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Corporate Plan Output: Queen Elizabeth II Park	

The purpose of this report to advise the Committee on the condition of the existing synthetic surface of the athletic track at Queen Elizabeth II Park with details of recommendations and costs for repairs and possible upgrading.

Following an independent evaluation of the existing facility in July 1997, \$1.55m budget allocation for track replacement was placed into the 2003-04 financial year. The evaluation was prepared by Mr Bob Jones, a sports surfaces consultant and consulting engineer for Specialised Services Ltd. This report draws upon Mr Jones's findings.

TRACK HISTORY

The QEII Park athletic track was originally constructed for the 1974 Commonwealth Games. The original synthetic surface installed on the track was an American material, Chevron 440. The surface was re-textured in 1983 with a Chevron top-dressing texture. Following this, in the late 1980s, several high stress areas were completely removed and resurfaced with new synthetic material. Finally, in 1991, the entire track surface, plus the top level of the underlying asphalt, was removed, new asphalt and a new synthetic surface installed. The new synthetic surface was POLYFLEX, a Swiss manufactured material installed by a local company, Fulton Hogan Canterbury Ltd. The track installation was covered by a seven year warranty.

TRACK CONDITION

Main Track Area

The main track has numerous small areas where water has penetrated the surface causing slight deformation or bubbling. It is likely that the surface will delaminate further from the asphalt base and cause a permanent raised bubble.

In areas of lane one there are signs of track wear with black base rubber granules exposed. These granules are not UV resistant. When exposed to sunlight and weathering, they quickly deteriorate and cause the rate of surface wear to accelerate.

High Jump Fan

Several repairs to the synthetic surface have been carried out to this area, unfortunately some with only limited success.

There is a major problem in this area with penetration of water into the surface. It is strongly suspected that the large areas of the high jump fan now have water laying permanently on the asphalt and up into the base rubber granule layer of the synthetic surface. This water is trapped in the surface, cannot drain away and remains present even after long summer dry spells. In parts, even slight surface pressure causes water to pump up through the surface.

Synthetic materials used in resurfacing repairs have proven to be highly water susceptible making repair work very difficult to carry out successfully. Repair work

has resulted in surface irregularities which raise doubts from a health and safety perspective.

Again, several areas exist where water penetration through the synthetic surface has resulted in slight deformation of bubbling.

The high jump area has deteriorated to such an extent that removal and replacement type repairs have become necessary. Unfortunately, the water entrapment situation which now exists in this area means there is no easy or economical permanent solution.

The only long term solution is the complete removal and replacement of the synthetic surface and its top underlying asphalt layer. The replacement asphalt should be porous or friction type asphaltic concrete type mix with venting into slotted drain piping creating an easy release mechanism for any trapped moisture.

Long/Triple Jump Runway

The synthetic surface on this area is still in reasonable condition.

Western Pole Vault Runway

The synthetic surface on this area is still in reasonable condition though the pole boxes no longer conform to IAAF specifications. This runway is not often used because of the prevailing north easterly wind.

REMAINING USEFUL LIFE OF THE EXISTING SYNTHETIC SURFACE

From site observations and tests, plus experience of other tracks of similar age and condition, apart from the inside lane and the high jump fan, the synthetic surface is in reasonable condition for its age (nine years).

While a definitive life period cannot be placed onto a synthetic athletic track surface such as that at QEII Park, because of several factors such as climate, usage etc, the average expected should be in the order of 11 to 14 years.

Except for the high jump fan area which requires replacement in the short term, the POLYFLEX surface at QEII Park should remain operational for another two seasons before retexturing or relaying must be undertaken.

PERFORMANCE CHARACTERISTICS

The other issue which needs to be examined when evaluating an athletics track's remaining useful life is how the surface is perceived to perform by athletes both in training and competition.

The Athletics Canterbury Track and Field Committee hold the view that the high jump fan area is now severely sub-standard and that it has deteriorated at a faster rate than expected over the past two years. In warm weather in particular, there is growing evidence of delamination (bubbling of the artificial surface) both within the pole vault runway area and elsewhere in the fan. Further, there is considerable unevenness and evidence of moisture penetration.

