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Sport, Recreation and Open Space Specialists

# City of Joondalup

# Feasibility Study – Synthetic Hockey Facility Development

May 2012

"Enhance your community's health and fitness"

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## 2. Executive Summary

In October 2011, Council considered the proposal to develop a synthetic hockey pitch at MacDonald Park. While the City acknowledged the need identified in the needs assessment/feasibility study and Hockey WA's Strategic Facilities Plan for additional synthetic hockey pitches in the northern metropolitan area, a recommendation was made to not support the Whitford Hockey Club's proposal for a synthetic hockey pitch at MacDonald Park but to work with the club to explore other locations within the City. The potential site needs to be a suitable size with the ability to provide the level of infrastructure required, be an adequate distance from residents and result in minimal impact on existing user groups.

The City of Joondalup required the completion of a feasibility study, high level concept design and cost estimates for the development of a synthetic hockey facility and supporting infrastructure within the City of Joondalup. The City supports sport and recreation and has a statement within its 2020 Vision that residents have access to a wide variety of recreation and leisure opportunities including active play areas and community facilities of the highest quality.

Through the development of this Feasibility Study and conducting the associated processes a number of conclusions and key findings can be drawn. They are as follows:

- In line with the Feasibility Study developed in 2011 and Hockey WA's Strategic Facilities Plan there is an identified need for synthetic hockey facilities within the Northern metropolitan area of Perth.
- There is a gap in facility provision in the southern part of the City of Joondalup, the majority of the City of Wanneroo and the eastern part of the City of Stirling.
- Developing a regional level hockey facility within the southern part of the City of Joondalup will fill a large part of the gap in provision in these areas and is consistent with Hockey WA's strategic direction.
- There is a need to develop facilities with multiple pitches, multi-use facilities and capacity for expansion.
- Significant population growth is expected in the potential catchment areas.
- The City of Joondalup is overrepresented in people aged less than 20 years of age. Given hockey is primarily played by younger people in particular children this suggest increasing demand for active sports such as hockey.
- The likely primary catchment areas has a population of 268,457 which greatly exceeds the benchmark established within the State Hockey Facility Plan of 1 synthetic hockey pitch per 100,000 people.
- The City of Joondalup has a relatively high Socio Economic Index for Areas (SEIFA) score indicating some level of affluence and capacity to pay for elite level facilities.

- Based on an objective site assessment process, Warwick Open Space has been identified as the preferred candidate site for the development of a regional level hockey facility. The site has a number of benefits over other sites including its size and capacity to cater for four senior hockey pitches, its strategic location; its compatibility with existing land-uses; and it is managed by the City.

- In addition to the Whitford Hockey Club there are a number of other potential user groups including the North Coast Raiders, Joondalup Lakers and Wanneroo and Districts hockey clubs and associations, local schools, and other sports.

- Peak usage of hockey facilities is during the 'Winter' season (April – September) during weekday evenings 5pm to 10 pm and all day Saturday and Sunday. It is anticipated that hockey will be the sole user of the facilities during these times with some school usage during weekdays.

- Usage during the 'Summer' season will comprise pre-season training and 'Night' hockey and use by other compatible sports (e.g. soccer, touch football etc.).

- Based on demand and user requirements a newly developed hockey facility should include one synthetic pitch (with the potential for expansion to two synthetic pitches) and three natural grass fields, a multi-purpose clubroom and associated amenities, floodlit playing grounds, and designated parking.

- There is a significant capital and operational cost in developing a regional hockey facility of this nature. There is a need for the City to significantly financially support the development both through capital funding and ongoing management and operational assistance regardless of the management model adopted.

- As with all projects and facility developments there are a range of project risks that are identified and that need to be mitigated against. These include securing significant capital funding, site constraints, cost overruns and potential impacts on existing users.

- There are a number of external funding opportunities available including State Government and Hockey WA either by way of grants or a loan.

The City will need to work closely with all key stakeholders to secure the required levels of funding, determine the most suitable management framework and enable this facility to be designed and developed to meet the needs of the local community in a cost effective format.

# 3. Introduction and Background

The Whitford Hockey Club is one of six (6) sporting clubs currently utilising one of the two ovals located at MacDonald Park, Padbury. In 2009 Hockey WA released a Strategic Facilities Plan that listed the preferred future synthetic hockey pitch locations for the metropolitan area. Possible locations in the northern corridor included Yokine Reserve in the City of Stirling, Nanovich Park in the City of Wanneroo and MacDonald Park, Padbury.

In partnership with the City, the Whitford Hockey Club developed an application for the Department of Sport and Recreation CSRFF bi-annual Small Grant Round for a feasibility study to be conducted to assess the need and suitability of a synthetic hockey pitch at MacDonald Park, Padbury. A needs assessment and feasibility study have been conducted by the appointed consultant and considered a number of location options for the proposed synthetic hockey pitch and recommended the preferred location as the upper oval (south) at MacDonald Park. This location raised concerns regarding the level of facility provision at the site, issues with parking and floodlighting and impact on existing sporting club's usage of the park.

In October 2011, Council considered the proposal to develop a synthetic hockey pitch at MacDonald Park. While the City acknowledged the need identified in the needs assessment/feasibility study and Hockey WA's Strategic Facilities Plan for additional synthetic hockey pitches in the northern metropolitan area, a recommendation was made to not support the Whitford Hockey Club's proposal for a synthetic hockey pitch at MacDonald Park but to work with the club to explore other locations within the City. The potential site needs to be a suitable size with the ability to provide the level of infrastructure required, be an adequate distance from residents and result in minimal impact on existing user groups.

The City of Joondalup is requiring the completion of a feasibility study, high level concept design and cost estimates for the development of a synthetic hockey facility and supporting infrastructure within the City of Joondalup. In summary the project requirements are:

- The development of a feasibility study for a synthetic hockey facility and associated infrastructure.
- The development of one (1) high level concept plan including 3 - 4 hockey pitches (including both synthetic and grass), clubroom facility and associated infrastructure (e.g. floodlighting, players benches, spectators seating etc)
- Detailed capital, ongoing maintenance and asset replacement cost estimates for the hockey pitches and associated infrastructure.
- The development of one (1) high level concept plan at an alternative park and relevant costings, if relocation of an existing sporting club is required.

# 4. Strategic Overview

## 4.1 The Area

The City of Joondalup is a region that covers an area of 97km square from beach to bushland. The City Centre has a relaxed, casual atmosphere and is a combination of cultural, civic, commercial and residential properties built on the edge of Lake Joondalup. The Joondalup City Centre is located 25 minutes north of Perth along the Mitchell Freeway. There are frequent trains from the Perth Underground Station to the City Centre and surrounding suburbs.

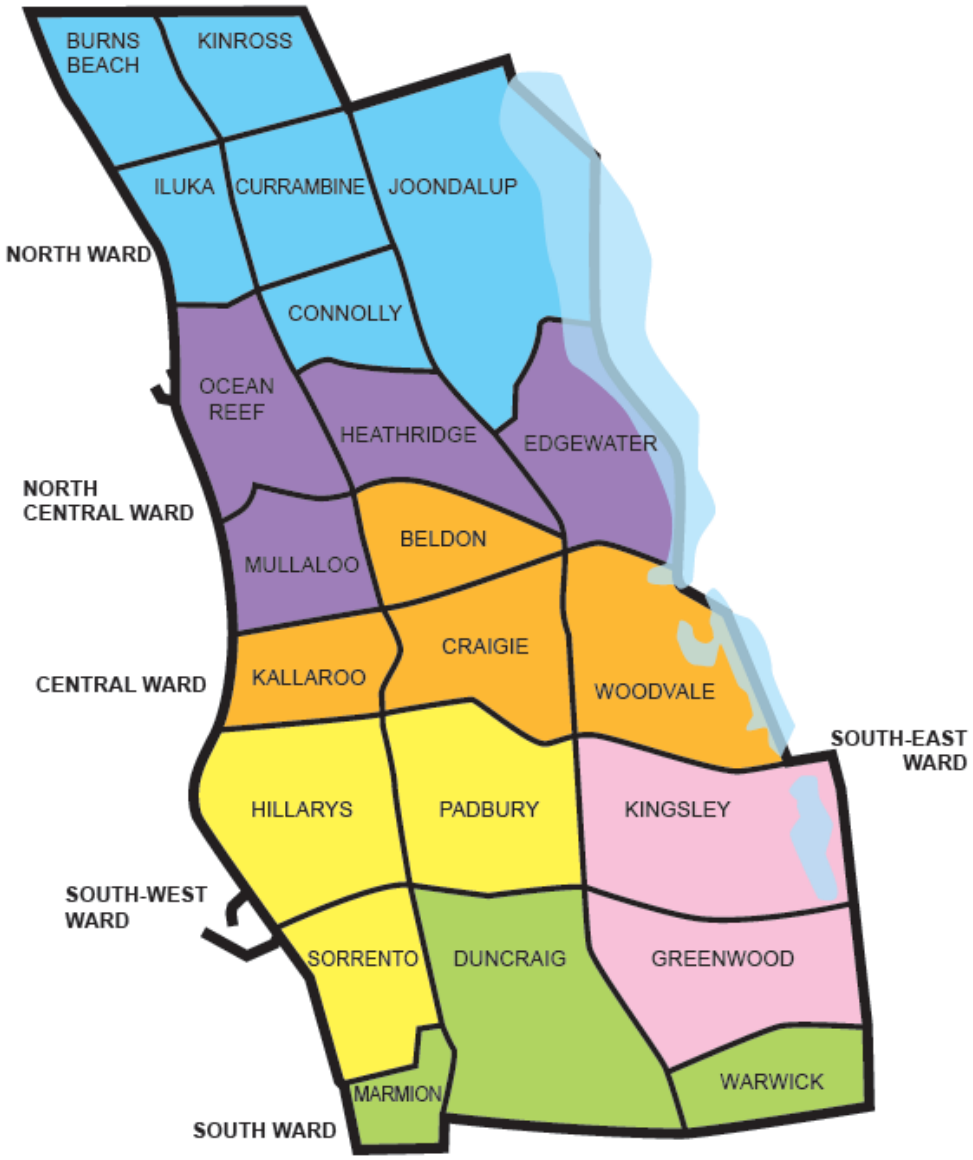



**Figure 1: Map of the City of Joondalup**

## 4.2 City of Joondalup Plans

Joondalup 2020

This visionary document strives for the City of Joondalup to be "A sustainable City"

It explains how Joondalup will look and feel in 2020 and guides strategic decision making to this date.

From a sport and recreation perspective there is a statement as follows:

*"residents have easy access to a wide variety of recreational and leisure opportunities, from beautiful parklands to active play areas, and community facilities of the highest quality."*

City of Joondalup's Strategic Plan

*The City's Strategic Plan articulates the highest level of direction for the City for the coming four years. It is an overarching framework that aims to achieve better leadership and decision making with greater community participation.*

***Vision***

*"A sustainable City that is committed to service delivery excellence and operates under the principles of good governance"*

***Mission***

*"To undertake all our activities with the endeavour of meeting community expectations and achieving sustainable lifestyles".*

*There are five key focus areas, the area that is relevant to the provision of sport and recreation opportunities is:*

*Focus Area 5: COMMUNITY WELLBEING*

*5.2 OBJECTIVE: To facilitate healthy lifestyles within the community.*

*Relevant Strategy.*

*5.2.1 The City provides high quality recreation facilities and programs.*

City of Joondalup Master Planning Framework

The following principles guide the City's Master Planning framework:

- **Community Engagement (Communication and Ownership)**

  Projects are to be based on a documented community need that clearly demonstrates the benefits that it will provide to existing clubs and groups and the wider community. The community and existing clubs will be engaged through extensive consultation to ensure their needs are identified and considered.

- **Multi-purpose & Shared Use**

  Projects should incorporate both co-location and shared use. Facilities will be designed to be flexible spaces that are multi-purpose and cost effective to maintain. This may involve clubs sharing facilities, sports grounds, community buildings, car parking and other spaces.

- **Community Access & Participation**

  Projects should enhance the community's access to facilities and opportunity for increased participation in health and well-being activities including active sport and passive unstructured leisure and recreation.

- **Sustainability (Environmental, Economic)**

  Projects will appropriately address key environmental and sustainability issues through site planning, traffic impacts/transport needs, landscape planning, impacts of noise/light pollution, urban design, energy efficiency and the effective use of resources (i.e. water).

- **Quality Facility Provision**

  Projects should focus on improving the quality of facilities and infrastructure provided to the community, with priorities placed on their functionality to meet the needs of user groups and the City's ongoing management requirements over the life of the asset.

# 5. Literature Review

## 5.1 Review of 2011 Needs Assessment and Feasibility Study

As mentioned in the introduction a needs analysis and feasibility study was conducted by a consulting firm on behalf of the Whitford Hockey Club in 2011. The reports are comprehensive and well prepared nonetheless there were a number of limitations primarily pertaining to the scope of the study. The study clearly articulated the need for synthetic hockey facilities within the north-west region of Perth. The study also identified that "*the north-west region is underrepresented in the number of hockey clubs and the standard of facilities provided.*"

The needs analysis recommended that:

> "*Access to appropriate facilities including artificial hockey fields with easily accessible amenities and clubrooms should be developed in the north-west suburbs with Whitford Hockey Club as the tenant.*"

The rationale for these findings and recommendations is based on:

- There is only one artificial hockey pitch in the north-west suburbs of Perth at the Arena.
- The Hockey WA Strategic Facilities Plan recommends that an artificial turf hockey pitch be installed within the northern suburbs
- Participation in hockey has been increasing in recent years throughout the Perth Metropolitan region and therefore increasing the need for sporting infrastructure and club facilities.
- Strong anticipated population growth predicted in the north west suburbs of Perth
- On average there is approximately an artificial turf for every 100,000 persons in the central region of Perth and one every 315,000 persons in the north west of Perth
- The average hockey participation in the north-west region of 0.27% compares to the state average of 0.49%.
- The Premier League, some Masters, Provisional League and some junior grades require artificial turf pitches for their competition
- There are a number of constraints at the Arena site including the major constraints of a lack of space/capacity for grassed fields and inability to establish club facilities on site.
- Although there is a synthetic hockey pitch based at the Arena Joondalup (Arena) the commercial nature of the operations limits the ability for club based revenue generation activities such as food and beverage operations and functions.

Within the feasibility study a number of areas of concern have been identified in particular from a financial perspective these included:

- The financial forecasts in particular assuming full capacity from inception whereas typically a facility may take up to three or more years to reach capacity and;
- The hire rates which seemed excessive principally for junior sport

The financial considerations will be addressed further below in section 11 of this report.

## 5.2 State Hockey Facilities Plan

The need for additional synthetic hockey pitch facilities in the northern metropolitan area is documented in the Hockey WA Strategic Facilities Plan 2009. The plan shows the lack of synthetic facilities in the northern region with current facilities only located at Arena and Hale School, Wembley Downs. Hockey WA's plan lists possible synthetic pitch locations at MacDonald Park and also Yokine Reserve in the City of Stirling and further into the future, Nanovich Park in the City of Wanneroo.

The State Hockey Facilities Plan outlines the following:

> *In the metropolitan area, most of the synthetic turf facilities are located on school and university land. This contrasts with country installations which are all located on local government land. The installation of turfs in country areas has been driven by the clubs and associations with support from local councils.*
>
> *The northern spread beyond Wanneroo to Butler and Jindalee is attracting school participation and a club to service these schools will need to be identified or established. Wherever possible synthetic turf venues should be developed adjacent to existing natural grass facilities. They should not be developed in isolation. The number of synthetic turf installations should be expanded to accommodate and encourage growth in underserviced areas and at the same time remain limited (at least by way of Hockey WA support) to ensure oversupply does not occur leaving turf facilities underutilised and therefore unviable. Hockey WA notes that Local Government Authority philosophies differ, however, across the board, there is an established practice and preference to encourage provision of shared or joint use community facilities.*

The key findings in relation to this project are:

- There is a gap in facility provision in the southern part of the City of Joondalup, the majority of the City of Wanneroo and the eastern part of the City of Stirling
- Developing a regional level hockey facility within the southern part of the City of Joondalup will fill a large part of the gap in provision in these areas and is consistent with Hockey WA's strategic direction.
- The development of facilities with multiple pitches, multi-use facilities and capacity for expansion is supported by the plan.
- Development of a facility based on City land will have benefits over school provision in that the facility would have less operating restrictions (e.g. after hours access), significant social facilities could be developed and general access would likely be greater.

# 6. Need and Demand Analysis

## 6.1 Demographic Analysis

This study is focussing on the development of a synthetic hockey facility and supporting infrastructure within the City of Joondalup. Depending on the specific final location of the facility it is likely that the development of a synthetic hockey facility will attract participants from adjoining local government areas such as the City of Wanneroo and City of Stirling. The tables below include key demographic information for the potential catchment areas and the primary catchment area assuming the facility is located at the southern part of the City of Joondalup which is the most likely scenario. These have been compared against Western Australia as a whole.

The key findings of the demographic analysis are that:

- Major population growth is expected in the potential catchment areas with the Cities of Wanneroo, Stirling and Joondalup have the 1st, 2nd and eleventh largest population growth from 2001 – 2009 in WA.
- The City of Joondalup is overrepresented in people aged under 20 years of age. Given hockey is primarily played by younger people in particular children this suggest increasing demand for active sports such as hockey.
- The City of Joondalup is predicted to experience modest growth rates compared with City of Wanneroo and any new facility should be planned to service both areas.
- The likely primary catchment areas of the southern part of the City of Joondalup, the southern part of the City of Wanneroo and the northern part of the City of Stirling has a population of 268,457 which greatly exceeds the benchmark established within the State Hockey Facility Plan of 1 synthetic hockey pitch per 100,000 people.
- The City of Joondalup has a relatively high Socio Economic Index For Areas (SEIFA) score indicating some level of affluence and capacity to pay for elite level facilities.

| Item | City of Joondalup | City of Wanneroo | City of Stirling | WA | Total |
|---|---|---|---|---|---|
| Current Population | 162,195 | 144,148 | 198,803 | 2,293,510 | 505,146 |
| Projected Population 2026 | 188,400<br>16% | 278,100<br>93% | 236,200<br>19% | | 702,700 |
| People Under 20 years | 45,001<br>27.7% | 45,389<br>31.5% | 44,501<br>22.4% | 603,100<br>26.3% | 134,891<br>26.7% |
| People 20 – 39 Years | 43,010<br>26.5% | 44,423<br>30.8% | 64,222<br>32.3% | 673,382<br>29.4% | 151,655<br>30.0% |
| SEIFA - Index of Relative Socio-economic Advantage and Disadvantage | 1083 | 1010 | 1030 | | |

**Table 1: Potential catchment areas key demographic data**

| Item | City of Joondalup (south) | City of Wanneroo (south) | City of Stirling (central) | Total |
|---|---|---|---|---|
| Population 2009 | 107,504 | 49,457 | 111,496 | 268,457 |
| People Under 20 years 2009 | 28,372 | 14,906 | 24,553 | 67,831 |
| People 20 – 39 Years 2009 | 28,146 | 15,190 | 37,372 | 80,708 |

**Table 2: Primary catchment area population data**

Sources: 3235.0 Population by Age and Sex, Regions of Australia, ABS, August 2010

Dept. of Planning and WA Planning Commission Western Australia Tomorrow Population Report No. 7, 2006 to 2026 Forecast Summary Local Government Areas of WA February 2012.

ABS 2033.0.55.001 - Socio-economic Indexes for Areas (SEIFA), 2006

## 6.2 Participation Trends

According to the 2011 GHD Report at present there are 36 field hockey clubs in Western Australia. According to Hockey WA Approximately 9,500 people over the age of 10 participate in organised field hockey and are members of a club in WA. This has steadily grown from just over 8,000 participants in 2006 indicating a substantial growth in hockey within WA over the past few years. Hockey Australia's census and Hockey WA's own team analysis data reflect an average participation rate for players 15 and over of around 1% of the adult population. Hockey is played relatively equally between males and females and was ranked 25 in the most sports/physical activities participated in by Western Australians in 2010 (Source: Australian Sports Commission, Participation in Exercise, Recreation and Sport).

## 6.3 General Sport and Recreation Trends

The following graphic highlights the range of general leisure trends that are likely to impact on multi-purpose facilities in the future.

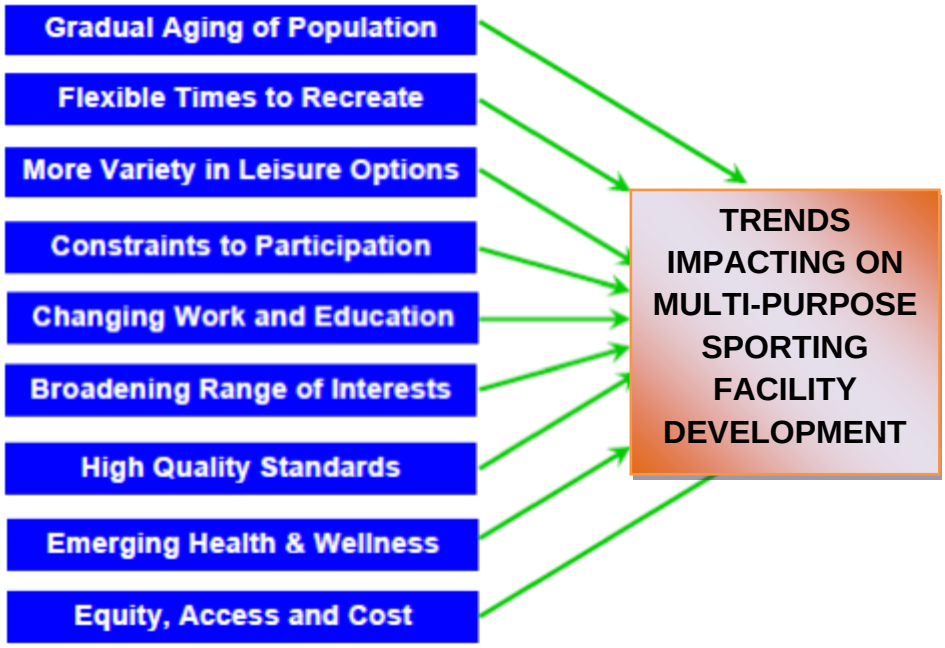



**Figure 2: General Sport and Recreation Trends**

## 6.4 Stakeholder consultation

**Whitford Hockey Club**
A discussion and meeting with the President of the Whitford Hockey Club has occurred. A summary of the outcomes of the consultation is outlined below and represents the club's view and is not necessarily the consulting team's position and/or view:

- Requires one synthetic and 2 or preferably 3 grassed pitches and associated clubrooms and infrastructure e.g. car parking, sports lighting.
- MacDonald Park is the club's preferred option for the development of a synthetic hockey facility.
- Warwick Open Space is the preferred site of the WHC from the options discussed (Warwick Open Space, Percy Doyle Reserve, Belridge HS and Edgewater Quarry). (Note: MacDonald Park was not considered a realistic option as it has not been supported by the CoJ).
- Belridge High School site was an option considered by the WHC, with their suggestion of the possibility of situating the clubrooms adjacent the existing cricket transportable pavilion as an option as well as extending existing school car parking.
- Located at schools – concern over procuring capital funding, tenure and that the City would not fund a facility on school land.
- Facility needs to be water or hybrid based surface (wet/dry)
- The WHC peak requirements for car parking based on current usage at MacDonald reserve is approximately 50 vehicles.
- Any new clubrooms if developed should be based on a similar size to the existing hockey club facility at MacDonald Reserve and if possible be able to cater for around 220 patrons (note existing facility caters for 159 patrons).
- Lark Hill at Rockingham is an example of a club facility that is modern and caters for club level hockey needs, limitations include the grandstand design which is separated some distance from the pitch and the raking is believed to be too shallow.
- The club is striving to reach the premier league however it is recognised that this is a difficult process due to current promotion/relegation processes.
- If a new turf facility was to be developed it could be expanded from one pitch to one + a half pitch for training and warm-ups if there is adequate space.
- Opportunity for other clubs and sports to utilise the facility e.g. soccer
- Opportunity to investigate water harvesting and re-use infrastructure in any design to improve water efficiency and provide environmental benefit.

**City Officers**
A number of ongoing discussions, meetings and site inspections have been held with City officers to provide information on various aspects of the project.

**Belridge Senior High School**
A meeting was arranged with the Principal of the Belridge Senior High School to determine the possibility of developing facilities at the school. He advised this is unlikely to occur as their recent application to the state government to become a hockey speciality school was rejected. He indicated the school may use a public hockey facility if it was located in reasonable proximity to the school.

## 6.5 Opportunities and Constraints Matrix

The following opportunities and issues have been identified and raised by stakeholders in developing the needs assessment component of this study. They will be tested through the development of the full feasibility study and do not necessarily reflect the views of the consulting team.

| Opportunities | Source |
|---|---|
| Need for hockey facilities in the North West of Perth | Literature Review |
| Constraints at existing site (MacDonald Park) | Literature Review/Site Assessment |
| Multi-use of any proposed facility should be considered | Stakeholder Consultation/ Participation analysis |
| Plan for the future development of a regional level facility servicing a greater catchment including neighbouring Local Government areas. | Literature Review/Stakeholder Consultation |
| Major population growth is expected in the potential catchment areas | Demographic analysis |
| The City of Joondalup is overrepresented in people aged under 20 years of age. Given hockey is primarily played by younger people in particular children this suggest increasing demand for active sports such as hockey. | Demographic analysis |
| The likely primary catchment areas are the southern part of the City of Joondalup, the southern part of the City of Wanneroo and the central part of the City of Stirling. | Literature Review |
| Hockey is a relatively popular sporting activity. | Participation analysis |
| **Constraints** | **Source** |
| Limited significant portions of developable land in the City of Joondalup for the establishment of a large sporting facility. | Literature Review |
| Provision of a synthetic hockey pitch would set precedence for elite level facilities. | Literature Review |
| Capability of the Whitford Hockey Club to raise the remainder of their portion of the capital costs. | Literature Review |
| Responsibility for ongoing maintenance costs and long term replacement costs for the facility. | Literature Review |
| Need to substantiate need and viability of a synthetic pitch and associated facilities. | Literature Review |
| Significant cost in establishing synthetic turf pitches. | Literature Review |

**Table 3: Opportunities and Constraints Matrix**

# 7. Supply and Gap Analysis

## 7.1 Audit of Hockey Facilities

There are four key hockey venues situated in the North West region of Perth they are:

- The Arena Joondalup (one synthetic pitch)
- Kingsway Regional Reserve (up to six natural grass pitches)
- MacDonald Reserve (three natural grass pitches)
- Iluka District Open Space (three natural grass pitches)


**Figure 3: Map of Existing Key Hockey Facilities within the NW of Perth**

## 7.2 Demand for Hockey Facilities

The recent Feasibility and Needs Assessment prepared by consulting firm GHD found that Participation in hockey has been increasing in recent years throughout the Perth metropolitan region and therefore increasing the need for sporting infrastructure and club facilities. The growth of the north-west suburbs and predicted population growth are increasing the demand for the limited available hockey clubs and facilities. These factors together with the trend toward playing on artificial hockey turfs are generally increasing the need for the development of artificial turfs in Perth.

The Whitford Hockey Club has above the average club members with a large proportion of the club being younger members. These younger members coupled with the area's growing population are predicted to see a considerable increase in the number of teams playing in competitions that require artificial turfs. On average there is approximately an artificial turf for every 100,000 persons in the Central Region (Directions 2031) and one only every 315,000 persons in the north-west region. It is also expected that the population in the north-west region is going to grow by 110,000 over the next 20 years.

The Whitford Hockey Club currently supports 30 teams across a number of divisions and grades with an above average number of teams for each grade except one. The Club has the 9th highest number of teams in the metropolitan region. Twelve of the Whitford Hockey Clubs teams compete on artificial turf at various venues throughout the metropolitan region.

