

CONFIDENTIAL

Queenstown Artificial Turf

Feasibility Study Report

Prepared for
Queenstown Lakes District Council



11 December 2019

Acknowledgements

The authors wish to thank the Project Working Party for their contribution of time, knowledge and acumen.

Report Disclaimer

In preparing this report it has been necessary to make a number of assumptions on the basis of the information supplied to Global Leisure Group Limited in the course of investigations for this study. The recommended actions contained in this report are subject to uncertainty and variation depending on evolving events but have been conscientiously prepared based on consultation feedback and an understanding of trends in sport and recreation facility provision.

The authors did not carry out an audit or verification of the information supplied during the preparation of this report, unless otherwise stated in the report. Whilst due care was taken during enquiries, Global Leisure Group Limited does not take any responsibility for any errors nor mis-statements in the report arising from information supplied to the authors.

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1. Executive Summary

QLDC contracted Global Leisure Group (GLG) to complete an independent feasibility study for the proposed artificial turf at QEC. The feasibility study defines the facilities required, its projected use profile and the financial model (including operational revenues and costs and the ballpark capital cost of the planned development).

Wakatipu Ward Population Projections

Some key points about this Ward drawn from the CO Hockey Review report are:

- The resident playing population (5-49 years) of the Wakatipu Ward is projected to increase by 19% (7,070 additional residents) over the next 10 years from 25,557 in 2018 to 32,627 in 2028.
- The playing population is projected to grow over the next 5 years to 2023 by 11% (an additional 1,914 residents) from 17,009 in 2018 to 18,923 in 2023.
- The key market segment for hockey [and football] growth is the 5 to 19 years age group and this is projected to grow by 37% (1,519) over the next 10 years to 2028. Again, with a surge of 22% over the next 5 years.
- The combined total roll of the 8 Wakatipu schools has increased by 797 students from 2,466 in 2013 to 3,263 in 2017 or a 32.3% increase over the 5 years (or a 6.46% average annual growth rate). This is the a slightly higher average annual growth rate as the Wanaka Basin.

Current supply is characterised by:

- A chronic shortage of suitable quality surface and totally inadequate capacity for Hockey in the Wakatipu Basin
- Football having a shortfall in training capacity (Sports Field Demand Study 2018)
- Football having the potential for 1-3 additional fields at the new Ladies Mile Sports Park in mid-2020

The study has identified that:

- There is a strategic gap and need for hockey and football artificial turf facilities in the Queenstown area. The chronic shortage of capacity for Hockey means the development of a full-size hockey compliant field followed by a full-size football compliant field for Football (and possibly Rugby) is the optimum strategy.
- In terms of user charges, the hockey turf is a built facility and the Council Funding Policy specifies a 30% cost recovery level for sport facilities. There is potential to generate revenue to meet the 30% cost recovery target through use of the field initially by both Hockey and Football and within 6-10 years by Hockey alone.
- The cold winter evening temperatures could reduce capacity by constraining usable hours and this has influenced the surface type being recommended.

The preferred solution is a floodlit artificial turf area accommodating a full-size sand dressed hockey field. Sand dressed do not require water (and related costs) and is longer lasting than a water surface (lower annual provision for surface renewal). Support facilities such as team dug-outs, changing rooms and toilets are also needed. Sheltered spectator seating is limited to 100 supporters in-situ seats, it is not intended to be an event field (this is the CO Sports Turf at Cromwell). However, space for provision of temporary seating should be included in the design.

The preferred location is QEC for several compelling reasons including:

- The central location of QEC
- Extensive existing infrastructure at QEC to provide the support facilities such as parking needed without the requirement to build new facilities
- Potential to partner with other sports codes located on the Park in sharing facilities and services from participation through to high performance. Thus, potentially sharing the “whole of life” costs of the development through supplementary hire revenues.
- Close to Wakatipu High School and the Remarkables Primary School

The QEC option with utilisation of existing support infrastructure dramatically reduces the capital cost that is estimated at approximately \$2.0-2.5 million (based on similar artificial turf developments elsewhere in NZ).

The modelling of Hockey occupancy/ use of the turf based on current practice at similar turfs elsewhere in NZ and Football needs for training use has the turf operating at near capacity during the peak winter months and much lighter use in the off-season summer months (mostly as a wet weather alternate option for Football).

The turf is projected to have occupancy in Year 3 of just over 40 hours per week during the peak winter season period. The calculations estimate total use of the field at 984 hours in winter (636 for Hockey and 348 for Football) and 160 hours in summer for two 10-week periods to deliver Summer Hockey on two weekday evenings per week. Due to the winter icing issues and multi-use requirements, it is recommended that a sand based 'wet dressed' surface would be more appropriate to meet the identified need and maximise usable hours.

Casual use of the turf will occur but is estimated at less than 5% (or about 50 hours per year) of the overall identified occupancy by Hockey and Football. It is difficult to quantify as it is highly dependent on the local context of the turf.

The financial model for Year 3 of operation has an estimated annual operating cost of \$43,300 plus GST and an estimated provision renewal of the surface of \$33,000 plus GST per annum as the carpet has a planned renewal cycle of 12 years. The Council Funding Policy requirement of 30% cost recovery for facilities would equate to \$27,300 plus GST income from user charges.

Projected charges after applying discounts under the Seasonal Charge policy in the Community Facility Funding Policy results in an annual charge to Football of 3,780 plus GST and to Hockey of \$11,565 plus GST in Year 3 of operation. Total revenue including casual use in year 3 is projected at \$19,285 plus GST. The financial model projects a net annual operating cost to Council of \$24,015 plus GST in the third year of operation of the facility.

2. Introduction

Queenstown Lakes District Council (QLDC) commissioned Global Leisure Group (GLG) to undertake and complete a feasibility study to determine the need and financial feasibility of developing an artificial turf field located in Queenstown. QLDC needed a full feasibility completed to test all assumptions related to the capability to operate a sustainable Artificial Turf hub in Queenstown. It reviewed the desired future state and consider the value proposition of the various components of the Artificial Turf hub concept and its location within Queenstown.

Development of the report has been primarily a desk-top approach due to substantial amount of relevant regional and local data with some updating of data with the Club representatives.

A Project Working Group was formed comprising representatives of QLDC, Wakatipu Hockey Club and Queenstown Football Club. The Group has held several meetings at key milestones to review information and provide feedback to assist with development of the feasibility study report.

Objectives

It is intended that this study of the project will satisfy the following objectives:

- Review and verify the demand analysis and identify drivers and needs
- Identify anticipated occupancy and usage
- Identify pricing issues and provide a pricing model
- Address issues of ongoing financial sustainability
- Estimate capital development costs and operational financial projections for the proposed Artificial Turf hub (this will include an indicative net annual cost).

