest services, restaurant seats, building space, utilities, parking, etc.

Design capacity is commonly expressed as "comfortable carrying capacity," "skier carrying capacity," "skiers at one time," and other ski industry-specific terms. These terms refer to a level of utilization that provides a pleasant recreational experience, without overburdening the resort infrastructure. Accordingly, the design capacity does not normally indicate a maximum level of visitation, but rather the number of visitors that can be "comfortably" accommodated on a daily basis. Design capacity is typically equated to a resort's fifth or tenth busiest day, and peak-day visitation at most resorts is at least 10% higher than the design capacity.

The term comfortable carrying capacity (CCC) is used when referring to the ski area's design capacity. The accurate estimation of the CCC of a mountain is a complex issue and is the single-most important planning criterion for the resort. Related skier service facilities, including base lodge seating, mountain restaurant requirements, restrooms, parking, and other guest services are planned around the proper identification of the mountain's true capacity.

CCC is derived from the resort's supply of vertical transport (the vertical feet served combined with the uphill hourly capacities of the lifts) and demand for vertical transport (the aggregate number of runs desired multiplied by the vertical rise associated with those runs). The CCC is calculated by dividing vertical supply (VTF/day) by vertical demand, and factors in the total amount of time spent in the lift waiting line, on the lift itself, and in the descent.

4. BALANCE OF FACILITIES

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

5. MULTI-SEASON RECREATION ACTIVITIES

Throughout the ski industry, resorts are reimagining the capabilities and duration of their operation. To combat the inconstant six-month winter operating window, traditionally winter-oriented resorts are pursuing a more sustainable fiscal and economic outlook via the development of multi-season recreation activities. Multi-season recreational activities tend to attract a more diverse range of new guests than the traditional winter activities. This master planning process assess the best programs and implementation approaches for developing multi-season activities and facilities to showcase the prospective success given the unique characteristics that define each ski area and its markets.

To identify reasonable and realistic opportunities a strategic examination involving a case-by-case approach of several important criteria to determine the multi-season recreation elements that have the greatest likelihood for success. Criteria defining this strategic analysis consists of the suitability of available land for recreation facilities, consistency with regional, state and national administration's policies and plans, initial fiscal considerations, and visitation potential are explored within each MDP. Undertaking such a comprehensive exercise leads to a multi-season recreation program comprised of recreation facilities and/or activities that are suitable for implementation and will align with operational goals and performance expectations.

APPENDIX 4.
CAIRNGORM TEMPERATURE ANALYSIS

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SNO.MATIC

To: [redacted] Date: 6/13/18
SE Group
Ref: Cairngorm Temperature analysis
Pages: 6

[redacted]

We have completed our historical temperature analysis for the Cairngorm site. The analysis is based on the data from two sources:

- Techno Alpin weather data collected from Nov 2014 to present. This data provides 5 minute intervals of wetbulb[1] temperature recordings from the TA site at mid mountain (760 meter) elevation. The data has some missing information as summarized below:

Data Availability	
2014-15	December 11th on
2015-16	December 19th on
2016-17	November 1st on
2017-18	November 1st on

- The Scottish Ski club has records of daily max/min temperatures collected from 2007 through 2014. This station is located at the same location as the TA data (elevation 760 m). To generate hourly temperatures, it was assumed that the minimum temperature occurred at 6 AM and the maximum temperature at 2 PM, and an hourly profile created between these points. This is less accurate than data collected every 5 minutes like the TA station, but provides a longer period of record.

The normal cut-off for economical snowmaking operation is -2 deg C (28.4 deg F). It is possible to make snow above this temperature, but the flow through the snowgun is reduced to the point it is tough to justify operating. The analysis result from each source is tabulated below:

[1] WB is a combination of relative humidity and dry bulb temperature. It reflects the cooling effect a water droplet will experience due to both the temperature of the air and partial evaporation of the droplet.

