EXECUTIVE SUMMARY

The City of Melville has engaged A Balanced View (ABV) Leisure Consultancy Services to investigate the feasibility of synthetic sports surface options for Len Shearer Reserve. This study builds on the City of Melville’s Strategic Provision of Active Reserves Draft Report, 2011, (SPAR) which highlights the active reserve capacity constraints the City is facing with a growing population, uncertainty about future ground water allocations, and the potential role that synthetic surfaces may have in meeting the future needs of the community.

Synthetic sports surfaces have been in existence for nearly 50 years, and have been popular in Australia for many years for a range of sports including tennis, hockey, cricket (wickets) and lawn bowls. In recent years within Australia conditions have become increasingly conducive to the provision of an increased level of synthetic sports surfaces for other sports, most notably for soccer/multi-use sporting fields which are being implemented in significant numbers in the eastern states. Technological advances, drought conditions and a need to increase active reserve capacity with limited land availability are the key drivers behind the increased uptake of synthetic fields which are now appearing for a wide range of sports including Australian Rules football, cricket and rugby.

The conditions that have driven the uptake of synthetic sports surfaces in the eastern states – with Victoria leading the way – are becoming prominent in Western Australia. Water resources are being severely affected by the long term declining rainfall trend and demand for additional active reserve space is increasing beyond the capacity of many metropolitan local government authorities (LGA’s) to supply it due to a lack of available land. Synthetic sports surfaces alleviate these issues as they do not require watering and they have up to 300% greater usage capacity than natural turf for an equivalent sized area, thus active reserve capacity can be increased simply by converting a natural sports turf into synthetic sports turf.

Len Shearer Reserve is the location selected for this investigation into synthetic surfaces as this reserve is significantly over utilised and has proven difficult for the City to maintain to an acceptable community standard. The overuse issues are compounded by the fact that the reserve has a limited water source which has been insufficient to maintain the surface in recent years. The City is now at a junction where a decision is required on what upgrades or changes are needed for the reserve to meet these challenges.

The three potential synthetic surface developments considered within this study are:

1. multi-use synthetic courts for five-a-side soccer and similar activities;
2. a synthetic athletics track; and
3. a synthetic soccer field to the interior of the athletics track.

Multi-Use Synthetic Courts

The provision of multi-use synthetic courts enables significant income generation potential as do indoor sports courts. Unlike natural turf, synthetic surfaces can accommodate the high intensity daily use required for 5 a side soccer programming and similar activities, and still perform to a high standard.

Investigations into the potential for multi-use courts that accommodate five a side soccer and other such sports for the small rectangular area adjacent to the eastern side of the Melville Aquatic Fitness Centre (MAFC) reveal that there is sufficient space for four courts.

The courts could either be developed running north/south or east/west as shown below:
A multi-use surface that meets the relevant standards for both soccer and hockey is preferred which is now available through leading suppliers. A surface that meets FIFA 1 Star standards would be highly attractive to potential five-a-side players, and the surface could also be used effectively for indoor hockey (played outdoors) and other sports.

Supporting facilities such as lighting, fencing and a small building with an office, toilet, storage and first aid room would also be required for the overall development.

The total construction cost estimate for Option 1 (courts oriented north/south) is $1,366,000 Ex GST. The total construction cost estimate for Option 2 (courts oriented east/west) is $1,284,000 Ex GST.

**Synthetic Athletics Track**

A synthetic athletics track will enable more efficient use of the City’s active sporting reserves and provide a significantly better surface quality for athletics users.

A synthetic athletics track located in place of the existing natural turf athletics track area will enable Len Shearer reserve to be the primary and sole athletics venue in the City, accommodating all club and school competition. The City currently has to direct schools to use other reserves because of over-capacity issues at Len Shearer. This results in less active turf capacity being available for other sports.

A suitable facility for accommodating a large little athletics club, senior athletics and numerous school carnivals would include an 8 lane 400m track with a 10 lane 100m straight on the main spectator viewing side of the facility and an 8 lane 100m straight on the opposite side. The Hay Park facility in Bunbury is a good example of this (see Section 5.2.3). The total construction cost estimate for the synthetic athletics track is $1,774,000 Ex GST
**Synthetic Soccer Field**

A new synthetic turf will provide a significantly higher quality playing surface consistently over its lifespan and should attract a great deal of interest as there are currently no other such fields in WA. Once soccer players within Melville experience and become familiar with the field, significant demand for use of the facility should develop quickly. The synthetic field will not be affected by the over use issues experienced at Len Shearer and will greatly reduce the watering requirements of the reserve.

Investigations into developing a synthetic soccer surface as the infield to the proposed synthetic athletics track have revealed that should the City wish to do this, it would need to be developed at the same time as the athletics track. This is due to the entire ground subsurface base having to be engineered as one cohesive structure to ensure a stable base with effective drainage can be developed.

Such a development would be similar to the Hensley Athletic Field in the City of Botany Bay, NSW (see Section 5.2.4).

There are a number of advantages and disadvantages relevant to developing a synthetic soccer infield to an athletics track. These are detailed in Section 10. The primary advantage is that certain infrastructure can be shared including fencing, lighting, parking and pavilion facilities. The main disadvantage is that the soccer field will not be able to be used to its full capacity during the summer athletics season due to incompatibility of the two sports, thus reducing the total amount of use the soccer field can receive over its lifespan. Furthermore, the infield cannot be used for athletics field events such as javelin, discus and shot put.

The findings of the advantages/disadvantages of developing a synthetic soccer field to the interior of an athletics track or as a stand-alone facility elsewhere should be carefully considered by the City when deciding on which option represents the most appropriate use of the City’s funds.

The total construction cost estimate for the synthetic soccer field is **$1,040,000** Ex GST.

**Overall Financial Impact**

The table below shows the overall financial impact of the development of the synthetic surfaces based on the estimated changes to income and expenditure.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi Use Synthetic Courts</td>
<td>110,000*</td>
<td>0*</td>
<td>11,000</td>
<td>121,000</td>
</tr>
<tr>
<td>Synthetic Athletics Track Only</td>
<td>12,000</td>
<td>(93,200)</td>
<td>11,000</td>
<td>(70,200)</td>
</tr>
<tr>
<td>Synthetic Soccer Infield to Athletics Track Only</td>
<td>0</td>
<td>(72,500)</td>
<td>12,000</td>
<td>(60,500)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>122,000</strong></td>
<td><strong>(165,700)</strong></td>
<td><strong>34,000</strong></td>
<td><strong>(9,700)</strong></td>
</tr>
</tbody>
</table>

*Income for multi-use synthetic courts is net after all LCC and operational expenses have been deducted.

This financial analysis shows that should all three synthetic surface facilities be developed, the financial impact to the City will be an increase in costs of $9,700 p.a.
Conclusion

This study finds the development of synthetic sports field surfaces at Len Shearer Reserve would deliver significant benefits to the City of Melville including considerably increased active reserve usage capacity, greatly reduced water consumption, consistently high quality playing surfaces and improved long term financial sustainability.

These benefits are very important for inner city municipalities such as the City of Melville that are experiencing strong population growth but have limited land availability for additional active reserve space. The provision of synthetic sports surfaces represents the least costly method for providing additional active reserve capacity over the long term under these circumstances. The reduced water consumption benefits are particularly important in the continuing trend of declining water availability for public open space.

This study has found that the full development of the synthetic surfaces as described in Section 6 including: multi-use synthetic courts, a synthetic athletics track, and a synthetic soccer surface to the interior of the athletics track, would deliver the significant benefits listed above for a relatively low overall net cost to the City’s budget of approximately $9,700 p.a. over the lifespan of the facilities. The multi-use synthetic courts surface provides significant income generation potential which offsets most of the costs of developing and maintaining the synthetic athletics and soccer surfaces.

Overall, the development of synthetic sports surfaces at Len Shearer Reserve is demonstrated to be a viable option for overcoming the lack of water and over use issues currently experienced at the reserve, and increasing the active reserve capacity of the City without the need to find space for additional sporting fields. Synthetic surfaces are a more cost effective use of the City’s financial resources, a more efficient use of limited public open space, provide consistently high quality playing surfaces, and provide greater protection for the City against potential future cuts to watering allocations. As such, the synthetic sports options investigated within this study warrant consideration by Council for future implementation.
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1 INTRODUCTION / BACKGROUND

The City of Melville has engaged A Balanced View (ABV) Leisure Consultancy Services to investigate the feasibility of synthetic sports surface options for Len Shearer Reserve. This study builds on the City of Melville’s *Strategic Provision of Active Reserves Draft Report, 2011*, (SPAR) which highlights the active reserve capacity constraints the City is facing with a growing population, uncertainty about future ground water allocations, and the potential role that synthetic surfaces may have in meeting the future needs of the community.

Len Shearer Reserve is the location selected for this investigation into synthetic surfaces. This reserve is significantly over utilised and has proven difficult for the City to maintain to an acceptable community standard. The overuse issues are compounded by the fact that the reserve has a limited water source which has been insufficient to maintain the surface in recent years. The City is now at a junction where a decision is required on what upgrades or changes are needed for the reserve to meet these challenges.

The three potential synthetic surface developments considered within this study are: multi-use synthetic courts for five-a-side soccer and similar activities; a synthetic athletics track; and a synthetic soccer field to the interior of the athletics track.
2 TRENDS IN SYNTHETICS

2.1 History

Synthetic sports surfaces have been in existence for several decades and are currently being used extensively for lawn bowls, tennis, hockey and cricket (wickets) within Australia. Synthetic athletics tracks have also been in use for many years in Australia, particularly within Victoria, primarily at regional sporting venues. The rationale behind the uptake of synthetic turf surfaces include increased usage capacity, decreased water and maintenance requirements, greater tolerance of extreme weather events, ability to be programmed for intensive use for subsequent income generation, significantly safer to play on than overused natural turf fields, and improved uniformity of ball bounce/roll characteristics.

A more recent phenomenon in Australia is the increasing development of synthetic soccer surfaces (often with multi-use purposes) for LGA’s and schools. In the 1990’s ‘Third Generation’ (3G) synthetic turf was developed that includes long pile turf with granulated rubber infill. 3G technology has resulted in the widespread roll out of synthetic turf surfaces around the world, particularly in Europe where soccer is heavily disrupted during winter due to wet/icy weather causing closure of sporting fields. Synthetic surfaces enable play during adverse weather conditions and have much greater usage capacity. The playing characteristics of modern synthetic surfaces for soccer and other such large ball sports are similar to that of natural turf and do not affect the style of play. They have low abrasion qualities and allow players to slide on the turf as they would on natural grass.

