

COMMUNITY MEETING #1

January 28, 2017

ARTIFICIAL TURF REPLACEMENT

Tom Bates Regional Sports Complex (Gilman Fields)



Department of Parks,
Recreation & Waterfront

Background

Open dialog

Maintenance Project

Two Community Meetings

- First Meeting – Saturday, January 28
- Second Meeting, Saturday, March 25 (Tentative)

ARTIFICIAL TURF REPLACEMENT

Tom Bates Regional Sports Complex (Gilman Fields)



Department of Parks,
Recreation & Waterfront

First Meeting (today)

A. Infill Material Alternatives

B. Project Constraints

C. Gather Community Feedback

D. Identify Community Priorities

ARTIFICIAL TURF REPLACEMENT

Tom Bates Regional Sports Complex (Gilman Fields)



Department of Parks,
Recreation & Waterfront

Second Meeting

A. Present Selection Criteria

B. Present Evaluation Matrix on a number of viable infill materials

C. Present proposed optimal Infill Material Selection

D. Community Feedback on Proposed Selection

ARTIFICIAL TURF REPLACEMENT

Tom Bates Regional Sports Complex (Gilman Fields)



Parks
Make
Life
Better!

Department of Parks,
Recreation & Waterfront

Key Project Constraints

- A. Safety of Users
- B. Protection of the Environment
- C. Highest Durability
- D. Lowest Long Term Maintenance
- D. Initial and Long Term Costs
- E. Playability

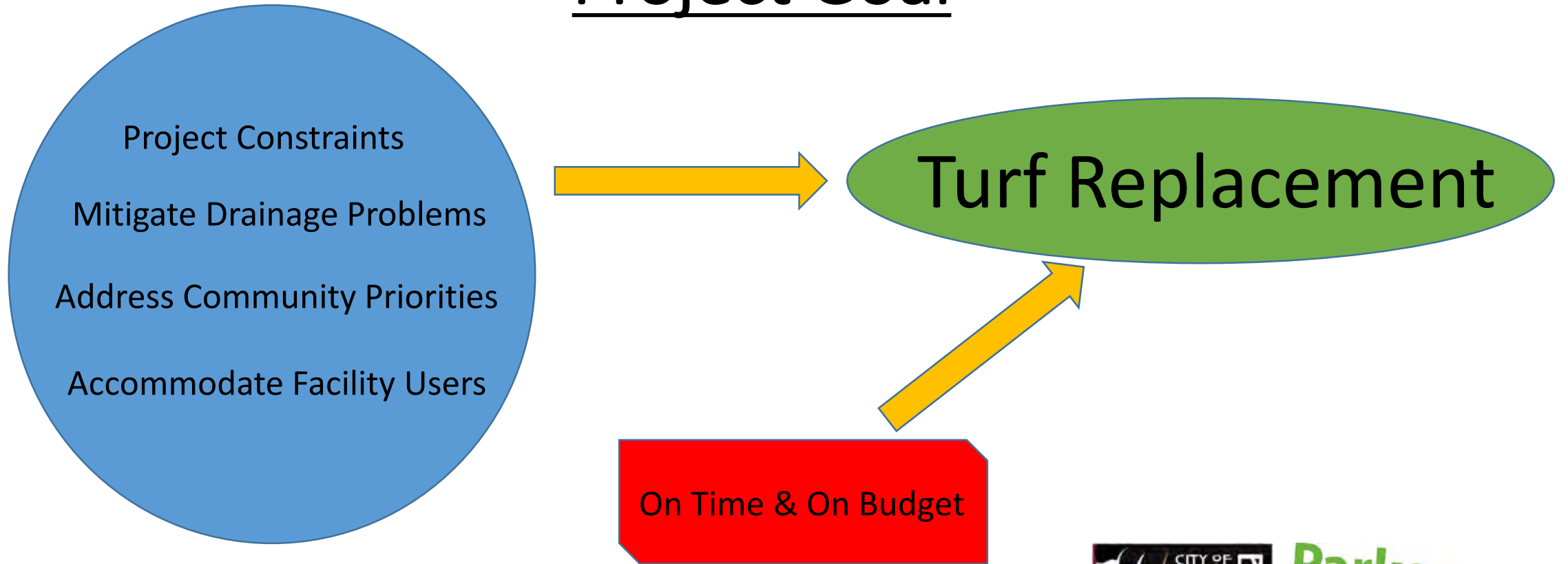
ARTIFICIAL TURF REPLACEMENT

Tom Bates Regional Sports Complex (Gilman Fields)