The average hockey participation rate in the north-west region (0.27%) as compared to the state average (0.49%) there is a large potential for growth of the sport in this region. This indicates both a lack of clubs and a lack of suitable facilities to attract people to participate in hockey.

The Elite Turf League, some Masters, Provisional league and some junior grades require artificial turf pitches for their competition. At present Hockey WA faces a shortage of access to artificial turf pitches for competitions and often has issues with the scheduling of matches. This results in competition matches being played late in the evenings and throughout the weekend. Whilst this is achievable it then has impacts on clubs ability to access appropriate turf for training.

## 7.3 Gap Analysis

There is a significant gap in the provision of artificial turf hockey pitches in the north-west suburbs of Perth particularly when compared with the Central Region; this is in regards to both population catchment areas and distance to facilities. There is no club in this region with exclusive use of an artificial turf.

There is an artificial turf pitch at the Arena. This pitch is located within the State Government managed sports precinct to the north of the City of Joondalup. The pitch does have a spectator viewing area and is used by the Whitford Hockey Club for some training and playing purposes. The club does not have exclusive use and shares the facility with two other hockey clubs and other sporting users including football.

# 8. Site Assessment

## 8.1 Site Assessment Process

As part of the site assessment process a number of potential sites were identified that met the initial area parameters of the proposed facility. These sites included:

- Arena Joondalup, Joondalup
- Belridge Senior High School, Beldon
- Edgewater Quarry, Edgewater
- MacDonald Park, Padbury
- Percy Doyle Reserve, Duncraig
- Warwick Open Space, Warwick
- Yellagonga Reserve, Woodvale

Each candidate site was visually inspected on site and rated against 15 various criteria which considered factors such as topography, access, impacts on neighbours and existing users, partnership opportunities, likely capital cost and land ownership. A full list of the criteria and a description of each criterion is outlined on the following page. Each criteria was rated from 1 to 5 with one being the lowest rating and five the highest, the highest score possible was 75 points. This process was conducted to enable an objective analysis of the various site benefits and constraints.

## 8.2 Site Selection Criteria

**Criteria 1: Suitable Topography:** The site should be relatively flat, have suitable stable soil conditions and be able to be protected from floods, high water table and not have a previous landfill or rubbish dump history.

**Criteria 2: Site Services:** Aiming for services to be on site or closely located to minimise cost and to ensure facility can be serviced i.e. electrical, water, gas, sewer, and storm water.

**Criteria 3: Site Access and Traffic Impacts:** Most site visitors (80% to 90%) will come by car so there needs to be adequate site access and provision of appropriate car parking, bus parking and group drop off and pick up.

**Criteria 4: Site Geology:** Site geology clearly affects overall design and construction costs. A flat site with good soil conditions and no history of rubbish deposits or poor drainage is essential.

**Criteria 5 Neighbourhood Effects:** Rating of any negative neighbourhood impacts likely to occur from the development in relation to surrounding neighbourhood.

**Criteria 6: Compatible Use of Site:** Close development link to existing or other site users/uses or adjoining or close by facilities. Does development hinder any existing use or tenant?

**Criteria 7: Image of Site:** Does site image complement the proposed development? (i.e. visual aesthetics).

**Criteria 8: Shared Development Opportunities:** Are there any shared development or management opportunities at the site? i.e. community partnerships.

**Criteria 9: Future Redevelopment and Facility Expansion Opportunities:** Does the site have surrounding available land for future facility expansion?

**Criteria 10. Opportunity for Schools and other Community Groups to access the Facility:** Is the site readily accessible to all groups within the community.

**Criteria 11. Proposed Usage/Utilisation of the Facility:** Does the site maximise potential for utilisation.

**Criteria 12: Access to Complementary Support Facilities i.e. clubrooms, change rooms:** Does the site provide access to facilities that support club operations.

**Criteria 13: Funding and Management Partnership Opportunities:**
Is there an opportunity for another organisation to contribute to funding and/or management.

**Criteria 14: Capital Cost of Site Development:** Which site provides the project with the lowest development capital cost?

**Criteria 15: Land Ownership:** Sites owned and/or managed by the City are more beneficial than land owned by other agencies (i.e. State/Federal Government) due to the ability to have greater control over development, access to funding through Department of Sport and Recreation, ongoing management and maintenance.

Criteria Point Score

- 5 points: Meets criteria to a very high level
- 4 points: Meets criteria to a high level
- 3 points: Meets criteria to an adequate level
- 2 points: Only meets some or part of the criteria but at a low level
- 1 point : Only meets some or part of the criteria but at a very low level

## 8.3 Assessment of Candidate Sites

| Site Assessment Criteria | Site Name: Arena Joondalup | |
|---|---|---|
| | Suburb: Joondalup | |
| | Score | Comment |
| 1. Site Topography | 4 | Existing Facility (Tennis Courts on southern side - limited space); sloping site |
| 2. Site Services<br>a) Electrical<br>b) Water<br>c) Gas<br>d) Sewer<br>e) Storm Water | 5 | Good |
| 3. Site Access and Traffic Impacts | 3 | State government land – good<br>Plentiful parking although this is not dedicated to the hockey facility and is some distance away.<br>Formal access and egress |
| 4. Site Geology | 3 | Sloping – substantial, requiring earthworks probably |
| 5. Neighbourhood Effects | 4 | Good – No impact on residents, low impact on others – design can minimise this as well. |
| 6. Compatible use of site | 5 | Excellent – dedicated sports precinct |
| 7. Image of site | 5 | Excellent |
| 8. Shared Development Opportunities | 5 | Excellent – Venues West/State Government |
| 9. Future Facility Expansion Capability | 1 | Very/limited<br>Constrained by adjoining facilities (netball, tennis, football stadium) |
| 10. Opportunity for schools/other community groups to access the facility | 3 | Good<br>Affordability could be an issue |
| 11. Proposed usage/utilisation of the facility | 4 | Good |
| 12. Access to complimentary support facilities i.e. clubrooms, social rooms | 2 | Ok existing bar but commercially operated<br>Limited opportunity for club specific social facility |
| 13. Funding and Management Partnership Opportunities | 3 | Good Venues West |
| 14. Capital Cost of Development | 4 | Upgrade of existing facility. |
| 15. Land Ownership | 3 | Owned and managed by Venues West. The City has previously invested in the facility. |
| **Total Site Selection Criteria Score** | 54 | Notes: This site has only the capacity of a synthetic turf facility only no additional natural grass pitches.<br>The commercial operating structure of this facility limit the ability of community organisation to operate autonomously on the site.<br>The site is strategically placed to capture growth in the northern areas of the City of Joondalup and City of Wanneroo. |

| Site Assessment Criteria | Site Name: Belridge Senior High School | |
|---|---|---|
| | Suburb: Beldon | |
| | Score | Comment |
| 1. Site Topography | 4 | Good, flat, retaining SE |
| 2. Site Services<br>a) Electrical<br>b) Water<br>c) Gas<br>d) Sewer<br>e) Storm Water | 4 | Good?<br>No information, but close to existing houses, so fair assumption |
| 3. Site Access and Traffic Impacts | 2 | Main road<br>Poor access to proposed synthetic Yes, suburban street access only, impacting on residents |
| 4. Site Geology | 4 | Good? Assume good, compactable sand yes. |
| 5. Neighbourhood Effects | 1 | Poor very close to residential Yes, see 3 above |
| 6. Compatible use of site | 3 | Good adjoins other sporting grounds/facilities but close to neighbours Yes, see 3 above |
| 7. Image of site | 4 | Improves image current courts are in disrepair |
| 8. Shared Development Opportunities | 4 | School, Education Department |
| 9. Future Facility Expansion Capability | 3 | Limited to 1 synthetic +2 grass |
| 10. Opportunity for schools/other community groups to access the facility | 4 | School<br>Nearby clubs |
| 11. Proposed usage/utilisation of the facility | 3 | Would be limited due to proximity to neighbours and reduced usage time – Noise, parking, court lights, and street traffic are issues – Design can help noise and lights, but others are a real issue. |
| 12. Access to complimentary support facilities i.e. clubrooms, social rooms | 2 | Change rooms in gym<br>Need clubrooms and limited area to develop.<br>Alcohol issues? |
| 13. Funding and Management Partnership Opportunities | 3 | School<br>May effect DSR funding? |
| 14. Capital Cost of Development | 4 | Retaining required |
| 15. Land Ownership | 2 | Owned and managed by the Department of Education. |
| **Total Site Selection Criteria Score** | 47 | Notes: This site was investigated due to the school expressing interest in developing hockey through the specialised sports program, this has recently been rejected by the department and the school has now indicated an inability to develop a community accessible hockey facility. |

| Site Assessment Criteria | Site Name: Edgewater Quarry | |
|---|---|---|
| | Suburb: Edgewater | |
| | Score | Comment |
| 1. Site Topography | 1 | Sloping, varying levels, significant fill required<br>– topography actively working against design criteria |
| 2. Site Services<br>a) Electrical<br>b) Water<br>c) Gas<br>d) Sewer<br>e) Storm Water | 1 | Limited existing services |
| 3. Site Access and Traffic Impacts | 2 | Small car park proposed on Master Plan<br>Road access is reasonable |
| 4. Site Geology | 3 | Disused limestone quarry. |
| 5. Neighbourhood Effects | 2 | Proposed land uses which could be an issue |
| 6. Compatible use of site | 2 | Passive recreation and cultural precinct proposed |
| 7. Image of site | 3 | Will impact on overall site appearance |
| 8. Shared Development Opportunities | 3 | Adjacent - schools |
| 9. Future Facility Expansion Capability | 1 | Limited – Maybe zero, given other uses planned and topography, geology |
| 10. Opportunity for schools/other community groups to access the facility | 3 | Private schools<br>Limited residential in immediate catchment |
| 11. Proposed usage/utilisation of the facility | 3 | Good |
| 12. Access to complimentary support facilities i.e. clubrooms, social rooms | 2 | Poor currently<br>Potential to develop |
| 13. Funding and Management Partnership Opportunities | 3 | Nearby Schools potentially |
| 14. Capital Cost of Development | 1 | High - levelling, remediation works |
| 15. Land Ownership | 5 | Crown Land – City of Joondalup Management Order |
| **Total Site Selection Criteria Score** | 35 | Notes: The site has a number of major constraints and impediments to the development of a regional level hockey facility. |

| Site Assessment Criteria | Site Name: MacDonald Park | |
|---|---|---|
| | Address: Padbury | |
| | Score | Comment |
| 1. Site Topography | 3 | Adequate, existing playing fields, significant cut required. |
| 2. Site Services<br>a) Electrical<br>b) Water<br>c) Gas<br>d) Sewer<br>e) Storm Water | 5 | Good - Existing |
| 3. Site Access and Traffic Impacts | 3 | Adequate. Use of residential streets required to access site. |
| 4. Site Geology | 4 | Good |
| 5. Neighbourhood Effects | 2 | Close proximity to residential areas. |
| 6. Compatible use of site | 2 | Significantly impacts existing user groups and nearby residents. |
| 7. Image of site | 2 | Well established park with within a very attractive setting. Establishment of synthetic pitch and associated infrastructure would impact visually on the site. |
| 8. Shared Development Opportunities | 3 | Other user groups could use for training and junior development. |
| 9. Future Facility Expansion Capability | 1 | Very limited without impacting on other user groups and open space provision. |
| 10. Opportunity for schools/other community groups to access the facility | 3 | Reasonably close proximity to a number of schools. |
| 11. Proposed usage/utilisation of the facility | 4 | Existing base of the Whitford Hockey Club |
| 12. Access to complimentary support facilities i.e. clubrooms, social rooms | 5 | Existing clubrooms and support facilities. |
| 13. Funding and Management Partnership Opportunities | 2 | Limited |
| 14. Capital Cost of Development | 3 | Significant cut required to reduce impact of pitch on playing grounds |
| 15. Land Ownership | 5 | Crown Land – City of Joondalup Management Order |
| **Total Site Selection Criteria Score** | 47 | |

| Site Assessment Criteria | Site Name: Percy Doyle Reserve | |
|---|---|---|
| | Suburb: Duncraig | |
| | Score | Comment |
| 1. Site Topography | 3 | Ok - Slopes to the south – would require levelling and retaining |
| 2. Site Services<br>a) Electrical<br>b) Water<br>c) Gas<br>d) Sewer<br>e) Storm Water | 3 | Septic |
| 3. Site Access and Traffic Impacts | 4 | Good |
| 4. Site Geology | 4 | Good |
| 5. Neighbourhood Effects | 4 | Good |
| 6. Compatible use of site | 4 | Good |
| 7. Image of site | 4 | Good |
| 8. Shared Development Opportunities | 4 | Yes |
| 9. Future Facility Expansion Capability | 1 | Only space for one pitch limited parking opportunities |
| 10. Opportunity for schools/other community groups to access the facility | 3 | Yes - Other sports (soccer) |
| 11. Proposed usage/utilisation of the facility | 4 | Good |
| 12. Access to complimentary support facilities i.e. clubrooms, social rooms | 4 | Good - potentially |
| 13. Funding and Management Partnership Opportunities | 3 | Possibly |
| 14. Capital Cost of Development | 1 | High - would require major redevelopment of the site |
| 15. Land Ownership | 5 | Crown Land – City of Joondalup Management Order |
| **Total Site Selection Criteria Score** | 51 | Notes: Similarly to the Arena this site only has the capacity to cater for the synthetic pitch development.<br>To incorporate this pitch major redevelopment of the site would need to occur. |

| Site Assessment Criteria | Site Name: Warwick Open Space | |
|---|---|---|
| | Address: Warwick | |
| | Score | Comment |
| 1. Site Topography | 4 | Flat - drops off to the North & West – may involve some retaining and fill to north end – trees? |
| 2. Site Services<br>a) Electrical<br>b) Water<br>c) Gas<br>d) Sewer<br>e) Storm Water | 4 | Existing infrastructure with adjoining bowls club/facilities and adjoining school/sporting facilities. |
| 3. Site Access and Traffic Impacts | 4 | Good<br>Possibly clear veg for car-park – there may be room for car park between pitches and trees on west side<br>Need additional car parking<br>Access is good |
| 4. Site Geology | 5 | Good<br>Yellow sand - no movement<br>Good drainage<br>Not landfill<br>Vegetation impacts |
| 5. Neighbourhood Effects | 5 | No issues - adjacent bowling club, school/sports centre, bowls/tennis |
| 6. Compatible use of site | 5 | Excellent |
| 7. Image of site | 4 | No issues (major) - Native Setting |
| 8. Shared Development Opportunities | 4 | Yes - school, t-ball, AFL 9's, soccer |
| 9. Future Facility Expansion Capability | 4 | Limited - but no need as four pitches can be accommodated. |
| 10. Opportunity for schools/other community groups to access the facility | 5 | Yes – schools<br>Strategically located to cater for demand from the north and the south |
| 11. Proposed usage/utilisation of the facility | 5 | High! Club/school. Near existing site and close to existing catchment area |
| 12. Access to complimentary support facilities i.e. clubrooms, social rooms | 3 | Bowls club/storage<br>Need new clubrooms |
| 13. Funding and Management Partnership Opportunities | 3 | Bowls club, school, sports centre |
| 14. Capital Cost of Development | 3 | Good<br>- infill<br>- retain<br>- clear veg – some mature tree loss to north end of site - Minimal<br>- replace natural grass surface<br>Requires development of clubrooms & additional carparking. |
| **15. Land ownership** | 5 | Crown Land – City of Joondalup Management Order |
| **Total Site Selection Criteria Score** | 63 | Note: This site has many benefits and only limited minor constraints to development. |

| Site Assessment Criteria | Site Name: Yellagonga Park | |
|---|---|---|
| | Suburb: Woodvale | |
| | Score | Comment |
| 1. Site Topography | 2 | Site shape – long rectangle, not ideal |
| 2. Site Services<br>a) Electrical<br>b) Water<br>c) Gas<br>d) Sewer<br>e) Storm Water | 1 | No existing |
| 3. Site Access and Traffic Impacts | 3 | Average |
| 4. Site Geology | 2 | Low level water-course country – soil may be marshy underlay |
| 5. Neighbourhood Effects | 3 | Good - school, church, veg |
| 6. Compatible use of site | 1 | Environmental issues – incompatible land use |
| 7. Image of site | 2 | Contest to native veg |
| 8. Shared Development Opportunities | 1 | No |
| 9. Future Facility Expansion Capability | 2 | Limited |
| 10. Opportunity for schools/other community groups to access the facility | 3 | Yes – school/church |
| 11. Proposed usage/utilisation of the facility | 3 | Good<br>No immediate residents |
| 12. Access to complimentary support facilities i.e. clubrooms, social rooms | 1 | No |
| 13. Funding and Management Partnership Opportunities | 2 | School? |
| 14. Capital Cost of Development | 2 | Ok Greenfield – but site geology unknown and could be a cost factor |
| 15. Land ownership | 2 | State government owned and managed |
| **Total Site Selection Criteria Score** | 30 | |

## 8.4 Site Assessment Outcomes

The outcomes of the assessment in priority order were:

| Site | Site Assessment Rating (max 75) |
|---|---|
| Warwick Open Space | 63 |
| Arena Joondalup | 54 |
| Percy Doyle Reserve | 51 |
| Belridge Senior High School | 47 |
| MacDonald Park | 47 |
| Edgewater Quarry | 35 |
| Yellagonga | 30 |

This clearly points to Warwick Open Space as the preferred candidate site for the development of a regional level hockey facility. The site has a number of benefits over other sites including its size and capacity to cater for four senior hockey pitches, its strategic location in that it fills a large part of the current gap in facility provision within the southern part of the City of Joondalup and City of Wanneroo and the northern part of the City of Stirling; its compatibility with existing land-uses; and it is owned and managed by the City.

As can be seen from the assessment outcomes MacDonald Park the preferred site of the Whitford Hockey Club does not rate particularly highly due to factors such as its impact on nearby residents and existing user groups and the inability to cater for future expansion.

**Figure 4: Warwick Open Space the preferred site for the establishment of a regional hockey facility.**

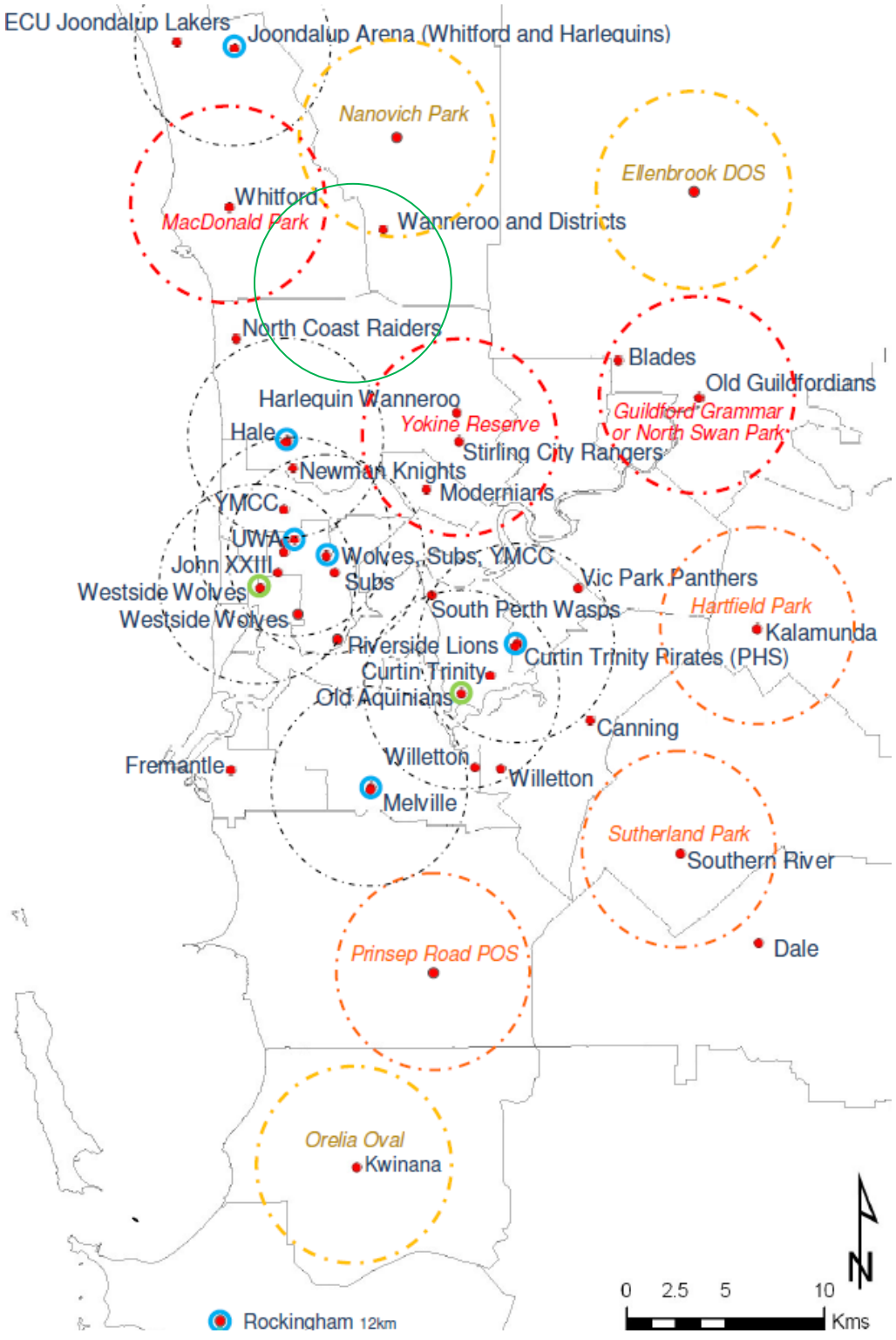



**Figure 5: Hockey WA Strategic Facilities Plan Map with an Overlay of the likely catchment if a hockey facility was based at Warwick Open Space.**

## 9. User/Usage Considerations

Prospective users of the artificial turf include:

- Existing clubs such as
    - Whitford Hockey Club
    - North Coast Raiders
    - Joondalup Lakers
    - Ellenbrook Falcons
    - Harlequins Wanneroo
- Wanneroo and Districts
- Hockey WA – Competition overflow and Classic League
- School sports, in Particular adjoining Warwick High School
- New clubs

Other potential users

- Soccer (practice, 5 a-side, futsal)
- Cricket (seniors training, juniors and “In-2-Cricket” cricket)
- Lacrosse
- Gridiron
- Tennis
- T-ball
- Australian Rules Football (training and AFL 9’s)
- Touch Football

The type of surface selected influences the type and level of sporting activities that can be catered for on the facility.

Given the strong demand for high quality sports grounds across the north western area of metropolitan Perth it is expected that the demand for the use of this type of facility will be high.

## 9.1 Whitford Hockey Club

The Whitford Hockey Club originated as men's and women's clubs that both formed in the late 1970's. The Club moved into its current clubroom facilities in 1994. These facilities are at MacDonald Park in Padbury Western Australia. The Club has a comprehensive strategic plan covering coaching, umpiring, volunteering and player development for both senior and junior pathways, facilities development and professional financial and administrative management. It is one of the larger clubs in Western Australia and seeks to retain a friendly and healthy community focus.

Whitford Hockey Club has a distinct junior focus with teams in all age groups, including rookey (formally minkey), and aims to assist players of any age, skill level or background to achieve their best in a safe environment of fun, fellowship, family, participation and development. The Club currently plays and trains at MacDonald Park, Padbury and the artificial pitch at the Arena. The club currently requests additional training and playing time at the Arena but is restricted to five hours per week due to its use during evenings and weekends by various users.

The north-west region contains approximately 250 sporting clubs. These include only three hockey clubs, located at Iluka, Whitford and Wanneroo. The clubs have an approximate total of 800 members not including players under the age of 10.

The Whitford Hockey Clubs vision is:

> *"To be the field hockey club of choice for players and families in Perth, Western Australia".*

This vision statement reflects the clubs desire to become a large and successful and sustainable club, regarded for both their level of performance and family club ethos. Whitford Hockey Club intends to achieve this through participation and development as indicated by the club mission statement:

> *"Whitford Hockey Club aims to assist players of any age, skill level or background to achieve their best, in a safe environment of fun, fellowship, family, participation and development".*

Whitford Hockey Clubs primary aim is to encourage participation in the sport of Hockey independent of a participant's age, background or ability.

## 9.2 Whitford Hockey Club Membership and Facility Usage

The Whitford Hockey Club is likely to be the primary user of the proposed facility particularly in the initial years and has over 500 members.

There has been an increase in playing club members of greater than 20% since 2006. Based on 2009 membership numbers, Whitford Hockey Club has the 9th highest number of playing members in the metropolitan region. In addition, there are approximately an additional 20 casual players who participate in summer and winter night hockey competitions under the Whitford banner.

The Whitford Hockey Club currently supports 30 teams across a number of divisions and grades with an above average number of teams for each grade except one. Whitford also promotes participation in summer leagues and competitions.

The grass pitches at MacDonald Park are used at the following times for training:

- Monday 4pm – 6pm (South Oval)
- Tuesday 5pm – 6:30pm
- Wednesday 4:30pm – 6:30pm
- Thursday 4:30pm – 8pm

And at the following times for competition purposes:

- Saturday 8.00am – 12.30pm and 1:30pm – 5pm
- Sunday 8am – 12.00pm

The Arena artificial turf pitch is used at the following times for training purposes:

- Tuesday 5:30pm – 6:30pm Juniors
- Tuesday 6:30pm – 7:30pm Seniors
- Wednesday 5pm – 6pm Juniors
- Thursday 7:30pm – 9:30pm Seniors

A full list of Whitford Hockey Club teams and their competition level is included with the 2011 Feasibility and Needs Analysis Report included as an appendix to this report. It should be noted that 12 (8 senior and 4 junior teams) are required to play their games on synthetic turf fields.

## 9.3 Potential Users

North Coast Raiders

North Coast Raiders Hockey Club is the result of the amalgamation of Scarborough Hockey Club and Perth Hockey Club in 1989.

They are a major club in the City of Stirling and one of the largest clubs in Perth, boasting 5 senior women's teams (AHG League through to Metro 1), 6 senior men's teams (Willow Bridge through to Metro 3 White), 3 Masters men's weekend teams (40's, 50's and 60's), 3 Masters midweek teams (men and women) and 13 Junior teams (boys and girls).

The club has in excess of 380 current members. They are based at Charles Riley Memorial Reserve, Wendling Road, North Beach within the City of Stirling, where they have three natural grass fields. The closest synthetic turf pitch is at Hale School. A synthetic turf facility at Warwick Open Space is very similar in distance to the Hale facility without the restrictions of a school based facility.

Wanneroo and Districts Hockey Association

Wanneroo Districts Hockey Association was formed in 1986 from part of the Wanneroo Districts Hockey Club and other clubs from the area. The Association currently supports 8 ungraded teams that may contain any combination of men and women (including unisex) at least 16 years old. Games are played according to Hockey WA rules although the Association is not directly affiliated with Hockey WA. Membership is estimated to be around 100. All games are played at Kingsway Regional Reserve which accommodates six natural turf pitches. The development of a synthetic turf pitch at this reserve is unlikely to occur in the near future due to the heavy use by a range of other sports on the site and the social nature of the Wanneroo and Districts Hockey Association.

Joondalup Lakers

Joondalup Lakers Hockey Club has been a part of the Western Australian Hockey Association (WAHA) since its foundation in 1994 from the Northern Districts Hockey Club. The club is based at Iluka District Open Space, Iluka (3 natural grass pitches_ and the Arena Joondalup (1 synthetic 'hybrid' turf) respectively. The club has 22 teams (senior and junior) with over 300 members. It is likely that the Arena will still be the base of the club however if a higher quality facility is provided at Warwick Open Space then the higher level teams may choose to train/play at the new facility.

Other Potential Hockey Club Users

In addition to the above three clubs/associations the Ellenbrook Hockey Club based in Ellenbrook and the Harlequins Hockey Club (165 members) based at Dianella could also potentially utilise the facility.