[redacted]

[redacted]

[redacted]

Table 2--Scottish Ski Club Data (11/15-12/25)

Projected Snowmaking Hours from Scottish Ski Club Between 11/15 and 12/25					
	<28	<26	<24	<22	<20
2007	144	61	22	3	0
2008	372	216	108	50	10
2009	111	71	25	11	3
2010	469	406	314	216	99
2011	258	177	92	20	1
2012	322	230	109	39	2
2013	182	100	56	16	2
2014	223	95	23	6	0
Average	260	170	94	45	15
80% Freq	159	81	24	8	0

Table 3--Scottish Ski Club data (12/26-1/15)

Projected Snowmaking Hours from Scottish Ski Club Between 12/26 and 1/15					
	<28	<26	<24	<22	<20
2007	160	75	30	3	0
2008	207	146	80	23	1
2009	584	495	333	203	105
2010	229	167	92	35	10
2011	112	34	8	0	0
2012	90	37	16	2	0
2013	54	17	0	0	0
2014	128	56	25	8	0
Average	196	128	73	34	15
80% Freq	99	35	11	1	0

Projected Snowmaking Hours from Scottish Ski Club Between 1/16 and 2/15					
	<28	<26	<24	<22	<20
2007	163	102	58	41	19
2008	267	176	98	53	22
2009	346	204	122	57	15
2010	146	53	19	8	1
2011	221	106	37	19	11
2012	448	339	171	33	0
2013	58	25	0	0	0
2014	25	19	14	0	0
Average	209	128	65	26	9
80% Freq	93	36	16	3	0

(note 2013-14 partial data)

The only overlap between the two datasets is 2014-15, where the TA data shows 137 hours available vs 260 hours from the max/min analysis of the SSC data. However, the TA data only starts on 12/11 during that year. When recalculated for the period 12/11 to 12/27, the SSC data shows 194 hours (vs 137 hours from TA data). During that year, the SSC data is missing values from 1/8 to 1/18 so the calculated hours from 12/26 to 1/15 is artificially low (128 hours from SSC data compared to 234 hours from the TA data).

For initial approximations, it is assumed that the calculations from the SSC max/min analysis need to be reduced by 30% to reflect actual conditions. With this assumption, there are on average approximately .7 x 260 = 182 hours where snowmaking is possible between 11/15 and 12/25. In 8 out of 10 years there are at least 111 hours of potential snowmaking.

The results are summarized below:

Table 4--Summary of Results

Projected Snowmaking Hours from Scottish Ski Club Between 11/15 and 12/25					
	<28	<26	<24	<22	<20
2007	144	61	22	3	0
2008	372	216	108	50	10
2009	111	71	25	11	3
2010	469	406	314	216	99
2011	258	177	92	20	1
2012	322	230	109	39	2
2013	182	100	56	16	2
2014	223	95	23	6	0
Average	260	170	94	45	15
80% Freq	159	81	24	8	0
30% Derating					
Average	182	119	66	32	10
80% Freq	111	56	17	6	0

Projected Snowmaking Hours from Scottish Ski Club Between 12/26 and 1/15					
	<28	<26	<24	<22	<20
2007	160	75	30	3	0
2008	207	146	80	23	1
2009	584	495	333	203	105
2010	229	167	92	35	10
2011	112	34	8	0	0
2012	90	37	16	2	0
2013	54	17	0	0	0
2014	128	56	25	8	0
Average	196	128	73	34	15
80% Freq	99	35	11	1	0
30% Derating					
Average	137	90	51	24	10
80% Freq	69	25	8	1	0

Measured Snowmaking Hours from TA data			
	<-2	<-3	<-4
2014		poor data	
2015		poor data	
2016	173	63	12
2017	327	155	51
Average	250	109	32

Measured Snowmaking Hours from TA data			
	<-2	<-3	<-4
2014		poor data	
2015		poor data	
2016	120	79	7
2017	160	122	30
Average	140	101	19

The following conclusions are drawn from this analysis:

- It is feasible to make snow at the mid-mountain site, as reflected by temperature measurements from Techno-Alpin system and projections based on the Scottish Ski Club max/min temperature data.

- An average of approximately 180 hours of snowmaking is available at the mid-mountain prior to Christmas, and an additional 140 hours by the middle of January.

- Snowmaking conditions continue until at least mid-February, with an average of over 200 hours available below 28 deg WB.