Outcomes

The expected outcomes of the study were:

1. An assessment of the existing and projected demand for the planned Artificial Turf
2. An assessment of the annual net cost of operating the planned Artificial Turf hub
3. An assessment of the financial sustainability of the planned Artificial Turf hub
4. A facility specification on which to base a design brief for architectural and quantity surveyor input
5. Investigate management and ownership options and recommend a preferred option.

3. Environment scan

This section provides a backdrop of the key demographic and participation trends to give a better understanding of the context for the artificial field.

3.1. National, Regional & Local Planning

Several highly relevant sources of information are summarised below.

3.1.1. Sport New Zealand Facility Planning Framework

In considering future facilities to meet the needs of hockey, it is essential that we learn from the past and ensure that future facilities are developed in a robust and planned way. Sport NZ's National Sport Facilities Framework identifies a set of planning principles to improve future decision making when investing in facilities. They are:

- Meeting an identified need and fit for purpose to meet the need

- Sustainability – consideration of whole of life costs
- Partnering / Collaboration / Co-ordination – sharing resources and spaces
- Co-location and Integration -
- Future proofing – adaptability
- Accessibility

3.1.2.Hockey New Zealand Facility Strategy

The strategy emphasizes the need for hockey facilities to be available in local communities to improve access and reduce travel time and costs. However, the Strategy also emphasizes the need for sustainable development and renewal of these relatively short life surfaces.

A Hub and Spoke Approach

To address these considerations each Association should develop a hub and spoke approach to facility development.

The Hub

- This should be the main Association facility ideally with access to a water-based turf.
- The hub should be a base for most, if not all, competitive hockey that is played on a full sized turf.
- The hub should provide the main training base for senior and representative hockey in the Association area.
- Should there be capacity within the hub and it is geographically placed to serve the area it is considered appropriate for the hub to meet the needs of all hockey competition and training.
- Additional turfs should be provided at the hub where sufficient community demand and membership numbers can be demonstrated to ensure the long term viability.

The Spokes

- The spokes should be additional facilities that are distributed throughout the Association catchment area.
- Spokes should provide local opportunities for junior competition and training.
- Spoke facilities should be a surface that is suitable for hockey and allow a wide range of multiple use.
- The dimensions of a spoke facility should not be seen as a barrier to participation with suitable facilities including:
 - Full size turfs (other community or school facilities).
 - Half turfs
 - School or community netball or tennis courts. For example 3 netball courts is considered a suitable size equivalent to a half turf.

3.1.3.New Zealand Football

NZ Football (NZF) completed a review of the previous National Facilities Strategy and has proposed solutions to key issues identified by Football Federations across the country. These include the key components of facility provision at the various levels of participation and performance to offer ‘a hierarchy of facilities’. This section identifies the core components identified in the updated NZF Facility Strategy that are outlined below.

During research it was identified that in previous work undertaken by NZF requirements for Federation 'Home of Football' venues in the previous National Facilities Strategy, provided a shortlist of what a 'Local Football Centre' (LFC) should have or consider having included:

- Have football as the primary year round user.
- Have an artificial turf field.
- Be a base for junior football and football training.
- Consider co-location with schools to maximise daytime usage.
- Where possible enable multi-code usage when not utilised for football.

3.1.4. Regional Planning

Consistent with many planning documents, the Regional Facilities Strategy identifies that many current facilities are aging and that QLDC has a relatively small stock of facilities and fields compared to current and projected population growth. The Sports Fields Demand Study identifies that maintaining and upgrading soil fields to achieve the generally accepted capacity along with all fields being used to their capacity will meet the current needs of Football.

The CO Hockey Review identifies maintaining existing facilities as a major challenge and prioritises investment in the full-size CO Sports Turf at Cromwell, developing half-turfs in Queenstown and Alexandra to meet local demand.

Football South has undertaken planning for a regional Home of Football located in Dunedin and a new artificial turf development as a key component. A feasibility study was undertaken and is a valuable information resource. However, it did not address the need for an artificial turf for football in Central Otago.

3.1.5. CO Hockey Facility Review (2018)

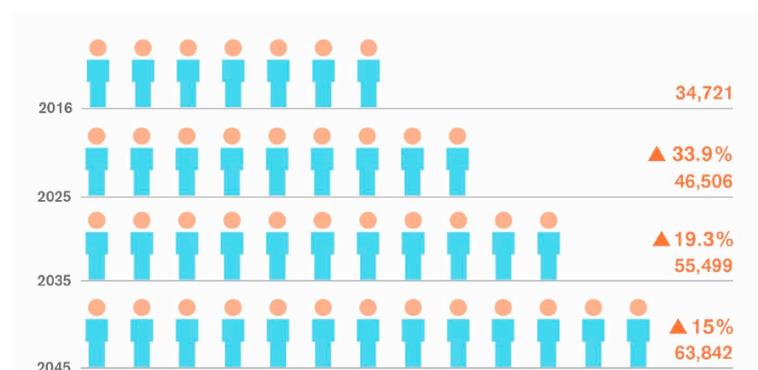
This facility review was focused on identifying the current and future demand for hockey within the Central Otago Hockey Association region. The development of an artificial turf at Queenstown has been identified as the strategic priority project for the region. The new turf will complement the full-size turf field at Cromwell and meet an identified geographical gap in the hockey facility network. It will provide additional capacity to meet the identified current shortfall and enable growth of hockey participation in the Queenstown area. The Review also identified the need for COHA to reviews its competition structures and the shape of future Hockey activity to meet the unique demands of Hockey occurring in an alpine environment.

3.2. Population and demographics

Queenstown Lakes District has a rapidly growing population as illustrated in the image below supplied by Council. This will increase demand for sports fields.

Factsheet - Queenstown Lakes District Regional Growth Projections (average day)

Residents



3.3. Wakatipu Ward Population Projections (source - CO Hockey Review)

The resident playing population of the Wakatipu Ward is projected to increase by 19% (3,154 additional residents) over the next 10 years. The playing population is projected to grow over the next 5 years to 2023 by 11% (an additional 1,914 residents).

Figure 1: Wakatipu Ward Projected Population Change

2018	2023	2028	2033	2038	2043
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Table 1: Wakatipu Ward Population Projections

Age Group	2018	2023	2028	2033	2038	2043
0-4 years	1,729	1,891	1,970	2,083	2,270	2,429
5-19 years	4,126	5,044	5,646	5,901	6,108	6,409
20-49 years	12,883	13,880	14,518	15,252	15,926	16,733
50-64 years	4,156	5,248	5,806	6,483	6,874	7,143
65+ years	2,663	3,589	4,688	5,832	7,152	8,368
Total	25,557	29,651	32,627	35,551	38,330	41,082

The change in the playing age population is shown in the table below. It is projected to grow by 36% over the next 25 years to 2043 with just over half of that growth occurring over the next 10 years and a quarter of projected growth over the next 5 years.