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Project Goal



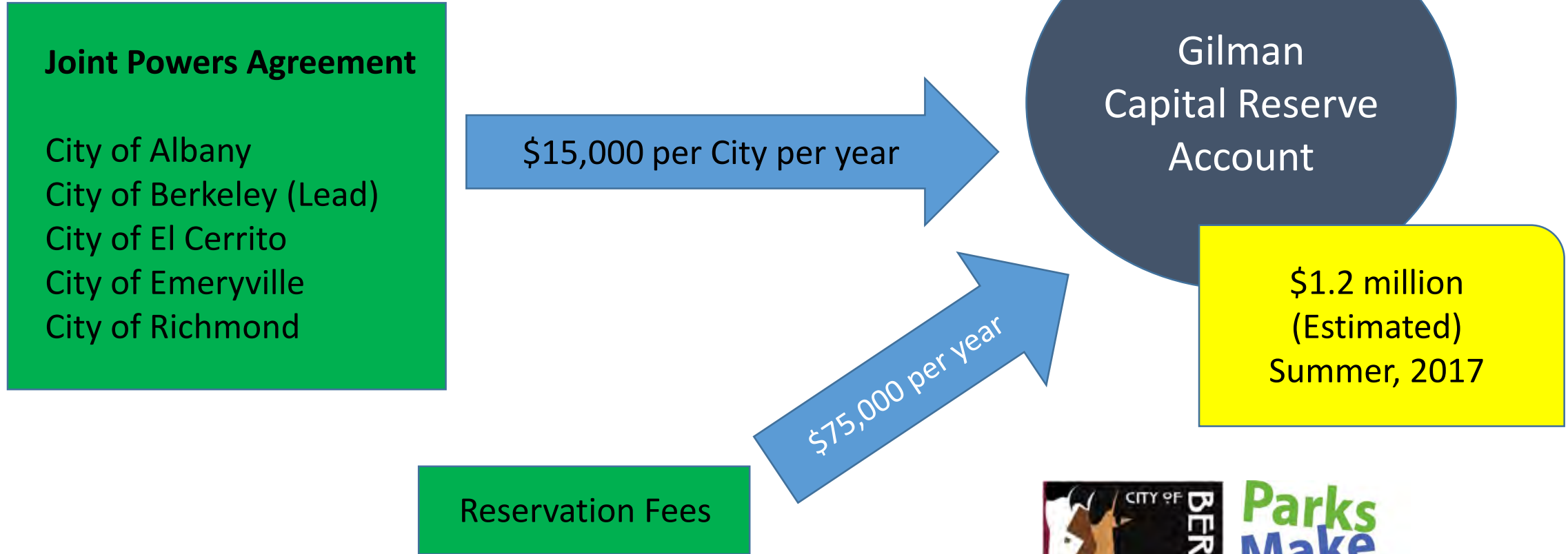
ARTIFICIAL TURF REPLACEMENT

Tom Bates Regional Sports Complex (Gilman Fields)



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FUNDING



ARTIFICIAL TURF REPLACEMENT

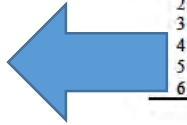
Tom Bates Regional Sports Complex (Gilman Fields)



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FUNDING

Construction
 (\$850,000)
 (Estimated)



\$4.70 SF
 (Estimated)

ENGINEER'S COST OPINION
 FOR
 Tom Bates Regional Sports Complex - Artificial Turf Replacement (CMAS)
 Project Code: 17PK03

ITEM DESCRIPTION	QTY	UNIT	UNIT PRICE	AMOUNT
1 Turf Pad -Brock	180,000	SF	\$0.50	\$90,000.00
2 Turf				\$693,000.00
3 Turf				\$45,000.00
4 In				\$90,000.00
5 Su				\$50,000.00
6 D				\$127,800.00
				\$1,095,800.00
Co				\$5,000.00
Co				\$110,000.00
Co				\$1,000.00
Co				\$1,000.00
TO				\$1,200,000.00
BUDGET				Amount
Designated				\$1,200,000.00
TO				\$1,200,000.00
By: [Signature]				25-Jan-17
Reviewed				Preliminary
Approved				