Additional User Groups

The Warwick Senior High School adjoins the potential site and has around 900 students. The school specialises in netball and football programmes and may use a synthetic pitch for training purposes for these sports. Discussions should also be held with the school and the Department of Education to investigate if they can become a specialist school in Hockey also.

Other schools in close proximity include Balga Senior High School, Girrawheen Senior High School, Carine Senior High, Mercy College, St Stephen's School, Blackmore Primary School, Marangaroo Primary School, East Greenwood Primary School, Allenswood Primary School, Hawker Park Primary School, Glendale Primary School, East Hamersley Primary School, Montrose Primary School, John Septimus Roe Anglican Community School, Davallia Primary School, Dalmain Primary School, and Goollelal Primary School.

A range of other sports are able to use the facility particularly for training, community level sport and modified games such as soccer (futsal), lacrosse, cricket, touch football and football.

### 9.4 Forecast Usage

Hockey is predominantly a winter sport in Western Australia with greatest usage between April and September inclusive. Participation during the summer months will primarily be for pre-season training (January to March) and there is the potential to develop a night, social or mixed hockey competition to attract additional usage during summer.

Use by the local schools and other sporting activities identified are likely to occur around the down times for hockey.

It has been estimated that the synthetic hockey pitch would be used for hockey during the principal season which is during the winter months, i.e. April to September inclusive (note: pre-season training and trial games would be played outside of these months);

- 7 days per week
- 3:00pm to 6:00pm Monday – Friday for Juniors
- 6:00pm to 10:00pm Monday – Friday for Seniors
- 9:00am to 9:00pm on Saturday; and
- 9:00am to 9:00pm on Sunday.

The following tables identify the possible schedule of use for winter and summer seasons. This is based on a 'Best Case' full capacity scenario.

The tables on the following page show potential maximum use of the proposed facility, it will likely be heavily used by hockey in the winter and the schools throughout the year with other sports using the facility more heavily over the summer months. It should be noted that the proposed timetable is indicative and negotiations with potential user groups will need to be conducted to determine likely usage levels.

| | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|---|---|---|---|---|---|---|---|
| 9am | | | | | | | |
| 10am | | | | | | | |
| 11am | | | | | | | |
| 12pm | | | | | | | |
| 1pm | | | | | | | |
| 2pm | | | | | | | |
| 3pm | | | | | | | |
| 4pm | | | | | | | |
| 5pm | | | | | | | |
| 6pm | | | | | | | |
| 7pm | | | | | | | |
| 8pm | | | | | | | |
| 9pm | | | | | | | |

**Table 4 Best Case Schedule of Use in Winter Season (April – September)**

| | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|---|---|---|---|---|---|---|---|
| 9am | | | | | | | |
| 10am | | | | | | | |
| 11am | | | | | | | |
| 12pm | | | | | | | |
| 1pm | | | | | | | |
| 2pm | | | | | | | |
| 3pm | | | | | | | |
| 4pm | | | | | | | |
| 5pm | | | | | | | |
| 6pm | | | | | | | |
| 7pm | | | | | | | |
| 8pm | | | | | | | |
| 9pm | | | | | | | |

**Table 5 Best Case Schedule of Use in Summer Season (October – March)**

**Legend**

| | |
|---|---|
| | Hockey Use |
| | Likely School use times |
| | Other sports/Public use |
| | Likely down-time |

# 10. Design Considerations

## 10.1 Purpose of the Facility Development

The major purpose of the facility development is to provide a full sized synthetic pitch and associated grass pitches to meet the standards of a regional hockey facility, to ensure that it is able to be allocated for matches at the elite level (the highest grade in the Perth metropolitan competition). This would allow for all other lower level hockey training and competition to be played at the facility.

The extent that the facility will cater for other sporting activities will primarily be dependent on the type of synthetic surface selected, this is discussed in further detail in section 10.4 below.

**Figure 6: Recent installation of a 'hybrid' synthetic hockey pitch in Brisbane. Source: Tigerturf Australia**

## 10.2 Facility Design and Components

The preferred facility requirements for the development of a regional level synthetic hockey facility are as follows:

- One full size synthetic pitch which may include;
    - The playing surface area itself, including safety-run off of 97.4m x 59m (field of play plus 3 - 5m at each end and 2 - 4m each side.
    - Width sufficient to safely accommodate spectators on the sideline within the outer security fence;
    - A low-level (1.5m) inner fence around the playing area - to safeguard spectators, protect the pitch and stop wayward balls.
    - wet-dry surface (hybrid) suitable for hockey and other sports
- Two, or preferably three grass hockey fields.
- Clubrooms suitable to service the needs of members and casual users; including
    - Change rooms (minimum x 2, preferably x 4);
    - A bar and commercial kitchen area;
    - Function space for approx. 220+ patrons
    - Toilets (accessible from the playing ground and function area)
    - Meeting room/office/s.
    - First aid room
    - Viewing area/concourse including from function space
    - Covered grandstand seating (Minimum 100 patrons)
- 2 dug-outs for the 2 team benches and one umpiring/technical area;
- A electronic timer and scoreboard;
- Lighting to the Hockey WA lighting facility standards (Min 300 lux, preferably 500 lux) note: Australian Standard is 250 lux for training and minor grade competition and 500 lux for elite competition (non-televised) i.e. major club grade and higher).
- Equipment storage facility to secure the goals, practice aids, etc;
- Perimeter Security fencing (1.8m ).
- Emergency access gates at one end to allow ambulance and or equipment access;

- Direct access to the pitch from the clubhouse facilities for efficient and effective operation of the club and management of matches and training on the pitch;
- Separation Nets that can be drawn across the surface;
- Car parking during competition. The demand for car parking would range from typically 40-60 vehicles. At peak demand times, such as finals matches, the demand could be for up to 80 – 100 vehicles.

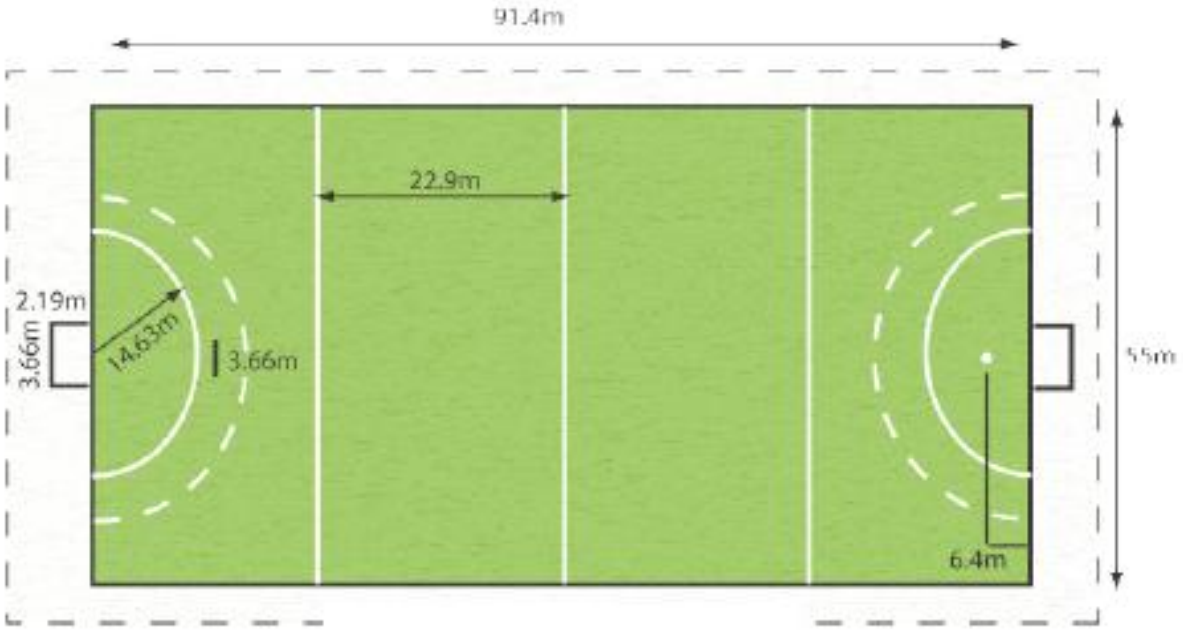



**Figure 7 Synthetic hockey field dimensions. Source FIH Rules**

## 10.3 Benefits and Constraints of Synthetic Turf Surfaces

| Benefits | Constraints |
|---|---|
| Environmental benefits of synthetic sports surfaces include that sand filled and hybrid synthetic surfaces use less water than natural turf. Also if a hybrid surface is installed which requires a sealed base, run-off from the field after rain can be harvested to irrigate adjacent fields. | A negative environmental impact of synthetic surfaces is that they absorb heat and can be significantly hotter to play on than natural turf. |
| Ensures sport continued play all year round - A synthetic hockey field can be programmed continuously as opposed to natural grass playing fields which require periods of respite from use particularly in wet conditions and over the winter period. | It is often widely believed that synthetic turf fields require significantly less ongoing maintenance than natural grass. Even though they do not require watering and mowing they do have an extensive maintenance protocol, particularly if used regularly for a multitude of sports events or for elite level sport. |
| The majority of synthetic hockey surfaces can be used by other sports at the community level including, soccer, tennis, and lacrosse as well as for training purposes for football and cricket etc. | An additional environmental (and financial) challenge associated with synthetic turf comes in its disposal. Synthetic turf is not designed to breakdown quickly (that is one of its advantages) which means that when the surface has passed its useful life it has the potential to stay in landfill for long periods of time and the cost to dispose of a used surface can be significant. |
| A synthetic playing field (with the exception of wet fields) allows sport to be played when drought prevents watering and the consequent use of grass playing fields. They also generally can be played shortly after heavy rain when grass fields become boggy and waterlogged. | Natural grass provides greater noise abatement and glare reduction when compared with synthetic turf. |
| Synthetic turf is a consistent flat playing surface, not adversely affected by dry and wet conditions which increases the safety of play. This is a significant factor for a sport with a very hard ball that can be hit at high speeds and improves the standard of play. | Natural grass offers habitats for insects, plants, and other organisms, and provides food for birds and other animals which synthetic surfaces are unable to provide. |

**Table 6: Outlines of the Benefits and Constraints of Synthetic Turf Surfaces**

## 10.4 Types of Synthetic Surfaces

There are three common types of synthetic turf surfaces for hockey, water based (wet), hybrid (wet/dry) and sand filled/dressed.

Water based synthetic turf surfaces have been the preference for higher levels of hockey competition and a number of water based synthetic turf playing fields have been installed across Western Australia.

Manufacturers have recently introduced the “hybrid” synthetic turf surface to the market. These surfaces can be played wet or dry. Prior to the introduction of the hybrid turf surface the most common synthetic surface installed for hockey fields was the sand filled synthetic turf surface. This was primarily due to its lower cost (installation and ongoing) and its increased flexibility in that it can be used for sports such as tennis, when compared with water based surfaces.

The newer hybrid turf surface is preferred over sand filled turf surfaces by hockey players because of its even more predictable ball roll and lack of abrasiveness compared to the sand filled pitches. The hybrid turf surface performance is closer to that of a water based turf surface.

Hybrid pitches have only been installed relatively recently and some fields have experienced difficulties with the movement of the base when played only dry. These surfaces have not been tested over a long period of time and therefore the longevity of the surface is somewhat unknown.

The cost of installing and replacing a hybrid turf playing field is higher than a sand filled turf playing field, but not as high as water based synthetic surfaces. The cost of maintenance and life of the carpet typically varies with the surface type and climatic conditions.

Compared to natural turf, synthetic turf surfaces can sustain considerable ongoing heavy usage consistently for some seven to twelve years. The level of use and the amount of maintenance determines the overall life of the synthetic surface.

A hybrid turf surface has been suggested as the preferred surface for this facility. This type of surface whilst more expensive to install than sand filled, provides the preferred surface for hockey and represents contemporary hockey surface technology. It is more expensive to lay than sand filled turf as it needs to be laid on a sealed base.

Sand filled turf is not seen to be as desirable as it is abrasive and at the lower end of suitability for higher level competition. A water based only turf surface is not considered appropriate for this facility due to the significant levels of water use, cost of water and the reduced flexibility in terms of the types of use permitted.

The following table outlines the differences between the three synthetic surface types.

Additional information on synthetic surfaces for hockey can be found at http://www.dsr.wa.gov.au/hockey1 .

| | Sand Based Synthetic Turf Field | Hybrid Synthetic Turf Field | Water Based Synthetic Turf Field |
|---|---|---|---|
| Benefits | • Traditional synthetic surface<br>• Can be used by other sports with reduced shock pad<br>• No water is required to maintain the pitch<br>• Life of the surface generally extends longer than current warranty for the surface of 7 years<br>• Most cost effective option<br>• Lowest estimated probable cost of an average field<br>• Lowest probable replacement cost | • Contemporary synthetic surface<br>• Play performance is closer to a water based pitch and is preferred over the sand filled surface<br>• Can be used for other sports.<br>• Can be played wet or dry.<br>• Significantly less water is required to maintain the pitch than a 'Water Based Pitch'<br>• Does not require the amount of sand that is usually associated with a sand-filled or 'dry' surface. | • High performance surface<br>• Preferred surface by hockey players<br>• Surface required for elite competition<br>• Must be laid on sealed surface |
| Constraints | • Not a preferred surface by players<br>• Playability is reduced<br>• Can be 'hotter' to play on.<br>• Relatively abrasive surface<br>• Require the removal of substantial amounts of sand as the pile wears down | • The technology is relatively recent and therefore the life of the surface is unknown. Current warranty for the surface is 7 years<br>• The initial capital cost is generally less than water based but more than sand filled<br>• Medium estimated probably cost of an average field<br>• Medium probable replacement cost | • Limited use for other sporting activities<br>• A shorter life span than the sand filled surface<br>• Issues with hard water (salt, iron or calcium) from recycled water and bores<br>• Requires heavy water use (a guideline is that 12,000 to 18,000 litres will be required to take the pitch from a dry condition to a playable condition).<br>• Highest estimated probable cost of an average field<br>• Highest probable replacement cost |

**Table 7 Comparison of the differences for various types of Synthetic Surfaces**

Image:  Water Based Surface:  Lark Hill Hockey Facility, City of Rockingham

Image:  'Hybrid' Surface:  Aquinas School Hockey Facility

Image: Sand filled hockey surface

Note:  there are no sand based hockey pitches in Perth

## 10.5 Site Analysis – Warwick Open Space

The Warwick Open Space is approximately 87 hectares in size and comprises 'Bush Forever' areas, the Warwick Senior High School, Warwick Sports Centre and Warwick Leisure Centre.

Warwick Open Space is currently classified as a District Park as part of the City's Parks and Public Open Spaces Classification Framework. According to the framework, a District Park services the local area as well as several surrounding suburbs with organised sporting activities both junior and senior players undertaken. The development of a synthetic hockey pitch, clubroom and associated infrastructure has the potential to reclassify Warwick Open Space as a Regional Park that would service the needs of the Joondalup community and may also attract users from outside the City.

The proposed site comprises of a large open playing ground that is currently used for cricket in the summer and softball in the winter. Some of these activities will have to be relocated to another suitable facility if a synthetic hockey facility was established at the site.

The site is surrounded by native vegetation to the north, east and west and bowling greens to the south.

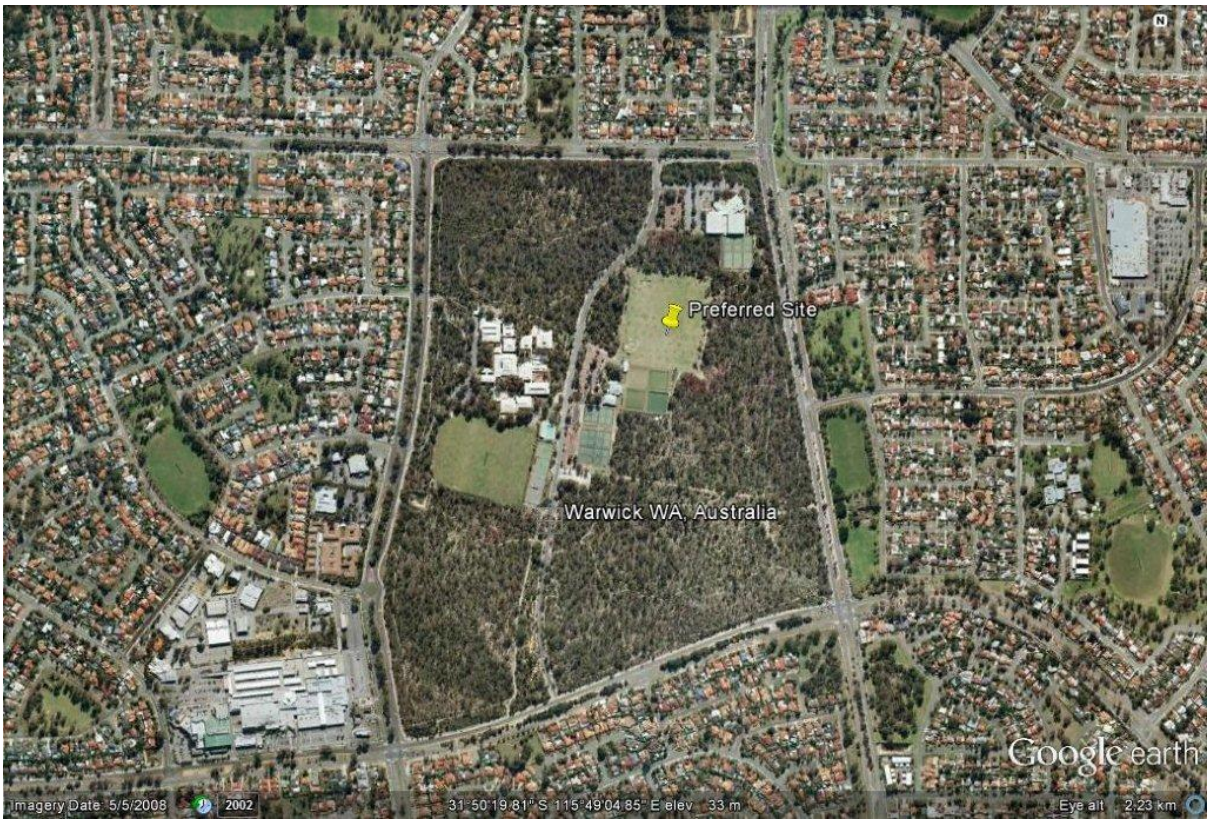



**Figure 8: Location and surrounds of the preferred site at Warwick Open Space**


# Joondalup Hockey Facility

SITE PLAN

APRIL 2012

01 SKETCH 1:500 (A2)

dP(A) Donovan Payne Architects

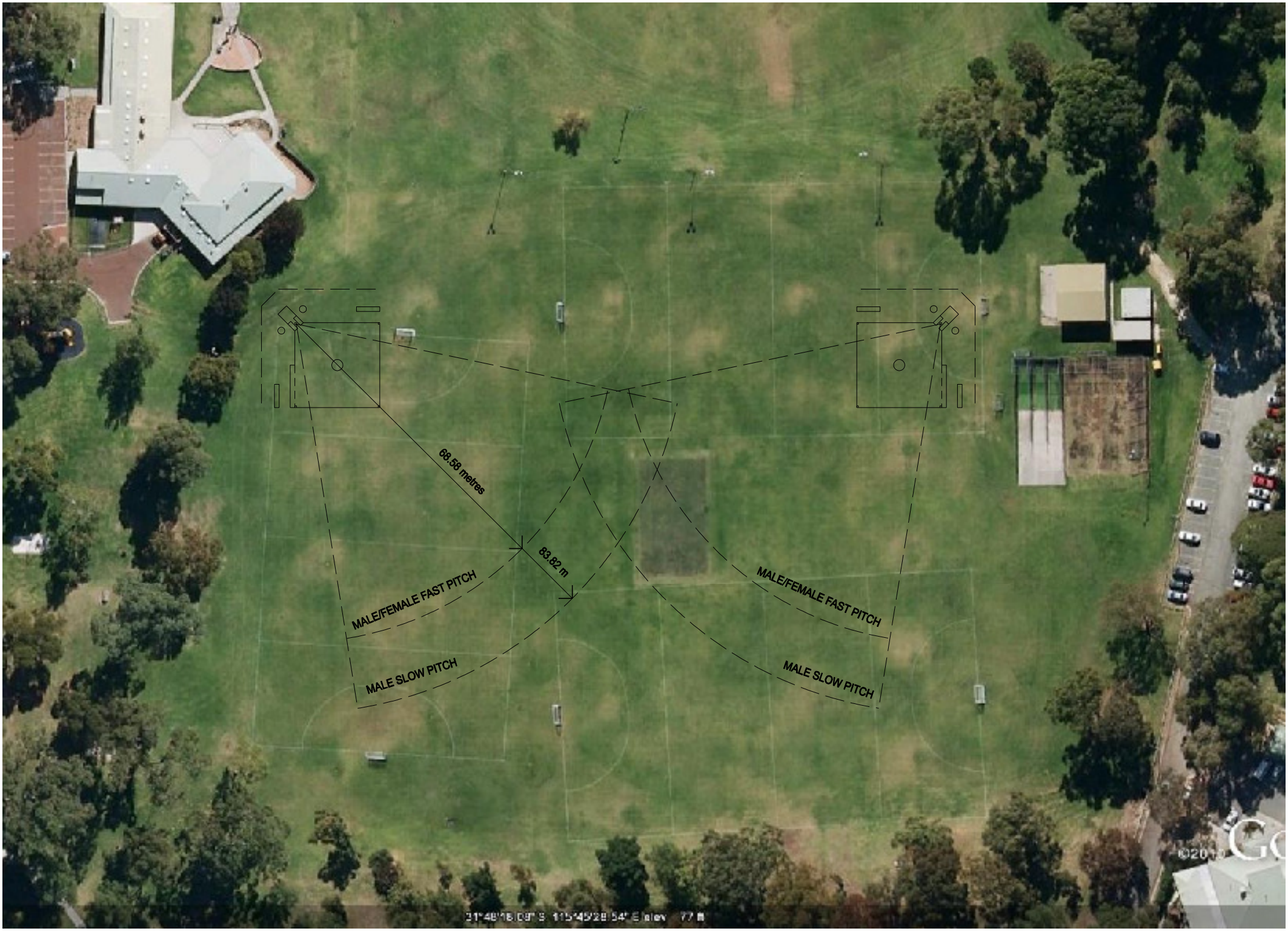
City of Joondalup

## 10.7 Site Analysis – MacDonald Park

To facilitate the development of hockey facilities at Warwick Open Space it will be necessary to relocate the softball and cricket activities currently utilising the site to another site/s. It is proposed that MacDonald Park could offer the capacity to cater for softball given that the Whitford Hockey Club would free up capacity at this site during the winter season.

In addition to hockey MacDonald Park currently caters for cricket in summer and football in winter. If softball were to be relocated to the site they could essentially utilise the space (playing ground and clubrooms) that the Whitford Hockey Club currently does during the winter season. Softball would require the addition of two diamonds including backstops and 'dugouts'. These could be located on the outer area of the playing grounds and have no impact on the oval and consequently existing users. This is depicted in section 10.8 below.

Existing facilities at MacDonald Park include change rooms, toilets, clubrooms, bar, storage and car parking.


68.58 metres
83.82 m
MALE/FEMALE FAST PITCH
MALE SLOW PITCH
MALE/FEMALE FAST PITCH
MALE SLOW PITCH

# 11. Financial Considerations

## 11.1 Capital Costs

The Whitford Hockey Club have indicated they are prepared to contribute around $600,000 towards the development of the project depending on the Management model, tenure arrangement and fee determined by the City. The likely breakup of this is $150,000 in cash, a $200,000 loan from Hockey WA and the remaining $250,000 raised through fundraising and in-kind contributions. Raising this level of capital is both an optimistic and risky proposition given that all of the existing WHC funds would be committed to the development of the facility and raising $250,000 in funds would be a significant challenge for a voluntary based organisation. In addition Hockey WA has not confirmed their loan contribution and has advised that any loan application would be assessed on its merits once an official proposal was received from the WHC. The significant majority of capital funding would have to be sourced from the City of Joondalup and the State Government through their facility development funding program (refer section 14 below).

The overall project development cost has been estimated by a Quantity Surveyor at $7,248,532 excluding GST in addition a $900,337 contingency has also been included. The following table provides a cost breakdown of the major cost areas, a more detailed cost breakdown is included as an Appendix to this report.

| Cost Item | Cost Estimate $ |
|---|---|
| New Clubrooms | 3,489,885 |
| Synthetic Field (1 No.) | 1,245,000 |
| Grass Fields (3 No.) | 703,950 |
| Relocation of Cricket | 120,000 |
| Car Parking | 310,000 |
| Siteworks | 464,345 |
| MacDonald Park Softball Diamonds | 21,500 |
| Headworks | 155,000 |
| Professional Fees | 738,852 |
| **Sub Total** | **7,248,532** |
| Contingencies | 900,337 |
| **Total** | **8,148,869** |
| GST | 814,887 |
| **Grand Total** | **8,963,755** |

**Table 8: Summary of Project Development Cost Estimate**

## 11.2 Maintenance and Replacement Costs

The estimated major maintenance costs for all types of synthetic turf surfaces are in order of $2,500 per field every three months.[1] This maintenance is the major maintenance typically contracted to suppliers and done quarterly. This includes grooming, adjusting infill levels and spraying weeds and moss / algae build up. This does not include the regular cleaning and other minor maintenance typically undertaken on a daily, weekly and monthly basis by users.

In addition to an annual major maintenance program, regular maintenance is required to maximise the longevity of the synthetic turf surface. The International Hockey Federation has released a document titled '*Guidelines for Care and Maintenance of Synthetic Hockey Pitches*' that identifies a regular maintenance regime that should be undertaken by hockey club volunteers.

The move to synthetic surfaces shifts costs from mainly recurrent to large capital costs every seven to twelve years. Most sporting venues have a lifecycle of maintenance that is spread out over a number of years however a synthetic hockey surface needs replacement every seven to twelve years depending on surface type, level of use and maintenance conducted. This requires finding sufficient funds equivalent to approximately $500,000 at the end of this period. As synthetic turf replacement is an important item the parties involved would need to agree on how the surface will be replaced. A sinking fund would require an annual allocation of approximately $70,000 for the replacement of a pitch after seven years.

[1] Maintenance costs of a synthetic turf field have been supplied by Tiger Turf Pty Ltd

## 11.3 Facility Operational Financial Models

### Revenue Opportunities

The opportunity to generate revenue from the facility can be achieved through a variety of means. The major opportunity is from user fees, however other means such as advertising, sponsorship, club activities and special events should also be explored.

These revenue opportunities include:

- **user fees**: A set rate is normally derived and charged at an hourly basis. The level of the rate may vary depending on the user group, for example sporting clubs may be charged at a different rate to schools and private hirers, and juniors in comparison to seniors.
- **advertising/sponsorship/donations**: Advertising and sponsorship opportunities could include signage around the perimeter fencing, facility naming rights and contributions to the establishment of the facility in which donors are recognised through various means.
- **Club activities and events**: operating the facility and any associated club activities provides a wide range of revenue opportunities. These could include user gate charges, profit from operating a café/kiosk/bar, functions, merchandising, and other fundraising.

### Operating and Maintenance Costs

These costs include:

- **Rates/fees**: rates or fees may be levied from the landowner. There may be rebates available depending on the use of the facility (e.g. if it is made available to the community).
- **Utilities**: the cost of utilities may be relatively high particularly if the pitch is irrigated and floodlit. Electricity, gas and water will also be required for the clubroom facilities.
- **Cleaning**: the facility and its environment must be kept clean to improve its attractiveness, to avoid additional costs from dirt accumulation on the synthetic pitch and associated damage and to maximise the facilities life.
- **Repairs**: similarly, it is better to budget for regular repairs which keep the facility in full and good use than to let the facility degrade and possibly to face higher costs in the longer term, or to find that the useful life of the facility is shortened.
- **Maintenance**: the importance of maintaining a synthetic turf pitch is all too often overlooked or minimised. Synthetic turf requires regular maintenance procedures to maximise its lifespan and maintain its playability.