Table 2: Wakatipu Ward Playing Age Population Growth Projections

	2018	2023	2028	2033	2038	2043
Playing Age 5-49 years	17,009	18,923	20,163	21,153	22,034	23,142
Number Change		1,914	1,240	989	881	1,108
2018 Base Comparison		111%	119%	124%	130%	136%

The number of potential hockey players can be calculated applying the current ratio of 34.7 residents per hockey player to the projected resident population as shown in the table below. The current penetration of the local market by hockey at 130 registered players is less than 30% of the projected 460 players using the regional average of 34.7 residents per player, by far the lowest penetration in the COHA region.

Table 3: Wakatipu Ward projections based on regional ratio of playing age residents per hockey player

	2018	2023	2028	2033	2038	2043
Potential Players	490	545	581	610	635	667
Potential full-field players	365	441	492	526	552	574

The key market segment for hockey growth is the 5 to 19 years age group and this is projected to grow by 37% (1,519) over the next 10 years to 2028. Again, with a surge of 22% over the next 5 years. Using the ratio of 34.7 residents per hockey player this would likely generate about 45 additional players from the 5-19 years age group over the next 10 years.

Table 4: Wakatipu Ward population growth projections for 5 to 19 years age group

	2018	2023	2028	2033	2038	2043
5-19 years	4,126	5,044	5,646	5,901	6,108	6,409
Number Change		917	602	255	207	301
2018 Base Comparison		122%	137%	143%	148%	155%

Potential Players	0	26	17	7	6	9

3.3.1. Wakatipu Ward School Roll Analysis

An examination of school roll data from the Ministry of Education for the 5 years 2013 to 2017 inclusive provides some real-time insights into the growth in this key segment of the resident population. The combined total roll of the 8 Wakatipu schools has increased by 797 students from 2,466 in 2013 to 3,263 in 2017 or a 32.3% increase over the 5 years (or a 6.46% average annual growth rate).

4. Supply and Demand Analysis

Recent work by QLDC and the CO Hockey Association have provided a good picture of supply and demand for Football and Rugby (soil-based fields) and for Hockey respectively.

4.1. Supply of Soil-based Fields for Football and Rugby

Council has undertaken significant demand analysis in 2018 to quantify the demand and supply of sports fields across the District with a focus on soil-based fields so did not include hockey in its scope.

Sports fields are not evenly distributed around the District nor does the distribution of fields match the distribution of demand. Fields are managed as a network and it is accepted that a capacity shortfall in one area can be accommodated by a capacity surplus in another area providing the travel distance or time is not too great. The aim is to provide capacity within a 15 to 18 minute peak time drive, although it is acknowledged that, especially with a large district, this is not always achievable.

The study identifies that the Queenstown area has an identified shortfall in access to sports fields in the winter to meet the current competition and training demand for rugby. It should be noted that there are other fields away from QEC that have been allocated to the codes which do not currently get used. The capacity of these fields is included in the below calculations. If these fields are excluded to reflect what is actually happening on the ground the shortfalls would be higher. They are included as this is a management issue not a supply and demand issue.

2018 Winter surplus / shortfall in capacity in FFE hours per week by sports code

	Level of Service – Use hours	Weekend surplus / shortfall	Weekday surplus / shortfall	Overall surplus / shortfall
Football	Queenstown	18.1	6.8	24.9
Rugby	Queenstown	-2.6	-5.7	-8.4

The above analysis indicates that the challenge is that activity is focused onto a few key sites – football at QEC and rugby at traditional club fields plus at QEC on Saturdays for junior game peak demand.

4.2. Supply of Artificial Turf for Hockey

Current supply is listed in the table below. Key characteristics include:

- A single field suitable for full-field play at Cromwell
- Two other half-size fields suitable for junior play and full-field team training.
- 5 synthetic surfaced areas with limited ability to meet training needs due to their size (those in yellow shading)

Table 5: Current Supply of Surfaces in the Central Otago region (minimum 2 court)

Location	Description	Water based	Sand based	Total FTE
CO Sports Turf, Cromwell	Water-based hockey turf with lights	1.00		1.00
Wanaka Recreation Centre	Sand-dressed half-turf with lights (55m x 43m)		0.50	0.50
Omakau Recreation Reserve	Sand-based half-turf with lights (57m x 47m)		0.50	0.50
Maniototo Area School, Ranfurly	2 netball/ 3 tennis courts		0.25	
Pioneer Park, Alexandra	3 tennis courts		0.25	
Clyde Tennis Club	2 tennis courts		0.25	
Remarkables Primary School, Queenstown	2 tennis courts		0.25	

4.3. Participation and Demand Profile for Sport and Active Recreation

The Sport NZ Insights Tool is a relatively recent development. It is a key tool for local rather than national insights using nationally gathered data. It draws data from a range of sources to provide *indicative* information on the expected level of participation in a sport or recreation activity rather than actual levels. It cannot be equated with organised sport club membership or player numbers as it includes informal/ casual activity such as playing a pick-up game of tennis. However, it does provide a useful guide to the highest participation activities in each district.

Sport NZ states:

The participation analysis shown below has been modelled from a variety of sources including the 2017 Active NZ Survey data, NZSSSC data and Usually Resident Population figures from Statistics NZ. The 2017 Active NZ survey captures information from 27,038 adults (18 years and older) and 6,004 young people (aged 5 – 17 years).

Activity behaviours as defined by the Sport NZ Insights Tool are:

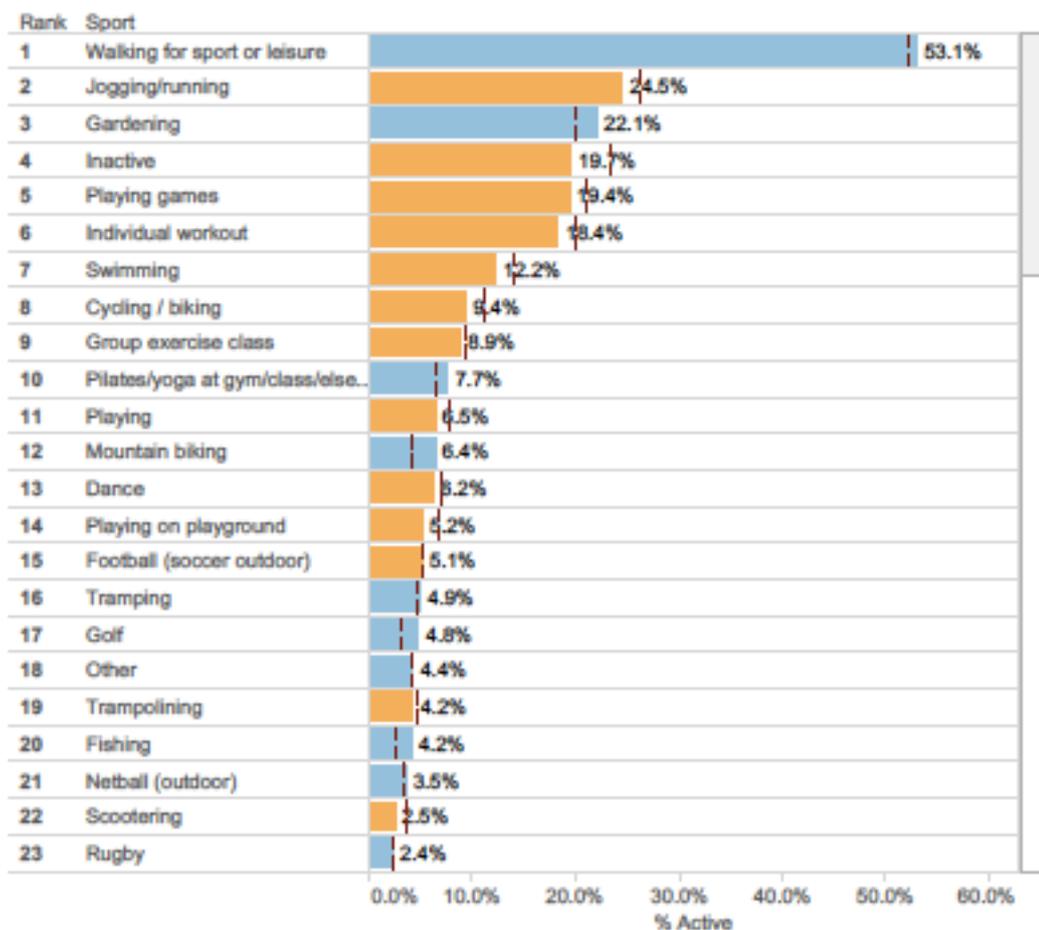
This modelled participation data to show preferences and interest in different sports across Census area units. The modelled participation data uses national Active NZ data, and projects participation in different sports to specific area units based of the demographic profile of the area. This then gives an indication of interest and preference in sports of the area unit, based on its demographic profile.

The figure below is an image generated from the Insights Tool providing a profile for the Wakatipu Basin of expected participation rates¹. The red hash line is the national average percentage participation and the colour coded bar with percentage amount shows the expected participation generated by the Insights Tool.

Hockey does not feature in the top 23 activities. It is ranked 42nd with 0.9% participation compared to the national average of 1.6% or just over half the participation rate. Football is ranked 15th with 5.1% participation compared to the national average of 5.3%.

Figure 2: Sport NZ Insights Tool – Wakatipu Activity Behaviour

¹ Modelled participation using data sourced from the Active NZ 2017 survey (last 7 days participation rates) Statistics New Zealand, Census 2013, Usually Resident Population for mesh block 2013. Information/ data in this visualisation indicates what people may be participating in, or more likely to be interested in. Several assumptions were made in developing this information/ data, and care should be taken in using the information/ data. Please contact Sport NZ if additional information on this information/ data is required. Source: <https://sportnz.org.nz/managing-sport/insights/sport-nz-public-chart/>



4.3.1. Queenstown Association Football Club

The QAFC is projecting to almost double the number of teams over the next 5 years. This is significantly above demand modelling based on population growth but is within the acceptable range of penetration and slightly above the average based on data from over 300 sports clubs and 6,000 teams researched by Global Leisure Group over previous studies.

Grade	Number of Teams	Club projection for 2023
Mini (5 th to 7 th grade)	1	12
Junior (8 th to 12/13 th grade)	16	22
Youth boys 13 th to 17 th grade	5	7
Youth girls (14 th , intermediate, senior)	0	1
Senior men	3	4
Senior women	1	1
TOTAL TEAMS	26	47

4.3.2. Wakatipu Hockey Club

The WHC is projected to nearly double the number of members (from 130 to 240) and teams over the first 3 years of operation of the full-size field and triple them to 390 members within 6-8 years. This appears achievable based on

latent demand through an anticipated lift from provision of a fit-for-purpose facility and the penetration rates of hockey achieved within the resident population in other parts of the region.

Grade	2019 Number of Teams	Club projection for 2023
Fun Sticks	1	2
Mini Sticks	2	4
Kiwi Sticks	3	6
Kwik Sticks	2	4
Senior Reserve (High School)	2	4
Senior women	1	2
Senior Men	1	2
TOTAL TEAMS	12	24

5. Future Demand Projections

5.1. Hockey

The Central Otago Hockey Facilities Review (2018) undertook a detailed analysis of projected demand and has been updated below.

We consider it highly unlikely that participation rates in formal club based winter hockey will increase above the COHA regional average of 34.7 playing age residents to player ratio.

The playing age population (5 to 49 years) is projected to increase in Queenstown Lakes District.

The COHA region currently has market penetration of 34.7 residents per registered player and mid-range of regions across New Zealand. The Central Otago district catchment area has extremely high penetration of the local market by hockey at 16 residents of playing age per player. In contrast, the residents per player ratio in the Queenstown-Lakes district is currently at 94, the Wanaka Ward is at 56 and the Wakatipu Ward is at 131. These higher ratios (indicating lower participation) are due to several factors, particularly the lack of suitable local facilities in the Wakatipu catchment area for hockey training and junior competition.

The level of district-wide latent demand in Queenstown Lakes District part of the COHA region in 2018 is estimated at 474 full-field players (if the 34.7 residents per player regional ratio is applied). The 474 full-field players are about 95% of the nationally recognised provision indicator of 500 full-field players for a fully occupied full-size field. **This would indicate an additional full-size field in the QLDC area will be needed if latent demand translates to actual participation.**

Where this full-size field is located is clear if the residents to player ratio is applied to the Wakatipu Ward catchment population. In 2018, there is significant latent demand equivalent to 343 full-field players or nearly 70% of the provision indicator of 500 full-field players for a fully occupied full-size field. Projected latent demand by 2028 in the Wakatipu Ward catchment is estimated at 461 full-field players which, if realised, would represent just over 90% of the provision indicator of 500 full-field players for a fully occupied full-size field.

The 2016 Hockey NZ National Facilities Strategy identified Central Otago as one of several associations reaching the FTE threshold for an additional full-size turf by 2033. The faster population growth in QLDC has brought this forward. The 2018 Census data due in September 2018 and related catchment population and demand projections may bring this forward.

This would indicate that if better provision can be provided in the Wakatipu area, preferably in Queenstown then playing numbers should increase significantly and a full-size field will be needed. Some use could be factored in from Wanaka catchment but most of this demand would be met by a combination of its own half-turf at WRC and use of the Cromwell full-size CO Sports Turf.

Overall, the challenge is to translate the potential latent demand into actual participation. This is a 'Catch 22' situation as Hockey needs the turf capacity to meet capture this latent demand and grow the sport.

The latent demand projections and faster than projected population growth support the development of a full-size hockey turf in Queenstown.