- Soft Costs**
- Design
 - Bidding Process
 - Public Engagement
 - Permits
 - Construction Management & Inspection

Gilman
 Capital Reserve
 Account

\$1.2 million
 (Estimated)
 Summer, 2017

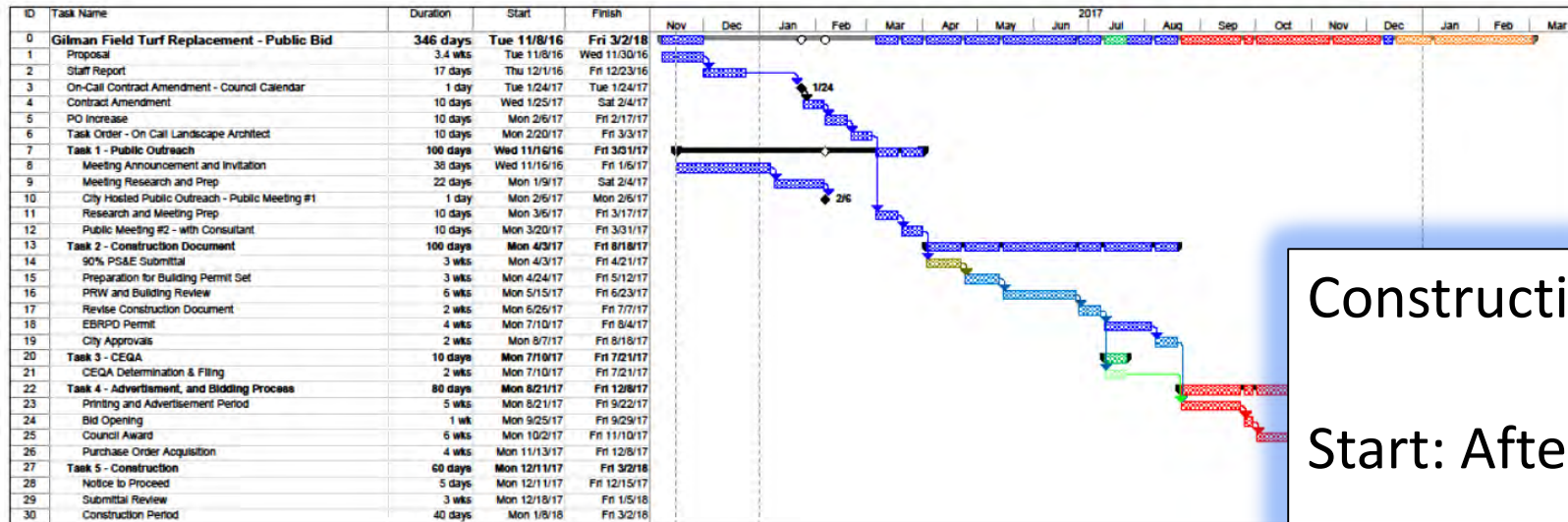


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ARTIFICIAL TURF REPLACEMENT
 Tom Bates Regional Sports Complex (Gilman Fields)

Cost Estimate - Turf Replacement - Pre-Design.xlsx 1/24/2017

SCHEDULE



Construction (Anticipated)
 Start: After Thanksgiving, 2017
 Completion: End of February, 2018

Project: Gilman Field Turf Replacement
 Date: Wed 11/16/16

Task	External Tasks	Inactive Summary	Start-only	Deadline
Split	External Milestone	Manual Task	Finish-only	
Milestone	Inactive Task	Duration-only	External Tasks	
Summary	Inactive Milestone	Manual Summary Rollup	External Milestone	
Project Summary	Inactive Milestone	Manual Summary	Progress	