- **Marketing and promotion**: the capacity of the facility is likely to be greater than required directly by its owners or immediate users. Permitting others to use the facility may be a good revenue opportunity and/or be of value to the wider community. However, it may be necessary to advertise availability of the facility and this will have costs.

- **Staffing**: even a small facility will require some staffing not least as noted above in relation to repairs and maintenance and managing facility bookings. This may sometimes be voluntary but given the scale and level of use envisaged for the facility using professional and paid help should seriously be considered.

- **Loan Repayments**: The WHC is anticipating borrowing $250,000 through a Hockey WA loan scheme. This would involve both capital and interest repayments over the duration of the loan.

- **Sinking Fund**: As discussed previously a sinking fund would need to be established to ensure adequate funds were available once the surface requires replacement. This would involve setting aside a contribution on an annual basis.

- **Other Expenses**: There will be a range of other miscellaneous expenses such as security monitoring costs, insurances, bad debts etc.

- **Depreciation Expense**: The asset value of the development will need to be depreciated over its useful life. The amount will vary according to the asset type and depreciation method.

The attached spreadsheet includes the five year forecast estimates for the revenue and expenses attributable to the proposed synthetic hockey facility developed at Warwick Open Space.

Three scenarios have been presented

*Scenario 1: Likely Scenario – assumes first year usage is based on Whitford Hockey Club current usage, and steady growth in both Senior and Junior Hockey Usage in winter and Night Hockey and other Hirers in Summer over time.*

*Scenario 2: Best Case – assumes full facility capacity usage by Whitford Hockey Club and other user groups from year one in both Summer and Winter Seasons.*

*Scenario 3: Worst Case – assumes all five years usage is based on Whitford Hockey Club current usage and very limited usage rates growth over this period.*

These Scenarios have been based on the assumption that the facility is professionally managed by the Club. The table on the following page outlines the 'Likely Scenario' as described above.

Proposed City of Joondalup Synthetic Hockey Facility Five Year Operating Statement
LIKELY SCENARIO

| REVENUE | | | | | |
|---|---|---|---|---|---|
| **Item** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** |
| Pitch Hire/Gate Takings | $100,400 | $121,375 | $138,300 | $143,900 | $149,500 |
| Advertising/Sponsorship | $5,000 | $5,150 | $5,305 | $5,464 | $5,628 |
| Club Fundraising Activities - Net | $15,000 | $15,450 | $15,914 | $16,391 | $16,883 |
| Events | $5,000 | $5,150 | $5,305 | $5,464 | $5,628 |
| Other Revenue | $3,000 | $3,090 | $3,183 | $3,278 | $3,377 |
| **Total Revenue** | **$128,400** | **$150,215** | **$168,005** | **$174,496** | **$181,014** |
| **EXPENSE** | | | | | |
| Utilities | $40,000 | $41,200 | $42,436 | $43,709 | $45,020 |
| Cleaning | $5,000 | $5,150 | $5,305 | $5,464 | $5,628 |
| Repairs and Maintenance - Synthetic | $10,000 | $10,300 | $10,609 | $10,927 | $11,255 |
| Maintenance - Grass Pitches | $52,500 | $54,075 | $55,697 | $57,368 | $59,089 |
| Maintenance - Building | $5,000 | $5,150 | $5,305 | $5,464 | $5,628 |
| Marketing and Promotion | $5,000 | $5,150 | $5,305 | $5,464 | $5,628 |
| Staffing | $50,000 | $51,500 | $53,045 | $54,636 | $56,275 |
| Loan Repayment | $63,125 | $59,625 | $56,125 | $52,625 | - |
| Sinking Fund | $70,000 | $70,000 | $70,000 | $70,000 | $70,000 |
| Other Expenses | $5,000 | $5,150 | $5,305 | $5,464 | $5,628 |
| **Total Expenses** | $305,625 | $307,300 | $309,130 | $311,120 | $264,150 |
| **Deficit/Surplus** | -$177,225 | -$157,085 | -$141,125 | -$136,624 | -$83,136 |
| Net Cash Bal. | -$177,225 | -$334,310 | -$475,435 | -$612,059 | -$695,195 |
| Depreciation | $150,000 | $150,000 | $150,000 | $150,000 | $150,000 |
| Net value | -$327,225 | -$484,310 | -$625,435 | -$762,059 | -$845,195 |

**Table 9: Five Year Operating Statement based on a 'Likely Scenario'**

## Assumptions

- Based on Club Managed Model
- Fees remain static for 5 years other revenues and expenses are indexed at CPI at 3% per annum
- One FTE staff person is responsible for managing the facility
- Utilities includes water, electricity and gas costs and assumes a hybrid surface is provided
- Includes Straight line depreciation of $6,000,000 of infrastructure over 40 years

# 12. Management Considerations

## 12.1 Management Structures

In relation to the management of sporting facilities there are three common management structures. They are:

**Direct Management** where the City retains total control and accountability for the operation of its facility through directly - employed staff.

**Indirect Management** where the operation of the facility is placed at 'arms lengths' from the City, while retaining effective control through the terms of its membership of a 'body corporate' formed to manage the facility.

**Independent Management** where the City leases the facility to a private operator or independent organisation (usually with conditions for access, user charges etc).

| Direct Management 'in house' | Indirect Management 'arms length' | Independent Management 'outside' |
|---|---|---|
| A. Managed and operated directly by City employees | D. Managed by an incorporated association (or a Company Limited by Guarantee) comprising representatives of the City and user groups | G. Managed by private (commercial) individual or organisation through a lease |
| B. Managed by a Committee under the Local Government Act using employees | E. Managed in partnership with the City via an incorporated association (or a Company Limited by Guarantee) comprising representatives of the City and specialist management agency | H. Managed by single or composite user group (sporting or community organisation) though a lease |
| C. Managed by a Committee under Local Government Act using contract labour and support services | F. Managed by specialist management agency which has a management services agreement with the City. | I. Managed by a specialist management agency through a lease |

**Table 10 Common Sport Facility Management Structures**

| Facility Objectives | Direct Management (controlled by the City) | Indirect Management (under auspices of the City) | Independent Management (controlled externally) |
|---|---|---|---|
| Reduce or eliminate deficit funding | DIFFICULT<br>Limited sense of competition and accountability<br>Slow to exploit opportunities<br>Politically vulnerable<br>Inflexible industrial arrangements | ACHIEVABLE<br>Body corporate is nimble and independently accountable<br>Flexible industrial arrangements<br>Staff encouraged to become entrepreneurial by way of incentives<br>Management agency can provide specialist experience | EASIER<br>Lessee operators able to make economies on labour, goods and services<br>Limited political considerations when setting fees, timetables |
| Maintain a significant degree of control | EASIER<br>Management by City officers<br>Regular reports to the City<br>Elected members have opportunities for ongoing input | ACHIEVABLE<br>Qualified lease/licence to body corporate gives the City ultimate control<br>The City is significant partner in the body corporate<br>Regular reports to the City re use, fees, finance and administration | DIFFICULT<br>Control usually via mid to long term lease with no provision for change in local circumstances.<br>Usually no opportunity for the City to participate in management. |
| Keep assets in good repair (building and equipment) | EASIER<br>Maintained by City officers to own standards and budget provisions<br>Prompt response and care by the City's own maintenance staff | ACHIEVABLE<br>Formal commitment built into management agreement for maintenance and refurbishment<br>Monitored by the City through its partnership in the body corporate | DIFFICULT<br>Financial objective (profit or providing funds for other ventures) often causes conflict in decision making related to appropriate maintenance of buildings and equipment |
| Gain optimum use and flexibility (multi-use) | ACHIEVABLE<br>Vocal minority groups may be allowed to dominate peak times<br>Most use by hire only (little or no promotion of regular weekly activities) | ACHIEVABLE<br>No one sport favoured<br>Direct promotion of regular activities (not just hire)<br>Incentive to replace failing programs as soon as possible<br>Management agency can apply specialist experience | DIFFICULT<br>One sport often favoured<br>Usually focus on 'cash cow' activities<br>Membership restrictions often apply |

**Table 11 Common Management Structures and the likelihood of meeting Facility Objectives**

Given the likelihood that the facility is not going to return a surplus (in fact a significant deficit) it is unlikely that the facility will be attractive to the private industry. Therefore either a direct (City managed) or indirect management structure is likely to be the best option.

A club managed facility could be considered however it would need to be subsidised by the City and/or the City taking responsibility for significant costs such as depreciation, staffing, utilities etc. If this model were to be adopted then it would be important to prepare a management agreement that allowed for the City to input into the programming of the synthetic turf, grass fields and clubroom facilities.

Maximising the use and preventing duplication of facilities are key objectives in the provision of community facilities.

As the viability of synthetic surfaces depends on high levels of usage to generate income it is necessary that management is proactive in developing and facilitating programs and activities.

A Memorandum of Understanding should be established between the City, Whitford Hockey Club and other identified regular user groups to ensure clear roles in project funding, planning, development and ongoing management and maintenance of the proposed facility.

The roles of each agency in the facility may be slightly different. The City could directly assist with sourcing funds, marketing the facility, and encouraging other sports to use the facility. Growing the club use, tournament and competition organisation could be looked after by the Whitford Hockey Club.

It is also recommended that the City consider expanding its current Facilities Bookings Team to be responsible for the day to day management of the proposed facility including bookings, promoting activities and coordination of maintenance programs.

The Memorandum of Understanding should also deal with matters of ownership, sponsorship and naming rights, insurance and the City's relationship with any user groups.

Following the development of the facility, a Seasonal Hire Agreement should be established between the City and regular users of the facility and a Casual Hire Agreement developed for irregular or casual users of the facility.

## 12.2 Risk Management

The objective of risk management is to protect the assets and financial resources of organisations and its stakeholders by reducing risk and potential for loss. There is a constant need for administrators to identify risks, deal with them and then evaluate whether the strategies that are subsequently implemented are effectively dealing with the risk. Effective risk management should include:

***Risk Identification*** – A comprehensive analysis of an organisation, in consult with experienced officials, participants and industry professionals, should enable a detailed picture of risk areas to be assembled. Checking through organisation records and drawing on experiences of similar organisations can provide valuable information for potential risk areas.

***Risk assessment*** – Risk assessment will follow risk identification. Risks must be assembled and dealt with in priority order. Administrators will normally choose to analyse and classify risks using a Risk Assessment Matrix as identified below.

| **Likelihood** | **Consequences** | | | |
|---|---|---|---|---|
| | Catastrophic | Major | Medium | Minor |
| Almost Certain | Catastrophic | Extreme | High | Moderate |
| Possible | Extreme | High | Moderate | Low |
| Unlikely | High | Moderate | Low | Low |

**Table 12 Risk Assessment Matrix**

| Risk Description | Current Controls in Place | Likelihood of Occurrence | Consequences of Occurrence | Overall Risk Level | Further Action Required |
|---|---|---|---|---|---|
| Project deadlines are not met | Determine realistic deadlines | Possible | Major | High | Maintain regular communication with Consultant during project. Update Project Sponsor regularly. |
| CSRFF Funding not approved (1/3 of funds) | Budget Process<br>CSRFF application process | Possible | Major | High | City has option to fully fund – requires report to Council |
| Risk of Club not fulfilling their financial contribution commitments to the project. | Written commitment from WHC. | Possible | Major | High | Require written contractual agreement between the club and the City prior to development commencing. |
| Public risk during construction | Public risk insurance. | Unlikely | Catastrophic | High | Require licensed builders and adherence to appropriate construction and safety standards. |
| Project cost overrun | Conservative cost estimating. | Possible | Major | High | Strict budget adherence. Flexibility to alter plans to reduce costs. |
| Ongoing viability of facilities once established | Sound business planning. | Almost certain | Medium | High | Financial Support provided from CoJ. Effective financial systems. |
| Ecological and environmental impact | Protection of resident trees wherever practical through design.<br>Ecological impact study to be conducted prior to any vegetation removal | Almost certain | Medium | High | Additional plantings at another location to offset vegetation removal. |
| Impacts on existing user groups at Warwick Open Space and proposed relocation sites. | Identification of suitable sites prior to advising groups of the need to relocate. | Possible | Medium | Moderate | Regular communication with effected user groups to identify needs and facility requirements. |
| Impact on nearby sporting activities during construction. | Nil | Possible | Medium | Moderate | Early advice and regular communication with adjoining users<br>Temporary fencing. |

| Risk Description | Current Controls in Place | Likelihood of Occurrence | Consequences of Occurrence | Overall Risk Level | Further Action Required |
|---|---|---|---|---|---|
| Management capabilities of Facility Manager | Provision of managerial support from local government | Possible | Medium | Moderate | Management agreement determined with Facility Manager. |
| Occupational Health and Safety | Standard operating procedures<br>Personal protective equipment<br>Insurance. | Unlikely | Major | Moderate | Training and awareness for Facility Manager. |
| Site contamination | Geotechnical testing to be conducted early in the process. | Possible | Medium | Moderate | Dependant on the outcome of geotechnical testing |
| Feasibility Study does not recommend project | Ensure WHC understands project scope; keep WHC updated | Unlikely | Major | Moderate | Maintain regular communication with WHC during the project. |
| Recommended site is not City owned | Determine issues with land ownership | Possible | Medium | Moderate | Determine land ownership requirements and funding restrictions |
| Council does not support development | Ensure WHC understands project scope; keep WHC updated | Unlikely | Major | Moderate | Maintain regular communication with WHC during the project. |
| Damage to adjoining playing fields/ courts | Provision of safe playing fields and courts. Regular maintenance. Visual inspections prior to training and playing. | Unlikely | Minor | Low | Planning to resurface natural grass fields as part of development. |

**Table 13 Risk Management Matrix**

# 13. Implementation Plan

A seven (7) step Master Planning Process has been designed to be applied to all community sport, leisure and recreational infrastructure developments and upgrades within the City.

Stages one to four (1 - 4) of the process undertakes needs analysis, concept design and feasibility analysis of a Master Planning project. Both Council and the community are engaged extensively through these stages of the process. Stages five to seven (5 - 7) of the process undertakes the funding, construction and operations of the Master Planning project. Council and the community will be kept up to date in the timelines of these developments as the project progresses.

| Stage | Task | By Whom | By When |
|---|---|---|---|
| **Stage 1 – Project Initiation and Planning** | | | |
| 1 | Develop a Project Plan | PC - LP | **Completed** |
| 2 | Form a Project Management Team | PC - LP | **Completed** |
| 3 | Appoint Consultant | PC – LP / MLCS | **Completed** |
| **Stage 2 – Site and Needs Analysis** | | | |
| 4 | Review completed Needs Analysis | Consultant | **Completed** |
| 5 | Conduct Stakeholder Consultation | Consultant | **Completed** |
| 6 | Site Inspections | PC – LP / MLCS / Consultant | **Completed** |
| **Stage 3 – Concept Design** | | | |
| 7 | Develop high level Concept Plan | Consultant | **Completed** |
| **Stage 4 – Feasibility Analysis** | | | |
| 8 | Complete Feasibility Study | Consultant | **Completed** |
| 9 | Complete Financial Assessment | Consultant | **Completed** |
| 10 | Report to ELT | PC - LP | **May 2012** |
| 11 | Report to Council | PC - LP | **June 2012** |
| **Stage 5 – Funding and Approvals (if project supported)** | | | |
| 12 | Conduct stakeholder and community consultation | PC – LP / RDO (CD) | **July 2012** |
| 13 | Complete CSRFF Council report | RDO (CD) | **September 2012** |
| 14 | Submit CSRFF application | RDO (CD) | **September 2012** |
| 15 | Funding notification from DSR | DSR | **March 2013** |
| **Stage 6 – Construction (if project supported)** | | | |
| 16 | Complete Detailed Design and Tender Process | Design Officer / Architect | June 2014 |
| 17 | Construction | Appointed Builder | 2014/15 |
| **Stage 7 – Ongoing Operations and Management (if constructed)** | | | |

**Table 14 Project Implementation Plan**

# 14. Funding Opportunities

**Department of Sport and Recreation**

Community Sporting and Recreation Facilities Fund (CSRFF)

The purpose of the program is to provide Western Australian Government financial assistance to community groups and local government authorities to develop basic infrastructure for sport and recreation.

The program aims to increase participation in sport and recreation, with an emphasis on physical activity, through rational development of sustainable, good quality, well-designed and well-utilised facilities.

Through CSRFF, the State Government invests $20 million annually towards the development of high-quality physical environments in which people can enjoy sport and recreation.

Priority will be given to projects that lead to facility sharing and rationalisation. Multi-purpose facilities reduce infrastructure required to meet similar needs and increase sustainability.

Applicants must be either a local government authority, not for profit sport, recreation or community organisation and incorporated under the WA Associations Incorporation Act 1987. Clubs must demonstrate equitable access to the public on a short-term and casual basis.

Refer www.dsr.wa.gov.au

**Peak Bodies/Associations and Clubs**

There may be an opportunity to source funds from local sporting clubs. The Whitford Hockey Club has committed significant funding towards the project. Also regional, district and state associations may be interested in providing funds towards the project including loans (Hockey WA).

**Private Sector**

Given the high profile nature of the facility being proposed there may be an opportunity to partner with the private sector to develop the facility. This may be through capital investment, sponsorship arrangements, naming rights or in-kind support.

# 15. Conclusion and Key Findings

Through the development of this Feasibility Study and conducting the associated processes a number of conclusions and key findings can be drawn. They are as follows:

- In line with the Feasibility Study developed in 2011 and Hockey WA's Strategic Facilities Plan there is an identified need for synthetic hockey facilities within the Northern metropolitan area of Perth.
- There is a gap in facility provision in the southern part of the City of Joondalup, the majority of the City of Wanneroo and the eastern part of the City of Stirling.
- Developing a regional level hockey facility within the southern part of the City of Joondalup will fill a large part of the gap in provision in these areas and is consistent with Hockey WA's strategic direction.
- There is a need to develop facilities with multiple pitches, multi-use facilities and capacity for expansion.
- Significant population growth is expected in the potential catchment areas.
- The City of Joondalup is overrepresented in people aged less than 20 years of age. Given hockey is primarily played by younger people in particular children this suggest increasing demand for active sports such as hockey.
- The likely primary catchment areas has a population of 268,457 which greatly exceeds the benchmark established within the State Hockey Facility Plan of 1 synthetic hockey pitch per 100,000 people.
- The City of Joondalup has a relatively high Socio Economic Index for Areas (SEIFA) score indicating some level of affluence and capacity to pay for elite level facilities.
- Based on an objective site assessment process, Warwick Open Space has been identified as the preferred candidate site for the development of a regional level hockey facility. The site has a number of benefits over other sites including its size and capacity to cater for four senior hockey pitches, its strategic location; its compatibility with existing land-uses; and it is managed by the City.
- In addition to the Whitford Hockey Club there are a number of other potential user groups including the North Coast Raiders, Joondalup Lakers and Wanneroo and Districts hockey clubs and associations, local schools, and other sports.
- Peak usage of hockey facilities is during the 'Winter' season (April – September) during weekday evenings 5pm to 10 pm and all day Saturday and Sunday. It is anticipated that hockey will be the sole user of the facilities during these times with some school usage during weekdays.

- Usage during the ‘Summer’ season will comprise pre-season training and ‘Night’ hockey and use by other compatible sports (e.g. soccer, touch football etc.).

- Based on demand and user requirements a newly developed hockey facility should include one synthetic pitch (with the potential for expansion to two synthetic pitches) and three natural grass fields, a multi-purpose clubroom and associated amenities, floodlit playing grounds, and designated parking.

- There is a significant capital and operational cost in developing a regional hockey facility of this nature. There is a need for the City to significantly financially support the development both through capital funding and ongoing management and operational assistance regardless of the management model adopted.

- As with all projects and facility developments there are a range of project risks that are identified and that need to be mitigated against. These include securing significant capital funding, site constraints, cost overruns and potential impacts on existing users.

- There are a number of external funding opportunities available including State Government and Hockey WA either by way of grants or a loan.

# 16. Appendices

- Order of Cost Estimate for the development of a Regional Hockey Facility.
- Financial models – Refer Electronic Spreadsheet
- Whitford Hockey Club Feasibility Study – Proposed Artificial Turf Development Sept 2011

| Item | Description of Works | Unit | Quantity | Rate | Cost |
|---|---|---|---|---|---|
| **1.0** | **Building Works** | | | | |
| **1.1** | **New Hockey Clubrooms** | | | | |
| **1.1.1** | Clubhouse (FECA = 1100m2: Ground Floor =570 m2; Upper Floor =530 m2).Includes allowance for CCTV | m2 | 1100 | $2,700 | $ 2,970,000 |
| **1.1.2** | Roof extension over tiered seating | m2 | 220 | $550 | $ 121,000 |
| **1.1.5** | Tiered viewing area, concourse, dugouts etc and steps | Item | | | $ 180,000 |
| **1.1.3** | Site preparation - Under building | m2 | 792 | $5 | $ 3,960 |
| **1.1.4** | Filling under building | m3 | 687 | $25 | $ 17,175 |
| **1.1.6** | Paving around building | m2 | 150 | $85 | $ 12,750 |
| **1.1.7** | Bin Enclosure | Item | | | $ 5,000 |
| **1.1.8** | External water services | Item | | | $ 15,000 |
| **1.1.9** | External fire services | Item | | | $ 10,000 |
| **1.1.10** | External gas services | Item | | | $ 5,000 |
| **1.1.11** | External sewer services | Item | | | $ 25,000 |
| **1.1.12** | External electrical services | Item | | | $ 25,000 |
| **1.1.13** | Furniture and equipment to new Clubrooms and dug-outs etc.ie loose furniture to clubrooms, function areas, dug-outv seating, player seating | Item | | | $ 100,000 |
| | ***Total for New Hockey Clubrooms*** | | | | *$ 3,489,885* |
| **1.2** | **Synthetic Field (1 No.)** | | | | |
| **1.2.1** | Synthetic field complete with base course, synthetic playing surface, perimeter walls and minimum surface excavation. (wet/dry playing surface - $525k) | Item | | | $ 1,200,000 |
| **1.2.2** | Lighting to field (500 LUX) (lamps approx $110k)(Poles and bases approx $60k) | Item | | | included |
| **1.2.3** | Fencing ($50k) | Item | | | included |
| **1.2.4** | Hockey goals and back curtains | Item | | | Included |
| **1.2.5** | Electronic scoreboard | Item | | | $ 25,000 |
| **1.2.6** | Allowance for CCTV to field | Item | | | $ 20,000 |
| | ***Total for Synthetic Field*** | | | | *$ 1,245,000* |
| **1.3** | **Grass Fields (3 No)** | | | | |
| **1.3.1** | Renovate existing grassed area including top dressing and new turf | m2 | 20500 | $12.00 | $ 246,000 |
| **1.3.2** | Reticulation to fields | m2 | 20500 | $1.50 | $ 30,750 |
| **1.3.3** | Lighting to fields (250 LUX) | No | 3 | $140,000 | $ 420,000 |
| **1.3.4** | Hockey goals | No | 6 | $1,200 | $ 7,200 |
| | ***Total for Grass Fields*** | | | | *$ 703,950* |
| **1.4** | **Relocation of Cricket** | | | | |
| **1.4.1** | Relocation of cricket from WOS | Item | | | $ 110,000 |
| **1.4.2** | Allowance for removal of existing infrastructure (cricket centre pitch and softball diamonds) and making good | Item | | | $ 10,000 |
| | ***Total for Relocation of Cricket*** | | | | *$ 120,000* |
| | ***Total for Building Works*** | | | | ***$ 5,558,835*** |

| Item | Description of Works | Unit | Quantity | Rate | Cost |
|---|---|---|---|---|---|
| **2.0** | **Carparking** | | | | |
| **2.1** | Carpark and access road (73 bays) | m2 | 2400 | $70 | $ 168,000 |
| **2.2** | Carpark and access road (10 bays) | m2 | 600 | $70 | $ 42,000 |
| **2.3** | Lighting to carpark and access road | Item | | | $ 32,000 |
| **2.4** | New trees (mature) | No | 16 | $500 | $ 8,000 |
| **2.5** | New trees (small) | No | 40 | $250 | $ 10,000 |
| **2.6** | Allowance for general landscaping upgrade | Item | | | $ 50,000 |
| | | ***Total for Carparking*** | | | ***$ 310,000*** |
| **3.0** | **Siteworks** | | | | |
| **3.1** | Site clearance | m2 | 13175 | $3 | $ 39,525 |
| **3.2** | Tree removal | m2 | 13175 | $2 | $ 26,350 |
| **3.3** | Demolition of existing structures | Item | | | $ 5,000 |
| **3.4** | Retaining wall | m | 150 | $350 | $ 52,500 |
| **3.5** | Filling to make up levels | m3 | 650 | $25 | $ 16,250 |
| **3.6** | Perimeter fencing to northern end | m | 128 | $65 | $ 8,320 |
| **3.7** | Bollards to perimeter of field to provide protection against vehicle access | m | 380 | $30 | $ 11,400 |
| **3.8** | Rehabilitation of disturbed areas | Item | | | $ 25,000 |
| **3.9** | Allowance for bore and pump | Item | | | $ 100,000 |
| **3.10** | Outdoor furniture - park benches, bins etc | Item | | | $ 10,000 |
| **3.11** | BBQ's | Item | | | $ 10,000 |
| **3.12** | BBQ seating and shelter | Item | | | $ 15,000 |
| **3.13** | Lighting to BBQ area | Item | | | $ 10,000 |
| **3.14** | Allowance for lighting to site footpaths (extent unknown) | Item | | | $ 35,000 |
| **3.15** | Allowance for site footpaths (extent unknown) | Item | | | $ 100,000 |
| | | ***Total for Siteworks*** | | | ***$ 464,345*** |
| **4.0** | **MacDonald Park Softball Diamonds** | | | | |
| **4.1** | Back net 6m high | m | 50 | $220 | $ 11,000 |
| **4.2** | Free standing shelters approx 5m x 2m including concrete ground slab | No | 4 | $2,500 | $ 10,000 |
| **4.3** | Diamond markout (Initial) | Item | 2 | $250 | $ 500 |
| | | ***Total for MacDonald Park Softball Diamonds*** | | | ***$ 21,500*** |
| **5.0** | **CONTINGENCIES** | | | | |
| **5.1** | Allowance for design contingencies | Item | 10% | | $ 555,884 |
| **5.2** | Allowance for contract contingencies | Item | 5% | | $ 344,453 |
| | | ***Total for Contingencies*** | | | ***$ 900,337*** |
| **6.0** | **HEADWORKS** | | | | |
| **6.1** | Allowance for Water Corporation Headworks | Item | | | $ 50,000 |
| **6.2** | Allowance for Western Power Headworks | Item | | | $ 100,000 |
| **6.3** | Allowqnce for Telstra Headworks | Item | | | $ 5,000 |
| | | ***Total for Headworks*** | | | ***$ 155,000*** |

| Item | Description of Works | Unit | Quantity | Rate | Cost |
|---|---|---|---|---|---|
| **7.0** | **PROFESSIONAL FEES** | | | | |
| **7.1** | Allowance for professional fees comprising full service | Item | 10% | $ | 738,852 |
| | ***Total for Professional Fees*** | | | ***$*** | ***738,852*** |
| **8.0** | **ESCALATION** | | | | |
| **8.1** | No allowance for escalation in costs has been included | Item | 0.00% | $ | - |
| | ***Total for Escalation*** | | | ***$*** | ***-*** |
| | **TOTAL ESTIMATED COMMITMENT (Perth)** | | | **$** | **8,148,868** |
| | Goods & Services Tax (10%) | | | $ | 814,887 |
| | **TOTAL ESTIMATED COMMITMENT (Including GST)** | | | **$** | **8,963,755** |

**Exclusions**

Geotech survey below proposed artificial playing field to confirm ground is suitable to receive basecourse.
New Ministers water and sewer mains to site if required
Holding and Finance charges
Land costs
Legal costs
Computers, printers, facsimile machines etc.
Escalation beyond May 2012

**NOTES:**

**Please note that this information is for indicative budgeting purposes only and should not be used as the basis for making a financial commitment**

**Prior to making a financial commitment a detailed budget should be prepared based on input from the architect and the relevant consultants**

**DRAWINGS:**

These Master Plan Costs have been prepared from the following concept drawings:-

Dpa 01 - Aerial Site Photograph with building overlay 1:500 (A2)

Dpa 02 - Clubhouse Ground Floor Plan 1:200 (A3)

Dpa 03 - Clubhouse Upper Floor Plan 1:200 (A3)

# ANALYSIS OF "WARWICK OPEN SPACE, WARWICK — PROPOSED HOCKEY INFRASTRUCTURE" SURVEY

The following provides an analysis of the quantitative and qualitative data gathered from the *Warwick Open Space, Warwick — Proposed Hockey Infrastructure* survey conducted with community members between Monday, 18 February and Monday, 11 March 2013.

