GVRD

GREATER VALLEJO PARK & RECREATION DISTRICT
Dan Foley Park;
Multi-Use Sports Field
Vallejo, CA

Synthetic Turf Resurfacing & Renewal

October 2022

PREPARED BY:

LLOYD
SPORTS + ENGINEERING

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OVERVIEW AND SETTING

The multi-use synthetic turf playing field (soccer/softball) is part of the larger Dan Foley Park development within the jurisdiction of the Greater Vallejo Park District, in Vallejo, CA. The overall park amenities include both active amenities, such as the sports fields, and more passive features such as walking trails, social spaces, and a lakeside environment.

Overall the site is moderately hilly with terraced developments from the main entry down to the lake. The overall park development includes naturalized areas beyond the terraced developed area into the ravine and lower drainage areas, all apparently sloping toward the lake. It was reported that the lake serves as storm water catchment and storage features, as well as provides an irrigation source, via pumping, to irrigate the landscape and lawn areas of the park.

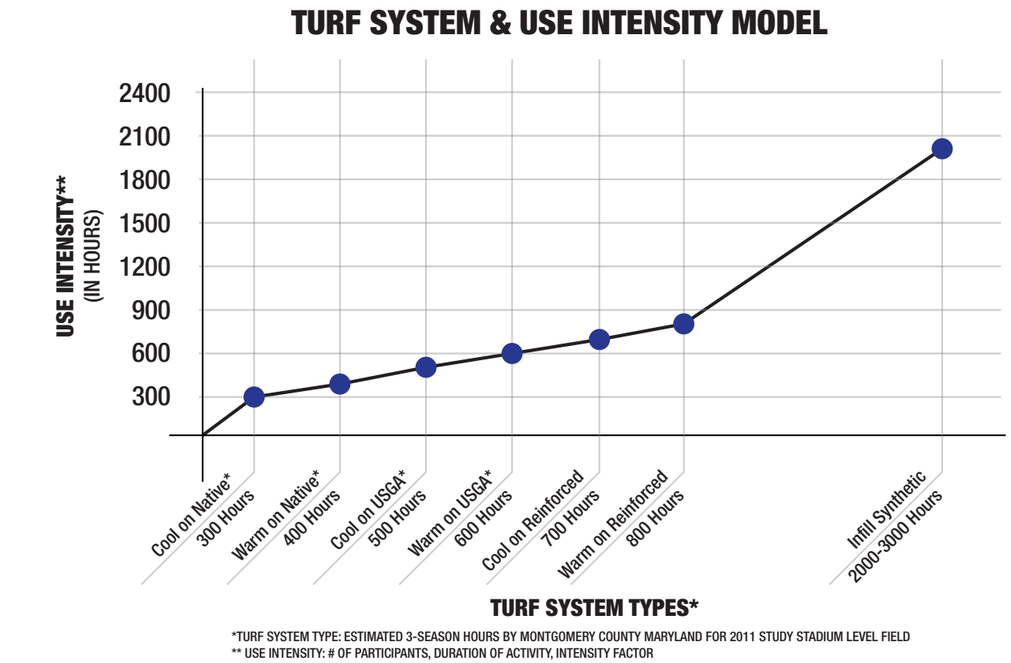
PROGRAMMATIC USES AND EVOLVING SPORTING DEMANDS

Since completion of the multi-use synthetic turf sports field circa 2008/2009 fiscal year, the field has been in high demand for daily unscheduled walk-up recreation and use in addition to the more formal scheduled team trainings, league play, and competitions. The field programming opportunities are maximized by the sports lighting system allowing play well into the evening year-round and in particularly during the winter months when daylight is considerably shorter.

The decision to install a synthetic turf surface, some 13+ years ago, adds an all-weather capability to the resource and a playing surface that can handle nearly continual use without rest, recovery, or repair needed for a similarly programmed natural grass playing surface.

[Programmatic Uses & Evolving Sporing Demands Continued...]

Over the last 12 month cycle, from July 1, 2021 through June 30, 2022, the official event bookings included 432 distinct approved events. These events ranged from as low as two hours to all day tournaments encompassing 12 hours or more. A cursory analysis of this time period, using three hours average use for each event, yields 1,296 annual hours of formal sanctioned and District approved use. Factoring in the current open access walk-up policy for community use and the likely unofficial group use, it would be easy for us to forecast an overall annual use of the field in range of 2,000 to 2,200 hours annually. [See Appendix A].



