



NOBLE SPORTS PARK PROPOSAL

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HORT 4061 – Group 3



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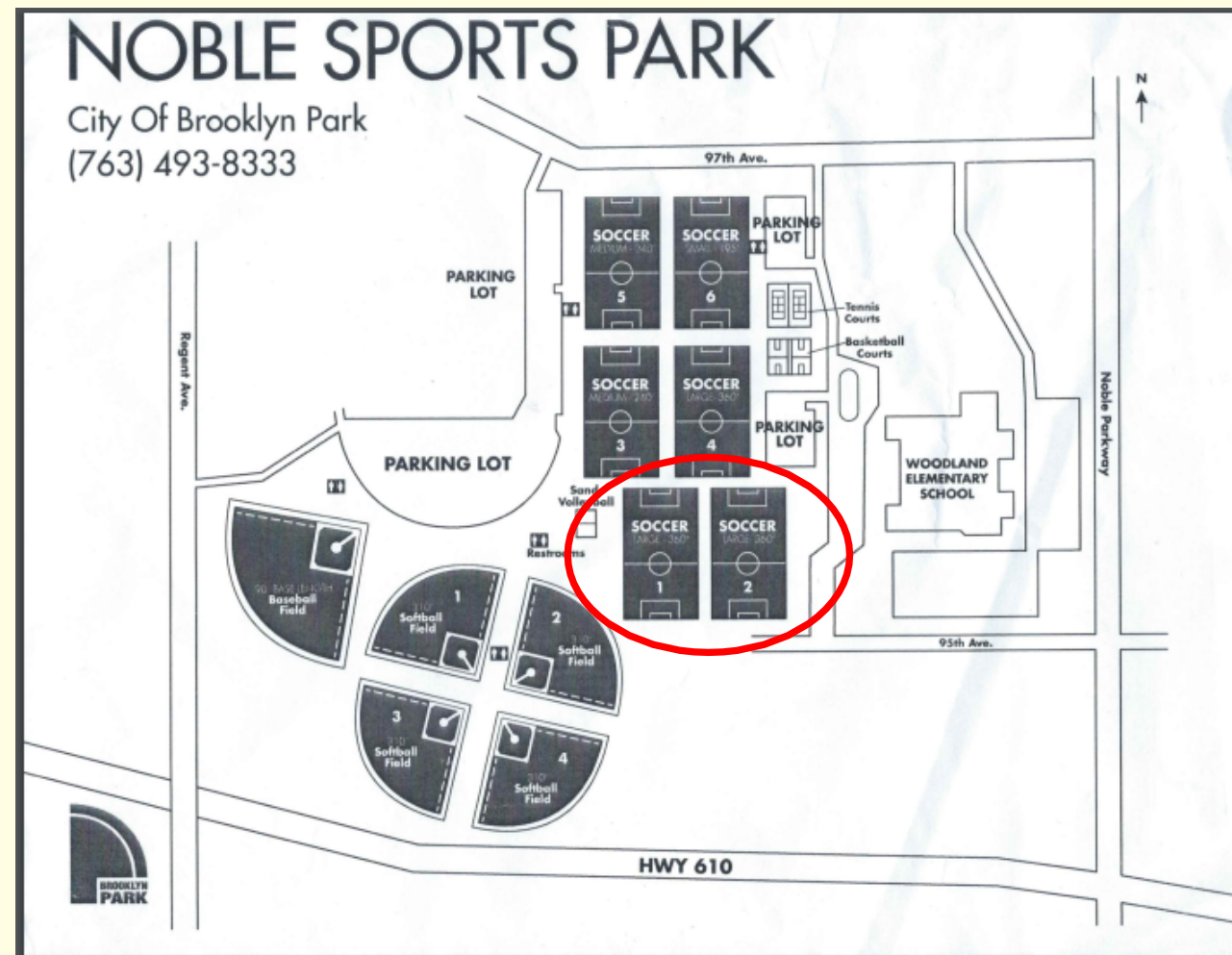
Brooklyn Park