Athletics Canterbury also have concerns with the condition of the pole line rail which they suspect was never correctly surveyed into position when the new track surface was

laid in 1991. This has serious implications for marking of each lane which is set in turn against the pole line rail.

Athletics Canterbury is also concerned that some areas of the track are worn and in urgent need of skilled repair work. QEII Park management concurs but has little faith in the ability of contractors in New Zealand to carry out the necessary repair to a track of this type. Certainly, maintenance work carried out within the warranty period has proven to be unsatisfactory. Rather it has become a matter of surviving with what we have until funding becomes available for a replacement track.

AVAILABLE OPTIONS

With the exception of the high jump fan which should be completely renewed as soon as possible, there are two possible options available for the upgrading of the existing facility. These are:

(a) Retexturing of the Existing Surface

This consists of removing, by grinding, of the existing granule texture, repair of any damaged or suspect areas, and then the application of a new 5mm thick coloured polyurethane coating and EPDM granule texture surface.

If this option can be successfully carried out then, under normal usage conditions, the new texture surface could expect to give six to seven years further performance life. However, before this option is undertaken the following points must be closely considered and their possible repercussions fully understood:

- The present resiliency and consequently shore hardness of the surface may deteriorate to such an extent that it no longer falls within the accepted range. This often occurs with a track, quite suddenly, around the 15 year total life period.
- It is difficult to predict, whether the present strong bond of the POLYFLEX surface to the underlying asphalt, over the entire track and field area, would continue for a further 10 years.

Due to the possibility that later problems may develop, if the existing POLYFLEX surface is to be ground and then resurfaced with a new texturing layer, it is recommended that a range of synthetic sports surfacing laboratory tests be carried out focusing upon resiliency, shore hardness, adhesion and performance specification. The cost for these tests would be approximately \$4,000.

(b) Complete New Synthetic Surface

Removal of the entire surface, plus approximately 20 to 25mm of the underlying asphalt layer, and replacement with a new asphalt layer followed by a completely new synthetic surface.

SYNTHETIC SURFACE ALTERNATIVES

Currently there are several companies active and regularly offering synthetic surface systems throughout the South Pacific.

The main suppliers and installers of cast-in-situ surfacing systems similar to the existing track at QEII Park are Balsam Pacific, Burrell, Epo-Chem and Polytan. The alternative system offered is a single layer, pre-cast sheet material, supplied in rolls and

glued to the asphalt surface. The company supplying and installing this system is Mondo.

Whilst cast-in-situ, cold poured synthetic systems remain the predominant type of track on the World market, Mondo pre-cast system has won favour at each of the past six Olympic Games.

It is expected that a Mondo system would cost more to install but that life expectancy would be greater and the warranty period greater. Further, repairs and maintenance to cast-in-situ systems have proven to be fraught with difficulty.

COSTINGS

High Jump Fan Area

Preparation

New polyurethane synthetic texture surface (including new inner border and consulting design fees) \$122,000

Main Track, Long/Triple Jump, Javelin & Pole Vault Runway

Re-texturing of Existing Surface

Preparation

New polyurethane synthetic texture surface (including line marking, new inner raised kerb and Consulting Design Fees) \$310,000

Complete New Synthetic Surface

Preparation

New synthetic polyurethane synthetic surface (including line marking, new inner raised kerb and Consulting Design Fees) \$530,000

Additional Cost for solid polyurethane synthetic surface \$100,000

CONCLUSIONS

QEII Park is New Zealand's premier athletic venue.

When linked with sportsfields, pools, gymnasiums and sports medicine services, the athletic stadium provides huge potential as a sports training and events centre.

Maintenance and/or replacement of the QEII Park Athletic track is likely to cost between \$400,000 and \$800,000 during the next several years.

Whilst it appears that sufficient budget provision has been made, it may be necessary to commence some repairs/replacement at an earlier date.

Replacement of the high jump fan should be treated as a priority project.

If the option of providing for a complete new synthetic surface is selected due consideration should be given to lifespan, warranty, repairs, maintenance and service capability of the selected contractor. This should not be a tender selected on price alone.

Chairman's

Recommendation: That the information be received.