## BACKGROUND

For this survey, the City consulted directly with the following stakeholders:

- Residents living within a 500 metres radius of Warwick Open Space (living within the City of Joondalup)
- Representatives from current and potential Warwick Open Space user groups (e.g. sporting clubs, leisure centres)
- Representative(s) from the local residents'/ratepayers association
- Representative(s) from the "Friends of Warwick Bushland" group
- Representative(s) from Warwick High School
- Representative(s) from the Department of Sport and Recreation
- Representative(s) from Hockey WA

The survey was undertaken by way of a hard-copy Comment Form sent to postal addresses (together with a cover letter, Information Brochure and Frequently Asked Questions document).

In addition, the consultation was advertised to the general public via advertisements in the community newspaper and on the City's website. Signage was also erected in a prominent place at Warwick Open Space outlining the details of the consultation. Members of the public (who did not receive a comment form via post) were able to complete the survey via the City's website, or were able to contact the City for a hard-copy Comment Form.

## RESPONSE RATES

Within a 500 metres radius of Warwick Open Space, the City calculated that there were 204 (non-vacant) residential properties. The residents of these properties were sent hard-copy Comment Forms and the City collected a total of 25 valid responses (n.b. A "valid" response is one which includes the respondent's full contact details and for which the respondent has not submitted multiple survey forms). Based on these responses (N = 204), the response rate equates to 12.3%.

Further to these, the City received 499 valid responses from interested individuals who were not contacted directly for comment. It should be noted that multiple responses were received from duplicate addresses (194 responses from 73 addresses). However, as these were submitted by *individuals* at the same addresses, for the purposes of analysis, these responses have all been included (unless an "invalid" response — see above). Notwithstanding, of the 499 responses from interested individuals (who were not contacted directly for comment), only 426 separate *households* were represented.

The City also received 6 responses from representatives of organisations/groups that were contacted directly for comment and an additional 6 responses from organisations/groups that were not contacted directly for comment. The following groups provided a response:

- Eastern Blades Hockey Club
- Friends of North Ocean Reef/Iluka Foreshore
- Friends of Warwick Bushland (contacted directly for comment)
- Friends of Yellagonga
- Greenwood Tennis Club (contacted directly for comment)
- Hockey WA (contacted directly for comment)
- Urban Bushland Council WA Inc.
- Wanneroo District Hockey Association
- Warwick Greenwood Football Club
- Warwick Leisure Centre (contacted directly for comment)
- Warwick Senior High School (contacted directly for comment)
- Whitford Hockey Club (contacted directly for comment)

These data are summarised in Tables 1 and 2 and Chart 1 below.

**Table 1. Responses by type of respondent**

| Type of respondent | Responses | |
|---|---|---|
| | N | % |
| **Residents within 500 m of Warwick Open Space** | 25 | 4.7% |
| **Interested individuals not contacted directly** | 500 | 93.1% |
| **Organisations/groups contacted directly** | 6 | 1.1% |
| **Organisations/groups not contacted directly** | 6 | 1.1% |
| ***Total (valid) responses*** | *537* | *100.0%* |

**Chart 1. Responses by type of respondent**

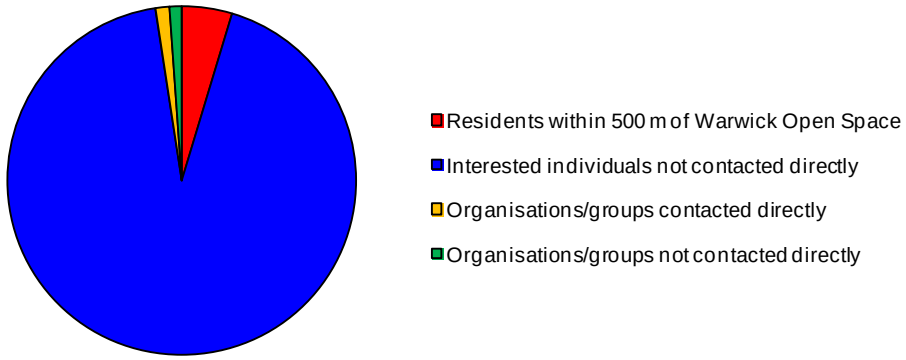



**Table 2. Responses by type of survey completed**

| Type of survey completed | Responses | |
|---|---|---|
| | N | % |
| **Hard-copy survey** | 31 | 5.8% |
| **Online survey** | 506 | 94.2% |
| ***Total (valid) responses*** | *537* | *100.0%* |

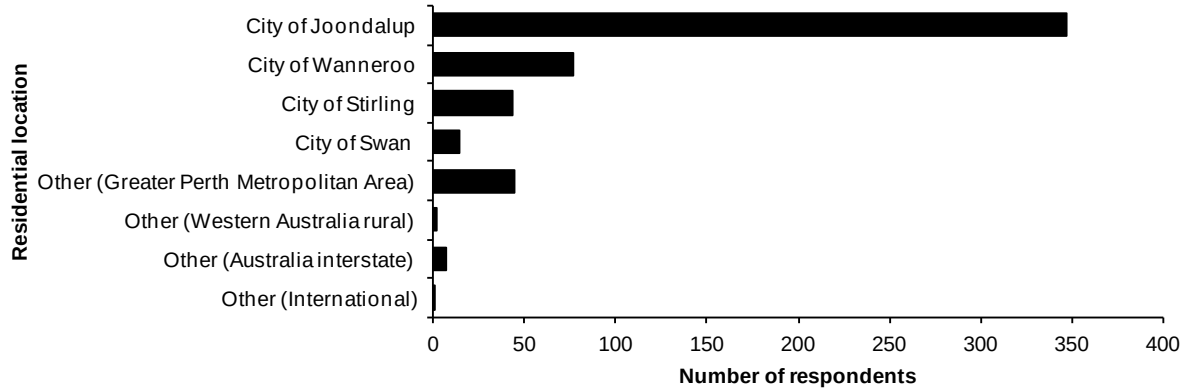
With regard to the residential location of respondents, the majority of respondents live within the City of Joondalup (64.6%). However, there are also a substantial proportion from the City of Wanneroo (14.3%) and the City of Stirling (8.2%). These data are summarised in Table 3 and Chart 2 below.

**Table 3. Responses by residential location**

| Residential location of respondents | Responses | |
|---|---|---|
| | N | % |
| **Beldon** | 4 | 0.7% |
| **Burns Beach** | 1 | 0.2% |
| **Connolly** | 3 | 0.6% |
| **Craigie** | 7 | 1.3% |
| **Currambine** | 20 | 3.7% |
| **Duncraig** | 19 | 3.5% |
| **Edgewater** | 13 | 2.4% |
| **Greenwood** | 24 | 4.5% |
| **Heathridge** | 22 | 4.1% |
| **Hillarys** | 33 | 6.1% |
| **Iluka** | 2 | 0.4% |
| **Joondalup** | 18 | 3.4% |
| **Kallaroo** | 28 | 5.2% |
| **Kingsley** | 24 | 4.5% |
| **Kinross** | 17 | 3.2% |
| **Marmion** | 1 | 0.2% |
| **Mullaloo** | 24 | 4.5% |
| **Ocean Reef** | 8 | 1.5% |
| **Padbury** | 33 | 6.1% |
| **Sorrento** | 11 | 2.0% |
| **Warwick** | 16 | 3.0% |

| Residential location of respondents | Responses | |
|---|---|---|
| | N | % |
| **Woodvale** | 19 | 3.5% |
| ***Total (City of Joondalup) (valid) responses)*** | *347* | *64.6%* |
| **City of Wanneroo** | 77 | 14.3% |
| **City of Stirling** | 44 | 8.2% |
| **City of Swan** | 14 | 2.6% |
| **Other (Greater Perth Metropolitan Area)** | 45 | 8.4% |
| **Other (Western Australia rural)** | 2 | 0.4% |
| **Other (Australia interstate)** | 7 | 1.3% |
| **Other (International)** | 1 | 0.2% |
| ***Total (non-City of Joondalup) (valid) responses)*** | *190* | *35.4%* |
| ***Total (valid) responses*** | *537* | *100.0%* |

**Chart 2. Responses by residential location**



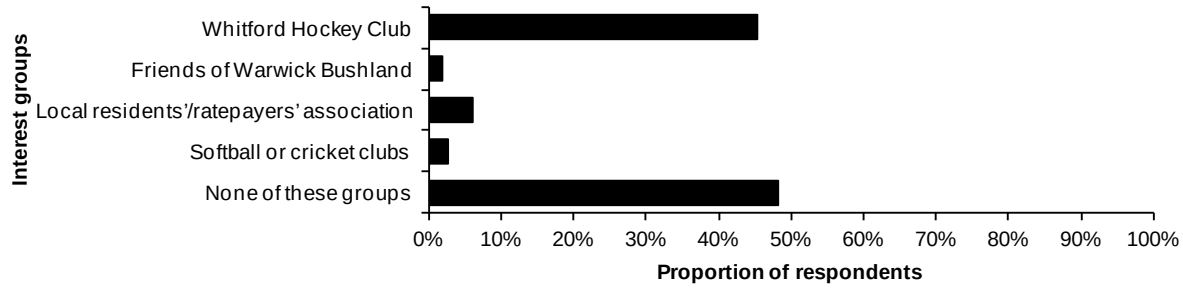
## INTEREST GROUPS

Of the 537 valid responses received, 299 respondents stated that they were affiliated with an organisation/group which had an interest in Warwick Open Space. Significantly, almost 50% of the responses received were from members of the Whitford Hockey Club. These data are summarised in Table 4 and Chart 3 below. **Note that due to the high number of responses from members of the Whitford Hockey Club, and the potential for skewing, data has been cross-analysed with these respondents, where appropriate.**

**Table 4. Responses by respondent affiliation to an interest group[1]**

| Interest groups | Responses | |
|---|---|---|
| | N | % |
| **Member of Whitford Hockey Club** | 243 | 45.3% |
| **Member of Friends of Warwick Bushland** | 10 | 1.9% |
| **Member of a local residents'/ratepayers' association** | 32 | 6.0% |
| **Member of the softball or cricket clubs currently using the oval at Warwick Open Space** | 14 | 2.6% |
| **Not a member of any of these interest groups** | 259 | 48.2% |
| ***Total (valid) responses*** | *537* | *N/A* |

**Chart 3. Responses by respondent affiliation to an interest group[1]**




[1] Some respondents are affiliated with more than one interest group.

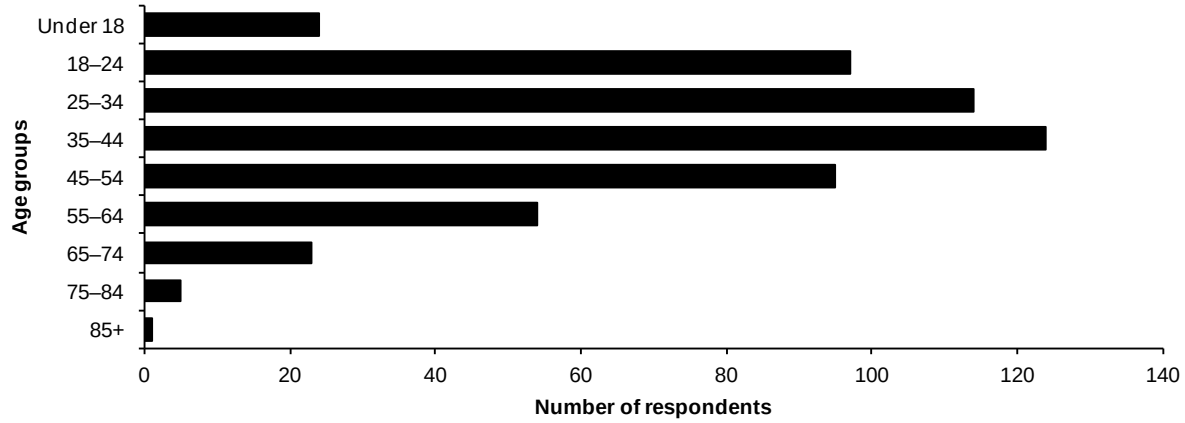
## DEMOGRAPHICS

Of the 537 valid responses collected, almost one quarter of these were submitted by people aged 35–44. The City also received a significant proportion of responses from people aged between 18–34, and 45–54. These data are summarised in Table 5 and Chart 4 below.

**Table 5. Responses by age**

| Age groups | Responses | |
|---|---|---|
| | N | % |
| **Under 18 years of age** | 24 | 4.5% |
| **18–24 years of age** | 97 | 18.1% |
| **25–34 years of age** | 114 | 21.2% |
| **35–44 years of age** | 124 | 23.1% |
| **45–54 years of age** | 95 | 17.7% |
| **55–64 years of age** | 54 | 10.1% |
| **65–74 years of age** | 23 | 4.3% |
| **75–84 years of age** | 5 | 0.9% |
| **85+ years of age** | 1 | 0.2% |
| ***Total (valid) responses*** | *537* | *100.0%* |

**Chart 4: Responses by age**



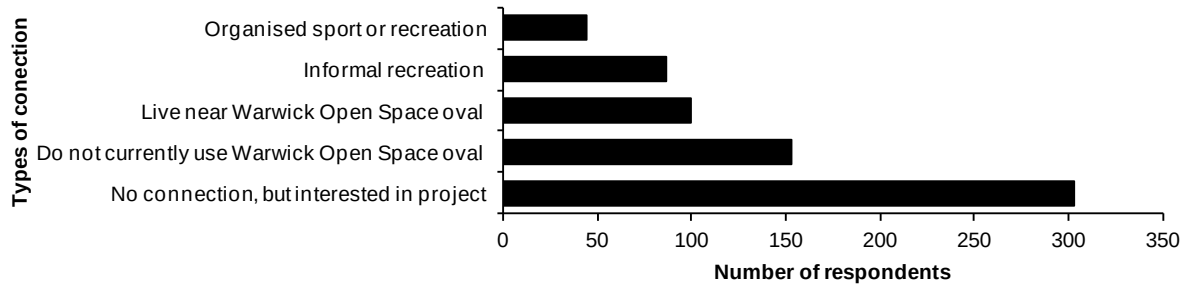
## QUESTION 1 — "WHAT IS YOUR CONNECTION TO WARWICK OPEN SPACE OVAL?"

A total of 537 respondents provided a response to this question. Of the responses collected, the majority do not currently use Warwick Open Space oval, but are interested in the project. **Of these, approximately half stated that they were members of the Whitford Hockey Club.** Additionally, over one third of respondents stated that they either lived near the Warwick Open Space oval or used the oval for informal recreation (such as playing, walking, jogging, dog walking, etc.). It should be noted that, of these, only a small proportion lives within 500 metres of the site. These data are summarised in Table 6 and Chart 5 below.

**Table 6. Types of responses to "What is your connection to Warwick Open Space oval?"[2]**

| Types of connection | Responses N | Responses % |
|---|---|---|
| **I use Warwick Open Space oval for organised sport or recreation** | 44 | 8.2% |
| **I use Warwick Open Space oval for informal recreation** | 87 | 16.2% |
| **I live near Warwick Open Space oval** | 100 | 18.6% |
| **I do not currently use Warwick Open Space oval** | 153 | 28.5% |
| **I currently have no connection with Warwick Open Space oval, but I am interested in this project** | 303 | 56.4% |
| ***Total (valid) responses*** | *537* | *N/A* |

**Chart 5: Types of responses to "What is your connection to Warwick Open Space oval?"[2]**




[2] Some respondents have multiple connections to Warwick Open Space oval.

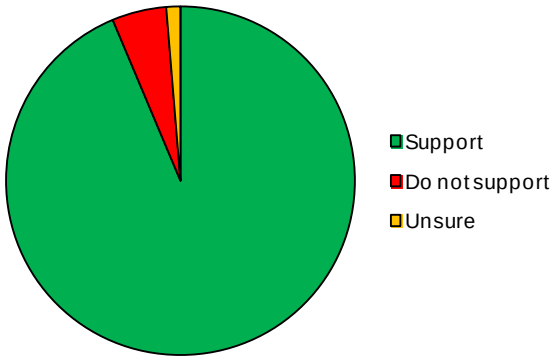
**QUESTION 2(A) — "THE FOLLOWING NEW INFRASTRUCTURE IS PROPOSED AS PART OF THE PROJECT. DO YOU SUPPORT THE FOLLOWING BEING CONSTRUCTED/ INSTALLED? — CLUBROOM FACILITY WITH SPECTATOR SEATING"**

Respondents were asked to indicate their level of support for the construction/installation of a clubroom facility with spectator seating. A total of 537 respondents provided a response to this question; the results have been summarised in Table 7 and Chart 6 below. The majority of respondents (93.7%) indicated that they supported the construction/installation of a clubroom facility with spectator seating. **Note that of these, almost half of the respondents are members of the Whitford Hockey Club.**

**Table 7. Level of support for the construction/installation of a clubroom facility with spectator seating**

| Level of support | Responses | |
|---|---|---|
| | N | % |
| **Support** | 503 | 93.7% |
| **Do not support** | 27 | 5.0% |
| **Unsure** | 7 | 1.3% |
| ***Total (valid) responses*** | *537* | *100.0%* |

**Chart 6. Level of support for the construction/installation of a clubroom facility with spectator seating**



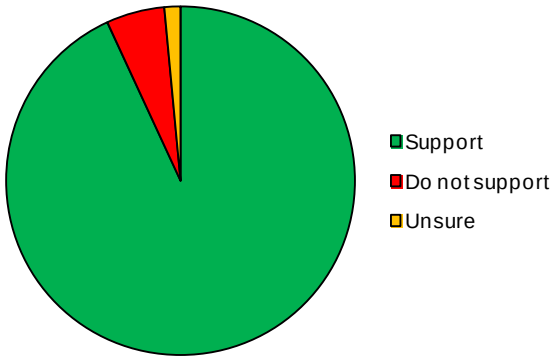
**QUESTION 2(B) — "THE FOLLOWING NEW INFRASTRUCTURE IS PROPOSED AS PART OF THE PROJECT. DO YOU SUPPORT THE FOLLOWING BEING CONSTRUCTED/ INSTALLED? — SYNTHETIC HOCKEY PITCH (FENCED)"**

Respondents were asked to indicate their level of support for the construction/installation of a synthetic hockey pitch (fenced). A total of 537 respondents provided a response to this question; the results have been summarised in Table 8 and Chart 7 below. The majority of respondents (93.1%) indicated that they supported the construction/installation of a synthetic hockey pitch (fenced). **Note that of these, almost half of the respondents are members of the Whitford Hockey Club.**

**Table 8. Level of support for the construction/installation of a synthetic hockey pitch (fenced)**

| Level of support | Responses | |
|---|---|---|
| | N | % |
| **Support** | 500 | 93.1% |
| **Do not support** | 29 | 5.4% |
| **Unsure** | 8 | 1.5% |
| ***Total (valid) responses*** | *537* | *100.0%* |

**Chart 7. Level of support for the construction/installation of a synthetic hockey pitch (fenced)**



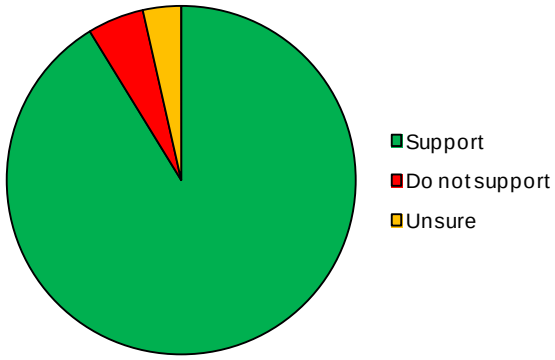
**QUESTION 2(C) — "THE FOLLOWING NEW INFRASTRUCTURE IS PROPOSED AS PART OF THE PROJECT. DO YOU SUPPORT THE FOLLOWING BEING CONSTRUCTED/ INSTALLED? — GRASS HOCKEY PITCHES"**

Respondents were asked to indicate their level of support for the construction/installation of grass hockey pitches. A total of 537 respondents provided a response to this question; the results have been summarised in Table 9 and Chart 8 below. The majority of respondents (91.2%) indicated that they supported the construction/installation of a synthetic hockey pitch (fenced). **Note that of these, almost half of the respondents are members of the Whitford Hockey Club.**

**Table 9. Level of support for the construction/installation of grass hockey pitches**

| Level of support | Responses | |
|---|---|---|
| | N | % |
| **Support** | 490 | 91.2% |
| **Do not support** | 28 | 5.2% |
| **Unsure** | 19 | 3.5% |
| ***Total (valid) responses*** | *537* | *100.0%* |

**Chart 8. Level of support for the construction/installation of grass hockey pitches**



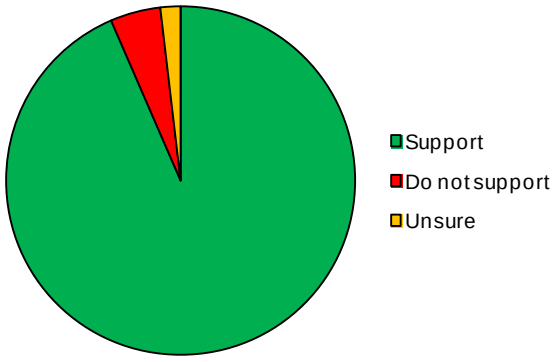
**QUESTION 2(D) — "THE FOLLOWING NEW INFRASTRUCTURE IS PROPOSED AS PART OF THE PROJECT. DO YOU SUPPORT THE FOLLOWING BEING CONSTRUCTED/ INSTALLED? — SPORTS FLOODLIGHTING"**

Respondents were asked to indicate their level of support for the construction/installation of sports floodlighting. A total of 537 respondents provided a response to this question; the results have been summarised in Table 10 and Chart 9 below. The majority of respondents (93.5%) indicated that they supported the construction/installation of sports floodlighting. **Note that of these, almost half of the respondents are members of the Whitford Hockey Club.**

**Table 10. Level of support for the construction/installation of sports floodlighting**

| Level of support | Responses | |
|---|---|---|
| | N | % |
| **Support** | 502 | 93.5% |
| **Do not support** | 25 | 4.7% |
| **Unsure** | 10 | 1.9% |
| ***Total (valid) responses*** | *537* | *100.0%* |

**Chart 9. Level of support for the construction/installation of sports floodlighting**



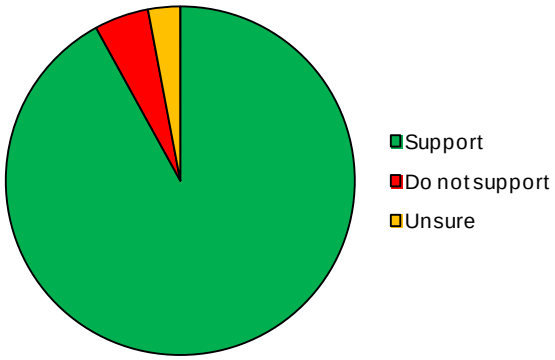
**QUESTION 2(E) — "THE FOLLOWING NEW INFRASTRUCTURE IS PROPOSED AS PART OF THE PROJECT. DO YOU SUPPORT THE FOLLOWING BEING CONSTRUCTED/ INSTALLED? — CAR PARKING BAYS (ADDITIONAL TO EXISTING BAYS)"**

Respondents were asked to indicate their level of support for the construction/installation of car parking bays (additional to existing bays). A total of 537 respondents provided a response to this question; the results have been summarised in Table 11 and Chart 10 below. The majority of respondents (92.0%) indicated that they supported the construction/installation of car parking bays (additional to existing bays). **Note that of these, almost half of the respondents are members of the Whitford Hockey Club.**

**Table 11. Level of support for the construction/installation of car parking bays (additional to existing bays)**

| Level of support | Responses | |
|---|---|---|
| | N | % |
| **Support** | 494 | 92.0% |
| **Do not support** | 27 | 5.0% |
| **Unsure** | 16 | 3.0% |
| ***Total (valid) responses*** | *537* | *100.0%* |

**Chart 10. Level of support for the construction/installation of car parking bays (additional to existing bays)**



**QUESTION 2(F) — "IF YOU DO NOT SUPPORT THE CONSTRUCTION/INSTALLATION OF ANY OF THE INFRASTRUCTURE, PLEASE TELL US WHY"**

Respondents who indicated that they did not support the various new infrastructure proposed as part of the project were asked why. A total of 29 individual respondents provided reasons for their opposition; the results have been summarised in Table 12 and Figure 1 below. The two main reasons for opposition included:

- Concerns about impacts on the surrounding bushland (such as grass clippings/weeds, floodlighting disturbing animals, dumping, inappropriate access, dangerous vehicular traffic etc.).
- Concerns that the proposal would restrict usage of the oval to existing user groups (such as cricket clubs), and individuals (such as dog-walkers).

**Table 12. Summary of reasons for opposition (individual respondents) to one or more of the various new infrastructure proposed as part of the project[3]**

| Reasons | Responses | |
|---|---|---|
| | N | % |
| **Proposal will cause anti-social behaviour/littering/ noise** | 2 | 6.9% |
| **Proposal will adversely impact on bushland** | 16 | 55.2% |
| **Proposal is too expensive** | 3 | 10.3% |
| **Proposal will restrict usage to existing user groups/ individuals** | 8 | 27.6% |
| **Other (general) reasons** | 7 | 24.1% |
| ***Total (valid) responses*** | *29* | *N/A* |

**Figure 1. Word cloud of reasons for opposition (individual respondents) to one or more of the various new infrastructure proposed as part of the project (words or related words ≥ 7 mentions)**

[3] Some respondents have multiple reasons for opposing the project.


In addition to the above reasons for opposition from individual respondents, the City also received 5 detailed responses from representatives of organisations/groups opposing the project. These have not been summarised and are provided in full in Table 13 below.