The intense use of this multi-use field aligns perfectly with the design capacity of a synthetic surface and in turf reduces pressure on other active sporting areas of the park. This is an important consideration to acknowledge. Additionally, the youth and community sports market continues to expand since the field was first opened, and we forecast this trend to continue, including possible use by other emerging field sports such as youth lacrosse, flag football, and even youth rugby.

In summary, our review of the program supports not only undertaking this resurfacing, but careful consideration might be given to increase the investment in the venue and assure it meets or exceeds the community needs for the next 10 to 12 years.

EXISTING PLAYING SURFACE SYSTEM AND SUPPORT FEATURES

The existing synthetic playing surface, approximately 103,000 square feet, is clearly at or very near the end of its useful life. Fiber degradation and loss through much of the playing surface is evident. This is particularly observable on the high wear areas of both soccer and softball with several areas of patching and worn-down zones to the carpet backing including much of the field striping and marking.

Some immediately adjacent features, such as fencing and dugouts, and supporting underground infrastructure are showing signs of age and wear. These features are close to presenting a hazard to users and should be corrected and/or repaired as part of the work.

There is some good news. Our observation of the overall grade of the field is good; only a few localized spot grade repairs are forecast, and off-site draining corrections seemed to be adequate with only minor cleaning and flushing of the infrastructure necessary.

On Wednesday August 3rd, with the assistance of the District's facilities team, Lloyd conducted a thorough review and examination of the playing fields surfacing system (turf, underlayment, fiber, and infill) and the supporting base (aggregates, edge detail, drainage, and underlayment). While different than the information contained in the record drawings provided, we encounter an apparently well executed sub surface drain, a fabric protested sub-grade, an intact shock attenuating/drainage layer, and little evidence of settlement and/or trans-location of materials (silts, clays, sand, and stone) under the field.

Our full report, [See Appendix B], revealed a solid and robust field construction that is likely to require very little rework and repair to the features and systems under the carpet.

RECOMMENDED AND OPTIONAL RENEWAL SCOPE

Based upon review of the record drawings, site observation, destructive investigation, and needs assessment review with District staff we outline the project scope in two categories; recommended and optional.

> Recommended items are defined as: items at or near the end of their useful life, negatively impact the intended use sporting, or present safety/code/access concerns.

> Optional items are defined as: scope that add new features, improves operations, or improves programming features/opportunities.

Recommended

1. Remove and replace the synthetic turf with similar long fiber infilled turf. A slightly higher density carpet is recommended to be used for the softball infield area increasing traffic tolerance and improved wearability. Selection of a non-rubber in-fill will be explored in-depth during the final planning and scope finalization design phase, is also recommended. The synthetic turf market and technology has matured in the last 12 years and better products are now common place for little to no premium.

2. Repair and modernize with new boxes and equipment the existing irrigation system including the pump station, irrigation works, and controls as needed.

3. Repair and/or replace a portion of the worn or damaged features eclipsing the site including dugout enclosures, fence fabric on limited basis, and safety padding on obstruction around the softball infield zone.

4. Repair or replace the failing foundation under the south storage building that has given way and is partially detached for the structure.

5. Flush clean and repair all existing storm draining piping, inlets, and features.

Optional

1. Convert the irrigation supply source, currently pumped from the lake, to the nearest domestic source.

2. Add a new fully accessible ADA pedestrian path form the restroom building to the soccer field.

3. Improve ball capture netting behind the soccer goals for user convenience.

4. Review and improve ball capture nets around softball for safety and adjacent use protection.

5. Adding additional inlaid lines and masking for other sports (junio soccer, football, lacrosse, etc.) or Park/District logos can be included at modest costs.

MILESTONE TIMELINE

Using our experience with similar public agencies, board policies, and California Pubic Contract code for procurement we would forecast the following milestone schedule as a guide going forward to complete the renewal and synthetic turf resurfacing effort.