- 6th Largest City in Minnesota with a population of 78,728 people
- Diverse population (50% of population non-white)
- Still growing
- Diverse communities bring a variety of sports that must be accommodated for in the parks



The Fields

- Fields one and two are used for soccer in the summer and football in the fall (there is a little overlap)



Soils Test

Sample/Field Number: NPS1

SOIL TEST RESULTS

Estimated Soil Texture	Organic Matter %	Soluble Salts mmhos/cm	pH	Buffer Index	Nitrate NO3-N ppm	Olsen Phosphorus ppm P	Bray 1 Phosphorus ppm P	Potassium ppm K	Sulfur SO4 -S ppm	Zinc ppm	Iron ppm	Manganese ppm	Copper ppm	Boron ppm	Calcium ppm	Magnesium ppm	Lead ppm
Coarse	2.1		7.6			40	93	61							1236	232	

Sample/Field Number: NPS2

SOIL TEST RESULTS

Estimated Soil Texture	Organic Matter %	Soluble Salts mmhos/cm	pH	Buffer Index	Nitrate NO3-N ppm	Olsen Phosphorus ppm P	Bray 1 Phosphorus ppm P	Potassium ppm K	Sulfur SO4 -S ppm	Zinc ppm	Iron ppm	Manganese ppm	Copper ppm	Boron ppm	Calcium ppm	Magnesium ppm	Lead ppm
Coarse	3.2		7.7			31	63	76							1575	287	

Field 1

129 GMAX	209 GMAX	148 GMAX
122 GMAX	185 GMAX	177 GMAX
111 GMAX	148 GMAX	201 GMAX
96 GMAX	216 GMAX	205 GMAX
96 GMAX	177 GMAX	135 GMAX
111 GMAX	172 GMAX	113 GMAX

Field 2

101 GMAX	281 GMAX	116 GMAX
148 GMAX	198 GMAX	133 GMAX
163 GMAX	261 GMAX	155 GMAX
122 GMAX	222 GMAX	163 GMAX
135 GMAX	185 GMAX	166 GMAX
109 GMAX	163 GMAX	100 GMAX

Avg: 111 GMAX 185 GMAX 163 GMAX

Avg: 130 GMAX 218 GMAX 139 GMAX

Maintenance

- Core aerated once a summer
- Broadleaf pesticide applied once a year
- Fertilized around June 10th
- Top dress when necessary
- Mown twice a week at 2.5 inches
- Selective overseeding

Challenges

- Regulating field use
- Keeping high quality turf
- Battling soil compaction
- Budget
- Maintenance practices

Artificial Turf

- Expensive
- Additional equipment
- Weather (maintenance and safety concerns)
 - *Rain*
 - *Sun*

Artificial Turf cont'd

2004-2005 Maintenance Budget for Synthetic Infill Field with a three year old surface

Seam Repairs (outside contractor; \$30 per linear foot)	\$8,000
Apply Crumb Rubber (1 time per year; 20 hours per application; 10 tons of topdressing at \$500 per ton)	\$5,000
Spray Field (4 times per year; 3.5 oz rate per 1000 square feet; 3 hours each; 12 hours per year)	\$216
Fabric softener at \$7 per 64 oz container	\$120
Disinfectant at \$5 per gallon	\$100
Sweep Field (Parker Sweeper; 4 times per year; 8 hours each; 32 hours per year)	\$1,500
Broom	\$500
Groomer	\$2,800
Hand Pick (3 times per week; 1 hour each; 156 hours per year at \$18 per hour)	\$2,800
Paint Field (2 times per year; 30 hours each; 60 hours per year; 30-40 gallons per year at \$25 per gallon)	\$1,000
Total Straight Hourly Cost (Field only; 280 hours at \$18 per hour; benefits not included)	\$5,040
Total Supply Cost	\$6,220
Total Equipment Cost	\$3,500
Total Outside Contractor Repairs	\$8,000
Total Maintenance Cost 2004-2005	\$22,760

Bottom Line: Michigan State University synthetic field costs \$22,760 per year to maintain.

