

Research, Analysis and Comparison Prepared For:
Tustin Unified School District

District Stadium at Tustin High School
Subcommittee on Synthetic Turf

Synthetic Turf vs. Natural Sod

Acknowledgements

Synthetic Turf Sub Committee

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Stadium Field Usage

Sod Field Usage

Current Uses

- Varsity Football
- Varsity Lacrosse
- Varsity Soccer
- Graduation
- 4th of July Celebration*
- Easter Celebration*

Synthetic Turf Field Possible Uses

- Varsity Football
- Varsity Lacrosse
- Varsity Soccer
- Graduation
- 4th of July Celebration*
- Easter Celebration*
- Lower Level Football (practice and games)
- Lower Level Lacrosse (practice and games)
- P.E.
- Lower Level Soccer (Practice and Games)
- Marching Band Practice and Competitions
- Assemblies and Celebrations
- City and League Championships
- Pop Warner/Youth Football*
- AYSO Soccer*
- Graduation*

* Community Group Usage

Field Use Limitations

Sod Field Limitations

Prohibited Usage, or Limits on Hrs of Usage

Lacrosse (limited use due to size of field and excessive wear)
Marching Band
Physical Education (P.E.)
Lower Level Sports
Varsity and Lower Level Practice

800 hrs/ yr

Current Limit on Hours
of Usage of Sod field

Source: Synthetic Turf Council
(see tab 12)

Synthetic Turf Field Limitations

Warranty

Based on 3,000 hrs/ year or 300 days/ yr
for 10hrs each day

3,000 hrs/ yr

Source: Synthetic Turf Council
(see tab 12)

Field Benefits

Sod Field

- Traditional look and feel
- No “stigma” attached
- Carbon Storage- captures atmospheric carbon dioxide
- Non traditional maintenance not required (no special equipment or skills)
- Stays cooler and has cooling effect
- Flexibility in field layout (painting of lines)
- Bio filter for rainwater

Synthetic Turf Field

- No Fertilizers
- No Mowing
- No Sod Replacement
- Synthetic Turf replacement every 10 yrs not every year
- Safe, high quality, uniform playing surface
- Reduced emissions from mowers
- Slight reduction in impact and rotational injuries
- Reduced water usage
- 100% of materials can be recycled at the end of useful life
- Lowers the use of paper and plastic products that support maintenance
- Removes tires from landfills
- Eliminates use of lawn care chemicals and pesticides

Misconceptions associated with Synthetic Turf

Injuries

- Perception that injuries occur more frequently with synthetic turf:
- Studies show frequency of injuries is nearly identical for both synthetic and sod turf fields and may be slightly lower for synthetic turf fields.

Source: Department of Health and Human Development, Montana State University, January 2010 (see tab 6)

Lead Content

- Lead was previously used as a stabilizer for pigment in grass filaments
- Current Manufacturing processes have removed 100% of Lead from the manufacturing process

Source: Consumer Product Safety Commission Report, July 2008 (see tab 3)

Hazardous Materials in Rubber Particles

- Study by EPA concluded no significant level of toxicity or concern

Source: U.S. Environmental Protection Agency report, November 2009 (see tab 4)

Misconceptions associated with Synthetic Turf

Staph/ MRSA

- Concern with bacteria growing in Synthetic Turf:
- Studies have concluded that staph/ MRSA level actually higher in sod field than in synthetic

Source: Centers for Disease Control and Prevention, July 2008 (see tab 5)

Heat/ Temperatures

- On hottest day temperatures of synthetic field higher than surrounding ambient temperature and higher than Sod field. Can vary by as much as 58 degrees on hottest days at the field level, but only 5-6 degrees within 2 feet above the surface
 - ✓ Cooling system required or other misting system for players
 - ✓ Water reduces static electricity

Milone & MacBroom Inc. study of Evaluation of the Environmental Effects of Synthetic Turf Athletic Fields, December 2008 (see tab 9)

Regional Comparisons

of Fields with Synthetic Turf in Orange, San Diego, and Riverside Counties

	Orange County	San Diego County	Riverside County
Number of High Schools	68	62	52
Number of High Schools that have synthetic field or play games on synthetic field	36	49	26
Percentage playing on synthetic fields	52.9%	79.03%	50%

(see tab 13)

Maintenance

Sod

- Mowing
- Fertilization
- Sod Replacement
- Watering
- Painting
- Re-planting/ laying sod
- Aerating
- Pesticide/ weed abatement

Synthetic Turf

- Cleaning/ sweeping rejuvenation
 - Grooming and brushing to de-compact infill and maintain appropriate G-max levels
 - Minor repairs (sewing/ adhesive failures, inlay separation)
 - Analysis of infill, fiber wear analysis, ultraviolet degradation, infill migration, seams, field anchoring systems, drainage system, field paint, base integrity, field inserts
 - Replacement of rubber granules
 - End of 10 year replacement of carpet and granules
 - Can be completed as a service contract from the manufacturer
- (see tab 8)

Cost

Sod (if field kept in pristine condition to allow more hours of use)

Initial Outlay	\$370,000	Includes grading, drainage, field prep, irrigation, and sod field
Maintenance over 10 year period	\$940,550	Maintained in pristine condition
Total	\$1,310,550	

Sod (if field kept in current condition)

Initial Outlay	\$370,000	
Maintenance over 10 year period ¹	\$281,158	
Total	\$651,158	

Synthetic Turf

Initial Outlay	\$870,000	
Maintenance over 10 year period	\$609,130	Includes cost of replacement after 10 years ²
Total	\$1,479,130	

¹ Ignores any possible revenue generation as a result of increased number of hours of use

² Assumes quarterly maintenance contract

10 Year Lifecycle Cost Comparison per Hour of Use

Sod (if field kept in pristine condition to allow more hours of use)

	Total Capital Cost	Hours of Usage	Cost/ Hour
Natural Sod in Pristine Condition	\$1,310,550	8,000	\$163.81
Synthetic Turf ¹	\$1,479,130	30,000	\$49.30

Sod (if field kept in current condition)

	Total Capital Cost	Hours of Usage	Cost/ Hour
Natural Sod in Current Condition	\$651,158	5,100	\$127.67
Synthetic Turf	\$1,479,130	30,000	\$49.30

¹ Includes cost of 1 complete re- grade and sod replacement of field @ \$125,000