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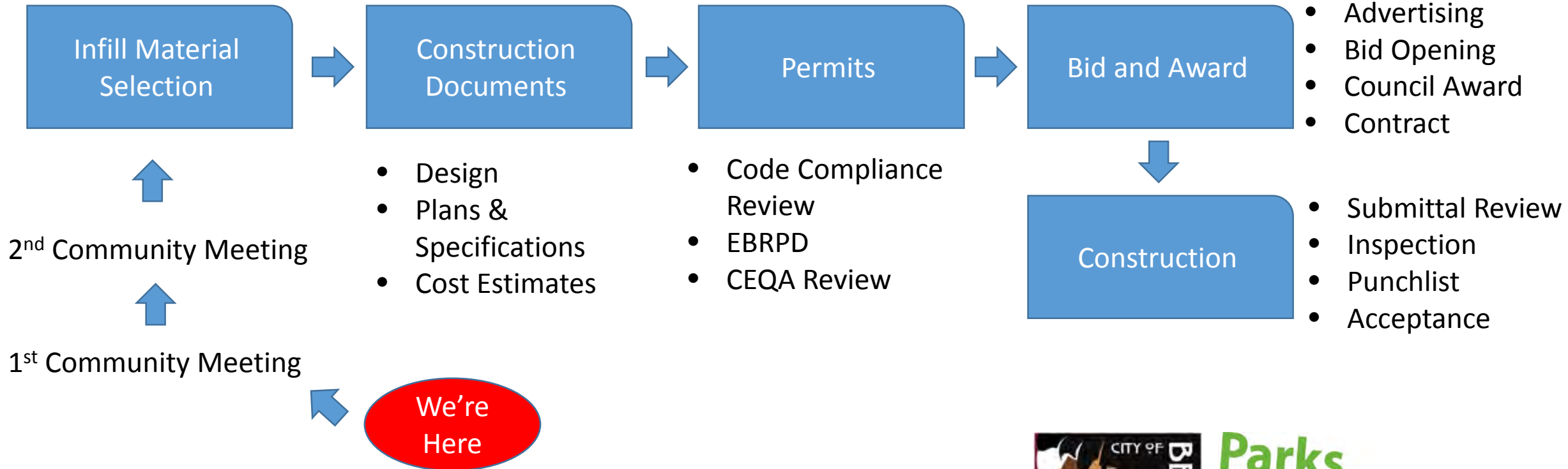
ARTIFICIAL TURF REPLACEMENT

Tom Bates Regional Sports Complex (Gilman Fields)



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Project Implementation



ARTIFICIAL TURF REPLACEMENT

Tom Bates Regional Sports Complex (Gilman Fields)