**Table 13. Full reasons for opposition (organisations/groups) to one or more of the various new infrastructure proposed as part of the project**

| Organisations/ groups | *Responses* |
|---|---|
| **Warwick Senior High School** | *Warwick Senior High School does not support the construction of this new hockey facility for the following reasons:*<br>• *Our school is known as being in a "tranquil bushland setting", and we do not wish the local Warwick Open Space bushland to be decimated or destroyed any further. A hockey stadium is, by its nature, a noisy affair with whistles blowing, people yelling in support, cars arriving and leaving the site and players yelling to each other on the pitch. This increased noise will undoubtedly occur if this hockey stadium proceeds with increased users in the nearby bushland space. This will destroy the ambience of this quiet space, for all human users that currently use it. If there is a marked increase in the numbers of people using the area for short periods of time this would have a detrimental impact on the bushland.*<br>• *The school vehemently opposes any further clearing of any bushland in this A Class reserve, which will occur with this development, whether intended or not.*<br>• *This school is not interested in fostering a hockey club and related facilities to be next to our site as we have no need for a hockey facility as we are an AFL football and netball school. Whitfords is a very big hockey club, with a large number of members, which will have an impact on its surroundings if placed here.*<br>• *We fear also that the school oval and tennis courts will be used as a* |

| Organisations/ groups | *Responses* |
|---|---|
| | *thoroughfare by players and spectators on foot, making their way to and from the stadium to the local shopping centre to get food, drinks and sporting supplies, especially with the new extended trading hours in place at the local centre.*<br>• *Bicycle and motor bike traffic will increase across the school oval to get to the hockey stadium from the Erindale Road and/or the shopping centre, as people take the shortest way to the stadium. This is a problem now, and will only get worse with a stadium on our back door step.*<br>• *Increased numbers of people and cars using the back area of Warwick Senior High School (i.e. Lloyd Drive) will be an issue. Traffic flow here is already a problem at key times and if there is increased usage then the current traffic issues and danger to students will increase. This problem is magnified if bowls and/or tennis are occurring at the same time.*<br>• *Unless there are increased City of Joondalup security patrols in this area due to the hockey stadium being built, then vandalism will increase. Unattended young people may graffiti our school, undertake to break and enter school buildings, steal equipment, undertake arson type activities etc. (this has occurred twice before). The bowling and tennis clubs will likely be affected too, as offenders often hit all at once.*<br>• *The school swimming pool is at the back of the school and in the hotter months there is an element of juveniles that get in on very hot nights and swim but also go out of their way to trash the whole area. We envisage that if there is night hockey in the summer months that this unwanted activity may increase due to more people being in the general vicinity. This would be spectators seeking to cool off.*<br>• *Ecological impact issues: As this school values highly the local bushland for students' science and nature studies we raise these objections:*<br>· *Warwick Open Space is a Conservation Area and this proposal is a sports and leisure development in an area that is already under stress from existing recreational facilities. This development needs to be placed in a dedicated recreational area.*<br>· *Warwick Open Space Conservation Area is a Bush Forever site and has regional, national and international significance for flora, fauna and fungi.*<br>· *Light pollution from proposed floodlights would detrimentally affect flora, fauna and fungi in the bushland. It will detrimentally change the predator/prey relationships of insect fauna. The behaviour of nocturnal animals will change and confuse their feeding, resting and breeding cycles (e.g. Carnaby's Cockatoo, Tawny Frogmouth, Boobook Owl, nocturnal geckoes). There is already considerable light pollution from the existing oval lighting, the surrounding shopping centre, leisure centre and main roads.*<br>· *As a roosting site for Carnaby's Cockatoo (which is a critically endangered species), this large patch of bush is a significant* |

| Organisations/ groups | *Responses* |
|---|---|
| | *resource for feeding, roosting and potentially breeding of this species and should be left as it is.*<br>· *Delicate and rare fauna in this bushland may be damaged by increased human activity. Some of it is very small and inconspicuous but is still environmentally significant.* |
| **Friends of Warwick Bushland** | *The Friends of Warwick Bushland (FWB) have serious concerns with this proposal due to the detrimental impacts such a development could have on WOSCA bushland, which is already under significant stress from a long list of threatening processes.*<br><br>*The south-west of Western Australia is an international biodiversity hotspot of world significance. It is the only such area in the whole of Australia. All bushland in the south-west of Western Australia is of international significance. In the Perth, where different land uses compete heavily for space as the population increases, certain areas have long been recognised as conservation sites, such as WOSCA. It was identified in the 1950s as public open space and set aside for "parks and recreation". In the early 1980s, the System 6 report by the Department of Conservation and Environment (DCE, now the Department of Environment and Conservation (DEC), identified WOSCA as regionally significant. All development then had to be compatible with protecting and maintaining the conservation values of this bushland. In the mid-1980s sports and leisure areas were developed in the site after careful Environmental Impact Assessment by the Department of Environment (now the Department of Environment and Conservation (DEC)). In 2000 WOSCA was given further protection by designation through the Department of Planning as a Bush Forever Site. This meant that any future any future development plans in Bush Forever Sites zoned for "parks and recreation" must involve a 0% loss of bushland and be compatible with maintaining the conservation values and condition of the bushland within the site. Any new development proposals, even if they do not involve clearing of bushland, must still be referred to the Department of Planning (Bush Forever) and to the DEC to ensure there are no impacts on the adjacent bushland.*<br><br>*At this point, little information is available about the Proposed Hockey Infrastructure Project, but, given the size of the Whitfords Hockey Club, it can be envisaged that relocation of this group and the development of facilities to meet their needs in WOSCA will lead to a major increase in the number of people using WOSCA. This would be fine if WOSCA was currently being managed to ensure the existing recreational facilities were compatible with conservation of this regionally, nationally (due to Carnaby's Cockatoo) and internationally significant bushland.*<br><br>*The existing recreational facilities within WOSCA are already having a major detrimental impact on the condition of the bushland as many users are attracted to the site that either indirectly or directly damage the bushland due to a lack of understanding or interest or sometimes deliberate intent. Therefore WOSCA is not necessarily an appropriate site for a major new recreational facility to be developed.* |

| Organisations/ groups | *Responses* |
|---|---|
| | *The issue of the floodlighting required is a significant problem as WOSCA is a confirmed roosting and feeding site for the critically endangered Carnaby's Cockatoo, listed as of national significant by the Federal Government. Light pollution will deter the feeding and roosting activities of Carnaby's Cockatoo. Based on this issue alone the development proposal will need to be referred to the Federal government for Environmental Impact Assessment.*<br><br>*Since 1997 (16 years), the Friends of Warwick Bushland have been working to conserve WOSCA so everyone can enjoy and use the area without further damaging the wonderful biodiversity of the site.*<br><br>*The Whitfords Hockey Club states on its website that it is "one of largest clubs in WA", with hundreds of members and major sponsors.*<br>*If there is a marked increase in the numbers of people using the area for short periods of time this would have a detrimental impact on the bushland.*<br><br>*WOSCA is a Bush Forever site and has regional, national and international significance for flora, fauna and fungi. Permission must be granted for any development by the state Department of Planning, the Department of Environment and Conservation and the Federal Department of Sustainability, Environment, Water, Population and Communities due to potential impacts on the adjacent bushland.*<br><br>*The bushland immediately surrounding the current oval which would be most affected by the proposed development is mostly in Excellent condition.*<br><br>*Light pollution from proposed floodlights would detrimentally affect flora, fauna and fungi in the bushland. It will detrimentally change the predator/prey relationships of insect fauna. The behaviour of nocturnal animals will change and confuse their feeding, resting and breeding cycles e.g. Carnaby's Cockatoo, Tawny Frogmouth, Boobook Owl, bats, nocturnal geckoes. There is already considerable light pollution from the existing oval lighting, the surrounding shopping centre, leisure centre and main roads. The floodlights will significantly increase this light pollution due to the strength of the lighting being proposed.*<br><br>*Warwick Open Space Conservation Area is a reported roosting site for Carnaby's Cockatoo which is a critically endangered species. This large patch of bush is a significant resource for feeding, roosting and potentially breeding of this species.*<br><br>*A decision on the proposal cannot proceed until an assessment of access points, roads and walk trails is completed in order to prevent further impact on bushland by increased numbers of people accessing the facilities. Currently numerous unofficial walk trails are being created in the bushland to suit various users of the site so that they can take the shortest route from A to B. Fencing and access gates are continually broken to maintain the preferred routes of various users.* |

| Organisations/ groups | *Responses* |
|---|---|
| | *At present the bushland is not fully fenced across WOSCA and this should be part of the proposed development to protect the bushland. Bushland cannot be removed to reduce perceived burglar or illegal activity threats. The existing Leisure Centre has on ongoing problems of this nature. However, only non-local plant species planted for landscaping or environmental weeds can be removed once the appropriate clearing permits are issued by the DEC.*<br><br>*Fire Response Planning will need to be updated and carefully considered. Any low fuel zones required for the proposed hockey infrastructure must use the existing grassed oval. There can be no retrospective clearing of bushland to reduce fuels loads; the infrastructure must be located correctly for protection from fire risk in the planning phase of the development.*<br><br>*Public Toilets need to be provided, being available to all users at all times. no toilets are currently available for general users of WOSCA and people are currently using the bushland as a toilet facility which is a health hazard for everyone.*<br><br>*Trees and shrubs cannot be cleared to prevent foliage falling on the pitches. This is currently an ongoing problem with the bowling greens. Trees have suspiciously died after requests to the City to remove them have failed.*<br><br>*Grass clippings from maintenance of the pitches cannot be dumped in the bushland; this is currently a problem occurring around the existing oval.*<br><br>*Construction material and machinery cannot impact on the bushland. Again this is currently a problem with existing facilities. Material is dumped part in and part out of the bushland; manoeuvring machinery goes into the bushland and breaks fences where they exist.*<br>*Any material such as sand, limestone, mulch brought on site must be certified free of PC dieback and free of seed or cuttings of invasive weed species.*<br><br>*Increased use of WOSCA for exercising dogs is likely with the increased number of people using the proposed hockey facilities. At present many dogs are not under control in WOSCA and their droppings are not being collected and placed in appropriate bins. This is a significant health hazard to humans and native animals and is introducing nutrient pollution to the bushland that is encouraging weed growth and pollution of the water table (part of Perth's main water supply).*<br><br>*All stakeholders within the WOSCA Bush Forever Site need to be brought together to be consulted over the Management Plan that is currently being prepared for the WOSCA. This must also include the Warwick Senior High School and, if this development proposal is to proceed, then the Whitfords Hockey Club. At present there is now coordination of all the different activities occurring in WOSCA. Potentially a lot of the threatening processes that are damaging the bushland could be reduced by* |

| Organisations/ groups | *Responses* |
|---|---|
| | *consultation, coordination and negotiated approaches to solving the problems within this Bush Forever Site.*<br><br>*If all these and any other threatening processes can be controlled and managed as part of the proposed hockey infrastructure project there is the potential for a win-win scenario for relocating the Whitfords Hockey Club to WOSCA.*<br><br>*The Whitfords Hockey Club would need to be renamed the Warwick Hockey Club.*<br><br>*The mail-out of information started on the 1st day of public comment, not beforehand. FWB feel that this is an inappropriate method of public consultation, especially when signs so up days before the information is available on-line, let alone by mail, that says the City is in consultation with a long list of groups that at that point have no knowledge of the proposal.*<br><br>*Three weeks is not enough time for any community group such as the Friends of Warwick Bushland to put a together a submission. Most community groups meet much less frequently than every three weeks! Did the Needs and Feasibility Study undertaken, that identified WOSCA as the most appropriate site, take into account environmental impact assessment?* |
| **Urban Bushland Council WA Inc.** | *Reasons for opposition to the proposal:*<br>*1. This will be a multi-million dollar facility funded by "outside" grants but with no concomitant allocation of funding to protect and properly manage the surrounding Bush Forever site. Existing management of the bushland is not adequately funded and there is an existing problem with arson attacks which are degrading the bushland.*<br>*2. The proposed synthetic turf, clubrooms, car park, grass hockey pitches are crammed into the oval area with no buffer zone adjacent to the Bush Forever site which surrounds the proposal.*<br>*3. We strongly object to the car park as shown as it is long and narrow with a long edge against the bushland making it vulnerable to disturbance, weed invasion and dieback infection. The lack of a buffer zone presents a fire risk to both the hockey buildings and the bushland.*<br>*4. The current facilities are already a source of disturbance to the high conservation values of the bushland. The Bush Forever area is a public asset set aside with public money for the purpose of nature conservation — of flora and fauna and ecosystem processes. The City has a public duty to ensure the biodiversity conservation values of the bushland are retained, not threatened. Watering of grassed ovals, and all hockey pitches will use a lot of water — presumably bore water. This will draw down the local groundwater table around the bore and may affect the bushland vegetation which is already coping with lower rainfall.*<br>*5. The proposal would be better located where there is more space and* |

| Organisations/ groups | *Responses* |
|---|---|
| | *is not in regionally or locally significant bushland. Notably this hockey club is a major club and there would be large numbers of people attending hockey events. Spectators would intrude into bushland. Also the construction process would cause disturbance of the bushland. Once bushland is degraded it cannot be restored.*<br><br>*If the City insists on this proposal it should be very heavily modified:*<br>• *The turf pitch should be moved to the centre of the oval and only one grass pitch installed so that a bigger buffer zone can surround the facility.*<br>• *The bushland should be fenced off.*<br>• *The car park should be moved away from the long edge.*<br>• *At least $1 million should be allocated to bushland management each year by the City. This should include employment of a Bushland manager (for on-ground work: control of weeds, foxes, feral cats, dogs dieback), a Ranger and an Education officer to work with local primary and high schools in bushland programs so that children grow up respecting and enjoying the bushland and arson is prevented.*<br>• *Security cameras could be installed.*<br>• *The City should work with the Dept of Fire and Emergency Services using their JAFFA program and community awareness about arson and fire prevention. Indeed we recommend that this work should be carried out by the City whether the hockey facility is built or not.*<br>• *The proposal will need to be referred to the Commonwealth under the EPBC Act as the night lights may have an impact on listed endangered species: Carnaby's Cockatoo.* |
| **Friends of North Ocean Reef/Iluka Foreshore** | *The use of this site as a hockey field is incompatible with its status as a wildlife and conservation vegetation reserve. The reserve is highly rated in the Perth Biodiversity Project's bushland assessment process. The adjacent bushland is also classified as Bush Forever, and a major night roosting site of the critically endangered Carnaby's Cockatoo. The proposed floodlighting and extra car parking use at night will cause major disruption to the night sleeping areas for Carnaby's Cockatoo, pushing this iconic bird closer to extinction. Furthermore the proposed additional car parking and other unspecified infrastructure can only be built by clearing of further bushland in the Bush Forever site. The additional pressure on adjacent facilities by extra people using the bushland for short cuts to the hockey fields will further damage the bushland. There will also be a problem of leaves blowing onto the synthetic turf, leading to pressure from hockey ground staff to clear surrounding trees. There is thus a huge danger for existing trees in the bushland, as turf managers have no hesitation in poisoning trees if they are not cut down to convenience their operations. There appears absolutely no reason for the City to not follow the hockey club's preference, which is to redevelop existing facilities at Macdonald Reserve in Padbury. This is a larger reserve, not surrounded by bush, and is much more suited to development of a larger hockey complex than Warwick Open Space. No further bushland should be cleared at Warwick, in order to fulfil the* |

| Organisations/ groups | *Responses* |
|---|---|
| | *conservation purposes of this reserve, and preserve biodiversity for future generations. The City of Joondalup states that it has an obligation under the ICLEI Agreement to conserve biodiversity. There are other suitable locations for a hockey complex, including Macdonald Park.* |
| **Friends of Yellagonga** | *Grassed Hockey pitches require a great deal of water and fertiliser to be used to maintain them. Need to get away from this requirement in a drying climate. The water needs to come from a finite resource so something else will have to be restricted to allow for this.*<br><br>*Not compatible use in banksia woodland as a reduction in the water table height as occurs in bore draw down areas will cause banksia death.*<br><br>*Sports floodlighting upsets the natural rhythm of bushland creatures, especially birds such as the endangered Carnaby's Cockatoo a resident of the area. Birds are particularly sensitive to the amount of light in any 24-hour period as this determines laying and breeding cycles.*<br>*Additional car parking bays is another impost on a sensitive biodiverse area bringing extra people and pollution into the area.*<br><br>*Important that a sturdy people proof fence be constructed to separate the bush areas from areas used for hockey and access to the bush is denied for itinerant users.* |

# WARWICK OPEN SPACE

## Assessment of possible impacts upon fauna of lighting for proposed hockey pitches

Warwick Open Space Oval, March 2013 (M. Bamford)

Prepared for: City Of Joondalup
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17th April 2013

## INTRODUCTION

The City of Joondalup is proposing to establish a synthetic hockey pitch, two grass pitches and some associated parking and amenities on the existing oval at Warwick Open Space. While no clearing of native vegetation is proposed, the pitches will be illuminated for night games and as these lie within an area of native bushland, concern has been raised as to the possible impact of this lighting upon fauna. These concerns noted that the proposed lighting would add to existing lighting within and around Warwick Open Space, and suggested possibly detrimental impacts on insect predator/prey relationships, and on behaviour of other fauna, particularly but not limited to nocturnal species such as the Tawny Frogmouth, Southern Boobook Owl, bats and geckoes. Impacts upon roosting by diurnal species (including the conservation significant Carnaby's Black-Cockatoo) were also raised as a concern. There are no specific regulations or codes in Western Australia for the management of light impacts upon fauna, but such impacts are being considered by regulatory authorities (e.g. Environmental Protection Authority 2010).

Negative (and occasionally positive) impacts of light upon fauna are well-documented (e.g. Rich and Longcore 2006), including large-scale death of insects and occasionally birds, disruption of migration and changes in local patterns of movement, but the impacts vary greatly with the nature of the light and the fauna assemblage that is potentially impacted. Therefore, Bamford Consulting Ecologists was commissioned to review impacts of light upon fauna in the context of the Warwick Open Space proposal and the fauna of the site.

## METHODS

The study involved a review of available information on impacts of lights upon fauna, a review of information on the fauna assemblage of Warwick Open Space, and interpretation of the likely effects of the proposed lighting upon the fauna assemblage. In addition, the site was visited on 26th March 2013 (by M. Bamford) but it was not possible to carry out any direct observations. Information on existing and proposed lighting at the site was provided by the City of Joondalup. Personnel involved in preparing this report were Dr Mike Bamford (B.Sc. Hons. Ph.D.) and Ms Katherine Chuk (B.Sc. Hons.). Mr David Knowles (Spineless Wonders) provided some suggestions with respect to light impacts, management and invertebrates.

The literature review on impacts of lighting upon fauna was largely web-based with details provided in the references. The City of Joondalup provided a report on the fauna of Warwick Open Space (EcoLogical Australia 2013), and background information on the hockey pitch proposal (City of Joondalup, undated). The City also provided information on current levels of activity at the existing tennis courts, and a copy of community concerns raised with respect to possible impacts of the proposed lighting upon fauna.

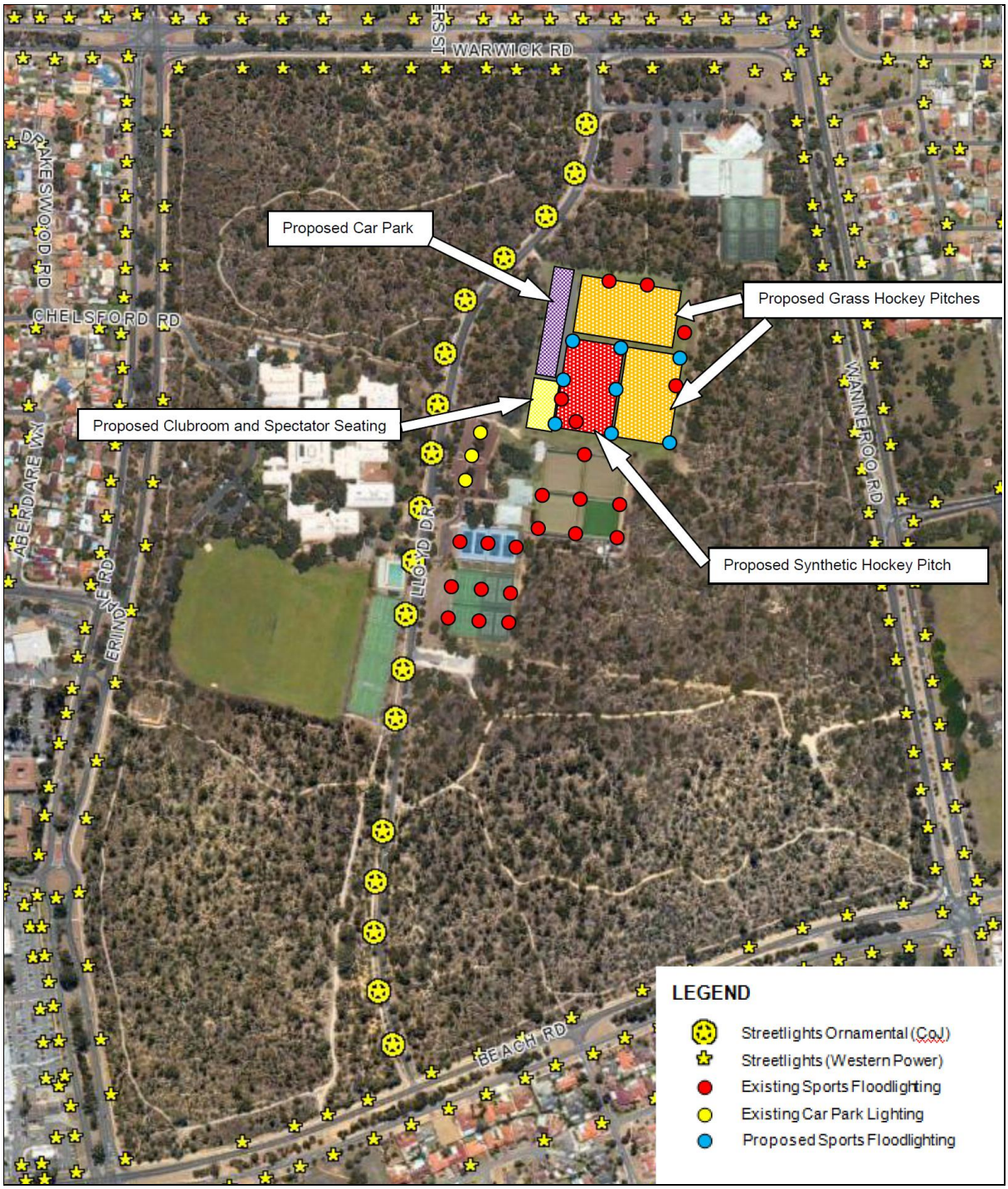


Figure 1. Warwick Open Space showing location of proposed facility, and proposed and existing lighting.

## DESCRIPTION OF WARWICK OPEN SPACE AND FAUNA

Warwick Open Space has an area of c. 60ha, most of which is native vegetation consisting of a mixture of eucalypt and banksia woodlands (EcoLogical Australia 2013). However, it includes a small sporting complex and an existing oval which is the site proposed for the hockey pitches (see Figure 1). It is recognised as important for conservation by the Department of Environmental Protection (2000) as Bush Forever Site 202.

Ecological Australia (2013) summarises available information on fauna of Warwick Open Space, including results of surveys undertaken in early spring 2012. Key features of the fauna are:

**Invertebrates**. Little data with most records consisting of common taxa not identifiable to species. The conservation significant Graceful Sun-Moth *Synemon gratiosa* is known to be present, and two other species of conservation significance may be present: the bee *Hylaeus globuliferus* and the cricket *Austrosaga spinifer*. Of these three species, the cricket is probably nocturnal but the others are diurnal.

**Frogs**. Only one species recorded (the terrestrial Turtle Frog *Myobatrchus gouldii*). Several other species listed as possibly present, although all require surface water for breeding. All frogs are nocturnal which is relevant for the consideration of lighting impacts.

**Reptiles**. Twelve species recorded but up to 30 species listed as possibly present. This includes two strictly nocturnal species, the Marbled Gecko *Christinus marmoratus* and the Speckled Stone Gecko *Diplodactylus polyophthalmus*. A number of other species may be crepuscular or active at night under warm conditions. Only one reptile species listed as of conservation significance, the Black-striped Snake *Neelaps calonotos*, may be present.

**Birds**. The bird assemblage listed as potentially occurring by Ecological Australia (2013) contains 142 species, but many of these are waterbirds or species returned from databases but for which no suitable habitat is present. Surveys in 2012 (or earlier surveys cited by Ecological Australia 2013) confirm the presence of 68 species and this is probably close to a complete bird list. Three species of listed conservation significance have been recorded (Carnaby's Black-Cockatoo *Calyptorhynchus latirostris*, the Forest Red-tailed Black-Cockatoo *Calyptorhynchus banksii* and the Rainbow Bee-eater *Merops ornatus*), but the site also supports some species listed as of local significance in urban areas by the Department of Environmental Protection (2000). Carnaby's Black-Cockatoo has been recorded foraging in Warwick Open Space, and the site is included as a confirmed roosting location for the species in the Birdlife Australia Great Cocky Count Database as GCC21. A count of 60 Carnaby's Black-Cockatoos was made at the site in April 2011, there were no birds there in April 2010 and the site was not included in surveys in April 2012 Kabat *et al.* (2012). There were no birds present during the most recent survey in April 2013. The actual location of the roost is given as immediately alongside the eastern boundary of the oval where the development of the hockey pitches is proposed.

Three nocturnal bird species have been recorded regularly: Eastern Barn Owl *Tyto javanica*, Southern Boobook Owl *Ninox novaeseelandiae* and Tawny Frogmouth *Podargus strigoides*. Ecological Australia (2013) lists two further nocturnal species as recorded: the Australian Owlet-nightjar *Aegotheles cristatus* and Bush Stone-curlew *Burhinus grallarius*. Both seem unlikely. The Owlet-nightjar record was based on a single call heard one evening (R. Browne-Cooper pers. comm.), while the species has been recorded only once in a 25 year study in similar vegetation at Whitman Park (M. Bamford unpubl. data). The Stone-curlew record is uncertain and the species is probably extinct in the Perth region (Department of Environmental Protection 2000). Serventy and Whittell (1976) note a record in Cannington in 1954.

**Mammals**. The mammal assemblage of Warwick Open Space is very poor, with all recently-recorded terrestrial species being introduced. Ecological Australia (2013) recorded one bat species (Gould's Wattled Bat *Chalinolobus gouldii*), but the White-striped Bat *Tadarida australis* is also likely to be present, as it is recorded regularly around Lake Goollelal (M. Bamford unpubl. data). Bamford and Wilcox (2005) recorded two further bat species in urban bushland in the City of Cockburn: the Lesser Long-eared Bat *Nyctophilus geoffroii*, and the Little Forest Bat *Vespadelus regulus*.

## DESCRIPTION OF EXISTING AND PROPOSED LIGHTING

Based on records provided by the City of Joondalup, the tennis courts of the existing sporting complex are used regularly at night, with usage until 10pm from Monday to Friday, and until 6pm on Saturday. This mean that the tennis court lights are on for five nights a week in summer and six nights a week for the rest of the year. The courts are illuminated with floodlights to an overall brightness level of about 100 lux, which is similar to very strong street lighting. There are 18 lights on c. 12m poles over the tennis courts, and six similar lights over the adjacent bowling greens. Note there are also six lights over the existing oval. Some lighting around facilities is probably on all night every night, but presumably the stronger lights for the courts are only on for the duration of night games.

The lighting proposed for the hockey pitches consists of six towers, each 18m high, designed to achieve overall brightness levels of 500 lux on the synthetic pitch and 250 lux on the grass pitches. This is consistent with the Australian standard for sports lighting (Australian Standard 4284-1997). The Australian standard also requires that the effects of obtrusive light should be limited, such as through lighting design to minimise impacts on local amenity from light spill, and the intention of the City of Joondalup is to meet or exceed these standards. Australian standards do not specify type of light (i.e. wavelength, "colour") except to state that the colour needs not to affect the visibility of team colours.

## REVIEW OF IMPACTS OF LIGHTING UPON FAUNA

Some effects of lighting upon fauna are readily observed, such as moths attracted to lights, but the consequences of these effects are more difficult to document. Observations from previous studies on impacts in relation to specific fauna groups are discussed below.

**Invertebrates**. Mortality of invertebrates around lights is well-known, with major groups affected being moths and beetles, and smaller numbers of Orthoptera (grasshoppers, crickets, stick insects), Neuroptera (lacewings and allies) and even Odonata (dragonflies and damselflies). Mortality is from direct impact (e.g. insects injured or killed by striking hot surfaces and associated structures), exhaustion and predation. Many of the groups affected are nocturnal or, in the case of beetles, seem to be surface-active during the day but fly at night. This also seems to be the case with some aquatic insects, such as back-swimmers, which fly between wetlands at night and occasionally gather around lights.