In Australia, the uptake of third generation surfaces appears to have been primarily driven by the severe water shortages along the east coast over the past decade. Another significant factor is that major cities such as Melbourne and Sydney have growing populations but limited land availability for additional active reserve space. The State Governments have supported the installation of synthetic surfaces with grants to LGA’s and not for profit organisations for synthetic surfaces to enable sports to continue to operate during drought conditions and to increase capacity in highly populated areas.

The take up of synthetic athletics tracks varies from state to state. Victoria is the leader for synthetic athletics track and soccer turf installations whilst WA has installed very few. Synthetic soccer surfaces and now AFL/Cricket surfaces appear to be rolling out at a high rate for both LGA’s and schools across Victoria, whereas there are no full size soccer fields currently installed in WA. Additionally, WA has 3 synthetic athletic tracks, whilst Victoria has 29; SA only has 1 synthetic track.


The difference could largely be attributed to significantly greater financial support from the Victorian State Government for these kinds of surfaces and the severe water restrictions they have had over the past decade. WA has not had the same level of State Government financial support for synthetics or severe water restrictions impacting the viability of active reserves.

It is interesting to also note that the UK has over 300 synthetic athletics tracks (The UK Running Track Directory (lists over 300 synthetic athletics running tracks within the UK (http://www.runtrackdir.com/)), where drought is not an issue. It would be anticipated that the high use of synthetic surfaces is partly to do with maximising use of limited active turf areas, but also partially due to a cultural difference where synthetic surfaces are considered to be more of a standard item for an athletics club or university. In WA, synthetic athletics tracks are currently considered an elite level facility only necessary for State Level competition and training.
2.2 Advances in Technology

Further advances are continually being made in synthetic surface technology. Current focus areas for synthetic turf development include:

- Reducing heat build up in the turf for summer daytime use
- Increasing durability
- Reducing glare
- Reducing abrasiveness
- Achieving internationally recognised standards for multiple sports
- Removing the need for watering of hockey pitches
- Reducing the amount of infill required

There are now multi-purpose surfaces that meet the official requirements for Australian rules football/cricket; with several fields now completed or under construction. Soccer/hockey and soccer/rugby pitches have also been developed that meet relevant international standards. New surfaces are now being termed as 4\textsuperscript{th} generation synthetics surfaces which are characterised by a decreasing level of infill being used in the turf.

Whilst it is not a concern of sporting clubs that seek synthetic surfaces, multi-use functionality is highly sought after by schools and LGA’s who wish to maximise the use of their investment. Synthetic turf developers are making significant progress in developing turf that meets the standards for both large and small ball sports including the cricket/afl and soccer/hockey turfs. It would appear to be a matter of time before turfs are developed that are suitable for all the major field sports played in Australia.

Existing synthetic surfaces can be readily resurfaced with the latest turfs without the need for a complete redevelopment as the base works requirements remain the same.
2.3 Advantages of Synthetic Turf

Whilst synthetic surfaces are considerably more expensive to construct compared to natural turf, they have significant advantages that provide justification for their installation in a wide range of circumstances. The major advantages of synthetic surfaces are listed below:

- Synthetic surfaces have much greater capacity for use and can be intensely programmed if required. A synthetic surface is really only limited in its capacity by lighting for night play and can be used at all socially acceptable times. The figure of 100 hours per week is considered realistic if programmed from early morning to late at night.

- Use during wet weather does not damage the turf as it does with natural turf, nor is it damaged by extended heatwaves or water restrictions.

- Synthetic turf maintains a consistently very high quality playing surface if maintained properly, equivalent to playing characteristics of elite level turf. The quality cannot be matched by standard community sporting fields.

- The life cycle costs of a synthetic surface can be considered to be cheaper than natural turf when one considers that a synthetic surface can handle at least three times the level of use as natural turf. Note: the level of savings varies widely between LGA’s depending on how much it costs to develop a new natural turf sporting field in that area and how much it costs to water and maintain it. It is significantly cheaper to develop sporting fields in Perth than it is in eastern states due to favourable sandy soils being readily available.

- There are also significant potential opportunity cost savings if land does not need to be purchased for additional active turf space, or alternatively if valuable council owned land is able to be sold to fund community infrastructure rather than being retained for future active turf space. This is especially beneficial for inner city LGA’s where there is limited public open space that can be used for active reserves.

- The provision of synthetic surfaces provides a degree of protection for sporting competitions if emergency water restrictions are ever declared as experienced in the eastern states in recent years. The synthetic surfaces can still be used during drought conditions whilst many natural turf fields would need to be closed down for player safety and to avoid completely destroying the surface.

- Synthetic surfaces do not need rest periods before or after the football season, and have lower maintenance requirements than natural turf. Additionally, it is often within the capability of not for profit sporting organisations to conduct a large proportion of the necessary maintenance activities with voluntary labour for the synthetic surface. This is not the case with most natural turf sporting fields.

- There is potential to harvest water from synthetic surfaces via various water storage methods which reportedly occurs in the eastern states with good success. Due to Perth’s climate however, almost all rainfall occurs during the winter months and very little during summer. Due to the dry summers, Perth’s ovals require much larger volumes of irrigation water than eastern states fields, and any water that is captured in underground water storage or otherwise is quickly used up at the beginning of the watering season and then remains mostly empty for the remainder of the season. As such, water harvesting from synthetic surfaces does not appear to be of significant practical use in Perth unless there is already a large storage dam in place that can be easily connected to.
2.4 Disadvantages/Issues of Synthetic Turf

When compared directly with natural turf, synthetic surfaces have several disadvantages that need to be considered when investigating the most appropriate type of surface for a sporting field development. The major disadvantages are listed below:

- Synthetic surfaces are expensive to install (2-3 times the cost of a natural turf sporting field).
- All the major synthetic surface suppliers recommend security fencing to protect the considerable investment the LGA has made from vandalism, animals and unauthorised use. This conflicts with many LGA’s stated policies or practices of keeping active reserves open and accessible to the whole community for active and passive recreation. Fenced off synthetic turfs cannot provide the same passive recreation functionality that natural turf sporting fields can (e.g. throwing a frisbee, flying a kite or walking the dog. Fencing comes at a significant additional cost to the development of the turf.
  - Note: whilst fencing is a disadvantage for the general community, it is advantageous for senior sporting clubs that charge entry fees to sporting games and wish to put up sponsorship signage around the border of the playing surface. This is of particular benefit for soccer clubs with WA Premier League aspirations where fencing is a mandatory requirement. Fencing can help clubs be more financially viable and potentially provide a significant contribution to the life cycle costs of the turf. It is also advantageous for schools that need to manage large numbers of children at carnivals.
- Synthetic turf has a propensity to heat up considerably in direct sunlight and can become too hot to play on, particularly when there is little wind. Natural turf provides a cooling effect during warm weather and is much more pleasant for active and passive recreation during summer. Organisations with synthetic surfaces are advised to develop heat policies to manage the risk associated with excessive heat build up.
- Many community sporting clubs are still reluctant to accept synthetic sports surfaces due to preconceptions about the playability of the turf. This is particularly the case with soccer clubs. It is noted that with the advances in turf technology, sports clubs that are moved on to synthetic surfaces appear to be very satisfied.

2.5 Use of Synthetic Surfaces in the Future

The Perth Metropolitan area is fortunate to have a very large and easily accessible ground water resource that is used to irrigate almost all public open space, therefore there has not yet been the same pressures for the installation of synthetic turfs as has been the case in the eastern states, despite low levels of rainfall. However, there is growing levels of concern in the parks and leisure industry that the level of ground water use is becoming increasingly unsustainable as the low levels of rainfall continues resulting in declining replenishment of the aquifers. It is a commonly held belief that further restrictions to ground water use for public open space irrigation will occur at some point in the future, this point was made in several presentations at the recent Parks and Leisure Australia Conference Smarter Water, held on May 27, 2011. The point at when such restrictions are to be enforced will depend on future rainfall totals and government strategies for securing sufficient water supply for Perth’s needs.
It is clear, that in future years, the lack of water supply will drive a significant uptake of synthetic surfaces in Perth and WA as a whole. Other issues such as a lack of available public open space will provide additional rationale for synthetic turf installations. ABV speculate that the following trends may eventuate in Western Australia:

- New hockey field installations will predominantly be hybrid hockey surfaces (‘hybrid’ meaning that it can be played on with or without application of water). Existing wet hockey fields will progressively be converted to hybrid hockey fields as the surfaces become due for replacement.

- Synthetic soccer surfaces should begin appearing in the next few years in LGA’s that are experiencing a shortage of soccer fields. This includes both inner city and rapid population growth LGA’s. Soccer competitions will need to adjust their fixturing along similar lines to hockey to enable full use of the new synthetic surfaces. Rugby may also see the development of synthetic pitches where circumstances provide rationale for it.

- Reserves on/near high school land will be attractive locations for synthetic soccer/multi-use developments. LGA’s will look to take advantage of shared use benefits including increased attractiveness for government funding and the sharing of costs. Schools also tend to have perimeter fencing already in place.

- Wherever possible, LGA’s will look to install multi-use synthetic surfaces such as soccer/hockey to ensure the surface can be used to its full potential. This is a particular issue that a number of regional LGA’s are already looking in to due to water shortages.

- Private and/or LGA run five a side soccer facilities will begin to appear in the coming years to take advantage of the income generation potential. Potential sites may include tennis and bowling clubs that no longer need as many courts/greens due to declining membership.

- Full size AFL/cricket synthetic ovals are unlikely to be developed for club football or cricket in the short or medium term simply due to the expense of developing such a large area of turf. If capacity constraints become an issue for Australian rules teams, LGA’s may start requiring them to use synthetic soccer and rugby fields for training sessions.

- Cricket pitches may be located between two synthetic soccer fields if developed side by side which would be used as junior pitches and as overflow senior cricket pitches if necessary. Midday heat during summer will be an issue on synthetic turf, thus a pitch on a synthetic turf oval would be the least preferred option for cricketers if natural turf ovals in reasonable condition are available.

- The larger metropolitan LGA’s may look to provide one synthetic athletics track within their municipality to accommodate all athletics participation, particularly if DSR becomes more willing to support such developments. This will maximise use of limited active reserve space and potentially save significant amounts of water that can be used for other active/passive areas that require increased irrigation.
3 RATIONALE FOR SYNTHETICS AT LEN SHEARER RESERVE

3.1 Water Conservation

One of the most significant benefits of the utilisation of synthetic surfaces in place of natural turf is potential for significant water savings. The development of a synthetic sports surface as opposed to a natural turf field is the single most effective measure an LGA can make across any of its infrastructure to reduce water consumption. One hectare of dry synthetic turf will save approximately 9 million litres of water p.a. in watering that would be used watering the same area of active turf in Perth (based on average weather conditions and on an efficient watering system). The development of a synthetic athletics track with internal soccer field would reduce the active turf area at Len Shearer by 1.5ha, thus a direct savings of 13.5 million litres of water per annum would be expected.