5.2. Football

The Sports Field Demand study identifies that the Queenstown area has an identified shortfall in access to sports fields in the winter to meet the competition and training demand which is projected to increase further by 2025.

Looking further into the future with projected population growth, the Queenstown area will have a shortfall by 2028 (even if field capacities can be improved and clubs are utilising all fields available to them).

2028 Winter surplus / shortfall in capacity in FFE hours per week by sports code

	Level of Service – Use hours	Weekend surplus / shortfall	Weekday surplus / shortfall	Overall surplus / shortfall
Football	Optimal capacity hours	14.5	-0.2	14.3
Rugb	Optimal capacity hours	-6	-12.3	-18.3

6. Needs Analysis

The Central Otago Hockey Facilities Review indicated in 2018 that there was barely enough provision in the region to meet demand with the current supply of 2.00 FTEs (1 hour per week shortfall). It also highlighted that the current supply is poorly aligned with the geographic and population concentrations within the region. The strategy going forward within the Report were directed at sustaining current provision and providing additional capacity to fill gaps in the network and improve the overall level of service (particularly quality and convenience), so Hockey can remain competitive with the growing range of sport and recreation opportunities in the region.

Based on growth rates over the past 6-8 years continuing and population growth continuing as projected, demand a second full-size field was assessed by the Review at about 5 years away. The Report was clear this should be in Queenstown (high potential participation growth driven by current low market penetration, large catchment population and strong population growth). This will also achieve a better geographic and population alignment of the hockey facility network.

Type of Turf

The Regional Review was clear in developing additional turf consideration should be given to the choice of surface. There is sufficient water-based turf at Cromwell to meet the full field competition game requirements and event requirements. A water-based turf has a shorter life than other surface options at about 10 years and higher whole of life cost². The first sand-based turf at Cromwell lasted for 18 years. A ‘sand dressed’ turf is supported by the latest international guidance from the FIH as more affordable and more multi-use for other users such as school PE and sport programmes, fitness programmes as well as use by other codes such as Football and Turbo Touch, this results in a wider constituency for the turf, is more financially sustainable and should be more attractive to funders.

The Regional Review recommended sand dressed turf for any additional turf developed and renewals of existing part-size turfs consistent with the latest policy of the FIH.

In a planning document produced by Sport NZ³ the main driver was recognised as “getting more young people in New Zealand active” or as stated by the Sport and Recreation department at QLDC ‘more people, more active, more often’. One of the key challenges to young people being physically active in a community setting was identified by Sport NZ as:

Inconsistent experiences, opportunities and the quality of delivery

Feedback from stakeholders and COHA suggests that access to a suitable hockey facility is restricting hockey development within the Queenstown area. A similar view is held by Football with the quality and availability of suitable fields for training constraining growth. Development of suitable artificial turf capacity to meet the training demand from Hockey and Football is therefore considered critical to the continued growth of these sports.

² Hockey NZ NFS Executive Summary states on page 3 “The lifespan of a water-based turf is approximately 10 years compared to 15 years for a sand dressed or 20 years for a sand filled turf. This significantly increases the whole of life costs.”

³ Young People Plan 2015-2020

7. Occupancy Analysis

The modelling of occupancy/ use of the turf has been based on current practice at similar hockey turfs elsewhere in NZ and the needs of the core users - Wakatipu Hockey Club and Queenstown Football Club. The calculations estimate total use of the field at about 1,100 hours per annum.

Modelling assumptions include:

- Artificial pitches will be available for 50 weeks of the year and seven days a week.
- Bookings and hires can be available from 8am-10pm daily, or 98 hours per week.
- Non-peak is from 8am-3.30pm Monday-Friday
- Peak periods are Monday-Friday from 3.30pm onwards, Saturday and Sunday 8am-10pm.

Key findings on modelled usage levels for year 3 of operation include:

- The turf is projected to have occupancy of just over 40 hours per week during the peak winter season period.
- Total use by Hockey is estimated at 1,144 hours
- Total use by Football is estimated at 288
- Winter use is much heavier than summer accounting for just over 80% of use
 - 984 hours in winter (636 for Hockey and 348 for Football)
 - 160 hours in summer for two 10 week periods to deliver Summer Hockey on 2 weekday evenings per week

The model of Hockey use in the winter includes 300 hours for competition 'home' games in the winter season for the Wakatipu Hockey Club and Wakatipu High School teams. This will have the benefit of relieving some of the winter season pressure on the full-size turf at Cromwell as identified in the COHA Hockey Facilities Review. The amount of Hockey competition hours is likely to increase as the sport grows its membership within the Queenstown area. This will coincide with the establishment of an additional artificial turf field for Football (and possibly Rugby) reducing demand for these codes on the Hockey field within the next 6-10 years. COHA will need to address how best it uses the new turf at QEC within planning its future competition structures and shape of Hockey activity in its region.

Casual use of the turf will occur but is estimated at less than 5% of the overall occupancy (about 50 hours). It is difficult to quantify as it is highly dependent on the local context of the turf. Potential users include QLDC for fitness and boot camps type activity, Turbo Touch (overflow as currently played indoors at QEC), potential events or holiday programme activity, possibly occasional use by the Wakatipu Rugby Club in wet weather (if time is available when needed), casual bookings by groups e.g. backpackers to play a social game of football.

The figure below shows the estimated Hockey use during the summer. The timing for juniors and seniors on a Monday and Wednesday is deliberate to enable these players to continue with their other summer sport options (both Saturday competitions and afterschool practices). Friday afternoon could be a longer-term option but is not included in Year 3. Again, casual use is not shown as this will be intermittent and inconsistent in nature.

Figure 4: Year 3 Summer Occupancy Model

Legend:	Football Club hires				School hires				Hockey Club competition hires				Hockey Club training hires																	
MONDAY																														
Facility used	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	Noon	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30	7.00	7.30	8.00	8.30	9.00	9.30	10.00	
Artificial Hockey (full field)																					Junior				Adult					
TUESDAY																														
Facility used	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	Noon	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30	7.00	7.30	8.00	8.30	9.00	9.30	10.00	
Artificial Hockey (full field)																					Junior				Adult					
WEDNESDAY																														
Facility used	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	Noon	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30	7.00	7.30	8.00	8.30	9.00	9.30	10.00	
Artificial Hockey (full field)																					Junior				Adult					
THURSDAY																														
Facility used	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	Noon	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30	7.00	7.30	8.00	8.30	9.00	9.30	10.00	
Artificial Hockey (full field)																														
FRIDAY																														
Facility used	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	Noon	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30	7.00	7.30	8.00	8.30	9.00	9.30	10.00	
Artificial Hockey (full field)																														
SATURDAY																														
Facility used	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	Noon	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30	7.00	7.30	8.00	8.30	9.00	9.30	10.00	
Artificial Hockey (full field)																														
SUNDAY																														
Facility used	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	Noon	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30	7.00	7.30	8.00	8.30	9.00	9.30	10.00	
Artificial Hockey (full field)																														

8. Functional specification

This section identifies what will be the key components and their functions to meet the identified needs now and in the foreseeable future. The key elements are:

- 1 floodlit full-size competition field with compliant LUX levels of lighting, safety run off and sand-dressed turf surface and shock pad, the area to be fully enclosed with fencing to contain balls and prevent access for unauthorised vehicles
- Suspended and tensioned cables with dividing safety net and 4 additional goals with safety fencing to enable 2 x half field games or trainings to occur concurrently
- Changing rooms provision of a scale that support the above
- Toilet provision of a scale to support the above and other fields in the vicinity
- Dug outs for two teams
- Storage space for team gear to support the above.
- Preferably with some spectator seating facilities of approximately 100 seats in situ with some form of wind and rain shelter and ability to increase up to 500 by using movable seating units shared. The additional 500 seating is not part of this stage of the project.