- There are years, as evidenced by the 2016 TA data, where very few snowmaking hours will be experienced during December. During these years, very little (if any) snow can be made prior to Christmas. The SSC data suggests that these years are rare.

- Most of the snowmaking hours fall in the -2 to -3 deg temperature range; there are relatively few hours available below this temperature range.

- A typical fan gun will deliver in the range of 30 USgpm at -2 deg WB. Based on this flow assumption, each gun would have the capability to cover approximately 1 acre of terrain in an average year before Christmas. This assumes that adequate water is available at all times to operate the gun. That assumption is highly dependent on the amount of water recharge and the storage volume at the resort.

- This analysis reflects conditions at the mid-mountain elevation. Temperatures on the lower mountain will generally be higher. Additional measurements/correlations are required to assess snowmaking conditions on the lower mountain, but as a first approximation, the values for <26 deg F/-3 deg C can be used to estimate potential snowmaking hours at the lower elevations.

- Snowmaking operations may be curtailed due to high winds, especially in the upper mountain area. However, the TA data suggests that there are relatively few periods where winds exceed 30 km/hr (18 mph).

Sincerely,

Sno.matic Controls and Engineering, Inc

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[redacted]

Table 6 Scottish Ski Club Data Details

Projected Snowmaking Hours from Scottish Ski Club Between 11/15 and 12/25	<28	<26	<24	<22	<20
2007	144	61	22	3	0
2008	372	216	108	50	10
2009	111	71	25	11	3
2010	469	406	314	216	99
2011	258	177	92	20	1
2012	322	230	109	39	2
2013	182	100	56	16	2
2014	223	95	23	6	0
Average	260	170	94	45	15
80% Freq	159	81	24	8	0
30% Derating					
Average	182	119	66	32	10
80% Freq	111	56	17	6	0

Projected Snowmaking Hours from Scottish Ski Club Between 12/26 and 1/15	<28	<26	<24	<22	<20
2007	160	75	30	3	0
2008	207	146	80	23	1
2009	584	495	333	203	105
2010	229	167	92	35	10
2011	112	34	8	0	0
2012	90	37	16	2	0
2013	54	17	0	0	0
2014	128	56	25	8	0
Average	196	128	73	34	15
80% Freq	99	35	11	1	0
30% Derating					
Average	137	90	51	24	10
80% Freq	69	25	8	1	0

Projected Snowmaking Hours from Scottish Ski Club Between 1/16 and 1/31	<28	<26	<24	<22	<20
2007	102	67	33	20	7
2008	79	17	0	0	0
2009	170	101	71	38	11
2010	91	41	18	8	1
2011	148	56	2	0	0
2012	249	213	142	33	0
2013	30	11	0	0	0
2014	25	19	14	0	0
Average	112	66	35	12	2
80% Freq	50	18	1	0	0
30% Derating					
Average	78	46	25	9	2
80% Freq	35	12	1	0	0

TOTAL	<28	<26
2007	406	203
2008	658	379
2009	865	667
2010	789	614
2011	518	267
2012	661	480
2013	266	128
2014	376	170
Average	567	364
80% Freq	388	183
30% Derating		
Average	397	254
80% Freq	272	128

Measured Snowmaking Hours from TA data	<-2	<-3	<-4
2014		poor data	
2015		poor data	
2016	173	63	12
2017	327	155	51
Average	250	109	32