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SITE



TOM BATES REGIONAL SPORTS COMPLEX SYNTHETIC TURF REPLACEMENT

BERKELEY, CALIFORNIA

JANUARY 28, 2017

NORTH FIELD



TOM BATES REGIONAL SPORTS COMPLEX SYNTHETIC TURF REPLACEMENT

SOUTH FIELD



TOM BATES REGIONAL SPORTS COMPLEX SYNTHETIC TURF REPLACEMENT

BERKELEY, CALIFORNIA

JANUARY 28, 2017

BIO-BASIN



CARPET SEAM DAMAGE



CARPET DAMAGE AND SPOT REPAIRS



TOM BATES REGIONAL SPORTS COMPLEX SYNTHETIC TURF REPLACEMENT

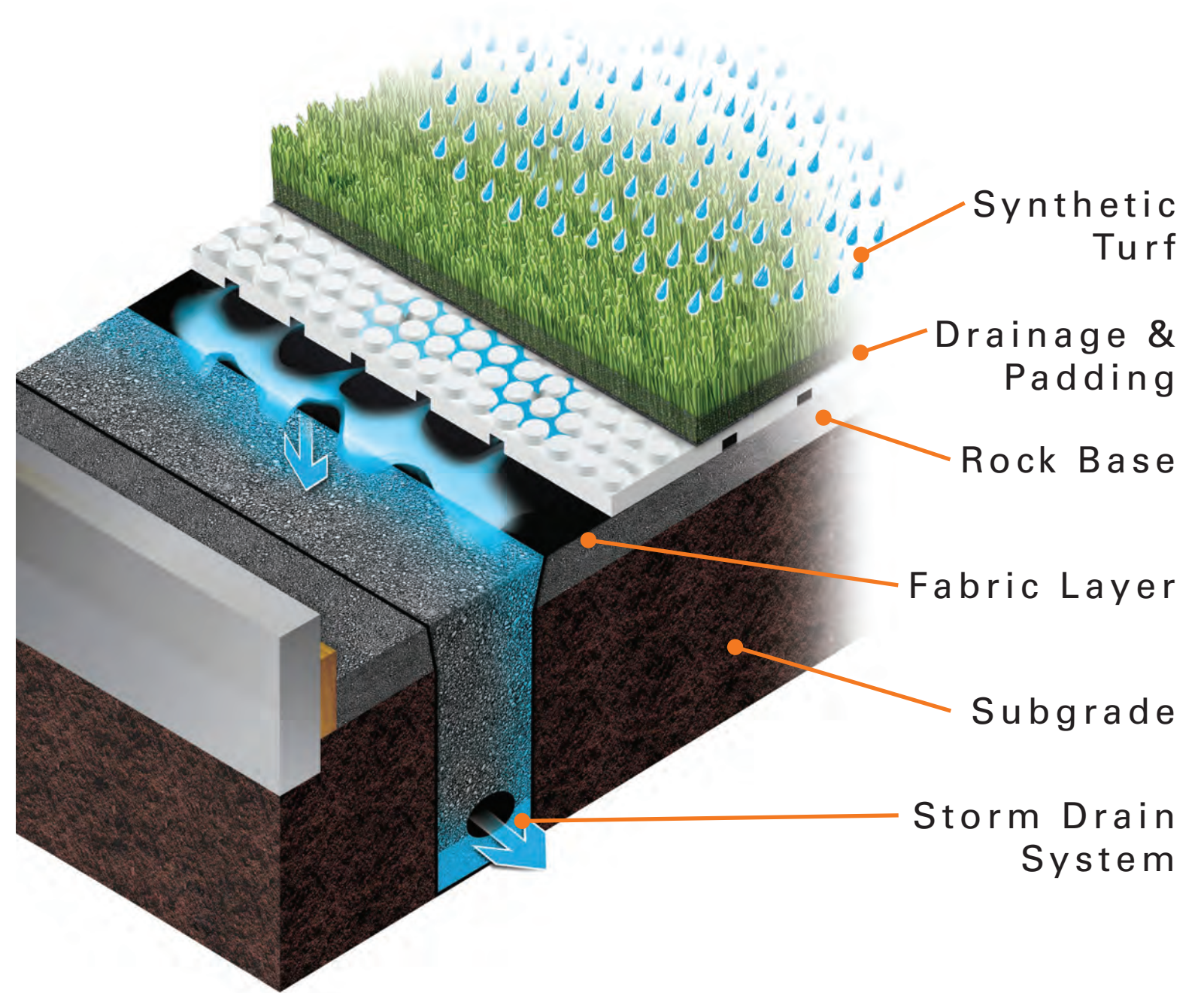
BERKELEY, CALIFORNIA

JANUARY 28, 2017

SYNTHETIC TURF COMPONENTS



Synthetic Turf Components



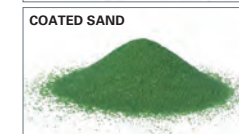
Installed System Example

FREQUENTLY ASKED QUESTIONS

1. WHAT IS SYNTHETIC TURF?
2. HOW IS SYNTHETIC TURF MADE?
3. HOW IS THE NEW GENERATION OF SYNTHETIC TURF DIFFERENT FROM THAT OF THE PAST?
4. WHY HAS SYNTHETIC TURF BECOME SO POPULAR OVER THE PAST FEW YEARS?
5. HOW DOES IT IMPACT THE ENVIRONMENT?
6. IS IT SAFE?
7. SHOULD WE BE CONCERNED ABOUT LEAD IN MY FIELD?
8. IS CRUMB RUBBER SAFE?
9. HOW DO WE ADDRESS HEAT ISSUES?
10. WHAT ARE THE DIFFERENT TYPES OF INFILL MATERIALS?
11. WHAT TYPE OF INFILL IS SAFEST?
12. HOW DO WE SELECT AN ALTERNATE INFILL?
13. CAN SYNTHETIC TURF MATERIALS BE RECYCLED?
14. WHAT IMPACT DOES HEAT HAVE ON A SYNTHETIC TURF FIELD?
15. DO WE HAVE TO WATER THE FIELD?
16. DO WE NEED AN IRRIGATION SYSTEM?
17. HOW ABRASIVE IS SYNTHETIC TURF?
18. WILL ATHLETES BE SUSCEPTIBLE TO MRSA/STAPH INFECTIONS?
19. DOES IT HAVE/NEED A PAD?
20. HOW LONG DOES THE PAD LAST?
21. DOES IT PROMOTE OR REDUCE SPORTS-RELATED INJURIES?
22. HOW DO PLAYER INJURY RATES COMPARE TO NATURAL GRASS FIELDS?
23. CAN WE PURCHASE IT THROUGH CMAS?
24. CAN WE DEVELOP STANDARDS FOR SYNTHETIC TURF PRODUCTS?
25. FOR WHICH SPORTS SHOULD WE STRIPE THE FIELD?