9. Location analysis

There is limited availability of land in the Queenstown area. The preferred location is QEC for several compelling reasons including:

- The central location of QEC
- Extensive existing infrastructure at QEC to provide the support facilities such as parking needed without the requirement to build new facilities
- Potential to partner with other sports codes located on the Park in sharing facilities and services from participation through to high performance. Thus, potentially sharing the “whole of life” costs of the development through supplementary hire revenues.
- Close to Wakatipu High School and the Remarkables Primary School

The QEC Master Plan provides an outline for the future development of the site. It allocates land for the development of two full-size artificial turf fields utilising shared facilities including change rooms and equipment storage. A shared clubroom is also identified to provide a home for club sport social activities and functions.

10. Ownership and Management Model

Council has already taken a lead role with the provision of a half-field artificial turf in Wanaka and the same approach is recommended for Queenstown. This also reflects an overall trend of increasing ownership of artificial turf by Local Government in New Zealand as part of its core delivery of sports facilities.

11. Affordability and sustainability

11.1. Pricing and Revenue

A review of pricing of similar turf provision in the Central Otago Hockey Association (COHA) region at Cromwell and Wanaka has revealed differing approaches to charging for use as follows:

- The CO Sports Turf at Cromwell is owned by the CO Sports Turf Trust and charges for use by the hour (full-field \$100 GST inclusive and half-field \$60 GST inclusive) or by the game (\$130 GST inclusive for 90 minutes)
- The half-turf at Wanaka Recreation Centre is owned by QLDC and applies the Community Facilities Funding Policy to how it charges for use. It uses seasonal charges for regular not for profit community users such as the Upper Clutha Hockey Club set at \$2,300 GST inclusive (no lights) and \$2,900 GST inclusive (using lights) per day per season. These base rates are then discounted depending on hours used per season and further discounted for junior use. It also has hourly charges for other users at \$60 GST inclusive for the half-turf.
- The 2 court artificial turf area at Frankton has a seasonal charge of \$750 GST inclusive with discounts applying as for the Wanaka half-turf.

In applying the Community Facilities Funding Policy to the new turf at QEC assumes the following:

- The turf is classified as a facility
- The turf provides substantial public good and contributes to a healthier community
- Recognises the need to subsidise the costs of the facility and to minimise the costs of participating in sport and recreation
- The Community Facility Funding Policy pricing would be applied of \$2,300 GST inclusive (no lights) and \$2,900 GST inclusive (using lights) per day per season.
- In addition, the seasonal rate discounts would be applied from Community Facility Funding Policy
- The Hockey Club and the Football Club have a mix of adult and junior players so the junior discount as stated on page 17 of the Community Facility Funding Policy does not apply
“Clubs comprising junior only members will pay 50% of the season rate”
- Both sports will be charged at peak rate of \$38 (GST inclusive) per use of changing rooms at QEC as per the Community Facility Funding Policy. The working assumption is the sport ‘use’ would be once per day

Projected charges after applying the Community Facility Funding Policy to Football results in:

- Winter season Football training on two evenings per week (using lights) will equate to a cost of \$5,800 GST inclusive (\$5,043 plus GST). After applying the Community Facility Funding Policy 25% discount for use between 200 hours and 499 hours (projected 348 hours of Football use), this would mean the seasonal charge would reduce to \$4,350 GST inclusive (\$3,780 plus GST) to Football.
- No summer use by the Football Club is anticipated, therefore no charges are included
- Total annual charge to Football of \$4,350 GST inclusive (\$3,780 plus GST)

Projected charges after applying the Community Facility Funding Policy to Hockey results in:

- Winter season Hockey on 3 evenings per week under lights will equate to \$8,700 GST inclusive plus one day (Saturday) at \$2,300 GST inclusive (no lights). The seasonal charge would total \$11,000 GST inclusive
- Summer season Hockey use on two evenings per week (Monday and Wednesday) would cost \$4,600 GST inclusive (no lights) but applying the Community Facility Funding Policy 50% discount for use under 200 hours (projected 160 hours of Hockey use), the seasonal charge would reduce to \$2,300 GST inclusive (no lights).
- Total annual charge to Hockey of \$13,300 GST inclusive (\$11,565.22 plus GST)

11.2. Indicative Capital Costs

Assumptions used to calculate the estimated capital cost are:

- Exclude abnormal sub-soil ground conditions
- Area to be laid with turf is a standard hockey field with compliant safety run-off (5,747 m² = 97.4m by 54m)
- Enclosed with vehicle exclusion protection fence and 7m tall safety fencing at ends but not a site perimeter security fence
- Excludes any additional concrete surface for locating movable seating
- No irrigation

Recent similar projects indicate a capital cost in the range of \$2.1 M to \$2.4 M for a sand-dressed floodlit artificial hockey field.

11.3. Annual net cost of operating infrastructure asset

The table below shows the estimations of operational costs excluding capital renewals. Maintenance has been estimated based on latest guidance provided by the Sport NZ. This is indicative data based on current research work being undertaken into sports field options. A conservative approach has been taken with annual cost estimated at the higher end of the range from \$20,000 (low) to \$40,000 (high). The energy consumption calculation has included the daily fixed charge and the peak usage hours used during the winter months only from 3.30pm. The administration, bookings and marketing costs will be met by QLDC through its overall Sport and Recreation budget.

Table 6 Annual net cost operating one artificial field

Maintenance per annum of field (high-medium)	\$35,000
Operational lighting (LED)	\$8,300
Total	\$43,300

11.4. Indicative Whole of Life Costs

Assumptions used to calculate the estimated Whole of Life cost are:

- Renewal of turf after 12 years
- Renewal of shock pad not required until 2nd renewal of carpet
- Initial construction capital cost is excluded from Whole of Life costs as per Council policy

Renewal costs can vary depending on several factors including:

- Amount of use and resultant wear and tear
- Life of product selected
- Climatic conditions

Table7: Estimated Cost for First 12-Year Renewal Cycle

Item	12 Year Total
Maintenance & grooming for 12 years (at \$35,000 per annum)	\$420,000
Energy for lighting (at \$8,333 per annum)	\$100,000
Renewal of turf carpet after 12 years (at \$33,333 per annum)	\$400,000
Disposal of removed turf (at \$10,000 per annum)	\$120,000
Total cost for 12 year lifespan	\$1,040,000

11.5. Asset cost recovery estimations

The table below shows the estimated cost recovery figures on the assumption that Council confirms a 30% cost recovery-funding policy for the turf and lights. If QLDC were to agree to this policy, the analysis indicates that between \$312,000 would need to generate in revenue per annum from user charges over the 12-year period.