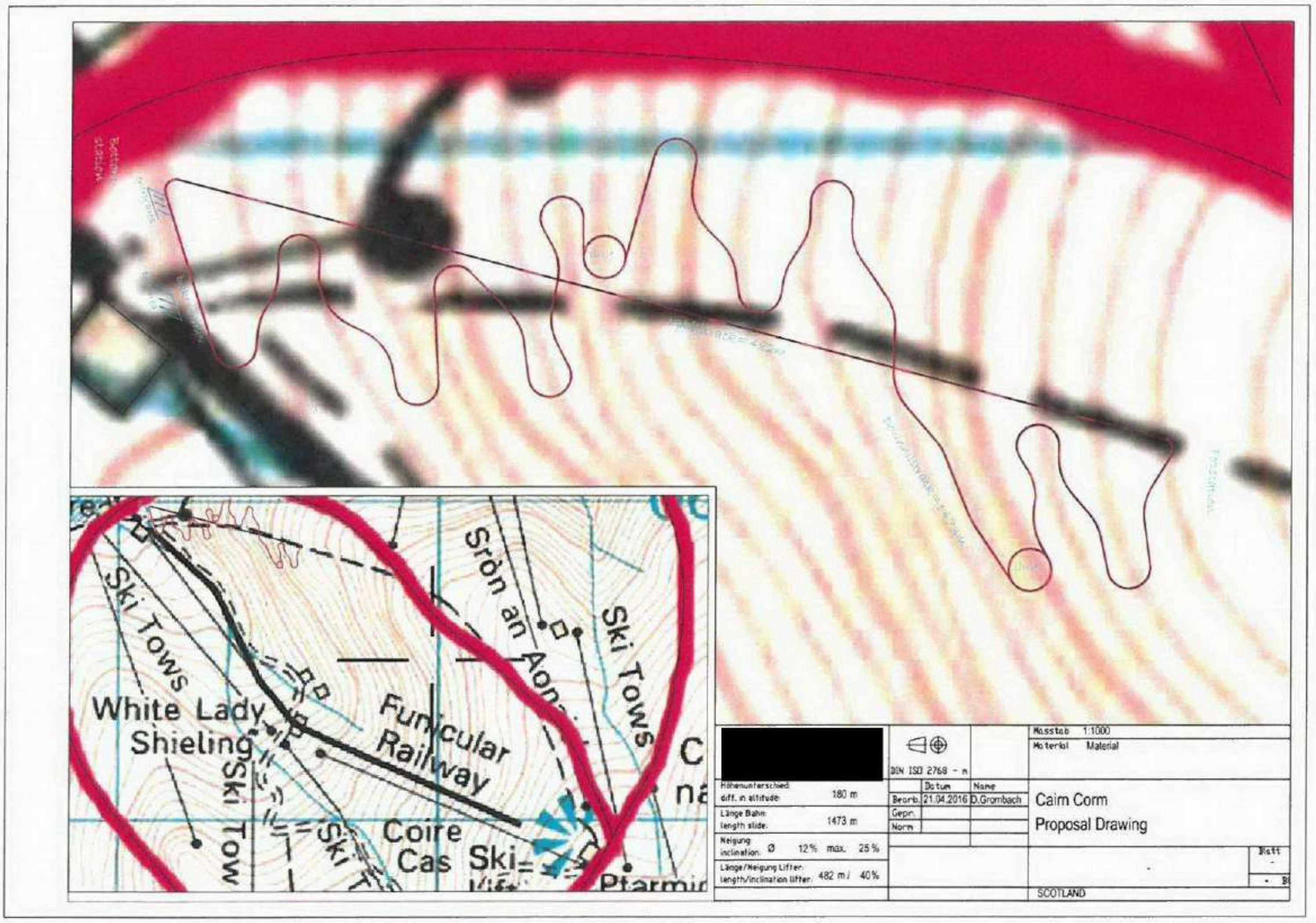
Measured Snowmaking Hours from TA data	<-2	<-3	<-4
2014		poor data	
2015		poor data	
2016	120	79	7
2017	160	122	30
Average	140	101	19

APPENDIX 5.
MOUNTAIN COASTER COST ESTIMATE

[redacted]

[redacted]

[redacted]


Ski Tows
White Lady
Shieling
Funicular
Railway
Ski Tow
Coire
Cas
[redacted]
DIN ISO 2768 - m
Masstab 1:1000
Material Material
Höhenunterschied: diff. in altitude: 180 m
Länge Bahn: length slide: 1473 m
Neigung inclination: Ø 12% max. 25%
Länge/Neigung Lifter: length/inclination lifter: 482 m / 40%
Datum Name
Bearb. 21.04.2016 D.Grombach
Gepr.
Norm
Cairn Corm
Proposal Drawing
Blatt
SCOTLAND

APPENDIX 6.
LIFT INFRASTRUCTURE COST ESTIMATE

[redacted]

[redacted]

[redacted]

[redacted]