If one synthetic field is used to replace up to three natural turf fields, then the water saving benefits are further magnified. If the development of 1.5 ha of synthetic turf at Len Shearer ultimately replaces the need for 4.5 ha of natural turf in the long term, then annual water savings may be in the order of 40 million litres of water p.a.

Currently in the Perth Metropolitan region, Local Government Authorities have sufficient ground water allocations to water all active reserves, even in dry years. Some reserves have struggled where reticulation equipment is old and provides poor coverage; however this is rectified once the equipment is replaced. Ken Johnston of Sports Turf Technology advises that even in dry years such as the current 2010/2011 season, 9 ML of water per hectare p.a. is sufficient for active turf. Trials that are being conducted with new wetting agents and modified irrigation scheduling show that water efficiency can be further reduced by substantial margins.

Ken advises that the current water allocations afforded to LGA’s for public open space are sufficient and allow a buffer margin if modern equipment is being used. As such, Perth LGA’s may be able to sustain a moderate level of tightening of water allocations and still irrigate all areas sufficiently provided adequate reticulation equipment, scheduling and maintenance practices are conducted. Further savings can be made through optimal watering scheduling. Sports Turf Technology advises that turf on sandy soils require less water if they are watered more frequently with smaller amounts of water.

Of concern however, is that Perth is undergoing significant climate change and it is known that ground water levels are declining each year. In the longer term, it would seem almost inevitable that ground water allocations will be reduced. Further, a usage cost could also be added by the Government as a strategy to further reduce ground water consumption to sustainable levels.

It is known that Len Shearer Reserve has had difficulty in being watered sufficiently within the available water allocation. This appears to be as a result of an old and inefficient reticulation system that is due for replacement.

Len Shearer Reserve could meet its water target of 96,750 KL p.a. which it shares with Shirley Strickland Oval through the installation of new reticulation systems for both reserves. This is because the existing water allowance allows for annual watering in excess of 10,000KL per ha p.a. which is greater than the industry recognised standard of 9,000 KL per ha p.a. for active turf (as per consultation with Sports Turf Technology). However, the introduction of synthetic surfaces in addition to an improved reticulation system would greatly reduce water consumption below the current allowance and provide a beneficial outcome for the environment through the reduction of millions of litres in water being extracted from Perth’s ground water system. Importantly, it would also provide protection for Shirley Strickland Oval and the remainder of the turf at Len Shearer Reserve if ground water allocations are further reduced in the future.
3.2 Increasing Capacity of Active Reserves

One of the primary reasons for installing synthetic surfaces is that they can sustain a much greater level of use than natural turf fields and thus are useful for significantly increasing active open space capacity of an LGA that has limited turf development options.

The City of Melville’s population is expected to grow by 40% over the next twenty years; however, there are limited opportunities for developing additional active reserve space to accommodate additional sports participants. The Strategic Provision of Active Reserves (SPAR) 2011 – 2031 Draft Report, April 2011 shows that Melville needs to be more efficient with its usage of existing active reserve spaces and should consider the use of synthetic surfaces to assist in this regard.

A synthetic surface is widely reported to have capacity for 60+ hours of use per week, with 100 hours being achievable if it can be programmed as such. It is effectively only limited by the available hours in a day. This is in contrast to a natural turf field which is considered to be able to handle up to 25 hrs of use per week when well maintained in moderate climate conditions. Sustained high use of a synthetic surface simply requires more frequent grooming, whereas sustained over use of natural turf will result in the surface becoming unusable for a lengthy period of time until it can be rehabilitated.

It is also considered that a synthetic sporting field could accommodate twice the number of club sports teams. For rectangular field sports such as rugby, soccer and hockey; it is generally considered that one field is required per 8 teams (mixture of senior and junior teams). However, if clubs are willing to be more flexible with their fixturing, it is felt that 16 teams could be accommodated per synthetic pitch. This number of teams would mean that the synthetic field would be virtually fully utilised on weekday evenings for training and on weekends for competition, whilst still providing opportunity during weekday daytime for other users such as schools and corporate groups.

Furthermore, a notable advantage of synthetics is that it can sustain high levels of use of short sided games on mini pitches such as five a side soccer. 1 hour of a normal soccer game has 22 persons on the field, whereas a soccer field divided into 8 mini fields has 80 persons on the same area, thus the wear and tear is almost 4 times as great. A natural turf field does not have the capacity to sustain this level of intense usage; therefore, any mini pitch facility development such as being considered at Len Shearer Reserve must consider a synthetic surface.

The SPAR Draft Report shows that soccer is a growing sport both nationally and within the City of Melville. It does, however, show that there is sufficient provision of soccer fields until 2015. Therefore there is a medium term need for additional soccer field provision in which a synthetic surface could be a potential solution. The SPAR Draft Report suggests that Len Shearer is a potential venue for a synthetic soccer field.

Currently the City is receiving requests from numerous schools for sites to hold athletics events. The City struggles to find places for them because it does not want to overload the Len Shearer Reserve track which already has a large little athletics association based there. A synthetic running track would alleviate this problem by greatly increasing the capacity of the reserve to host additional athletics events as well as a growing athletics club. The City would gain further benefits through not having to mark out athletics tracks on other grounds such as Beasley Park and Marmion Reserve, freeing these grounds up for other summer users as the need arises and reducing need for increased maintenance.
3.3 Income Generation

3.3.1 Multi-Use Synthetic Courts

Sports courts are able to generate cash flow through intensive programming. This is evidenced by many private indoor sports centres, municipal recreation centres and basketball associations operating throughout Perth which generate significant returns.

Sports such as five-a-side soccer are very popular and growing strongly. The Melville Recreation Centre and Leeming Recreation Centre’s indoor five-a-side soccer competitions are full. National statistics such as those in the Exercise, Recreation and Sport Survey conducted by the Australian Sports Commission show that indoor soccer has grown by 75% between 2001 – 2009 for persons aged 15+. The Australian Bureau of Statistics shows that children’s participation in indoor soccer has increased by 211% between 2000 – 2009 (Children’s Participation in Cultural and Leisure Activities, ABS, 4901.0, 2000-2009).

Outdoor multi-use synthetic surfaces provide similar opportunities to indoor sports centres. Depending on the type of surface and line markings used, an outdoor synthetic surface can be used for a range of activities including futsal, indoor hockey, indoor cricket, volleyball, netball and basketball. For sports where the surface is not an appropriate type or size for competition, often it can still adequately be used for training purposes such as for football, rugby and soccer. The courts can also be hired out for coaching clinics, schools use and corporate use as well as regular competitions held daily.

Privately operated outdoor five-a-side soccer centres are extremely popular in the UK and are beginning to appear in Australia. Further details of these are provided in Section 5.1. ABV notes there is a perception in the leisure industry more of these will continue to develop due to growing demand and potential for healthy returns on investment.

3.3.2 Synthetic Athletics Track

A synthetic athletics track will be used regularly for training and competition by the resident club throughout the warmer months. Numerous school carnivals would be anticipated during the winter months. It is also very likely to receive use during the off season for training and specialist clinics. A synthetic surface is able to sustain significantly greater usage than a natural turf running track and will be in higher demand due to the improved quality of the surface.

Income generated from hire of the athletics track can offset expenses such as covering general maintenance/cleaning of the track which is relatively limited, and make a partial contribution towards life cycle costs.

The Sandringham Athletics Club (Bayside City Council, Victoria) holds a lease on a synthetic athletic track facility in which it is responsible for all track maintenance and resurfacing costs. It is able to recoup these costs through membership fees and hiring out for school carnivals. It is noted, however, that the Club did not contribute to the original capital construction costs of the synthetic track.
3.3.3 Synthetic Soccer Field

A full size synthetic soccer field can be heavily utilised for both club soccer training and competition, and with appropriate line markings and retractable dividing netting it could be used for five a side competitions of up to 8 courts. With competition level lighting allowing usage into the night as far as Council policies will allow (generally lights are required to be turned off by 10:00pm), 60+ hours of use per week can be achieved which allows for significant income generation and sporting and community usage.

Studies such as the *Synthetic Sports Surface Feasibility* report by Smart Connections, 2008, indicate that full sized soccer fields can break even and achieve a slight positive net return including consideration of whole of life costs; however, these figures are based on $40/hr usage charges for 60 hrs per week for all groups including schools and clubs. This is significantly in excess of what clubs and school pay for use of natural turf fields, and therefore is unlikely to be achievable in an average community setting. Most LGA’s currently charge children very little for use of sporting fields for club sports, whereas a $40 per hour charge could add as much as $200 per player per season on top of club affiliation fees.

A positive return would be unlikely for a synthetic field only hired out as a full field, however, with the provision of small field markings and dividing netting, more fields can be hired out simultaneously therefore generating greater income. Depending on the breakdown of full field use / small field use and the level of fees and charges applied, a break even or modest positive net return could potentially be achieved.
4 CONSULTATION

A wide range of organisations were consulted for this study including local government authorities, synthetic and natural turf professionals, state sports associations, the Department of Sport and Recreation, sports court operators and sporting clubs. The consultation summary can be seen attached as Appendix 1 to this report.