Table 8 Estimated annual cost recovery projections (GST exclusive)

Total cost over 12 years	\$1,040,000
Total cost per annum	\$86,666
Hourly cost based on 1,100 hours of use in Year 3	\$78.79
30% cost recovery per annum for annual flat charge per season	\$26,000
Hourly charge based on 1,100 hours in Year 3	\$23.64

Use of the artificial turf in single field mode would require a charge of \$27.20 GST inclusive (\$23.64 plus GST) per hour to meet the 30% cost recovery requirement.

11.6. Financial Model

Financial model assumptions

Several assumptions had to be made in order to estimate operational incomes and expenditures for the proposed facility. The assumptions are based on industry “best practice” and analysis of the financial performance of other relevant hockey facility case studies.

Assumptions include:

- The turf would be owned Council
- The community use of the facility would be managed by Council in consultation with the regular users, primarily Wakatipu Hockey Club and Queenstown Football Club.
- Over time Hockey hours will replace Football hours as participation in hockey increases and football will reduce significantly or entirely when a future proposed artificial turf field for Football is operational (as identified in current master planning for the future of QEC)
- Casual use of the turf will occur but is estimated at less than 5% (or about 50 hours per year) of the overall identified occupancy by Hockey and Football. Casual use such as by QLDC for fitness and boot camps type activity and potential events or holiday programme activity as this will be intermittent and inconsistent and difficult to quantify. This has minimal impact on the overall financial outcome. Therefore, no account has been taken in the financial model of potential casual use.
- The turf would operate at 50-70% of identified core bookings in year 1 increasing to 100% of identified core bookings by year 3.
- All regular weekly winter pre-season and season bookings are based on 24 weeks for Hockey and 24 weeks for Football
- All regular weekly summer season bookings are based on a 20 week summer season (2 x 10 week modules) for Hockey and no summer use for Football

- Assumes in Year 3 that there will be 240 Hockey Club members
- The Clubs do not have capital reserves to contribute to establishment of the turf but will contribute to the operating and renewal costs on a 'pay as you use' basis at the agreed hourly charge or annual seasonal flat charge
- Council will fund the capital cost turf construction. This capital cost may be reduced if part funding is secured from funding agencies.
- No allowance has been made on the depreciation of the asset establishment cost as per Council policy
- Overhead costs related to management of the asset such as asset insurance, administration, bookings and marketing costs are met from QLDC Sport & Recreation budget
- The Council's Community Facility Funding Policy of 30% cost recovery for facilities has been applied for operating costs and provision for renewals. However, the Policy also requires the Seasonal Rate Discounts to be applied and effectively further reduces the user charge to clubs.
- All casual use hours identified would be charged at a peak time rate of \$91.60 GST inclusive per hour (\$78.79 plus GST) for operation and renewal).
- The pricing regime to achieve the 30% cost recovery from users for facilities is based on 1,100 hours of use. Use is estimated at 796 hours by Wakatipu Hockey Club, 348 hours by Queenstown Football Club and 50 hours of casual use. Applying the Seasonal Rate Discount policy would result in an annual charge to the Hockey Club of \$14,090 plus GST (\$16,200 GST inclusive) in Year 3 and \$3,780 plus GST (\$4,350 GST inclusive) for the Football Club. Based on a projected Hockey Club membership of 240 by Year 3 the fees per playing member are \$67.50 (GST inclusive) per winter season. Note: These players will also incur additional fees for their games at the main turf in Cromwell.

A basic cash flow budget has been prepared for Year 3 of operation. Based on the assumptions above means that in the third year of operation of the facility is projected to have a net operating cost to Council of \$24,015 plus GST.

Revenue	Year 3
Hockey in Y3	\$11,565
Football in Y3	\$3,780
Other (about 50 hours in Y3 at \$78.80 plus GST)	\$3,940
Total	\$19,285
Expenditure	
Power	\$8,300
Surface cleaning & grooming & maintenance	\$35,000
QLDC Overhead charge	\$0
Total	\$43,300
Surplus / shortfall	-\$40,970

12. Capital Funding

QLDC is looking to part fund the capital cost of establishing the artificial turf field. This is based on the assumption that the public good derived will attract external funding towards the costs of establishing the artificial turf for hockey as has occurred with the development of other turfs in the region and elsewhere in New Zealand. The estimation of the amount is based on approximately one third of the capital cost (about \$750,000) in total from non-Council sources with Council providing the other two thirds. Neither of the Clubs have capital to contribute but will pay as they go to use the turf.

Applications will be made by QLDC to the following funding organisations:

- Central Lakes Trust
- Community Trust of Southland
- Southern Trust
- NZCT

NZ Lottery Grants Board is a top up funder. It is anticipated that Community Facilities Fund application amount will depend on the levels of support from other funders to achieve the third share of cost, particularly CLT and CTOS.

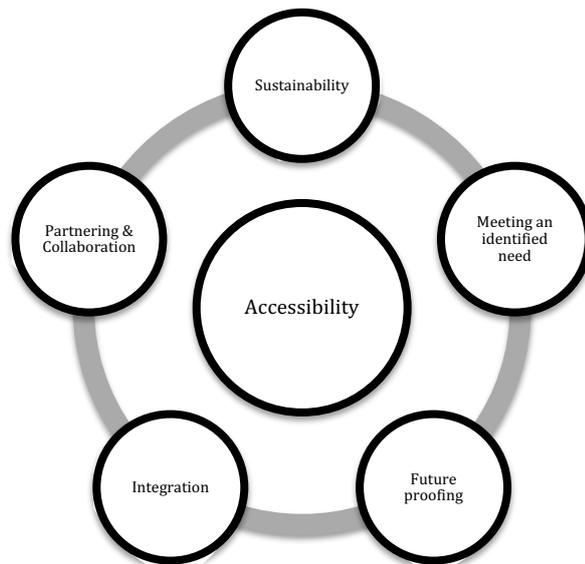
The recently completed \$4M development of two turf fields in Dunedin to create a Home of Football (one field shared use by Highlanders Rugby) received support from two key external funders for over 40% of the capital cost as follows:

- \$760,000 from Otago Community Trust (19%)
- \$890,000 from Lotteries Significant Project Fund (22.5%)
- \$420,000 from FIFA

13. Appendix: Sport NZ National Facilities Framework (detail)

In recent years Sport New Zealand (Sport NZ) has placed more investment into supporting local government and the sport sector with better information on facility planning and development. “The Sporting Facilities Framework” identified six principles to be incorporated into making better decisions about developing sporting facilities. These six principles are shown in the diagram below followed by a brief commentary of how each supports making better-informed decisions regarding the development of sports facilities.