October 17	Report Presented to Staff and Facilities Committee
November 15	Report and Presentation to Board for Action
Oct 15 - Dec 15	Finalize Scope and Bid Document Preparation
Dec 15 – Jan 15	District Review, Approval, and Funding
Jan 15 – Feb 15	Notice of Bidding and Bidding
Feb 15 – April 1	Review, Approval, Award, and Execution of Contract
April 1 – May 1	Pre-construction
May 1 – July 1	Construction
August 1	Close-out and Full Completion

ANTICIPATED BUDGET MODEL

Based upon current market conditions, along with the information gathered from the site and the program vision expressed by the Park District to date, Lloyd recommends the following target budgets for the proposed scope of work.

Base Scope & Essential Features	$1,050,000 to $1,100,000
Optional Scope	
A - Irrigation Supply Upgrades	$100,000
B - Improve Pedestrian Access	$35,000
C - Upgraded Soccer Goal Netting	$35,000
D - Upgraded Softball Ball Capture Netting	$50,000 - $100,000

Date **September 1, 2022**
Project **Dan Foley Park Multi-use Synthetic Field**
Proj No **21-180**
Plans **Evaluation and Assessment**

Recommended Budget

		Qty/	Unit	Unit Cost	Total Cost
Mobilization and Preparation					
Mobilization and Site Prep		1	AL	$ 10.000	$ 10.000
Entry Protection and Roadway		1	AL	$ 7.500	$ 7.500
SWPPP		1	LS	$ 5.000	$ 5.000
	sub-total				$ 22.500
Demolition					
Existing Turf Removal & Disposal (2.0" pile height)		103.000	SF	$ 0.75	$ 77.250
Hazardous Materials			NIC		$ -
	sub-total				$ 77.250
Site Utilities					
New Synthetic Turf Infrastructure Boxes		1	AL	$ 15.000	$ 15.000
Storm Drain Inspection/cleaning and flushing		1	AL	$ 7,500	$ 7,500
New valve box installation and adjustments		1	AL	$ 7,500	$ 7,500
					$ 30,000
Irrigation					
Rework irrigation heads, boxes, controls		8	EA	$3,500	$ 28,000
Repair booster pump and controls		1	AL	$5,000	$ 5,000
	sub-total				$ 33,000
Sitework					
Localized grade and depression repairs		1	AL	$ 7.500	$ 7.500
Nailer Board Spacers/Shims Repairs		1	AL	$ 2.500	$ 2.500
New base plates and anchors		1	AL	$ 3.000	$ 3.000
Repair localized underlayment/pad		1	AL	$ 3.500	$ 3.500
	sub-total				$ 16.500
Synthetic Turf System					
New Dual fiber Synthetic Turf 2"		103.000	SF	$ 5.25	$ 540.750
Inreased infield face weight		6.500	SF	$ 0.50	$ 3.250
Marking and Striping		1	LS	$ 7.500	$ 7.500
Non-rubber infill premium		103.000	SF	$ 0.75	$ 77.250
Maintenance Equipment		1	LS	$ 9.500	$ 9.500
Soccer Goal anchors and frames		2	LS	$ 2.500	$ 5.000
Standard Turf Colors				included	
	sub-total				$ 643,250
Site Features and Amenities					
Localized fence fabric and dugout repairs		1	LS	$ 25,000	$ 25,000
Safety and backstop padding at softball		1	LS	$ 6,500	$ 6,500
					$ -
	sub-total				$ 31,500
Site Structures					
Repair or replace failing foundation on storage building		1	LS	$ 25,000	$ 25,000
Architectural adjustments for repairs		1	LS	$ 5,000	$ 5,000
MEP Adjustment and repairs		1	LS	$ 5,000	$ 5,000
	sub-total				$ 35,000
				Hard Construction Total	**$ 824,000**
Engineering, bid documents, procurement, CA and quality control		7%		$ 57,680	$ 57,680
Scope and Engineering Contingency		10%		$ 82,400	$ 82,400
Owner Contingency		10%		$ 82,400	$ 82,400
				Base SCOPE TOTAL	**$ 1,046,480**