Key findings from the consultation are as follows:

- Five a side soccer is a popular sport and is growing strongly. Football West has plans to expand into this version of the game.
- The indoor soccer competition at many recreation centres have been operating at near full capacity over the past few years (including the large program at Loftus Recreation Centre).
- Football West supports the development of synthetic soccer surfaces due to very similar playing attributes to high quality natural turf and much greater usage capacity.
- KIKOFF Soccer Centres based in Sydney opened their first facility in 2009 (outdoor synthetic turf court facilities). They are soon to open their third facility. Participation is growing and the facilities also host five a side hockey competition and some netball and rugby training.
- The preferred requirements for a synthetic athletics track include:
  - 8 lane 400m track with a 10 lane 100m straight on one side and an 8 lane 100m track on the other.
  - Lighting for training and competition.
  - 6 throwing areas (javelin, discuss and shot put)
  - Minimum 2 jump pits
- The existing reticulation system at Len Shearer Reserve is old and inefficient. A completely new system is required to make better use of the existing water allocation. The existing water allocation is considered sufficient if a more efficient irrigation system is installed.
- The base works are critical to the performance and lifespan of a synthetic surface. The base should be constructed in accordance with Australian Standards. The base works are similar to the construction of hard courts, with the synthetic surface then laid over the top.
- Synthetic surface technology is continually advancing. Surfaces are becoming increasingly multi-purpose to suit a variety of sports.
- At AK Reserve, schools book carnivals from August to October, with September being fully booked. Ern Clark Athletic Centre is also nearly fully booked during September. The Bunbury athletics track has only recently opened however schools are already booking in carnivals.
- The synthetic athletic tracks in the City of Canning and Bunbury are managed by the LGA, however, in Melbourne a more common scenario is for the synthetic athletics tracks to be leased to an athletics club which is required to fund all maintenance and resurfacing.
- A synthetic athletics track would likely be a low priority for the Department of Sport and Recreation’s CSRFF program if the athletics facility needs of the City can be met another way. Synthetic tracks are considered a high level facility, and clubs or schools wishing to use them could utilise the Ern Clark facility or the State Athletics Track at AK Reserve. Justification would be required to show why a synthetic athletics track is needed as opposed to natural turf.
- It is recommended that the City of Melville write to the Department of Sport and Recreation to request the Department provide a formal position on the development of a synthetic athletics track at Len Shearer Reserve.
- A multi-use synthetic surface for the purposes of generating income would likely be a low priority for DSR. Multi-use synthetic courts that provide five a side soccer, indoor hockey etc would compete with indoor sports centres that provide similar services.
5 SYNTHETIC SURFACE DEVELOPMENTS

Synthetic surface developments within Australia that are similar to those being considered for Len Shearer Reserve are detailed below.

5.1 Five a Side Soccer Venues

Five a side soccer is experiencing high growth in Australia of over 200% for children from 2000 – 2009 (see Section 3.3.1). This is likely to be a result of a growing appetite for ‘fast food sports’, soccer’s growing profile in Australia with the success of the Socceroos, and high levels of overseas immigration bringing many thousands of persons from countries with strong soccer backgrounds including the UK.

Goals Soccer Centres is a private company in the UK that has opened 37 outdoor five a side soccer centres in the UK with five more having recently been added. A key difference between the UK and the Australian market is that the UK centres play their own modified rules, whereas in Australia, Futsal appears to be the most popular form of the game which is played internationally and sanctioned by FIFA. Futsal can be played on almost any surface indoors or outdoors.

The Goals Soccer Centres market their facilities/competitions as allowing players to mimic the exciting aspects of the full game and hone their skills on the latest synthetic turf which allows players to slide on the ground and provides realistic ball roll and bounce characteristics.

5.1.1 Goals Five a Side Soccer Centres, UK

Example of Goals Soccer Centre, UK
(http://www.goalsfootball.co.uk/PageProducer.aspx?Page=13)

Goals Soccer Centre Aerial View, London (Google Earth)
5.1.2 Kikoff Soccer Centres

In Australia, a recent example of 5 a side soccer facility has opened in Harbord, NSW (Sydney Northern Beaches). It is called Kikoff (http://www.kikoff.com.au/) and is similar to the UK concept 5 a side centres as the centres run their own modified competitions, although local Futsal competitions do hire the courts for their competitions.

This facility is located in a formerly dilapidated 4 tennis court site adjoining a bowls club which considerably reduced the turf construction costs. It has made use of the existing fencing and court surfaces (adding synthetic grass) and utilises the adjacent bowls club bar and social facility. The supporting facilities are relatively basic when compared to the soccer centres in the UK. A second facility has been opened in Riverwood, NSW (Sydney Southern Districts). A third facility is nearing completion in Kensington, NSW (Sydney Eastern Suburbs).

Consultation with the Kikoff operations manager indicates that participation is growing; however, they have not yet reached a stage where they are fully booked. Whilst the surface is third generation soccer synthetic turf, a successful five a side hockey competition is held at the Harbord centre and is also used for netball, football and rugby training.
5.2 Synthetic Athletics Venues

Synthetic athletics tracks are used extensively around the world. A synthetic surface is the minimum standard for all major events and they are highly desired for use by local club/association competitions and school carnivals.

Within Australia, provision of synthetic tracks varies from state to state. The eastern states have numerous synthetic tracks including 29 in Victoria, whilst SA only has 1 and WA has 3. Internationally, the use of synthetic tracks appears to be more widespread with the UK having over 300 as an example (http://www.runtrackdir.com/). A major factor, however, is that WA has traditionally had plentiful water and land supply as well as a favourable climate for natural turf provision.

Some examples of synthetic athletics tracks in Australia are provided below

5.2.1 Ern Clark Athletics Centre

City of Canning (WA)

- Mondo track surface installed 2005 for cost of $1 million. The track is ready for resurfacing.
- It is an 8 lane track with a 10 lane 100m straight.
- The facility is used by the Southern Districts Little Athletics Association with 400-500 members. It is also home to the Curtin University Athletics Club (seniors).
- The facility hosts around 30 school carnivals per year primarily during the third school term. Schools travel from around the south east metropolitan region to use the facility.
- The athletics track is used year round. The natural grass field in the centre is used by a soccer club in the winter, primarily for competition only due to the condition of the turf cover.
- Annual track maintenance budget is $19,700. An additional $52,000 is spent on maintaining the natural turf on the interior and surrounds. Annual income from athletics track hire is $21,000.
- The facility is fenced and not available to hire for individuals.
5.2.2 Sandringham Athletics Track

Bay Side City Council, Victoria

- It is an 8 lane synthetic athletic track with an 8 lane 100m straight on both sides.
- It is fully fenced, however general public have access through a turn style with gold coin donation honour system.
- The facility is leased to the Sandringham Athletics Club (SAC). The Club is responsible for all maintenance including track resurfacing. This is common with other synthetic tracks around Melbourne.
- The SAC has 60-140 senior members and shares the facility with the Sandringham Little Athletics Centre which has 500-600 members.
- Approximately 80 school carnivals are held on the track per year at a cost of $350 per day including equipment hire.
- The interior natural grass field is used occasionally for school/club soccer training when there is no interference with athletics activities due to safety concerns.
- Voluntary labour is used to keep the track clean throughout the year.
5.2.3 Hay Park Athletics Track
City of Bunbury

- It is an 8 lane track with a 10 lane 100m straight on one side and an 8 lane straight on the other side. It has just been through its first season of use in 2010/11.

- The infield will be home to a soccer club in the 2012 season. The track is only expected to receive minor athletics training use during the winter, thus there is not expected to be significant scheduling difficulties with soccer and athletics occurring at the same time.

- The facility also has substantial spectator facilities with tiered seating including shading along the main straight on the western side.

- The track has booked 14 school carnivals for the winter 2011 season so far. This number is expected to grow substantially as awareness of the facility grows and schools become accustomed to using it.

- Fees and charges for the tracks use have not been officially set as yet. It is anticipated that the general public will be able to hire lane use as individuals.
5.2.4 Hensley Athletic Field
City of Botany Bay, NSW

- This facility was competed at the end of 2010. The athletic track has 6 x 400m lanes and 8 x 200m and 100m lanes (due to constrained space on the site). It also has a full size synthetic soccer field and a 5 a side soccer field on the infield with full competition lighting. It received $2.2 million in Federal Government funding under the economic stimulus Community Infrastructure Program.
- Synthetic surfaces were chosen due to the need to increase capacity of the sporting fields as there is a distinct shortage of community and school facilities in the Botany Bay area.
- The infield synthetic turf is also suitable for rugby use.
- The Randwick-Botany Bay Little Athletics Centre has 550 members mainly aged 6-12 yrs of age.
- The facilities are suitable for little athletics competition and school carnivals.
- The main soccer field is used extensively through the winter season for club soccer competition and training. It is generally booked each Saturday from 8am – 9pm and each Sunday from 8am – 5pm.
- The soccer facilities are also used for 6 a side soccer competitions.
5.3 Synthetic Soccer Pitches

There are a growing number of synthetic soccer pitches being developed around Australia, with Victoria appearing to lead the way.

Soccer is one of a growing number of sports accepting of synthetic surfaces even at its highest level of play as witnessed by a fully sanctioned 2010 World Cup qualifying game being played on a FIFA standard synthetic pitch. Soccer is played the world over, and there are many places where natural grass is very difficult to grow during the winter or there simply isn’t enough space to provide a sufficient number of natural turf fields. Synthetic soccer surfaces have much greater capacity than natural turf and provide a consistent high quality surface year round no matter the climatic conditions.

Recent relevant journal articles and reports providing background on synthetic soccer pitches include: *Artificial Grass for Sport, Sport and Recreation Victoria, Government of Victoria, February 2011*  
*Changing the Game, Karen Sweaney, Australasian Leisure Management, Nov/Dec 2009*  
*The Synthetic Alternative for Playing Surfaces, Public Works Engineering, January 2008*

In Perth, Safety Bay High School has recently commissioned a synthetic soccer surface. Examples of recent synthetic pitch developments are seen below.

5.3.1 City of Melton (Victoria)

The City of Melton (Victoria) is a rapid population growth location on the outskirts of Melbourne. It has now developed 3 separate sporting areas with synthetic soccer pitches order to provide sufficient active reserve capacity for a rapidly growing population.

Melton City Council received $1.493 million through the Federal Government’s Regional and Local Community Infrastructure Program towards delivery of the pitches at Kurunjang and Brookside. The City of Melton advises both projects have been delivered within the $2.2 million budget ([http://www.melton.vic.gov.au/page/page.asp?page_Id=2017](http://www.melton.vic.gov.au/page/page.asp?page_Id=2017))

The Caroline Springs College synthetic soccer field development (two pitches) was partially funded with $300,000 from the Brumby Labour Government’s Synthetic Surfaces Program.

Kurunjang Reserve – Accommodates soccer (2) and cricket.
Kurunjang Reserve is a dual synthetic soccer pitch facility with a centre cricket wicket and four practice wickets that hit out onto the synthetic fields.

Brookside Oval – Accommodates soccer, cricket, junior AFL and practice running lanes.

The Brookside Oval is a single soccer pitch with additions to the side to provide a 50m radius from the centre of the cricket wicket and accommodate junior football competition dimensions. There are two practice wickets that hit out to the wickets and four lanes marked for athletics track training.

Caroline Springs College, Springside Campus. Accommodates soccer (2)

Caroline Springs College has developed two senior soccer fields; however, they do not provide a multi-use function as they are offset from each other and have dividing pathways and fencing.
5.3.2 City of Kensington (Victoria)

The City of Kensington (Melbourne, Victoria) has completed the $1.3 million development of a multi use soccer field that also accommodates cricket and junior Australian Rules football training. The Teams Sports surface is termed ‘4th Generation,’ requiring little infill and having cool grass technology. It is the first field in Australia to be sanctioned by the AFL, Cricket Australia and FIFA.

JJ Holland Reserve – Accommodates soccer, cricket and junior AFL.