Synthetic – Michigan State University

Outside Contractor Maintenance Charges

Consultation and/or training	\$1,200-\$3,000 per day plus expenses
Repairs	\$30-\$70 per linear foot
Crumb Rubber	\$.50-\$1.00 per pound applied

Synthetic Turf Maintenance Equipment

Boom Sprayer	\$1,000-\$35,000
Sweeper	\$1,500-\$20,000
Broom	\$500-\$3,000
Painter	\$500-\$3,000
Groomer	\$1,500-\$2,000
Cart (to tow equipment)	\$2,500-\$16,000
Field Magnet	\$500-\$1,000
Rollers	\$200-\$2,000
Total	\$8,250-\$2,000

Costs for artificial turf:

\$22,760

\$8,250-

\$82,000

2009 Sand Based Soccer Field Maintenance Cost Estimates

Total Area: 114,000 square feet

Description of Activity	Man Hours	Man Hour Cost	Product	Product Cost	Total Activity Cost
50 Mowings / Season	113	2,228.36			\$2,228.36
Growth Regulator, Once Per Month	12	236.64	Primo	1,227.60	\$1,464.24
Topdressing, 5 Applications Per Year	31.5	621.18	Sand	1,987.50	\$2,608.68
Water, 1 Acre Inch Per Week / 26 Weeks	6	118.32	City Water	5,440.50	\$5,558.82
Fertilizer @ 6.1 #s N / Year	12	236.64	Fertilizers	1,548.00	\$1,784.64
Paint, 6 Applications Per Season / 20-5 Gallon Pails	45	887.40	Paint	378.75	\$1,266.15
Aeration, 3 Times Per Year	13.5	266.22	Verti-Drain		\$266.22
Fungicide, Four Applications / Season	8	157.76	Disarm 480 SC	1,575.00	\$1,732.76
Over-Seeding, Once Per Season	5	98.60	Seed	997.50	\$1,096.10
Herbicide, One Application Per Season	2	39.44	Herbicide	22.66	\$62.10
Fence-line Maintenance, 2 Apps. Per Year	8	157.76	Control Products	125.00	\$282.76
Miscellaneous	50	986.00	Misc. Products	200.00	\$1,186.00
Pre-emergent Applications	4	78.88	Drive 75 DF	360.18	\$439.06
Insecticide Applications			Dylox		
Sports Lighting, 10 events @ 3 hrs in length per season			Electricity	402.60	\$402.60
Totals		\$6,113.20		\$14,265.29	\$20,378.49

Labor Cost: \$16.44 x 20% benefits = \$19.72 per hour

Bottom Line: North Scott Community School District's sand based soccer field costs \$20,378.49 per year to maintain.

Cost for natural turf:

\$20,378.49

Our Recommendation

- Don't install an artificial turf field
- Aerate more than once a summer (2-3 times a year)
- Hire additional staff so that maintenance practices can be done more often
- Inter-seed with turf type semi dwarf tall fescue

Type	Turf quality ^z		Brown patch ^y		Tiller no. ^v
	1999	2000	1999 ^x	2000 ^w	1999
Semi-dwarf	5.7	6.1	3.5	5.3	108.5
Early semi-dwarf	5.7	6.0	4.0	5.0	106.6
Dwarf	5.2	6.0	2.3	4.5	110.8
Standard	4.9	4.4	4.0	5.0	101.0
Forage/early standard	2.2	1.3	6.0	4.7	74.1
Minimum significant difference _{0.05} ^u	0.6	0.9	1.4	1.6	15.8

^z1 to 9 scale, 9 = best turf quality. The 1999 and 2000 data are averages of 13 and 9 rating dates, respectively.

^y1 to 9 scale, 9 = least brown patch disease.

^xRating taken 9 Aug. 1999.

^wAverage of two rating dates taken 8 and 15 Aug.

^vTiller number determined by averaging number of tillers in two samples (91.5 cm² each) per plot taken 9 Sept. 1999.

^uTukey's minimum significant difference.

Resources:

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