Option A - Convert Irrigation Source to Domestic Water

Mainline Extension and new connection	1	LS	$ 40,000	$ 40,000
New Backflow Preventor	1	LS	$ 10,000	$ 10,000
Capping and removal of existing lake supply	1	LS	$ 10,000	$ 10,000
Patching and site repairs	1	LS	$ 15,000	$ 15,000
Design Contingency		15%	$ 11,250	$ 11,250
Additional Design and QA/QC	1	LS	$ 5,000	$ 5,000
Owner Contingency		10%	$ 6,500	$ 6,500
			Additional Estimated Cost	$ 97,750

Option B - Add New Pedestrian and ADA Path

New Paving, ramps, and gates	1	LS	$ 15,000	$ 15,000
Landscape and irrigation restoration	1	LS	$ 5,000	$ 5,000
Utility adjustments	1	LS	$ 2,500	$ 2,500
Additional Design and QA/QC	1	LS	$ 4,500	$ 4,500
Design Contingency		15%	$ 4,050	$ 4,050
Owner Contingency		10%	$ 2,700	$ 2,700
			Additional Estimate Cost	$ 33,750

Option C - Upgrade Soccer Goal Ball Capture Nets

Extend netting system behind goal	2	EA	$ 12,500	$ 25,000
Additional Design and QA/QC	1	LS	$ 2,500	$ 2,500
Design Contingency		15%	$ 4,125	$ 4,125
Owner Contingency		10%	$ 2,750	$ 2,750
			Additional Estimate Cost	$ 34,375

Option D - Upgrade Softball Ball Capture and Safety Netting

Extend netting system for ball capture and safety					
Modest	1	LS	$ 30,000		$ 30,000
Extensive	1	LS	$ 100,000		$ 100,000
Additional Design and QA/QC	1	LS	$ 7,500		$ 7,500
Design Contingency		15%	$ 20,625		$ 20,625
Owner Contingency		10%	$ 13,750		$ 13,750
Additional Estimated Range			$ 50,000	to	$ 150,000

APPENDIX A

FIELD OBSERVATION REPORT A

ENGINEER ~ Lloyd Engineering
CONTRACTOR ~

PROJECT: Dan Foley Park, Vallejo; Synthetic Field Resurfacing

Lloyd Project No. 21-180

Site Visit Date & Time: Wednesday August 3, 2022, 8am

Report by: Bob Milano Jr., Lloyd Consulting Group

PRESENT AT SITE:
Consultant: Bob Milano Jr.
Contractor: n/a
Owner: District Staff and Supervisor Chris Andrade <candrade@gvrd.org>

A site review observation, evaluation, and testing was conducted in and around the existing synthetic soccer and softball/youth baseball field at Dan Foley Park for the purposes of planning and replacing the synthetic turf surfacing and any associated deferred maintenance work.

1. The site was dry with no standing water on the field or adjacent landscapes.
2. The synthetic turf is at or very near the end its useful life with several obvious patches in high wear areas and a few minor spots were the turf has worn through to the backing and beyond.
3. The overall grade of the field was very uniform maintaining what appeared to be the original slope and features as designed.
4. The inlaid lines were straight, uniform, and very little waviness indicating settlement, shifting, and dislodging of materials under the turf surfacing had occurred since the original installation. A few localized minor depressions were visible on the surface, but no major settlement of any utility tranches or drain lines were evident.
5. Overall, from a surface observation the underlying structural base and associated underground infrastructure appears in good condition with no visible surface indications of major problems.
6. The venue is night lit and the field layout is a combined soccer and softball/youth baseball configuration.

Photo 1 – Overview

FIELD OBSERVATION REPORT A

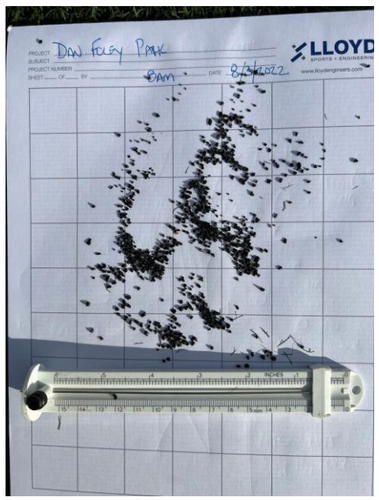
ENGINEER ~ Lloyd Engineering
CONTRACTOR ~

Photo 2 & 3 – Localized patches

7. All of the surface utility features and boxes were reviewed, and some adjustments and local repairs will be needed, particularly around the in-ground water cannon irrigation systems should they be retained as part of the project.