Mortality of moths around lights has been implicated in population declines, and impacts upon flight, navigation, vision, migration, dispersal, oviposition, mating, feeding, crypsis and circadian rhythms have been observed (Website: Impact of outdoor lighting on moths). It has even been suggested that moth populations subject to high light levels are subject to selective pressure (probably because individual moths that respond most to light and are prepared to fly further are killed, so breeding is carried out among less mobile moths less likely to be killed around lights). Isolated populations of moths (such as in urban bushland remnants) may suffer local extinction from high rates of mortality around lights (Rich and Longcore 2006), but high levels of moth species richness have been recorded in these sorts of habitat fragments (Website: Impact of outdoor lighting on moths). (Frank 1988) concluded that although lights kill lots of insects they don't seem to cause any serious population disruption. In contrast, Davies *et al.* (2012) found that assemblage composition was altered close to street lighting, with the proportion of predatory and scavenging insects greater near the lights. This may have been the result of both mortality of other sorts of insects, and due to the attraction of predators and scavengers to lights as a source of food (dead and dying other insects). While light traps (usually based on mercury vapour bulbs) are used to control insect pests, there seems to be no documentation of their effectiveness; they may only move insects away from less attractive light sources such as homes.

There may be a cone of depressed insect abundance and even altered assemblage composition close to light sources, but observations vary (perhaps because of other complicating factors). There is little evidence for adverse population impacts except possibly in some fragmented landscapes, although necessary studies would be long-term and it would be difficult to isolate the impact of light from the impact of other variables . The population dynamics of insects are complex but populations naturally suffer very high levels of mortality, so conspicuous mortality around lights may be proportionally small. Population declines of invertebrates around lights at least theoretically have the potential to reduce food supply for insectivorous vertebrate fauna, although the reverse often seems to be the case, with insectivores thriving because of an increase in food supply around lights (see below).

**Frogs and Reptiles**. There appear to be no documented impacts of lights upon frogs and terrestrial reptiles, but several frog, toad and lizard (e.g. gecko) species are anecdotally known to be attracted to insects attracted to lights. In mine camps in the Pilbara and goldfields, large varanid lizards learn to visit the base of light poles each morning to feed upon dead and dying insects (M. Bamford pers. obs.). The attraction of insectivorous animals to the insects attracted to lights has been used to develop a trap for the introduced Cane Toad

in northern Australia. Marine (and probably freshwater) turtles are attracted to lights, with disorientation of emerging young a concern on beaches (Bird *et al.* 2004); while this demonstrates a sensitivity to lights in some reptiles, it is not relevant to the Warwick Open Space.

**Birds**. Most documented impacts of lights upon birds relate to disruption of migration and other mass-movements. For example, mortality of hundreds and even thousands of birds have been reported at lighthouses and ships at sea (Rich and Longcore 2006), with a recent estimate of 7 million avian deaths per year in North America due to the 84,000 communication towers spread across the sub-continent (Longcore *et al.* 2012). Birds are attracted to the towers by lights, but most deaths are due to them striking guy wires. It was also found that towers with flashing and constant lights caused more deaths than towers with flashing lights only. The high number of deaths in North America is also related to the behaviour of birds, as the region has a very high component of migratory passerine birds that travel at night; this level of migration is not seen in Australia.

Apart from impacts upon birds that are normally diurnal but that migrate at night, little seems to be known of impacts upon diurnal birds. Impacts upon roosting behaviour have not been documented but many birds are known to roost in areas that are illuminated, although roosting birds are disturbed if light is suddenly shone onto them; the introduced Rainbow Lorikeet *Trichoglossus haematodus* appears to preferentially roost in groups near lights (M. Bamford pers. obs). Miller (2006) has documented a change in calling behaviour of American Robins in well-illuminated areas, with the birds calling at night and initiating the dawn chorus well before true dawn. There appear to be no adverse consequences of this altered behaviour. The Silver Gull ("seagull") *Chroicocephalus novaehollandiae* forage around lights at night along the Kwinana Freeway, especially in summer, where it takes moths and other insects (M. Bamford pers. obs.).

With respect to more typical urban lighting, impacts upon nocturnal birds appear to be minimal or positive. Weaving and Cooke (2010) found no effect of urban lighting on the distribution or abundance of the Southern Boobook or Tawny Frogmouth in Victoria, while the Barn Owl has been documented preferentially feeding near lights (Rich and Longcore 2006). Bird *et al.* (1996) found that the Burrowing Owl had higher breeding success in urban environments, and put this down to improved hunting success due to lighting.

**Mammals**. Most information on the impact of lights upon mammals appears to relate to bats, although it is likely that some terrestrial insectivorous mammals will be attracted to lights to feed on fallen insects; the Northern Quoll *Dasyurus hallucatus* has been observed doing this in Kakadu (M. Bamford pers. obs.). Bird *et al.* (2004) found that the granivorous Santa Rosa Beach Mouse *Peromyscus polionotus leucocephalus* avoided foraging in illuminated areas and suggested that light impacts need greater consideration in the conservation planning with respect to terrestrial mammals.

Impacts of lights upon bats are variable and are recorded only for the micro-chiroptera (i.e. no data seem to be available for the megachiroptera or fruit-bats/flying foxes). Rydell (1992)

and Stone *et al.* (2009, 2012) found that fast-flying bat species were unaffected by light and some species even foraged preferentially around lights to take insects attracted to the lights. In contrast, slow-flying species avoided illuminated areas and Stone *et al.* (2012) fund that movement patterns were affected by lighting, with commuting between roosting and foraging areas being permanently altered in the Lesser Horseshoe Bat *Rhinolophus hipposideros*. While these studies were carried out in North America and Europe, the foraging behaviour of bats in relation to light impacts are likely to be consistent.

**The mechanics of impacts of light upon fauna.** Fauna groups and species vary in their response to light, and not all lights have the same effect. The height of a light source is probably important, as a light high above the ground is probably visible for a greater distance. Shielded lights also have less of an impact because they are less visible than unshielded lights. The colour of the light affects its impact. Insects are more attracted to the blue than to the red end of the light spectrum, and therefore bluer lights (e.g. metal halide, white LED and probably mercury vapour) are likely to attract more insects (and thus have flow-on effects to other fauna) than lights that are more red (e.g. sodium, with low-pressure sodium lamps identified as the least disruptive of invertebrates). There is concern that the move in some areas to greater use of LED lights (because of their low energy consumption) may increase the adverse impacts of light on wildlife (Falchi *et al.* 2011). The colour of light bulbs can be measured in terms of light temperature (degrees kelvin). Red light has a low light temperature; high pressure sodium lights have a light temperature of 2000. In contrast, mercury vapour lights have a light temperature of 6000 (http://www.3drender.com/glossary/colortemp.htm).

Much of the impact of light is from the attraction to a point source, so it is possible that the overall lux of an illuminated area is less important than the number of sources of light. Thus, the existing tennis courts with 18 light poles may be having more impact than the proposed hockey pitch lighting (with 6 taller, brighter light poles) may have. However, the hockey pitch poles are spread over a larger area than those of the tennis court, and this factor may need to be considered. There seems to be no clear information on the effect of number of light sources and their spacing; this probably interacts with height, strength and competing light sources with respect to effects upon fauna. To further complicate any prediction of the impact of new lighting, the entire Warwick Open Space is surrounded by suburbs with hundreds of light sources.

There is also little information on how far light impacts extend, although strength and height would be expected to play a part. A 150W mercury vapour light has a mere 3m radius of attraction to moths (Baker and Sadovy 1978), and a study by Truxa and Fielder (2012) of light traps designed to catch moths, and based on two 15W light bulbs, found a radius attraction of <10m. However, Nowinszky and Puskas (2010) report on attraction distances of up to 518m for a 125W mercury vapour light under a new moon, but this falls to only 35m under a full moon. Nowinszky and Puskas (2010) also provide a formula for calculating the attraction distance of insects to lights (see Appendix 1). The radius of attraction of small (i.e. low power) lights would appear to be small but variable with the amount of competing light (such as from the moon). There seems to be no information on the radius of attraction of

powerful lighting systems and it is not clear if the formula provided by Nowinszky and Puskas (2010) is applicable.

## LIGHTING AND FAUNA AT WARWICK OPEN SPACE

The review of lighting impacts upon fauna indicates a number of effects that may be of concern and thus groups of fauna that may be at risk. These are:

- Night-active moths (and possibly some other insect groups) may suffer increased levels of mortality with a possible risk of local extinction in fragmented landscapes.
- Marine (and probably freshwater) turtles are disoriented by lights.
- Bird can suffer mortality around lights, primarily by being attracted to the lights and striking supporting guy-wires.
- Some birds begin to call earlier in the morning at sites that are strongly illuminated.
- Some small, terrestrial mammals have been found to avoid foraging near lights.
- Slow-flying insectivorous bats avoid foraging and even flying close to lights (but fast-flying species take advantage of lights when foraging).

Importantly, a number of studies demonstrate that some risks which might be considered possible seem not to be of concern. For example, there is no evidence of a decline in food availability due to insect mortality around lights, while some frogs, reptiles, nocturnal birds and bats are favoured by lights due to improved foraging. There seems to be no information on impacts upon roosting birds.

The impact upon fauna of the proposed lighting of new hockey pitches at Warwick Open Space will be a function of both the lights and the fauna assemblage, and will interact with the existing environment (including existing lights). The fauna assemblage is modified due to the loss of some species and the introduction of others, but does include elements that may be at risk. Major fauna groups, taxa at risk and possible impacts are discussed below.

**Invertebrates**. Moths and some other night-active insects are likely to suffer increased mortality, and while the attraction distance of the proposed lights is unknown, the lights are very powerful and set high so the attraction may extend at least to the northern boundaries of the reserve. The degree to which mortality is increased over that already occurring from existing lights is unknown; while a cumulative impact can be expected, to some degree insects may be drawn from the existing lights to the new, taller and brighter lights, so the overall increase in mortality may be slight. The significance of increased mortality is difficult to predict, but available information suggests this will be low. Of some concern, however, is the possibility of local extinction of species that might already be vulnerable due to light-induced mortality.

Significant invertebrate species present or that might be present are diurnal (e.g. the Graceful Sun-Moth) and are reported not to be attracted to light-traps (T. Gamblin pers. comm.) so presumably will not be attracted to lights.

**Frogs and Reptiles**. Probably no impacts of concern as the only species likely to be affected by lights may be favoured due to increased foraging opportunities. Foraging close to lights may expose the frogs and lizards themselves to increased predation from nocturnal birds, but the species concerned are common in the suburban landscape so are presumably able to cope with any such increased predation.

**Birds**. The only nocturnal bird species regularly present have been found to be either unaffected by lights, or to take advantage of increased foraging opportunities provided by lights. One effect difficult to predict is that the lights may attract "nuisance" birds such as the Silver Gull that could forage around the lights in summer.

Carnaby's Black-Cockatoo is a species of high conservation significance that forages in the reserve and has been recorded roosting there once in three surveys spread over four years; it is not known to breed there. Effects of lights upon breeding and roosting by this species are not known, but there are major roosting sites in urban areas close to lights. The introduction of strong lights near the roost could affect the behaviour of the birds, but this effect cannot be predicted.

The Rainbow Bee-eater is a diurnal species of conservation significance that is present and is probably a summer breeding visitor to Warwick Open Space. It breeds in burrows and often digs these on the edges of cleared areas, so may currently breed around the oval. The effect of lighting and the general development of the hockey pitches upon the species cannot be predicted, but it is flexible and somewhat opportunistic in its nest-site selection. Effects on diurnal birds such as altered calling patterns are difficult to predict but presumably lighting will be used mainly in the evenings so should not impact upon dawn calling behaviour.

**Mammals**. Warwick Open Space has no native terrestrial mammals but could have as many as four bat species. One of these, the Lesser Long-eared Bat, is slow-flying and therefore fits the description of bats that have been found in other studies to be adversely impacted by lights. However, it has not been recorded in the site so it seems is already absent due to fragmentation and the impact of existing lights. The remaining three bat species (White-striped Bat, Gould's Wattled Bat and Little Forest Bat) are fast-flying and may forage preferentially near lights.

## CONCLUSIONS

The lighting for the proposed hockey pitches at Warwick Open Space is anticipated to have limited impact upon fauna due in part to the small number of species that may be sensitive to the effects of light. For example, the current vertebrate fauna probably lacks any species that are known or could be predicted to be adversely affected by the lights. One bat species that is adversely affected by lights could be present, but it seems to be locally extinct. Some frog, reptile, bird and mammal species may be attracted to forage around the lights. A clear impact of the lights will be an increase in insect mortality, but even this is difficult to predict as the effects of the lights will interact with the effects of existing lights. The possibility does exist that the lights will contribute to the local extinction of some insect species (probably moths).

Despite the conclusion that the risk to fauna from the proposed lighting is low, a number of precautionary recommendations can be made:

- As already proposed by the City of Joondalup, light spill should be minimised.
- It may be possible to rationalise lighting within Warwick Open Space between the school, existing and proposed sporting facilities.
- It may also be possible to reduce the impacts of existing lights as a way to offset any increase in impact due to the new lights. For example, shielding of existing lights, and the sorts of bulbs being used, could be altered. Planting of dense vegetation around the boundary of Warwick Open Space, and around the boundaries of facilities within the area, might reduce the attraction of some existing lights.
- If possible, the source of light (light bulbs) should have low light temperatures (red end of spectrum such as sodium bulbs) as these are less attractive to insects.
- While monitoring of fauna such as insects would be a major undertaking, there may be value in introducing a system for anecdotally recording fauna observations, with a focus on Carnaby's Black-Cockatoo. Roosting of Carnaby's Black-Cockatoo in the bushland occurs in at least some years and it could even begin to breed in the reserve; regularity of roosting and breeding records would be valuable to record. It may be possible to monitor the roosting flock in the reserve as an extensive of the Birdlife Australia Great cocky Count. It would also be useful to note if there was an increase in the abundance of the Rainbow Lorikeet or Silver Gull, as both may be attracted by the lights.
- If construction is to take place in summer, a brief survey should be carried out to determine if the Rainbow Bee-eater is nesting in the vicinity; this is to avoid direct impact on their nests.

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**Appendix 1.** The calculation of theoretical attraction distances of insects to lights.

Nowinszky and Puskas (2010) provide a formula for the calculation of theoretical attraction distances of insects to lights. The theoretical collecting distance, $r_o$ = square root of the illumination from the light (candela) divided by the sum of environmental illumination (lux) from the setting or rising sun, moon, starry sky and light pollution.

# 01 SKETCH 1:500 (A2)

dP(A) Donovan Payne Architects

City of Joondalup


ATTACHMENT 5

City of Joondalup

# Joondalup Hockey Facility

SITE PLAN

scale 0 5 10 20 30 40 50

NEW SCOPE 24 OCTOBER 2012 JUNE 2012

ATTACHMENT 6

HOCKEY FIELD

CAR PARKING

PAVING

UMP 10 M2

UMP 10 M2

CHANGE 1

CHANGE 2

CHANGE 3

CHANGE 4 FEMALE

STORAGE 42 M2

DIS

TOTAL AREA OF CHANGE 195 M2

FEMALE 16 M2

MALE 16 M2

DIS 8 M2

CLNR

FIRST AID 10 M2

ROOF LINE OVER SHOWN DOTTED

VERANDAH TO PLAYING FIELDS - PAVED

BBQ

STORE

KITCHEN

KITCHEN, STORES, COOL, BAR 60 m2

COOLROOM

STORE

BAR

FOYER AND TROPHIES

FUNCTION ROOM 400 m2

MEETING ROOM 26 m2

CHAIR STORE 16 m2

CAR PARKING

City of Joondalup

Joondalup Hockey Facility

NEW SCOPE 24 OCTOBER 2012

GROUND FLOOR PLAN

02 SKETCH 1:200 (A3)

dP(A) Donovan Payne Architects

City of Joondalup

Scale

0 5 10 15 20 25

ATTACHMENT 7

**City of Joondalup**
**Proposed Synthetic Hockey Pitch Facility**

**Master Plan Costs**
**17 October 2012**
**(Revision 2)**

| Item | Description of Works | Unit | Quantity | Rate | Cost |
|---|---|---|---|---|---|
| **1.0** | **Building Works** | | | | |
| **1.1** | **New Hockey Clubrooms** | | | | |
| | Clubhouse (FECA = 900m2) | | | | |
| **1.1.1** | Change 1 | m2 | 49 | $ 2,500 | $ 122,500 |
| **1.1.2** | Change 2 | m2 | 49 | $ 2,500 | $ 122,500 |
| **1.1.3** | Change 3 | m2 | 49 | $ 2,500 | $ 122,500 |
| **1.1.4** | Change 4 | m2 | 49 | $ 2,500 | $ 122,500 |
| **1.1.5** | First Aid | m2 | 10 | $ 2,100 | $ 21,000 |
| **1.1.6** | Cleaner | m2 | 9 | $ 1,900 | $ 17,100 |
| **1.1.7** | Storage | m2 | 42 | $ 1,500 | $ 63,000 |
| **1.1.8** | Umpires Rooms | m2 | 20 | $ 2,700 | $ 54,000 |
| **1.1.9** | Meeting | m2 | 26 | $ 2,200 | $ 57,200 |
| **1.1.10** | Offices | m2 | 0 | $ 2,400 | $ - |
| **1.1.11** | Male toilet | m2 | 16 | $ 3,300 | $ 52,800 |
| **1.1.12** | Female toilet | m2 | 16 | $ 3,300 | $ 52,800 |
| **1.1.13** | Access Toilet | m2 | 8 | $ 3,300 | $ 26,400 |
| **1.1.14** | Entry Foyer & Trophies | m2 | 55 | $ 2,200 | $ 121,000 |
| **1.1.15** | Function Room | m2 | 400 | $ 2,400 | $ 960,000 |
| **1.1.16** | Chair store | m2 | 16 | $ 1,500 | $ 24,000 |
| **1.1.17** | Kitchen | m2 | 30 | $ 4,500 | $ 135,000 |
| **1.1.18** | Dry store | m2 | 3 | $ 2,100 | $ 6,300 |
| **1.1.19** | Bar | m2 | 7 | $ 4,000 | $ 28,000 |
| **1.1.20** | Coolroom | m2 | 8 | $ 3,500 | $ 28,000 |
| **1.1.21** | Bar Store | m2 | 7 | $ 2,100 | $ 14,700 |
| **1.1.22** | Kitchen/Bar lobby | m2 | 5 | $ 2,000 | $ 10,000 |
| **1.1.23** | Circulation | m2 | 16 | $ 2,000 | $ 32,000 |
| | | m2 | 890 | $ 2,464 | $ 2,193,300 |
| **1.1.24** | Roof extension over paved verandah | m2 | 155 | $550 | $ 85,250 |
| **1.1.25** | Site preparation - Under building and paved verandah | m2 | 1400 | $5 | $ 7,000 |
| **1.1.26** | Filling under building | m3 | 1400 | $25 | $ 35,000 |
| **1.1.27** | Paving around building | m2 | 500 | $85 | $ 42,500 |
| **1.1.28** | Semi Permanent seating | Item | | | $ 50,000 |
| **1.1.29** | Bin Enclosure | Item | | | $ 5,000 |
| **1.1.30** | External water services | Item | | | $ 15,000 |
| **1.1.31** | External fire services | Item | | | $ 10,000 |
| **1.1.32** | External gas services | Item | | | $ 5,000 |
| **1.1.33** | External sewer services | Item | | | $ 25,000 |
| **1.1.34** | External electrical services | Item | | | $ 25,000 |
| **1.1.35** | Furniture and equipment to new Clubrooms and dug-outs etc | Item | | | $ 80,000 |
| | ***Sub Total Building Costs*** | | ***890*** | ***$ 2,897*** | ***$ 2,578,050*** |
| **1.2** | **Synthetic Field (1 No.)** | | | | |
| **1.2.1** | Synthetic field complete with base course, synthetic playing surface, perimeter walls and minimum surface excavation. (wet/dry playing surface) | Item | | | $ 1,200,000 |
| **1.2.2** | Lighting to field (500 LUX) | Item | | | included |
| **1.2.3** | Fencing | Item | | | included |
| **1.2.4** | Hockey goals and back curtains | Item | | | Included |
| **1.2.5** | Electronic scoreboard | Item | | | $ 25,000 |
| **1.2.6** | Allowance for CCTV to field | Item | | | $ 20,000 |

| Item | Description of Works | Unit | Quantity | Rate | Cost |
|---|---|---|---|---|---|
| **1.3** | **Grass Fields (2 No)** | | | | |
| **1.3.1** | Renovate existing grassed area including top dressing and new turf | m2 | 15500 | $12.00 | $ 186,000 |
| **1.3.2** | Reticulation to fields | m2 | 15500 | $1.50 | $ 23,250 |
| **1.3.3** | Lighting to fields (250 LUX) | No | 1 | $140,000 | $ 140,000 |
| **1.3.4** | Hockey goals | No | 4 | $1,200 | $ 4,800 |
| **1.4** | **Relocation of Cricket** | | | | |
| **1.4.1** | Relocation of cricket from WOS | Item | | | $ 110,000 |
| **1.4.2** | Allowance for removal of existing infrastructure (cricket centre pitch and softball diamonds) and making good | Item | | | $ 10,000 |
| | ***Sub-Total for Building Works*** | | | | ***$ 4,297,100*** |
| **2.0** | **Carparking** | | | | |
| **2.1** | Carpark and access road (35 bays) | m2 | 1325 | $70 | $ 92,750 |
| **2.2** | Carpark and access road (16 bays) | m2 | 1000 | $70 | $ 70,000 |
| **2.3** | Lighting to carpark and access road | Item | | | $ 32,000 |
| **2.4** | New trees (mature) | No | 11 | $500 | $ 5,500 |
| **2.5** | New trees (small) | No | 38 | $250 | $ 9,500 |
| **2.6** | Allowance for general landscaping upgrade | Item | | | $ 30,000 |
| | ***Sub-total for Carparking*** | | | | ***$ 239,750*** |
| **3.0** | **Siteworks** | | | | |
| **3.1** | Site clearance | m2 | 0 | $3 | $ - |
| **3.2** | Tree removal | m2 | 0 | $2 | $ - |
| **3.3** | Demolition of existing structures | Item | | | $ 5,000 |
| **3.4** | Retaining wall | m | 0 | $350 | $ - |
| **3.5** | Filling to make up levels | m3 | 0 | $25 | $ - |
| **3.6** | Perimeter fencing to northern end | m | 128 | $65 | $ 8,320 |
| **3.7** | Bollards to perimeter of field to provide protection against vehicle access | m | 380 | $30 | $ 11,400 |
| **3.8** | Rehabilitation of disturbed areas | Item | | | $ 25,000 |
| **3.9** | Allowance for bore and pump | Item | | | $ 35,000 |
| **3.10** | Outdoor furniture - park benches, bins etc | Item | | | $ 10,000 |
| **3.11** | BBQ's | Item | | | $ 10,000 |
| **3.12** | BBQ seating and shelter | Item | | | $ 15,000 |
| **3.13** | Lighting to BBQ area | Item | | | $ 10,000 |
| **3.14** | Allowance for lighting to site footpaths (extent unknown) | Item | | | $ 20,000 |
| **3.15** | Allowance for site footpaths (extent unknown) | Item | | | $ 20,000 |
| | ***Sub-total for Siteworks*** | | | | ***$ 169,720*** |
| **4.0** | **MacDonald Park Softball Diamonds** | | | | |
| **4.1** | Back net 6m high | m | 50 | $220 | $ 11,000 |
| **4.2** | Free standing shelters approx 5m x 2m including concrete ground slab | No | 4 | $2,500 | $ 10,000 |
| **4.3** | Diamond markout (Initial) | Item | 2 | $250 | $ 500 |
| | ***Sub-total for MacDonald Park Softball Diamonds*** | | | | ***$ 21,500*** |

| Item | Description of Works | Unit | Quantity | Rate | Cost |
|---|---|---|---|---|---|
| **5.0** | **CONTINGENCIES** | | | | |
| **5.1** | Allowance for design contingencies | Item | 10% | $ | 472,807 |
| **5.2** | Allowance for contract contingencies | Item | 5% | $ | 260,044 |
| | ***Sub-total for Contingencies*** | | | ***$*** | ***732,851*** |
| **6.0** | **HEADWORKS** | | | | |
| **6.1** | Allowance for Water Corporation Headworks | Item | | $ | 50,000 |
| **6.2** | Allowance for Western Power Headworks | Item | | $ | 75,000 |
| **6.3** | Allowqnce for Telstra Headworks | Item | | $ | 5,000 |
| | ***Sub-total for Headworks*** | | | ***$*** | ***130,000*** |
| **7.0** | **PROFESSIONAL FEES** | | | | |
| **7.1** | Allowance for professional fees comprising full service | Item | 8% | $ | 447,274 |
| | ***Sub-total for Professional Fees*** | | | ***$*** | ***447,274*** |
| **8.0** | **ESCALATION** | | | | |
| **8.1** | No allowance for escalation in costs has been included | Item | 0.00% | $ | - |
| | ***Sub-total for Escalation*** | | | ***$*** | ***-*** |
| | **TOTAL ESTIMATED COMMITMENT (Perth)** | | | **$** | **6,038,195** |
| | Goods & Services Tax (10%) | | | $ | 603,819 |
| | **TOTAL ESTIMATED COMMITMENT (Including GST)** | | | **$** | **6,642,014** |

| Item | Description of Works | Unit | Quantity | Rate | Cost |
|---|---|---|---|---|---|

**DRAWINGS:**

The following drawings were used in the preparation of these Master Plan Costs:

DPA - 01 Sketch 1:500 (A2) dated 24 October 2012 (New Scope)
DPA - 02 Sketch 1:200 (A3) dated 24 October 2013 (New Scope)

**EXCLUSIONS:**

The following items have been specifically excluded from these Master Plan Costs:

- Geotech survey below proposed artificial playing field to confirm ground is suitable to receive basecourse.
- New Ministers water and sewer mains to site if required
- Holding and Finance charges
- Land costs
- Legal costs
- Computers, printers, facsimile machines etc.
- Escalation beyond October 2012

**NOTES:**

**Please note that this information is for indicative budgeting purposes only and should not be used as the basis for making a financial commitment**

**Prior to making a financial commitment a detailed budget should be prepared based on input from the architect and the relevant consultants**

# CITY OF JOONDALUP

## FINANCIAL EVALUATION SUMMARY

## Project: Synthetic Hockey Pitch

**Version:** **7**
**Date** 26 October 2012
**Author:** Senior Financial Analyst, City of Joondalup

**Document Version Control**

| Vers | Date | Author | Amendments / Comments |
|---|---|---|---|
| 4.0 | 15 May 2012 | Alan Ellingham | Version to council |
| 5.0 | 22 Oct 2012 | Alan Ellingham | Updated QS Costs based on reduced spec |
| 6.0 | 25 Oct 2012 | Alan Ellingham | Version to supplement ELT report |
| 7.0 | 26 Oct 2012 | Alan Ellingham | Change to the risk comments |

**File Control**

| | |
|---|---|
| **File Name** | |
| **Trim Container / Location** | 102400 File Ref:- Int12/24897 |

# CONTENTS

# 1. INTRODUCTION

## 1.1. Purpose of Paper / Out of Scope

The purpose of this paper is to provide financial details of the Synthetic Hockey Pitch project. The report will summarise:-

I. Financial assumptions (section 2)
II. Financial commentary (section 3)
III. Financial risks & opportunities (section 4)

This paper will NOT provide recommendations on the 'best' option, but merely comment on the financial issues.

## 1.2. Options

Three options are considered for the management of the facility as described in Table 1 below. The Status Quo option is also relevant and is considered throughout. The Capital Expenditure are identical for options one to three. However for Option 1, the City Managed option, the assumption is that WHC would not contribute any funds towards the capital costs.