The Sporting Facilities Framework



1. Meeting an identified need

Sport NZ has recognised that the best results are achieved when the facility meets the identified need and is “fit for purpose”. Unfortunately, experience has shown that often not enough assessment and analysis has been undertaken to answer this fundamental question.

2. Accessibility:

Facilities need to be designed, developed and managed in a way that is inclusive, providing easy, safe and convenient access for participating in sport and physical recreation for the whole community.

3. Future proofing:

Sport and recreation is a dynamic sector of the community and changes will occur in the expectations and demands of users. With this in mind Sport NZ identified in its sporting framework that;

The best, long-term outcomes are achieved by designing facilities in ways that enable them to be adapted, developed and extended in response to future demands.

4. Integration

The costs associated with operating and maintaining sport and recreation facilities cannot be ignored and places challenges on the long-term financial sustainability of any asset owning organisation. Improving the efficiency and effectiveness through sharing facilities and services is a key innovation in the development of integrated hubs. A hub usually has a significant land area and usually a single integrated facility (but sometimes is part of a cluster of facilities) offering a range of sport and recreation activities.

5. Partnering & Collaboration

Partnering and collaboration is a key strategy for provision of sporting and recreation facilities particularly where there is common need for a service or function (such as reception) and where there is the potential for sharing of facilities (fitness and high performance centres, change and other amenities, meeting and social spaces), parking and human resources. Partnering can achieve more social benefits, more economically from consolidation of services and facilities, such as co-located swimming pools, indoor sports centres and health & fitness centres. Developing facilities that are co-located with other community facilities and services so as to create infrastructure hubs is an extension of the integrated hubs concept.

6. Sustainability

It is vital that any development considers the “whole of life” costs which not only considers the initial capital costs but the on-going operating costs and revenues. To ensure the best financial viability and attract potential interest from other funders or investors, any future facility must be designed with components that:

- Have the potential to contribute positive revenue streams such as lease income and meeting spaces for hire.
- Provide health and fitness facilities or related service e.g. physio that have the capacity to be profitable and off set operating costs and/or attract private commercial investment.

The ultimate is a facility of good quality that meets the expectations of a wide cross section of its community and that is appropriate for a long life (50 years), low maintenance civic amenity.

14. Appendix: Hockey Turf Provision Indicators in New Zealand

It has been identified that 78% of Association / Trust turfs are water-based. While only a few turfs in New Zealand have FIH Certification as a Global turf, the majority are however built to the Global standard.

A water-based turf is considered the premier surface for high level hockey participation and securing access to a network of water-based turf is fully endorsed by Hockey NZ, it does however raise additional factors that should be considered including higher capital cost, higher lifecycle cost, climatic factors such as icing and limited suitability for other codes.

Turf Provision Indicators

In considering turf provision the 2016 National Hockey Facility Strategy refined and broadened the range of provision indicators including:

- Resident Playing age Population. This is a measure of the potential player pool and identifies the total population aged between 5 and 49 years old. This age group represents the significant majority of players with analysis of available player data indicating that an average of 75% of plays are aged between 5 and 18 years old; 27.5% between 19 and 49 years old and 2.5% over 50 years old.
- Ratio of Total Registered Players per FTE. This is a measure of turf utilisation and provides an indication of the overall level of use. These were established in the 2010 facility strategy and have been further refined by considering the breakdown of the local membership between senior and junior (those requiring a full-size turf and those that can play on a half turf or smaller respectively).
- Ratio of Full Field Players per FTE (full field). This is a measure of turf utilisation that considers the demand from those that require a full-sized field for competition play and includes all Senior and College age teams. This recognises that the younger age groups play on a half turf or smaller and potentially do not have to play on a full-sized field.
- FTE per Resident Playing age Population. This provides a measure of accessibility of the turfs.
- Ratio of Registered Players per Playing age Resident. This provides a measure of local participation rates in hockey. The playing age residents per registered hockey player.

Detailed analysis from the demand models used to identify the hours of use each team requires on a turf identifies that the point at which a turf can be considered to be operating at a sustainable capacity is between **650 to 850 players per FTE**. The point at which an Association sits within this range is determined by the ratio of senior/ college

(play on a full-sized turf) to junior (play on a part sized turf) in its membership. Based on the detailed analysis at the national level:

- 75% senior/ college to 25% junior. Capacity is 650 players per FTE
- 50% senior/ college to 50% junior. Capacity is 750 players per FTE
- 25% senior/ college to 75% junior. Capacity is 850 players per FTE

An important factor to consider is also the ratio of Full Field Players per FTE. Based on an analysis of games and training requirements it is identified that a turf is considered to be operating at capacity when the ratio of **Full Field Player per FTE reaches 500**.

In considering the demand indicators:

- Where the Players per FTE is greater than the 650 – 850 range then additional turf time is required to meet the demand.
- Where the Full Field Player per FTE is greater than 500 then additional full sized turf is required to meet demand.

Sustainability

While the significant improvement in facilities is fully endorsed by Hockey New Zealand it creates a number of challenges and issues. Hockey New Zealand recognises that facilities are central to the development of the game and that Hockey New Zealand has a far greater role to play in supporting the Associations to develop appropriate facilities in a sustainable way if the game is going to continue to develop.

The majority of Associations own their turfs and have the responsibility for regular maintenance and renewal of facilities. The ownership of the facilities enables the Associations to utilise the turf access to maximize the use for hockey and the development of the game, this however, increases the operating costs for the Association and ultimately the cost to participate in hockey.

A review of the Association survey undertaken as part of the development of this strategy identifies that approximately \$35m to \$40m is required over the next 10 years to cover the costs of resurfacing the existing network of hockey turfs.

With the responsibility for securing this funding remaining with the Associations through membership fees and contestable funding from Local Authorities and other funders this is not considered a long term sustainable approach.

The long-term sustainability of turfs is the most significant issue facing the future of community hockey facilities. While the majority of codes take responsibility for the social and clubroom provision to support their game, hockey is unique in the field sports in taking responsibility for the main playing surface. Other field codes take responsibility for the social facilities however the basic provision, maintenance and renewal of the playing surface is provided and funded by Local Government. With the significant increase in the provision of artificial turfs for rugby, football and rugby league provided by Local Government is placing further emphasis on the outlier position of hockey.

15. Appendix: Sport NZ Insights Tool - Map of Data Area

The map below shows the selected Census Area Units used in the Activity Behaviours analysis chart in section 4.3.