JJ Holland Reserve is a single soccer field with additions on the sides to allow a 50m radius for senior cricket competition, and junior football competition.
6 LEN SHEARER RESERVE SYNTHETIC SURFACE OPTIONS

This study has centred around investigating the feasibility of three potential synthetic surface options being developed at Len Shearer Reserve comprising of:

- Multi-use synthetic courts;
- A synthetic athletics track; and
- A synthetic soccer field to the interior of the athletics track

These potential synthetic surface developments are discussed in detail below.

6.1 Multi-Use Synthetic Courts

Investigations into the potential for multi-use courts that accommodate five a side soccer and other such sports for the small rectangular area adjacent to the eastern side of the Melville Aquatic Fitness Centre (MAFC) reveal that there is sufficient space for four courts.

The courts could either be developed running north/south or east/west as shown below:

![Four Courts Oriented North/South](image1)

![Four Courts Oriented East/West](image2)

The north/south orientation is preferred for outdoor sports so that the afternoon sun is not a significant encumbrance on late afternoon competition. It also allows a secure internal spectator area to be created which still includes direct access and viewing to all courts. This will assist administration maintaining control over patrons.

Five a side soccer could be played on almost any type of synthetic surface, however, a surface that meets the relevant standards for both soccer and hockey is preferred. These are now available through leading synthetic surface suppliers including the Poligras Mono 2035 system by STI. A surface that meets FIFA 1 Star standards would be highly attractive to potential five a side players, and the surface could also be used effectively for sports such as indoor hockey.

The outside boundary fencing of the courts should be 3.6m black mesh fencing for security and to keep the balls inside, whilst the internal divisions should be retractable netting. This will allow two, three, or four courts to be combined together for special activities that may require a larger area – i.e. sports club training sessions.
A small administration building including an office, kiosk, first aid room, unisex toilet, storage and spectator shelter would be warranted to assist in the management of the sporting competitions held on the courts. A simple indicative sketch is of an administration building for this facility can be seen attached as Appendix 2 to this report.

Redevelopment of the rectangular turf area into synthetic courts would also provide an opportunity for the City to consider increasing the number of parking bays available at MAFC which is important considering the upgrades that MAFC is undergoing including expansion of current facilities.

The design of the multi-use synthetic courts should include provision of features to help protect the surface including a low barrier to stop debris blowing on, recessed goals and netting storage, tree root barriers, and shoe cleaning facilities at entrance to the courts. This will help keep the surface in good condition and prolong the time between surface replacements.

### 6.2 Athletics Track

#### Potential Synthetic Athletics Track Location

Analysis of synthetic athletics tracks in WA and in the eastern states and consultation with athletics organisations and synthetic surface manufacturers reveals the following preferred features of a new synthetic athletics track for Len Shearer Reserve:

- A good facility for accommodating a large little athletics club, senior athletics and numerous school carnivals would include an 8 lane 400m track with a 10 lane 100m straight on the main spectator viewing side of the facility and an 8 lane 100m straight on the opposite side. The Hay Park facility in Bunbury is a good example of this (see Section 5.2.3).

- A natural turf infield would be preferred to a synthetic infield (i.e. soccer surface) as field events such as javelin, discuss, shot put etc must occur on natural grass. However, these events could be fully accommodated on the southern large rectangular area of Len Shearer reserve if the infield was developed as a synthetic soccer field. At least 6 throwing areas are required for hosting large little athletics competitions. If all throwing facilities were located onto the southern rectangular area, this could affect the amount of available space for winter sporting fields (i.e. touch or soccer).

- Based on current usage, a hammer throw facility for adults would not appear necessary; however, this too would need to occur with a natural turf field to throw out on to if it were developed in the future.

- 2 jump pits with run ups are required, four would be ideal for large competitions.
The facility should have lighting to community football competition standards (100-150 lux) to allow night training and track competition to occur. Significant savings are obtained when the lighting infrastructure is also used for lighting the infield for soccer or alternative sports.

Security perimeter fencing (2.4m high) is highly recommended for protecting the facility from vandalism, animals and unauthorised use. Synthetic surfaces can easily be vandalised with fire, broken glass and graffiti. Lockable gates that allow pedestrian access only should be used to allow controlled general public training use during appropriate hours.

The need for security fencing will be heightened even further if a synthetic soccer field is developed on the infield as there will be in excess of $2 million worth of synthetic surface contained within that area. Whilst fencing will be restrictive for public access, the community will still have the large grassed rectangular area available on the southern side of the track for passive recreation.

A synthetic surface with proven longevity under high use conditions should be considered for utilisation. Lifespans of different synthetic surfaces once laid and subject to use can vary by over 50%. Lifespans (before resurfacing of top few mm of surface is required) can range from 6 – 10+ years.

The synthetic track should be located in the existing track location at Len Shearer Reserve (see picture above at the beginning of this section). A master plan should be prepared that takes into consideration access, parking, security, pavilion facilities, spectator facilities and the current MAFC upgrades that are occurring to ensure a user friendly design for the community is achieved.
6.3 Synthetic Soccer Field

A new synthetic turf will provide a significantly higher quality playing surface throughout the whole soccer season and should attract a great deal of interest as there are currently no other such fields in WA. Once soccer players within Melville experience and become familiar with the field, significant demand for use of the facility should develop quickly.

Investigations into developing the proposed synthetic athletics track with a synthetic soccer surface infield have revealed that should the City wish to do this, it would have to be developed at the same time as the track. This is due to the entire ground sub surface base having to be engineered as one cohesive structure to ensure a stable base with effective drainage can be developed. To develop a synthetic field on the interior at a later date could require a substantial portion if not the entire athletics track to be replaced in order to achieve an adequate outcome.

Such a development would be similar to the Hensley Athletic Field in the City of Botany Bay, NSW as shown below:

![Hensley Athletic Field](image)

It is recommended by STI, however, that athletics track rubber is used for the D’s at both ends rather than using soccer turf at one end due to drainage issues that can cause problems during wet weather as the gradients on the surface have to be very flat.

There are now a number of synthetic soccer turf types that also meet the needs of other sports including AFL, rugby and hockey. A turf that meets FIFA, AFL and IRB standards is suggested. By doing this, the City will have a synthetic training/competition option for soccer and also for rugby/AFL training should emergency water restrictions ever be enforced that results in a significant reduction in the City’s sporting field’s capacity.

Whilst there is not an immediate need for additional soccer field capacity at the present time, full capacity is estimated to be reached by 2015 in the SPAR report. The development of a synthetic soccer field would help meet this need ahead of schedule and allow the City to concentrate on meeting the capacity constraints of other sports including hockey, rugby union and cricket.

An additional advantage developing a synthetic soccer field to the interior of an athletics track is that infrastructure such as pavilion facilities, lighting, parking and fencing are all shared. In terms of public accessibility, it is also better to have only one reserve fenced off as opposed to two separate reserves.
Athletics is predominantly a summer sport and soccer is predominantly a winter sport. Clubs tend to want to push their seasons further and further out at the beginning and end, however this has to be managed by setting firm season start and finish dates that they have to work within. Athletics or soccer use out of season should be accommodated through the organisations making casual bookings where availability exists. An advantage of synthetic track/soccer turf is that there is no need for resting the turf for recovery at the change of seasons, thus several weeks of sporting activities are gained.

One of the main disadvantages of having a synthetic interior to the athletics track is that it cannot be used for athletic throwing events (shot put, discus, javelin). This means the large southern rectangular area at Len Shearer would be relied upon for these events. It is not envisaged that this area would be fenced off. Whilst fenced off reserves are desirable for the supervision of children at school carnivals, this would not be an issue as schools generally do not conduct throwing events and thus could still contain all their activities within the track area.

Another disadvantage is that there would be little availability for the soccer surface to be used on weekday evenings and on weekends during the summer when the athletics track will be in heavy use, thus the soccer turf’s total usage throughout the year would not be as great as one that is located elsewhere and can be dedicated for soccer use all year round. The restricted ability to use dividing fencing/netting across the synthetic soccer turf within the athletics track will limit the capacity of the field for accommodating 5 a side soccer competitions and similar activities.

Overall, the restricted use of the soccer field during the summer season and its limited capacity for 5 a side competitions could be expected to significantly impact the total amount of usage the field can accommodate over its lifespan, therefore reducing its income potential and overall cost effectiveness.

Whilst the development of a synthetic soccer infield to the athletics track would considerably increase capacity for soccer participation within the City of Melville, the investigations of this report reveal that there is significant justification for developing a synthetic soccer field elsewhere and retaining natural turf to the interior of the athletics track.
7 CONSTRUCTION COST ESTIMATES

The following construction cost estimates have been based on quotations from STI, a leading synthetic surface company, for the design, supply and installation of synthetic surfaces. Lighting costs have been based on cost estimates provided by Lightbase, a leading sports lighting company. Ancillary features with costs not included in the quotations have been estimated based on recent quantity surveyor costings for similar projects.

7.1 Multi-Use Synthetic Courts Cost Estimate

STI have provided cost estimates for four (4) multi-use courts based on two design options and can be seen attached as Appendix 5 to this report. The two designs both have four courts with 3.6m permanent fencing around the perimeter and retractable netting dividing the courts. The two designs can be seen attached as Appendix 6 to this report.

The cost to design and construct the four multi-use synthetic courts Option 1 is $800,000 (ex GST) including fencing, maintenance and sports equipment. Option 2 is $745,000.

If synthetic courts are developed, savings of approximately $80,000 will be achieved as there will no longer be a need to renovate the existing turf in this area which is scheduled to occur in 2011/12.

The cost for supply and installation for lighting has been estimated by Lightbase and is as follows:

- Option 1 - $202,000 (requires 12 poles)
- Option 2 - $182,000 (requires 10 poles)

The cost estimate for a small administration building including storage, a toilet and spectator shelter is $320,000 based on similar recently built facilities.

Multi-Use Synthetic Courts Construction Cost Estimate Summary

<table>
<thead>
<tr>
<th>Item</th>
<th>Option 1 Cost</th>
<th>Option 2 Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Use Synthetic Courts</td>
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<td>$745,000</td>
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<tr>
<td>Savings from Cancelled Turf Renovation</td>
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<tr>
<td>Competition Lighting</td>
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<tr>
<td>Administration Building</td>
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<tr>
<td>Contingency (10%)</td>
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<td><strong>Total Construction Cost Estimate (Ex GST)</strong></td>
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7.2 Athletics Track Cost Estimate

STI have provided a cost estimate for the design and construction of a synthetic athletics track incorporating an 8 lane 400m track, 10 lane straight, ‘D’ section incorporating two high jumps, steeple chase, long/triple jumps facilities and throw facilities. The full budget pricing document can be seen attached as Appendix 3 to this report.