Photo #4 & #5 – In-ground Utilities

8. Lloyd gathered some samples of the existing in-fill and fiber. The infill appears to be a blend of clean sand and rubber particles. Based upon the shiny nature of the rubber surfaces and the clean angles it is likely that the materials are a “cryogenic” rubber. The fiber appears to be a 2” pile height all monofilament fiber.



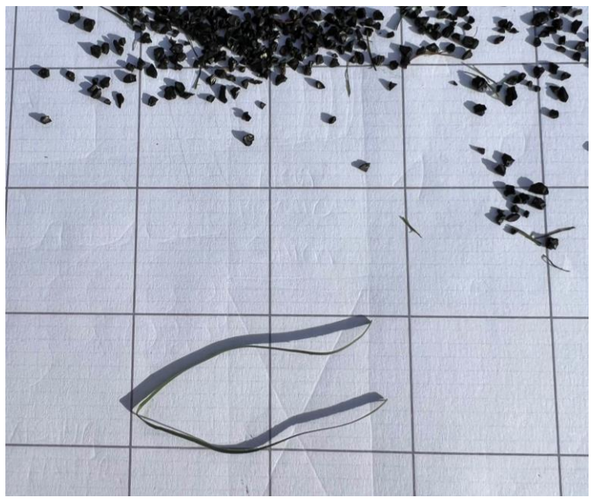


Photo #9 & #10 – Crumb rubber sample and Fiber turfing length

9. Lloyd and the District team then carefully conducted a subsurface investigation of the existing system and to conduct an ASTM F2898-11 Infiltration Test. The results and findings of that exploration are as follows:

Photo # 11 – Northeast Corner Selected for Investigation

10. The carpet was carefully peeled back exposing the first layer of materials a white foam underlayment (Brock Power Base?). This material provides both shock attenuation for user safety and horizontal drainage just under the playing surface. The back of the turf was in good condition and indicated a FieldTurf product based on the manufacturing technique and wider tuft gauge.

Photo #12 – Underlayment

Photo # 11- Turf backing

11. The underlayment was removed and revealed a base covered in a geofabric and an open stone infiltration drain trench filled with clean angular ¾” stone. The assembly was very clean and no obvious signs of settlement, or lateral movement of silt, sands, or soils. The 30” to 36” wide infiltration trench was in good condition. Upon rolling back the geofabric it revealed a second fabric that lined/wrapped the infiltration trench.

Photo #12 Geofabric and Drain Trench

Photo # 13 – Geofabric Close-up

Photo #14 – Overview

Photo #15 – Infiltration Trench

12. The perimeter nailer made of plastic/synthetic lumber was in serviceable condition and well anchored to the concrete perimeter band.

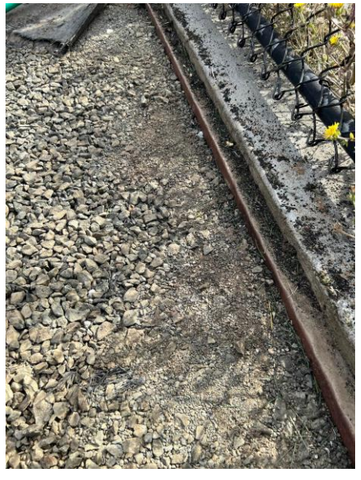


Photo #14 – Nailer

Photo #15 – Close-up

13. The underlayment is in fair condition and should withstand a resurfacing with only minor patch and repair after demolition of the turf. The product typical has a 20 - 25 year warranty.

FIELD OBSERVATION REPORT A

ENGINEER ~ Lloyd Engineering
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Photo #14 – Bottom side of Underlayment

Photo #15 – Close-up

14. An unconfined infiltration test was conducted on the base at the rolled back flap located in the Northeast corner of the field. (ASTM F2898-11 test method was used). The **test was formally inconclusive** as water was moving vertically into the infiltration drain and data could not be collected from this location. A test atop the fabric layer would have likely shed water even quicker to the underground drain system.

Photo 13 – Start of Test on

Photo 14 – Water Immediately draining

End of Report