

Brooklyn Park



Unique. United. Undiscovered.

Sustainable Athletic Fields for Brooklyn Park, MN

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HORT 4061 - Group 2





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Current Field Conditions

- Notable wear of turf
 - Wear down the middle of the field and near goal mouths
- Lack of density
 - Incomplete coverage, consistent soil exposure
- Minor weed presence
 - Dandelion and broadleaf plantain mostly, likely the result of slightly basic soils, low fertility or lack of turf density.
- Hard, unsafe playing surfaces
 - Impact tests (Clegg) returning numbers of over 200 gravities in some of the worst areas. *For example:* The NFL requires 80 gravities or less on the fields of play
Likely the result of too much traffic



Management Recommendations

- Frequent Aeration

- This will reduce soil restriction, helping to eliminate the compacted surface. This also allows air, nutrients, and water to readily enter the soil. Post aeration is a prime time to fertilize and overseed as well

- Overseeding

- Overseeding is obviously a common practice. Habitual treatments is critical to promotion of constant germination. Try using for kentucky bluegrass and tall fescue seed rather than perennial ryegrass, as they are better suitors for soccer and football and over time are more wear resistant.

- Timely, Proper Chemical Applications



Using a lime application once or twice a year will help reduce the pH on the fields, eliminating some of the present weed issues.

Using proper fertilizer rates according to your soil test responses. Avoiding applications in the heat of the summer, and focusing on early and late spring and then fall

Cost of Installation

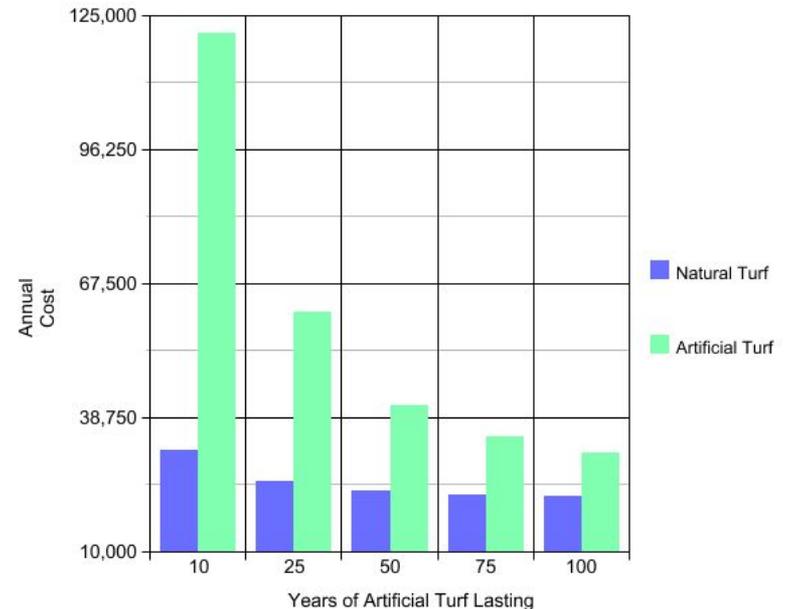
- Artificial Turf Implementation Cost - \$1,000,000
- Natural Turf Implementation Cost - \$110,000
- Do the costs rest there?
 - Annual budget of \$751,495
 - Brooklyn Park maintained 94 fields in 2015
- Disposal cost
 - Potentially up to \$130,000 and a new field in as little as 8-10 years.



“Brooklyn Park, a thriving community inspiring pride where opportunities exist for all.”

Cost of Management

- Annual Artificial Maintenance Turf Cost - \$22,200
- Annual Natural Turf Maintenance Cost - \$20,200
- Which expenses does this leave out?
 - Annual cost of implementation over 10 year
 - Artificial - 100,000/year
 - Natural - 11,000/year
- Rarely do artificial fields last longer than 10 years
- Adding equipment



Player safety comparison

- Energy exertion

- Heart rate and blood lactose levels indicate that athletes exert more energy on artificial turf than natural grass (Di Michele et al. 2009)



- Risk of Injury

- Susceptibility to ankle sprains (Steffen et al. 2007)
- Female athletes and severe injury risk (Williams et al. 2012)



Playability and player preference

- Quality of play on artificial turf
(Winterbottom 1985; Andresson et al. 2007)
 - Difficulty in movement
 - Ball control (ball bounce and ball roll)
- Style of play and player preference
 - Players display less aggressive tendencies on artificial turf
 - Player preference questionnaire



Final Recommendation

- Brooklyn Park should allocate their resources to renovating and maintaining the natural grass fields at Noble Sports Park
 - Effective management strategies (Aeration, overseeding)
 - Cost-friendly option (Installation, maintenance, equipment)
 - Superior playing surface (Player safety, quality of play, player preference)



Thank you and questions