The total cost for the design and construction of the synthetic athletics track using the IAAF certified Spurtan BV surface is $1,350,000 (ex GST).

If the athletics infield area is to remain as natural turf there would be a requirement for the renovation of the turf including a new reticulation system after the synthetic track has been installed. The City estimates this would cost $80,000 based on recent active turf upgrade costs at other reserves. Regardless of the installation of a synthetic athletics track, renovation of this turf is already scheduled to occur at Len Shearer in 2011/12, thus it does not represent an additional cost in this instance. This cost will not be accrued if the infield is to be developed into a synthetic soccer field.

A design and cost estimate for competition level lighting for the athletics track and infield has been provided by Lightbase and can be seen attached as Appendix 4 to this report. Of note, the design incorporates the existing four lighting towers and adds two additional towers to achieve the desired outcome at a significantly reduced cost than building all new lighting infrastructure. The cost for supply and installation for competition level lighting is $120,000.

Black 2.4m aluminium spear security fencing around the athletics track inclusive of the pavilion, 550m in total, is estimated to cost $142,500 based on a cost of $250 per metre plus a $5,000 allowance for hinged gates.

**Athletics Track Development Construction Cost Estimate Summary**

<table>
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<tr>
<th>Item</th>
<th>Cost ($)</th>
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<tbody>
<tr>
<td>Synthetic Athletics Track</td>
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<tr>
<td>Competition Lighting</td>
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<td>Contingency (10%)</td>
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<tr>
<td><strong>Total Construction Cost Estimate (Ex GST)</strong></td>
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</table>
7.3 Synthetic Soccer Field Cost Estimate

The development of a synthetic soccer surface (that also conforms to IRB specifications for rugby union) to the interior of the proposed synthetic athletics track has been costed by STI. STI’s budget pricing can be seen attached as Appendix 7 to this report.

The construction cost estimate for the design and construction of a synthetic soccer field (as a stand-alone facility) is $975,000 (ex GST).

An additional cost for the development of a soccer field on the interior of the athletics track is that an additional synthetic D section would need to be constructed primarily for drainage purposes. This would cost approximately $200,000. However, the construction of a synthetic soccer field in conjunction with the athletics track would result in savings of $150,000 due to economies of scale savings onsite including design, drainage, fencing and earthworks. In addition, there would be no need for the City to renovate the natural turf infield scheduled for 2011/12 which would result in a further savings of approximately $80,000 (as estimated by City of Melville). Therefore, the overall impact of constructing a synthetic soccer field to the infield of an athletics track is a reduction of $30,000 from the normal costs for a stand-alone synthetic soccer field development.

**Synthetic Soccer Field Construction Cost Estimate Summary**

<table>
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<tr>
<th>Item</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Synthetic Soccer Field (stand alone development)</td>
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<tr>
<td>Additional Athletics D Section Construction</td>
<td>$200,000</td>
</tr>
<tr>
<td>Economies of Scale Savings from Joint Athletics Track and</td>
<td>-$150,000</td>
</tr>
<tr>
<td>Soccer Infield Development</td>
<td></td>
</tr>
<tr>
<td>Savings from Cancelled Turf Renovation</td>
<td>-$80,000</td>
</tr>
<tr>
<td>Contingency (10%)</td>
<td>$95,000</td>
</tr>
<tr>
<td><strong>Total Construction Cost Estimate (Ex GST)</strong></td>
<td><strong>$1,040,000</strong></td>
</tr>
</tbody>
</table>

Note: Lighting costs are not included as the lighting infrastructure will already be present with the synthetic athletics track.
8 MANAGEMENT

8.1 Multi-Use Synthetic Courts Management

Currently the small rectangular area is managed by the Recreation Services staff of the Health and Lifestyle Services directorate and is booked out as an active reserve for sporting use. With the development of multi-use synthetic courts, this area would remain under the control of Health and Lifestyle Services; however, the Melville Aquatic Fitness Centre (MAFC) could manage the courts as an extension of its leisure facilities.

It is assumed that the program coordination of the competitions and general bookings will be undertaken within the existing staff structure. It is envisaged a part time competitions supervisor or equivalent casual staff will be required as well as casual referee and coaching staff.

If at some point in the future the multi-use courts became critical to the placement of sporting clubs for training sessions due to closure of sporting grounds or otherwise, Recreation Services staff would need to liaise with MAFC in order to allocate training session times sympathetic to programmed competitions.

8.2 Athletics Track and Synthetic Soccer Field Management

The existing natural turf athletics track with soccer field on the interior is managed by the Recreation Services staff of the Health and Lifestyle Services directorate. Conversion to synthetic surfaces would not require an overall change in management style as the function and purpose of the reserve would remain the same – as a sports club facility that is also available for school and community use.

In order to ensure that the synthetic surfaces are able to receive maximum utilisation, the City needs to further refine its active reserve bookings system to allow more detailed information on sports field usage to be collected and used for hiring out the fields at their optimum levels. This is a key recommendation of the SPAR report. Currently when a club makes a booking at multi-field reserves it is implied that the club has access to all active turf area which makes tracking of actual use and setting optimal use not possible.

For natural turf, it is recognised that 25hrs per week is approximately the maximum level of use a field can accommodate; whereas there is effectively no limit on synthetic surfaces apart from the hours in the day the surface is allowed to be in operation. This could potentially be from sunrise to 10pm at night depending on the type of activity and level of disturbance it may have on neighbouring residential housing.

At a minimum, the synthetic soccer field and the natural turf soccer field on the southern rectangular area should be treated as separate reserves for bookings during the winter season. Furthermore, the synthetic soccer field should be booked out in halves for training purposes. This will allow two teams to train at once which further increases the capacity of the field and could generate additional revenue depending on the casual hire rates employed (i.e. half field could be charged at 75% full field rate).

There is also potential that the synthetic soccer field could be hired out in quarters for five a side games. This could also provide increased revenue depending on the schedule of fees.

The development of a synthetic athletics track will attract a wide variety of users which will warrant the addition of special fees and charges to account for these groups. This may include charges for coaching sessions, casual individual training, commercial operators (PT’s, Boot Camp etc), individual school carnivals, inter school carnivals and non athletics club teams. Additions and changes could be expected to the fees and charges for use of the athletics track in the first few years of operations as common booking requests patterns emerge.
Overall, there is justification for the City to charge higher fees for use of the synthetic surfaces than the natural turf as the users are being provided with consistently higher quality playing surfaces and they are likely to attract more participants from outside of the City of Melville. Pricing issues for the City to consider include;

- Differences in fees as compared to natural turf provision
- Concession pricing for individuals
- Club rates and what level of contribution to asset replacement is factored
9 PROJECTED FINANCIAL IMPACT

9.1 Multi-Use Synthetic Courts Financial Impact

The conversion of the small rectangular area next to MAFC into four synthetic courts for intensive sports programming will have a significant financial impact for that area. Currently the grassed area receives little use due to its poor turf quality and small size. The financial forecast following shows that the synthetic courts could return a net surplus of over $110,000 p.a.

9.1.1 Financial Forecast Assumptions

A projected budget forecast has been prepared for the Option 1 design facility with the following assumptions being used in its development.

Year of Operation

This budget is considered a realistic budget for the third year of operation of the facility, providing 2 years of operation (8 junior seasons and 4 senior seasons) to build the competition to capacity. It is conceivable that the competitions could commence at 50% capacity with the junior competitions run at 70 – 75% capacity in the second year and senior competitions more likely at around 66% capacity in the second year.

Fees and Charges

The budget has been developed utilising existing fees and charges within the City of Melville. It is based on a full 12 months of operation.

Life Cycle Costs

The budget is inclusive of capital lifecycle and replacement expenses.

Program Coordination

It is assumed that the program coordination of the competitions will be undertaken within the existing staff structure at the Melville Aquatic Fitness Centre.

Centre Operating Hours

It is envisaged that the centre will be open for competitions Monday to Friday from 3.30pm through to 10.00pm each day. In addition to the competitions being conducted, it is envisaged that court bookings will be prominent on the evenings competitions are not conducted. The facility will also be made available during specific required booking times for schools, although the kiosk will not be operational during this time.

Competitions and Coaching

The budget development has been based on junior and senior competitions, with additional coaching programs and holiday clinics for juniors.

- Junior competitions are conducted as an after school program on 2 days per week, utilising the 4 courts. Timeslots used are 30 minutes commencing at 4pm through to 6pm with an estimated 60 teams participating over each term. The budget includes nomination and game fees.
- Junior competitions are conducted school terms only with all teams involved in finals.
- An additional 2 days per week involving 2 sessions of coaching/development sessions per week for juniors is also included. 30 attendees per session.
Seniors competitions are conducted over 3 nights utilising 4 courts of 5 timeslots, commencing at 6.15pm and 45 minute duration.

The budget is based on the fees of $125 senior nomination and $56 per team as a game fee for seniors. Junior fees used are $85 nomination and $40 per team game fee ex GST.

There is an allowance of 1 game to be forfeited per round per season for each junior competition juniors and 3 for seniors.

A holiday program clinic each school holidays has also been included.

**Court Hire**

- It is envisaged that 5 hours on 2 courts hire fees for school groups and the same for private hire will be used per week.

**Casual Use**

- 60 casual uses have been included per week. This is based on 2 sessions per week at $3.50 each person.

**Kiosk**

- A budget of $0.50 spend per person has been made for kiosk income. The allowance has been made based on attendance figures of 43,560 for the competitions.

**Salaries and Wages**

- A Competition Supervisor has been included in the budget at a base rate of $31,200 on a part time basis of 24.0 hrs per week. Employment costs for this position are included. It is intended this position will operate the kiosk on game nights.
- Referees for each game have been included. Referees at $25.00 per senior game and $20.00 per junior game. An allocation of 1 coach per 15 people has been included.
- Coaches for the coaching program have an allocation of $20.00 per hour on a casual basis.
- On costs for salaries have been included within the budget including casual loading where required, superannuation, leave cover and allowances, and workers compensation.

**Consumables**

- Trophies, equipment required for competitions and an allocation for presentation nights have been included in the budget.

**Maintenance, Cleaning and Gardening**

- An allocation has been made for the ongoing maintenance and repair of the facility including the playing surface, nets, fencing and building maintenance.
- Maintenance of gardens and surrounds and general cleaning has also been included.
9.1.2 Multi-Use Synthetic Courts Income and Expenditure Summary

Inclusive of the above assumptions, a net operating surplus of $110,000 per annum is considered achievable for this facility.