26. WHAT'S THE RECOMMENDED MAINTENANCE?
27. WHAT DOES MAINTENANCE COST?
28. HOW LONG CAN WE EXPECT THE TURF TO LAST?
29. CAN IT WITHSTAND HEAVY USE?
30. WILL IT FADE?
31. WHAT IMPACT DOES IT HAVE ON PLAYING TIME?
32. DO WE NEED TO GET A PERMIT?
33. CAN WE VISIT OTHER SYNTHETIC TURF PROJECTS?
34. HOW MUCH DOES IT COST?
35. SHOULD WE ROB A BANK TO PAY FOR THE FIELD, AND HOW MUCH SHOULD WE DEMAND?
36. HOW DOES THE COST COMPARE TO NATURAL GRASS FIELDS?
37. WILL WE NEED A GEOTECHNICAL REPORT/SURVEY?
38. WILL WE NEED A TOPOGRAPHIC SURVEY?
39. WHAT ARE THE BENEFITS OF SYNTHETIC TURF?
40. WHO MAKES THE FINAL DECISION ON TURF PRODUCTS?
41. HOW DO WE GET QUALIFIED CONTRACTORS?
42. WHAT IS THE LIFE EXPECTANCY OF THE BASE?
43. DO WE NEED TO FENCE THE FIELD?
44. DO WE NEED TO KEEP DOGS OFF THE FIELD?
45. HOW DO WE CLEAN THE FIELD?
46. ARE THERE ANY GRANTS THAT WILL HELP PAY FOR THE FIELD?
47. DO WE NEED AN ANTI-MICROBIAL APPLIED TO THE SURFACE?
48. HOW WILL WE KNOW WHEN IT IS APPROACHING THE END OF ITS USEFUL LIFE?
49. WHAT ARE THE OPTIONS TO DISPOSE OF IT OTHER THAN A LANDFILL?
50. CAN WE EAT LUNCH ON THE FIELD?
51. WHAT ABOUT GOPHERS?
52. ARE MSDS DATA AVAILABLE FOR SYNTHETIC TURF PRODUCTS?
53. IS SYNTHETIC TURF ADA ACCESSIBLE?
54. CAN WE USE SYNTHETIC TURF WHEN IT RAINS?
55. HOW MANY HOURS PER YEAR CAN A FIELD BE USED?
56. ARE THERE GOING TO BE LIGHTS?
57. HOW DO WE PAY TO RESURFACE IT EVERY 8 TO 10 YEARS?
58. HOW MUCH PER HOUR WILL PEOPLE PAY TO PLAY ON SYNTHETIC TURF?
59. HOW CAN I LEARN MORE ABOUT SCIENTIFIC STUDIES ON THE HEALTH AND ENVIRONMENTAL SAFETY OF SYNTHETIC TURF?
60. IS THERE A BIBLIOGRAPHY AVAILABLE?
61. WHAT DOES THE US ENVIRONMENTAL PROTECTION AGENCY SAY?
62. WHAT DOES THE CAL EPA SAY?
63. WHAT DO INDUSTRY INFORMATIONAL RESOURCES SAY?