Table 1 - Options

| Opt | Issue | Key Features |
|---|---|---|
| **0** | **Status Quo** | o McDonalds Park continue to be used by WHC<br>o Warwick Open Space continues to be used by softball team and cricket club |
| **1** | **City Managed** | o City pays for all operating costs of facilities<br>o City applies current charges to users of the facility<br>o WHC do not make any contribution to the capital costs<br>o Ensures facilities available to other groups |
| **2** | **Club manage all facilities** | o City does not pay for any operating costs<br>o No ability to generate additional income<br>o Facility controlled by WHC, and the ability for other groups to use the facility is determined by WHC |
| **3** | **Club / City managed** | o Clubroom and Synthetic Pitch run by WHC<br>o City runs the grass pitches and maintains some of the ancillary infrastructure e.g. car parks<br>o City not responsible for costs of clubroom and synthetic pitch<br>o City generates income from grass pitch, or pitch |

## 1.3. Disclaimer

It is vital to emphasise that the numbers in the report are best estimates at this point in time. Building areas, building costs, ongoing expenses, income are very approximate. Plans and sketches produced are sketches and need to be accepted as such. They were produced to a 1:200 scale as a feasibility tool incurring minimal cost. More detailed development of the plan and design would produce more accurate building areas and costs.

The recurring expenses and income are based on high level assessment of requirements, with various consultation within the city. Further detailed analysis would be required.

# 2. FINANCIAL - ASSUMPTIONS

## 2.1. General Assumptions

Table 2 below lists the general assumptions assumed in the financial model:-

Table 2 – General Assumptions

| | Assumption | Value | Comments |
|---|---|---|---|
| 1 | **Escalation – Building Costs** | 4% | o Based on discussion with Quantity Surveyor (QS) |
| 2 | **Escalation – Utilities** | 7% | o Utility costs increasing faster than other costs |
| 3 | **Escalation – all other costs and income** | 3% | o Standard increase assumed for all other factors |
| 4 | **Construction** | 2015/16 | o This assumes funding application made 2013, planning during 2013/14 |
| 5 | **First year of service** | 2016/17 | o Assume construction takes 12 months, and new facility ready by July 2017 |
| 6 | **Number of years Modelled** | 20 Years | o 20 Years from 2015/16 to 2034/35<br>o 20 years deemed reasonable for investment between $5m and $10m |
| 7 | **Number of years for loan** | 10 years | o Consistent with *20 Year Strategic Financial Plan 2011-2031* |

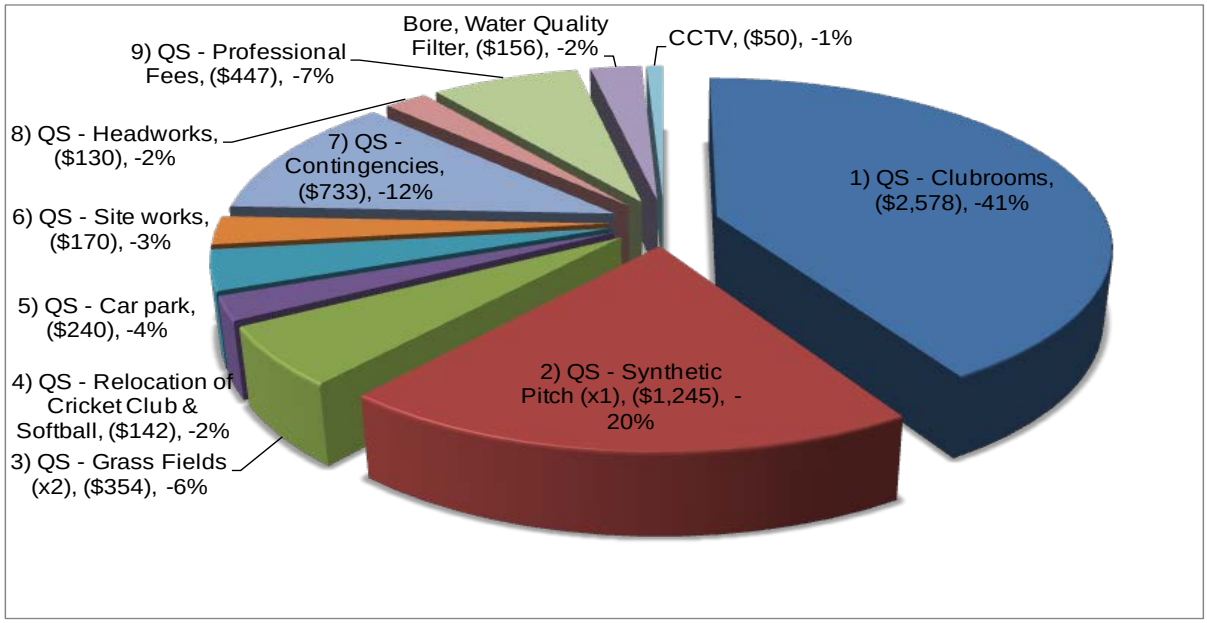
## 2.2. Capital Expenditure

Table 3 and Chart 1 below summarises the estimated costs for the Capital Expenditure, based in today's dollars. Items 1 to 9 below are derived from QS estimates provided 25 October 2012. Items 10 and 11 are derived from internal City estimates.

Table 3 – Capital Expenditure by Option

| Capital Expenditure $000s (excluding inflation) | Opt1 City Managed | Opt2 Club Managed | Opt3 Club / City Managed |
|---|---|---|---|
| 1 QS - Clubrooms | ($2,578) | ($2,578) | ($2,578) |
| 2 QS - Synthetic Pitch (x1) | ($1,245) | ($1,245) | ($1,245) |
| 3 QS - Grass Fields (x2) | ($354) | ($354) | ($354) |
| 4 QS - Relocation of Cricket Club & Softball | ($142) | ($142) | ($142) |
| 5 QS - Car park | ($240) | ($240) | ($240) |
| 6 QS - Site works | ($170) | ($170) | ($170) |
| 7 QS - Contingencies | ($733) | ($733) | ($733) |
| 8 QS - Headworks | ($130) | ($130) | ($130) |
| 9 QS - Professional Fees | ($447) | ($447) | ($447) |
| 10 Bore, Water Quality Filter | ($156) | ($156) | ($156) |
| 11 CCTV | ($50) | ($50) | ($50) |
| **Total investment costs** | **($6,244)** | **($6,244)** | **($6,244)** |

Chart 1 – Capital Expenditure




Capital Expenditure in Chart 1 above excludes inflation so that a clear audit trail is shown to the QS estimates. As mentioned in Table 2, the assumption is that the facility is built during 2015/16. There is assumed to be inflation of 4% per year on building costs between 2012/13 and 2015/16. The estimated building costs of $6,244,000 are therefore estimated to increase to $7,024,000 by 2015/16.

## 2.3. Funding

Table 4 below summarises the assumptions to fund the $7,024,000.

Table 4 – Funding Assumptions

| | Assumption $000s | Option 1 City Managed | Option 2 Club Managed | Option 3 Club / City Managed |
|---|---|---|---|---|
| 1) | *Department of Sports and Recreation* | 1/3 of $2,341 | 1/3 of $2,341 | 1/3 $2,341 |
| 2) | WHC Contribution | None | $600 | $600 |
| 3) | Remainder of Capital Expenditure, funded by borrowings, repaid by City | $4,683 | $4,083 | $4,083 |
| **4)** | **Total funding** | $7,024 | $7,024 | $7,024 |

The assumption that $2,341,000 is funded by Department of Sports and Recreation, is based on the assumption that a successful application is approved for 1/3 of the Capital Expenditure. The assumption is that the successful application includes an allowance for inflation, i.e. the $2,341,000 is 1/3 of the Capital Costs of $7,024,000.

WHC have informed the City that they would be prepared to contribute $600,000 to the Capital Expenditure, but only under option 2 and 3. No inflation is assumed for the WHC contribution.

## 2.4. Recurring Expenses

Table 5 below summarises the estimated recurring expenses for each option:

- Option 1 – the City would incur expenses of $468,000. The estimates are based on internal City estimates
- Option 2 – the Club operates the facility, the City is left with expenses only for the maintenance of the car park and water quality filter
- Option 3 – the City retain responsibility for grass pitches and other infrastructure

Table 5 – Recurring Expenses

| **Recurring Expenses $000s (First year of Service, including inflation)** | Opt1 City Managed | Opt2 Club Managed | Opt3 Club / City Managed |
|---|---|---|---|
| 1 Utilities | ($79) | | ($13) |
| 2 Cleaning | ($84) | | |
| 3 Repairs & Maintenance - Synthetic Pitch | ($11) | | |
| 4 Maintenance - Grass Pitches | ($129) | | ($129) |
| 5 Maintenance - Building | ($45) | | |
| 6 Staffing of Facility | ($84) | | |
| 7 Maintenance Car Park | ($3) | ($3) | ($3) |
| 8 Maintenance Floodlighting | ($11) | | ($6) |
| 9 Maintenance fencing | ($3) | | ($2) |
| 10 Water Quality Filter | ($6) | ($6) | ($6) |
| 11 Bar cost of sales | ($11) | | |
| 12 Food cost of sales | ($1) | | |
| **Annual Recurring Expenses** | **($468)** | **($9)** | **($159)** |

## 2.5. Recurring Income

Table 6 below summaries the annual income received by the City assumed for each option:-

- Option 1 is based on the current fees and charges currently applied by the City. Although the City would manage the synthetic pitch, clubrooms and grass pitch the estimated income is much lower than the projections by WHC. WHC would charge a much higher rate for the hire of the pitch (e.g. $136 hire per hour for Training)
- Option 2 and 3 assume that the City would receive a lease fee from WHC, assumed to be $5,000 in today's dollars and $6,000 by 2016/17.
- Under Option 3, the City is still responsible for the grass pitches.

Table 6 – Recurring Income

| **Recurring Income $000s (First year of service, including inflation)** | Opt1 City Managed | Opt2 Club Managed | Opt3 Club / City Managed |
|---|---|---|---|
| 1 Hire of Pitch / Oval - WHC | $4 | | $4 |
| 2 Hire of Pitch / Oval - Other clubs | $4 | | $4 |
| 3 Advertising & Sponsorship | $6 | | |
| 4 Hire of Clubroom - function room | $41 | | |
| 5 Hire of Clubroom - meeting room | $8 | | |
| 6 Hire per hour for casual users / visiting teams | $3 | | |
| 7 Hire of McDonalds Club Room to Softball Team | $7 | | |
| 8 Bar income | $34 | | |
| 9 Food income | $1 | | |
| 10 Lease of clubhouse to Hockey Club | | $6 | $6 |
| **Annual Recurring Income** | **$108** | **$6** | **$14** |

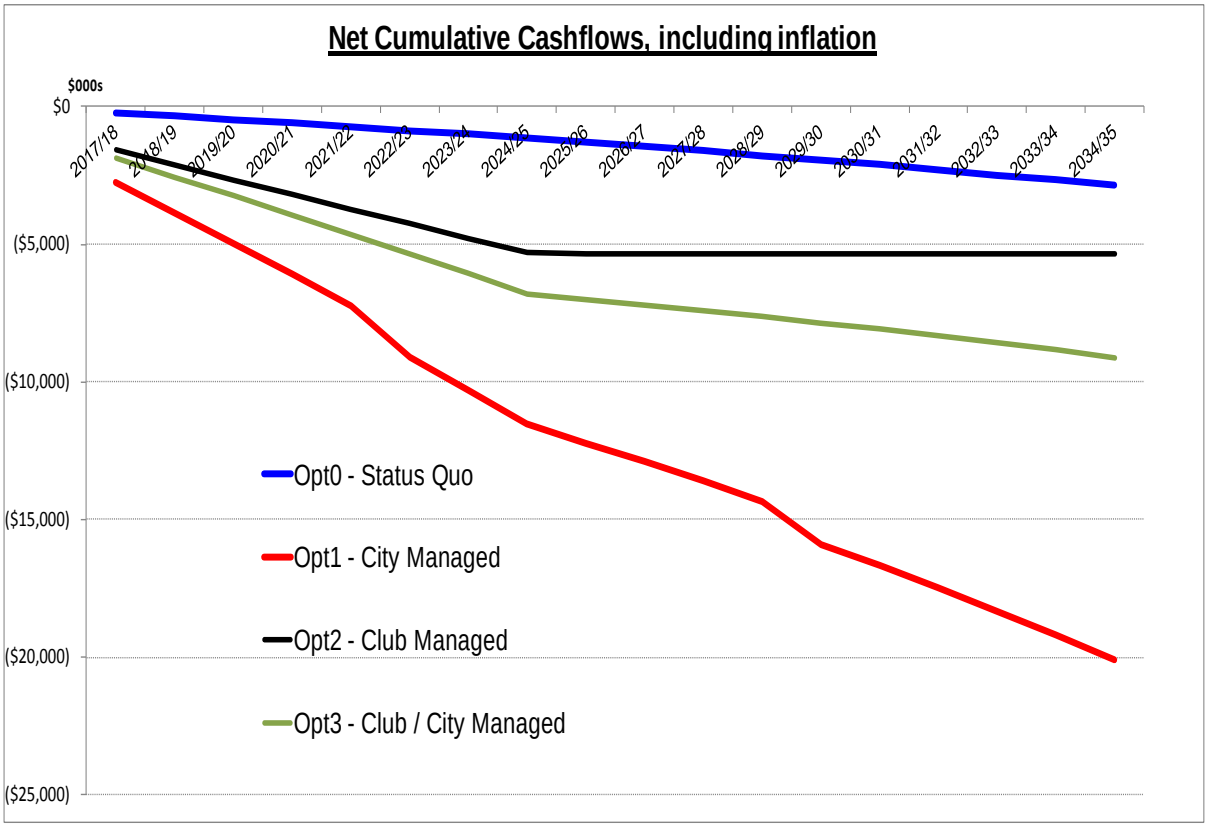
# 3. FINANCIALS - COMMENTARY

## 3.1. Summary Net Cumulative Cashflow

Chart 2 summarises all cashflows (including inflation) up to 2034/35. The observations are:-

- Option 0 (Status Quo) – continue to spend $108,000 in maintaining Macdonald Park and Warwick Open Space as they currently are.
- Option 1, 2 and 3 have a similar trend:
    - For 10 years, from 2017/18 to 2026/27 there is steep decline, due to the repayment of loan of $606,000 per year.
    - From 2027/28 onwards the recurring impacts are due to the difference between the income and expenses as shown in Table 5 and Table 6
- Options 1, City Managed, continues to incur a significant operating deficit for the City each year due to the additional recurring expenses by running the new facility
- Option 2 and Option 3 incur deficits each year, but much smaller than Option 1

Chart 2 – Net Cumulative Cashflows



## 3.2. Summary Output from Financial Model

Table 7 below summarises all cashflows up to 2037/38, including the estimated impacts of inflation.

Table 7 – Summary Cashflows, including inflation $000s

| | | | | Opt No | Opt0 | Opt1 | Opt2 | Opt3 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Option Title | Status Quo | City Managed | Club Managed | Club / City Managed | Best (excl Baseline) |
| | **One-off Expenditure & Income** | | | | | | | | |
| A | Capital Expenditure & one-off | | | $000s | | ($7,024) | ($7,024) | ($7,024) | **Opt1** |
| B | Grants & Contributions | | | $000s | | $2,341 | $2,941 | $2,941 | **Opt2** |
| C | Borrowings & Reserve funding | | | $000s | | $4,683 | $4,083 | $4,083 | **Opt1** |
| **D** | **Surplus (Deficit) / One-off** | | A+B+C | $000s | | | | | |
| | **Recurring Expenditure & Income** | | | | | | | | |
| E | Funding repayments and interest | | | $000s | | ($6,064) | ($5,287) | ($5,287) | **Opt2** |
| F | Expenditure recurring | | | $000s | ($2,974) | ($16,743) | ($226) | ($4,162) | **Opt2** |
| G | Income recurring | | | $000s | $101 | $2,703 | $141 | $343 | **Opt1** |
| **H** | **Surplus (Deficit) / Recurring** | | E+F+G | $000s | **($2,873)** | **($20,104)** | **($5,372)** | **($9,106)** | **Opt2** |
| **I** | **Surplus (Deficit) / Total** | | D+H | $000s | **($2,873)** | **($20,104)** | **($5,372)** | **($9,106)** | **Opt2** |
| **J** | **vs Option 1 Baseline** | | | $000s | | **($17,231)** | **($2,499)** | **($6,233)** | **Opt2** |
| | **Rankings Cashflows** | | | | | | | | |
| K | Ranking | based | | Rank | | 3 | 1 | 2 | |
| L | Difference to Number 1 option | on Row | | $000s | | ($14,732) | | ($3,734) | |
| M | Difference to Number 1 option | J | | % | | 589.5% | | 149.4% | |
| **N** | Net Present Value | | | $000s | ($1,833) | ($13,389) | ($4,000) | ($6,372) | Opt2 |
| **O** | Net Present Value | vs Baseline | | $000s | | ($11,556) | ($2,167) | ($4,539) | Opt2 |
| **P** | Benefits / Cost Ratio | | | Ratio | -0.1 | -0.1 | 0.0 | 0.0 | Opt2 |
| Q | Payback | | | Yrs | | | | | |
| | Rankings (NPV) | | | | | | | | |
| R | Ranking | based | | Rank | | 3 | 1 | 2 | |
| S | Difference to Number 1 option | on Row | | $000s | | ($9,389) | | ($2,372) | |
| T | Difference to Number 1 option | N | | % | | 433.3% | | 109.4% | |

The table above summarises the overall 20 year cashflows for each option, and also compares to the 'Status Quo' option:

- Option 0, the 'Status Quo' option, is where WHC continue to operate at MacDonalds park, whilst Warwick Open Space is continued to be used by Cricket and Softball. This option would continue to cost the City ongoing expenses, and an estimated overall cumulative cash flow by 2034/35 of ($2,873,000)
- Option 1, having a City run facility, is estimated to result in an overall deficit of ($20,104,000). This is a much higher expensive option than Option 2 or Option 3, due to the higher expenses incurred by the City and applying the same charges as currently applied in other City facilities. Option 1 does not take advantage of the opportunity of charging higher charges for use of the pitch e.g. $136 per hour for Training. Option 1 is ($17,231,000) worse off than status quo
- Option 2 is the least expensive option for the City, as it assumes that WHC take on responsibility for all ongoing expenses and infrastructure. This option is not

favoured by WHC. Option 2 results in cash flow deficit of ($5,372,000) and when compares to the Status Quo option a deficit of ($2,499,000)

- Option 3 is more expensive than Option 2, as the City would continue to maintain the grass pitches and some of the ancillary infrastructure. Option 2 results in cash flow deficit of ($9,106,000) and when compares to the Status Quo option a deficit of ($6,233,000)

## 3.3. 20 Year Strategic Financial Plan

Table 8 below compares the one-off costs of the project versus the estimates included in the Draft *20 Year Strategic Financial Plan 2011-2031*. The amounts shown are borrowing amounts i.e. the Capital Expenditure less the estimated contribution from *Department of Sports and Recreation* and WHC.

Table 8 – Options vs Budget (20 Year Strategic Financial Plan 2011-2031)

| Borrowing Requirements (incl Inflation) $000s | Option 1 | Option 2 | Option 3 |
|---|---|---|---|
| Borrowing estimate | $4,683 | $4,083 | $4,083 |
| *20 Year Strategic Financial Plan 2011-2031* | $3,000 | $3,000 | $3,000 |
| Variance | ($1,683) | ($1,083) | ($1,083) |
| Within budget | No | No | No |

The *20 Year Strategic Financial Plan* (SFP) has a rolling annual process for review and update of assumptions. There will always be changes in the assumptions that support the SFP. The next update of the SFP can include the updated changes from this project.

## 3.4. Comparison to Previous Version

The specification and Capital Expenditure have been subject to detailed review by both WHC and the City. The Capital Costs of ($6,244,000) are $2,620,000 less than the ($8,864,000) that were prepared in May 2012. The design of the facility originally assumed two storeys.

# 4. RISK & OPPORTUNITIES

## 4.1. Summary Risks & Opportunities

Table 9 and Chart 3 below summarise the risks and opportunities for Option 3 (Club / City Managed), the recommended option. This concludes that:-

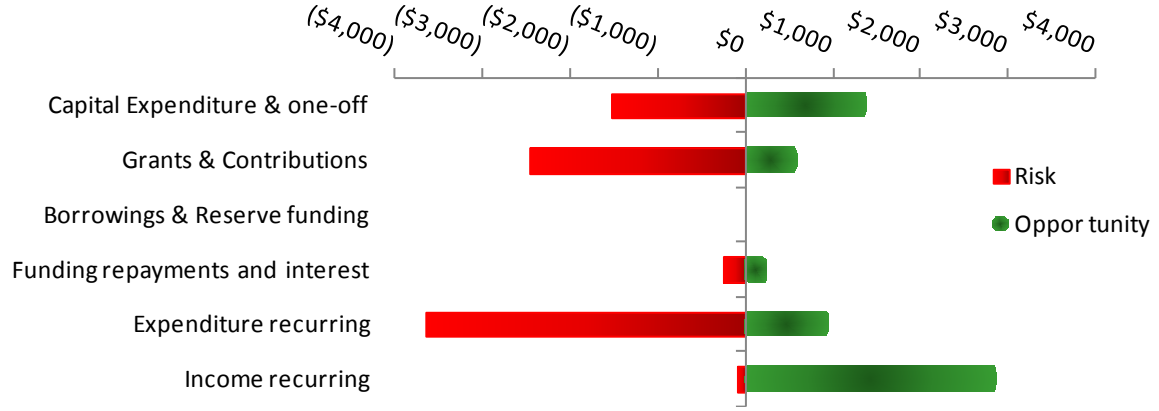
- Worse Case – if the worse case occurred in all assumptions, the further impact to the City would be ($7,990,000) over and above the ($9,106,000) estimated for Option 3. Therefore a total worse case of ($17,096,000)
- Best Case – if the best possible outcome were achieved in all cash flows there would be additional benefits of $6,046,000. This would result in overall cash flows for the project of ($3,060,000). This analysis informs us that it is not possible for the project to break even under option 3.

It is extremely unlikely that the cash flows would result in anything close to either the Worse Case or the Best Case. However the analysis at least informs us of the range of possibilities. Each of the factors that have contributed to the analysis are explained in further detail underneath Chart 3.

Table 9 – Option 3 Risks & Opportunities $000s

| **Opt3** Club / City Managed | CashFlow Total | %age Low & High | | Impact | |
|---|---|---|---|---|---|
| | 20 Yr | Risk | Opportunity | Risk | Opportunity |
| Capital Expenditure & one-off | ($7,024) | 21.7% | -19.7% | ($1,522) | $1,382 |
| Grants & Contributions | $2,941 | -83.7% | 20.4% | ($2,461) | $600 |
| Borrowings & Reserve funding | $4,083 | | | | |
| Funding repayments and interest | ($5,287) | 4.9% | -4.5% | ($261) | $237 |
| Expenditure recurring | ($4,162) | 87.8% | -22.8% | ($3,655) | $950 |
| Income recurring | $343 | -26.5% | 838.4% | ($91) | $2,877 |
| **Surplus (Deficit) / Total** | **($9,106)** | **87.7%** | **-66.4%** | **($7,990)** | **$6,046** |

Chart 3 – Option 1 Risks & Opportunities $000s



## 4.2. Capital Expenditure

Table 8 shows that there is estimated to be risks of ($1,522,000) and opportunity of $1,382,000. The reasons for this are:-

- *Detailed design* - has not been completed. This is both a risk and an opportunity.
- *Exclusions by QS* – there are some items that the QS has not provided estimates for: Geotech survey, new ministers water and sewer mains to site if required, legal costs.
- *Contingency* - has been included so that could provide an opportunity, but the reason for including a contingency is that detailed design and tendering has not been completed, whilst there are some minor exclusions as listed above.
- *Tendering* - competitive tendering may also provide opportunity to reduce costs, although the marketplace could change also and become less competitive.
- *Escalation* - of the prices may be more than the 4% assumed
- *Smaller clubroom* - the size of the clubroom in the current sketches is 400m2. It is acknowledged by WHC that this is larger than they require, although it would present opportunities to generate additional income by hiring events to other organisations. If the clubroom were reduced to 200m2, this would reduce the capital estimates by approx $500,000 and reduce the overall impacts (including interest on the borrowings) by approx $700,000.

## 4.3. Grants & Contributions

Table 8 shows that there is estimated to be risks of ($2,461,000) and opportunity of $600,000. The reasons for this are:-

- *Department of Sports and Recreation* - there is a risk that the application is unsuccessful.
- *Contribution from WHC* - WHC have indicated that there could be a greater contribution once a level of commitment to the project is made.

## 4.4. Recurring Expenses

Table 8 shows that there is estimated to be risks of ($3,655,000) and opportunity of $950,000. The reasons for the high level of risk is due to the key issue of Club Sustainability - the risk that the Club are unable to achieve a breakeven or surplus operating result from the facility, and as a result require the City to pay the deficits. The Club have prepared their own projections for operating the synthetic pitch and clubrooms. This has been subject to separate evaluation with WHC, with the key issues below

- *Club Projections Operating expenses* - the majority of the projections were much lower to the assumptions estimated by the City. The basis of some estimates by WHC were reasonable (e.g. volunteers used for some of the cleaning rather than staff costs). However some assumptions (such as building maintenance) had no audit trail.
- *Club income Projections - m*any of the projections appear reasonable, whilst other assumptions are based on best judgement and have no evidence to state whether they will come to pass or not. For example, the assumption by WHC that the number of senior teams will grow from five teams to seven teams. The increase in teams is based on the assumption that the synthetic hockey pitch will act as catalyst for increased membership and participation – this assumption appears reasonable, and consistent with experience in other areas (eg. City of Melville), but is not guaranteed.
- *Consultancy review*. Tredwell consultancy have prepared income projections. The Tredwell income projections for year 1 are 81% lower to the WHC projections. There is no doubt that the first year or so, in any new operation always bring risk.

However the Tredwell projections do increase substantially and the projections at year 5 are 20% adrift of the WHC projection. Tredwell used information from the Hockey Pitch at Rockingham to help with the projections.

- *City of Melville* – a further comparison was made with the *City of Melville*. The *City of Melville* has operated a synthetic hockey pitch since 2005. *City of Melville* has generated approx $171,000 per year for the last 5 years. *City of Melville* has been able to set aside surpluses to save up for a second synthetic hockey pitch, and now are in the midst of planning for this. Taking account of the comparisons with *City of Melville* it is deemed a low to medium risk that WHC would not be able to operate the facility with a surplus.
- *Hockey West Australia* – one of the key assumptions by WHC in their projections is the assumptions that *Hockey West Australia* would guarantee income by having fixtures organised at the WHC site. There is no doubt that *Hockey West Australia* are fully supportive of the proposal for a synthetic pitch, however there is no guarantee that fixtures would be placed. It may be useful for the City to request *Hockey West Australia* go provide a guarantee of future fixtures, to provide certainty of income to WHC and therefore reduce the risk of financial support being required by the City

## 4.5. Recurring Income

Table 8 shows that there is estimated to be risks of ($91,000) and opportunity of $2,877,000. The reasons for the large opportunity are:-

- *Profit Sharing with WHC* - There is the possibility that the facility can generate a significant operating surplus, indeed the figures from City of Melville would support this. WHC have suggested that a profit-sharing scheme could be established with them. Issues to be considered for this are:-
    - As City would be expected to fund more than 50% of the Capital Expenses, it would be useful to have future income to offset this cost
    - Ongoing financial sustainability – the mechanism could provide the City with the opportunity of ensuring that other stakeholders who want to use the facility (e.g. other sporting clubs to hire the synthetic pitch, hire of the clubrooms), have the ability to do so. This supports the City objective of providing facilities that are multi-use as well as generating additional income
    - Losses. It would not be preferred for the City to agree to a profit-sharing scheme which requires support of losses. However this comes back to the points raised in previous section, where the ability of WHC to generate a significant surplus looks reasonable, although this projection is only as good as the ongoing support from HWA in placing fixtures there.