<table>
<thead>
<tr>
<th>Income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitions</td>
<td>$344,311</td>
</tr>
<tr>
<td>Hire</td>
<td>$17,727</td>
</tr>
<tr>
<td>Casual entry</td>
<td>$8,586</td>
</tr>
<tr>
<td>Coaching</td>
<td>$44,045</td>
</tr>
<tr>
<td>Kiosk</td>
<td>$21,780</td>
</tr>
<tr>
<td><strong>Subtotal Income</strong></td>
<td><strong>$436,450</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating Expenditure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries &amp; Wages</td>
<td>$144,376</td>
</tr>
<tr>
<td>Consumables</td>
<td>$11,360</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>$14,157</td>
</tr>
<tr>
<td>Building, Fencing, Lighting Maint.</td>
<td>$20,000</td>
</tr>
<tr>
<td>Marketing</td>
<td>$20,000</td>
</tr>
<tr>
<td>Cleaning (inc vacuuming grass)</td>
<td>$20,000</td>
</tr>
<tr>
<td>Gardens &amp; Surrounds Maint.</td>
<td>$15,000</td>
</tr>
<tr>
<td>Gas &amp; Water</td>
<td>$6,000</td>
</tr>
<tr>
<td>Electricity</td>
<td>$6,720</td>
</tr>
<tr>
<td><strong>Subtotal Expenditure</strong></td>
<td><strong>$257,613</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capital Replacement/Lifecycle</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface (30 years)</td>
<td>$38,500</td>
</tr>
<tr>
<td>Goals &amp; Nets (5 years)</td>
<td>$7,400</td>
</tr>
<tr>
<td>Lights (25 years)</td>
<td>$12,100</td>
</tr>
<tr>
<td>Building (40 years)</td>
<td>$8,000</td>
</tr>
<tr>
<td>Fencing (15 years)</td>
<td>$3,000</td>
</tr>
<tr>
<td><strong>Subtotal Capital Replacement</strong></td>
<td><strong>$69,000</strong></td>
</tr>
</tbody>
</table>

**Net Profit/(Loss)** \(\$109,837\)
A more detailed view of the ongoing maintenance and replacement costs of the synthetic surface is shown below:

**Multi-Use Synthetic Courts Ongoing Costs**

<table>
<thead>
<tr>
<th>Cost Item#</th>
<th>Cost &amp; Freq</th>
<th>Year 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Total Yr 10</th>
<th>Total Yr 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reg Maint &amp; Cleaning</td>
<td>Annual $10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>100,000</td>
<td>300,000</td>
<td></td>
</tr>
<tr>
<td>Patch Repairs</td>
<td>At 6 yrs $25,000</td>
<td>35,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>35,000</td>
<td>105,000</td>
<td></td>
</tr>
<tr>
<td>Resurface</td>
<td>At 10 Yrs $200,000</td>
<td>200,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200,000</td>
<td>400,000</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15,000</td>
<td>30,000</td>
<td>30,000</td>
<td>40,000</td>
<td>60,000</td>
<td>15,000</td>
<td>30,000</td>
<td>15,000</td>
<td>340,000</td>
<td>805,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*See page 4 of Appendix 5, Multi-Use Synthetic Courts Budget Pricing, for further details.

Assuming that after 30 years the full surface will need to be redeveloped including base works, the total 30 year life span cost including the initial construction cost of $800,000 + 30 year maintenance & resurfacing costs of $805,000 = $1.605 million Ex GST.

This equates to an annual life cycle cost of $53,500 p.a.
9.2 Athletics Track Financial Impact

The function/role of the athletics track is anticipated to remain the same – a facility to accommodate club training and competition as well as use by schools and the general community. The development of a synthetic athletics track would likely attract additional use in all areas as additional Melville residents and people from further afield are enticed to use the high quality facilities. As a result, income from track hire would be expected to increase.

Currently there is approximately $9,000 income p.a. from fees for summer use of Len Shearer Reserve which is predominantly athletics use. This includes hire fees for both the large rectangular areas where athletics and soccer are played as the two areas are not differentiated. This does not include school hire which has been actively avoided and placed on other reserves to minimise impact on Len Shearer’s turf which is under considerable stress.

It is anticipated that with a synthetic surface installed, significant additional demand for hire of the athletics venue will be generated. The Ern Clark Athletics Centre in the City of Canning receives annual income of $21,000 p.a. A similar level of income is considered achievable for the Len Shearer track, with a significant portion of additional income coming from school hire.

Expenses for maintaining and resurfacing a synthetic athletics track are suggested as follows:

### Synthetic Athletics Track Ongoing Costs

<table>
<thead>
<tr>
<th>Cost Itema</th>
<th>Cost &amp; Freq</th>
<th>Year 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Total Yr 10</th>
<th>Total Yr 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reg Maint &amp; Cleaning</td>
<td>Annual $15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>150,000</td>
<td>450,000</td>
<td></td>
</tr>
<tr>
<td>Professional Clean</td>
<td>Every 2nd Yr $15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>60,000</td>
<td>180,000</td>
<td></td>
</tr>
<tr>
<td>Patch Repairs</td>
<td>At 5 yrs $25,000</td>
<td>25,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line Marking</td>
<td>At Yr 6 $30,000</td>
<td></td>
<td>30,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resurface Entire Track</td>
<td>$325,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>325,000</td>
<td>650,000</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15,000</td>
<td>30,000</td>
<td>15,000</td>
<td>30,000</td>
<td>40,000</td>
<td>60,000</td>
<td>15,000</td>
<td>30,000</td>
<td>15,000</td>
<td>340,000</td>
<td>1.445m</td>
<td></td>
</tr>
</tbody>
</table>

*aSee page 3 of Appendix 3, Synthetic Athletics Track Budget Pricing, for further details.*

Assuming that after 30 years the full surface will need to be redeveloped including base works, the total 30 year life span cost including the initial construction cost of $1.35 million + 30 year maintenance & resurfacing costs of $1.545 million = $2.795 million Ex GST.

This equates to an annual life cycle cost of $93,200 p.a.
9.3 Synthetic Soccer Field Financial Impact

The function/role of the synthetic soccer field is anticipated to remain the same – a facility to accommodate club training and competition as well as use by schools and the general community. The development of a synthetic soccer field could ultimately attract additional use in all areas as additional Melville residents and people from further afield are enticed to use the high quality facilities. As a result, long term income from hire of the Len Shearer synthetic soccer field would be expected to increase above current income levels.

Currently there is approximately $9,000 fees income p.a. from winter use of Len Shearer Reserve which is predominantly soccer use by the MCSC. This includes hire fees for both the large rectangular areas where soccer is played as the two areas are not differentiated. This does not include school hire which has been actively avoided and placed on other reserves to minimise impact on Len Shearer’s turf which is under considerable stress.

The long term potential income for a synthetic field is significantly greater than the current level of income which is limited by the capacity of the natural turf. However, the income potential of the synthetic soccer field in the short-medium term is dependent on a range of factors such as the timing and final outcome of club relocations (as examined in the SPAR Report) and the City’s policies towards community use of the field, therefore, whilst a synthetic soccer field does have much greater income potential than a natural turf field, it would be prudent to assume similar income levels for the foreseeable future in this financial analysis.

Expenses for maintaining and resurfacing a synthetic soccer field are suggested as follows:

### Synthetic Soccer Field Ongoing Costs

<table>
<thead>
<tr>
<th>Cost Item*</th>
<th>Cost &amp; Freq</th>
<th>Year 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Total Yr 10</th>
<th>Total Yr 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>Annual $15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>150,000</td>
<td>450,000</td>
<td></td>
</tr>
<tr>
<td>Resurface</td>
<td>$350,000 At Yr 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>350,000</td>
<td>700,000</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
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<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>365,000</td>
<td>1.15m</td>
<td></td>
</tr>
</tbody>
</table>

*See pages 8-9 of Appendix 7, Synthetic Soccer Field Budget Pricing, for further details.

Assuming that after 30 years the surface will need to be redeveloped including base works, the total 30 year life span cost including the initial construction cost of $1.025 million + 30 year maintenance & resurfacing costs of $1.15 million = $2.175 million Ex GST.

This equates to an annual life cycle cost of $72,500 p.a.
9.4 Natural Turf Maintenance Savings

The development of synthetic surfaces will have an impact in reducing natural turf maintenance costs at Len Shearer Reserve. It is important to note, however, that the reduction in turf area will not result in a proportionate reduction in turf maintenance costs. For example, 50% reduction in the area of active turf will not result in 50% turf maintenance savings. This is because the costs of maintaining natural turf active reserve are subject to significant economies of scale. Some costs such as the transportation of equipment to and from the reserve are relatively fixed, regardless of whether the reserve is 2 ha or 4ha. Additionally, certain activities are labour intensive such as whipper snipping around edges of the reserve.

The requirement for this labour may not actually decrease with the development of a synthetic field on a natural turf reserve, and in some cases could actually increase this component, such as if the synthetic athletics track was developed with a natural turf infield and still has natural turf on the surrounds. The estimated savings in annual turf maintenance costs are provided below.

### Estimated Annual Turf Maintenance Costs Savings

<table>
<thead>
<tr>
<th>Item</th>
<th>Approximate Annual Maintenance Savings %</th>
<th>Approximate Savings $ (Based on Current Total of $64,000 p.a.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi Use Synthetic Courts</td>
<td>12.5%</td>
<td>$8,000</td>
</tr>
<tr>
<td>Synthetic Athletics Track Only</td>
<td>12.5%</td>
<td>$8,000</td>
</tr>
<tr>
<td>Synthetic Infield to Athletics Track Only</td>
<td>12.5%</td>
<td>$8,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37.5%</strong></td>
<td><strong>$24,000</strong></td>
</tr>
</tbody>
</table>

Remaining Annual Turf Maintenance Cost 62.5% $40,000

In addition to annual maintenance, the City’s active reserves undergo periodic redevelopment including heavy renovation of the turf and new reticulation. A 20 yr period has been utilised to estimate the redevelopment savings as an annual figure and is shown in the table below.

### Estimated Turf Redevelopment Cost Savings

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Turf Redevelopment Cost Savings at 20 yr intervals</th>
<th>Turf Redevelopment Savings Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi Use Synthetic Courts</td>
<td>$60,000</td>
<td>$3,000</td>
</tr>
<tr>
<td>Synthetic Athletics Track Only</td>
<td>$60,000</td>
<td>$3,000</td>
</tr>
<tr>
<td>Synthetic Infield to Athletics Track Only</td>
<td>$80,000</td>
<td>$4,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$200,000</strong></td>
<td><strong>$10,000</strong></td>
</tr>
</tbody>
</table>

### Total Estimated Annual Turf Maintenance and Redevelopment Cost Savings

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Annual Maintenance and Redevelopment Savings Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi Use Synthetic Courts</td>
<td>$11,000</td>
</tr>
<tr>
<td>Synthetic Athletics Track Only</td>
<td>$11,000</td>
</tr>
<tr>
<td>Synthetic Infield to Athletics Track Only</td>
<td>$12,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$34,000</strong></td>
</tr>
</tbody>
</table>
9.5 Overall Financial Impact

The table below shows the overall financial impact of the development of the synthetic surfaces based on the estimated changes to income and expenditure.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi Use Synthetic Courts</td>
<td>110,000*</td>
<td>0*</td>
<td>11,000</td>
<td>121,000</td>
</tr>
<tr>
<td>Synthetic Athletics Track Only</td>
<td>12,000</td>
<td>(93,200)</td>
<td>11,000</td>
<td>(70,200)</td>
</tr>
<tr>
<td>Synthetic Soccer Infield to Athletics Track Only</td>
<td>0</td>
<td>(72,500)</td>
<td>12,000</td>
<td>(60,500)</td>
</tr>
<tr>
<td>Total</td>
<td>122,000</td>
<td>(165,700)</td>
<td>34,000</td>
<td>(9,700)</td>
</tr>
</tbody>
</table>

*Income for multi-use synthetic courts is net after all LCC and operational expenses have been deducted.

This financial analysis shows that should all three synthetic surface facilities be developed, the financial impact to the City will be an increase in costs of $9,700 p.a.

As has been noted on several previous occasions throughout this report, the financial benefits of synthetic surfaces become apparent when it is recognised that one synthetic turf field can replace approximately three natural turf fields.

A very simple way to look at the potential long term financial benefit to the City is to consider that the development of the synthetic athletics track with synthetic soccer infield could reduce the need for two additional reserves of similar sizes needing to be built. The following potential cost savings could be realised:

- Capital cost savings of approximately $6-10 million dollars when considering the costs of building two active reserves, two pavilions, lighting, parking etc.
- Opportunity cost savings from not having to purchase land for two active reserves. This cost would be in the millions of dollars, if any suitable land was ever available for purchase.
- Lifecycle cost savings in excess of $100,000 p.a. to maintain and renovate the natural turf on two reserves as required.
- Lifecycle cost savings in excess of $50,000 p.a. to maintain and renew the pavilions, lighting infrastructure and other supporting amenities at two reserves.

From a long term financial standpoint, the synthetic turf developments proposed for Len Shearer Reserve show substantial potential cost savings to the City in both capital and ongoing cost savings. Therefore, there is rationale for this development from a financial sustainability perspective in addition to the environmental sustainability perspective.
10 CONCLUSION

This study finds the development of synthetic sports field surfaces at Len Shearer Reserve would deliver significant benefits to the City of Melville including considerably increased active reserve usage capacity, greatly reduced water consumption, consistently high quality playing surfaces and improved long term financial sustainability.

These benefits are very important for inner city municipalities such as the City of Melville that are experiencing strong population growth but have limited land availability for additional active reserve space. The provision of synthetic sports surfaces represents the least costly method for providing additional active reserve capacity over the long term under these circumstances. The reduced water consumption benefits are particularly important in the continuing trend of declining water availability for public open space.

This study has found that the full development of the synthetic surfaces as described in Section 6 including: multi-use synthetic courts, a synthetic athletics track, and a synthetic soccer surface to the interior of the athletics track, would deliver the significant benefits listed above for a relatively low overall net cost to the City’s budget of approximately $9,700 p.a. over the lifespan of the facilities. The multi-use synthetic courts surface provides significant income generation potential which offsets most of the costs of developing and maintaining the synthetic athletics and soccer surfaces.

It is important to note that there are advantages and disadvantages to developing a synthetic soccer field within the interior of an athletics track as compared to a stand-alone facility. The advantages and disadvantages of the two options are summarised in the following table:

<table>
<thead>
<tr>
<th>Advantages/Disadvantages of Synthetic Soccer Field Located Within Athletics Track</th>
<th>Synthetic Soccer Surface located Within Athletics Track</th>
<th>Synthetic Soccer Surface as a Stand Alone Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td>Infrastructure including security fencing and flood lighting, pavilion facilities and parking can be shared.</td>
<td>Some facilities may be duplicated.</td>
</tr>
<tr>
<td></td>
<td>Fencing only one reserve as opposed to two separate reserves is better for community access to public open space.</td>
<td>Requires two separate reserves to be fenced for security reasons as opposed to just one.</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>The soccer surface will receive limited use during the summer athletics season due to the incompatibility of the sports, thus reducing the cost benefit of the installation.</td>
<td>The facility can be programmed for high intensity use 12 months of the year, maximising the cost benefit of the installation.</td>
</tr>
<tr>
<td></td>
<td>The soccer surface will not be as easy to divide into mini-pitches for 5 a side soccer and similar activities as dividing netting will not be readily accessible.</td>
<td>The soccer surface can have removable dividing netting infrastructure set up to enable 5 a side competitions and similar activities to be accommodated, maximising usage potential of the surface.</td>
</tr>
<tr>
<td></td>
<td>Athletics will not be able to use the interior of the athletics track for field events which is not ideal for club events and training.</td>
<td>Athletics will still be able to use the interior of the athletics track for field events.</td>
</tr>
<tr>
<td></td>
<td>The synthetic soccer field must be developed at the same time as the athletics track for technical reasons. This means the City must fund the two large projects at the same time, as staging is not an option.</td>
<td>The synthetic soccer field can be developed at a separate time from the athletics track, allowing the City to spread the financial impact of these large projects on the City’s capital works budget.</td>
</tr>
</tbody>
</table>
The findings of the advantages/disadvantages table above should be carefully considered by the City when deciding on which option represents the most appropriate use of the City’s funds.

Overall, the development of synthetic sports surfaces at Len Shearer Reserve is demonstrated to be a viable option for overcoming the lack of water and over use issues currently experienced at the reserve, and increasing the active reserve capacity of the City without the need to find space for additional sporting fields. Synthetic surfaces are a more cost effective use of the City’s financial resources, a more efficient use of limited public open space, provide consistently high quality playing surfaces, and provide greater protection for the City against potential future cuts to watering allocations. As such, the synthetic sports options investigated within this study warrant consideration by Council for future implementation.
11 FUNDING AND GRANTS

The City of Melville will most likely be responsible for the majority of funding for any of the proposed synthetic surface developments proposed within this report. This could occur via a number of methods including utilising financial reserves, general rates, loan borrowings or sale of assets.

Apart from the City’s reserves and borrowings and the sporting and community organisations and their respective governing bodies, the primary funding opportunity is from the State Government through the Community Sport and Recreation Facilities Fund which is administered by the Department of Sport and Recreation.

No Federal Government funding opportunities have been identified that could lend significant support to this development. In relation to metropolitan LGA’s, the Federal Government does not tend to provide funding for areas that are typically well supported by the State Government.

11.1 Department of Sport & Recreation

11.1.1 Community Sport and Recreation Facilities Fund (CSRFF)

The City of Melville has been successful in achieving significant CSRFF funding in the past and could be expected to continue to do so in the future. A summary of the CSRFF program is provided below:

CSRFF is administered by the Department of Sport and Recreation (DSR) and “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”.

The State Government invests approximately $20 million annually (via CSRFF) towards the development of quality sport and recreation facilities for the community. This is the principal State Government grant for the development of sport and recreation infrastructure such as the proposed synthetic surface developments at Len Shearer Reserve. There are three types of grants available: Small Grants, Annual Grants and Forward Planning Grants. The developments listed in this report would be required to apply for Forward Planning Grants as the projects are each worth in excess of $500,000.

Forward Planning Grants

$166,667 up to $4.0 million will be allocated to the large scale projects where the total project cost exceeds $500,000 and may require an implementation period of between one and three years. Grants given in this category may be allocated in one or a combination of the years in the triennium.


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

The types of projects which will be considered for funding include:

- Upgrade and additions to existing facilities where they will lead to an increase in physical activity or more rational use of facilities.
- Construction of new facilities to meet sport and recreation needs.
- New or replacement (not resurfacing) of synthetic surfaces. Where an application is made for a new or synthetic surface, evidence of long-term planning for all nearby facilities is required.
• Floodlighting projects – where an application is made for floodlighting projects, evidence must be provided that demonstrates if a transformer upgrade is required.

In general, DSR focuses their funding towards facilities that directly impact on sports participation and do not fund items such as bar facilities or facilities or facilities that return a profit such as gyms.

The proposed development of a synthetic athletics track and synthetic soccer field meets DSR’s eligibility criteria as they will increase the City’s capacity for sports participation including club, school and general community use.

The multi-use synthetic courts, however, may not be eligible or may be of a very low priority for CSRFF funding as it is designed to return a net surplus for the City and it provides a facility that will be in competition with private operators including indoor sports centres that run indoor soccer competitions.

**Development Bonus**

Some applications may be eligible for up to 50% funding of the total project cost. Projects must meet one or more of the following criteria to be considered:

- Location - Regional, Remote or Growth areas
- Co-location of sports and facilities
- Sustainability Initiatives - Water Saving, Energy reduction etc
- Increased Participation - New users, increased participation from existing users, special interest groups participation etc.

Note: It is essential that grant applicants discuss their eligibility for a development bonus with their local DSR office before applying to determine eligibility.

DSR do not advise on the likelihood a project will have on achieving funding or the Development Bonus, however, consultation with DSR (See Section 4 – Consultation) has indicated that the athletics track may be a lower priority as it is regarded as an elite level facility and that justification would be required to show why a synthetic athletics track is needed as opposed to natural turf. This report will assist in that regard. DSR recommends that the City write to the Department to request a formal position on the development of a synthetic athletics track at Len Shearer Reserve.

A multi-use synthetic surface may also be a low priority for DSR support as it will generate significant income and would compete with private enterprises that provide similar services.

The case for funding for this project would be strengthened by the fact that the development of a synthetic athletics track and soccer field will provide direct savings of at least 13.5 million litres of water per year. Furthermore, actual water savings could potentially be 3 times this amount or more when one considers that fewer active reserves need to be developed to meet future sports participation growth.

It is important for DSR to understand how this potential regional development fits in with other regional priorities. Potential applicants must contact their local DSR office to discuss projects before lodgement.
12 APPENDICES

Appendix 1. Consultation
Appendix 2. Administration Building Indicative Sketch
Appendix 3. Synthetic Athletics Track Budget Pricing
Appendix 4. Athletics/Soccer Field Lighting Design
Appendix 5. Multi-Use Synthetic Courts Budget Pricing
Appendix 6. Multi-Use Synthetic Courts Design Options
Appendix 7. Synthetic Soccer Surface Budget Pricing