SYNTHETIC TURF INFILL COMPARISON

CRUMB RUBBER INFILL	DESCRIPTION	SHOCK PAD REQUIRED?	ADDITIONAL MAINTENANCE REQUIRED?	ADVANTAGES	DISADVANTAGES	ESTIMATED PRICE PER S.F. [INCREASE]	CRUMB RUBBER INFILL		
SBR/SAND	styrene-butadiene rubber (SBR) describe families of synthetic rubbers derived from styrene and butadiene	No	No	<ul style="list-style-type: none"> Proven performance over two decades 11,000 fields installed in the U.S. Durable/low maintenance system Environmentally friendly Infill can be recycled for future use 	<ul style="list-style-type: none"> Independent studies confirm safety of crumb rubber Recycling tires help reduce waste material 	<ul style="list-style-type: none"> Public perception of health risks based on November 2014 NBC News story 	\$4.75 (2.5" Fiber Height)	SBR/SAND	
ALTERNATE INFILL									
GREEN COATED SBR CRUMB RUBBER	Ambient or cryogenic SBR crumb rubber coated with colorants, sealers, or anti-microbial substances	No	No	<ul style="list-style-type: none"> Coated rubber provides additional aesthetic appeal, reduction of dust by products during the manufacturing process and complete encapsulation of the rubber particle Color rubber, different "look" 	<ul style="list-style-type: none"> Provides a slight heat reduction; 5-8 degrees F 	<ul style="list-style-type: none"> Still SBR tire rubber 	\$5.00 [\$0.25]	GREEN COATED SBR CRUMB RUBBER	
COATED CORK	Extruded cork composite, made up primarily of natural cork, polyethylene and elastomers	No	No	<ul style="list-style-type: none"> Organic and virgin material on top of the field where athletes come into contact with the infill Proven heat reduction - Significant 30-35 degree heat reduction Natural UV Resistance 	<ul style="list-style-type: none"> No change in playability vs. Sand/Cryogenic rubber system Good compression and compaction characteristics Least expensive option 	<ul style="list-style-type: none"> Coated cork is a top-dressing over crumb rubber Breakdown of top cork layer over time Virgin material Can be hotter than is comfortable 	\$5.15 [\$0.40]	COATED CORK	
ORGANIC (CORK BASED)	100% cork, derived directly from cork trees	Yes	Yes	<ul style="list-style-type: none"> Fully organic material Good compression and compaction characteristics Proven heat reduction No water needed Natural UV Resistance 	<ul style="list-style-type: none"> Infill looks like natural soil Fire-retardant No smell All natural, no chemicals 	<ul style="list-style-type: none"> Some additional long term maintenance requirements Some migration of infill may occur Low density allows material to float, cling to fibers with static charge 	\$5.25 [\$0.50] (Requires Pad)	ORGANIC (CORK BASED)	
EPDM (ETHYLENE PROPYLENE DIENE MONOMER)	A copolymer of ethylene and propylene having diene linkages that can be cross-linked with peroxides or sulfur	Yes	No	<ul style="list-style-type: none"> High to medium resiliency depending on filler level Can be colored 	<ul style="list-style-type: none"> Similar to TPE (many put them in the same family), but high filler level can result in chalking and advanced degradation of materials Expensive; higher quality materials must be imported from Europe 	<ul style="list-style-type: none"> Improper crosslinking can lead to premature aging Virgin material 	\$5.25 or 6.25 [\$0.50 Black or \$1.00 Color]	EPDM (ETHYLENE PROPYLENE DIENE MONOMER)	
RECYCLED TURF & TPE	Mixture of recycled turf and TPE	Yes	No	<ul style="list-style-type: none"> Great playability characteristics (plays close to high end Cryogenic rubber/sand infill system) Good compression and compaction characteristics Made in North America 	<ul style="list-style-type: none"> Tested rigorously for mechanical wear and weathering Slight heat reduction High quality TPE with a strong environmental story (recycled turf) 	<ul style="list-style-type: none"> Very expensive Limited supply Limited installation history Can only be used with monofilament 2" high carpet 	\$6.05 [\$1.30] (Requires pad)	RECYCLED TURF & TPE	
ATHLETIC SHOE RUBBER	Proprietary rubber mixture from running shoes; by-product of the shoe production process	No	No	<ul style="list-style-type: none"> Not "SBR" rubber Less public perception of health risks Play is similar to a sand/rubber field No pad needed Post-industrial recycled material 	<ul style="list-style-type: none"> Multi-color rubber, different "look" Limited supply (40 fields/year) Unknown control over source of supply Waste from Asia 	<ul style="list-style-type: none"> More suitable for urine order control for artificial turf in pet yards rather than as infill in a sports field Durability is questionable and could break down to dust and become too hard and affect player performance 	\$6.15 [\$1.40]	ATHLETIC SHOE RUBBER	
ZEOLITE	Zeolite is 97.6% pure Clinoptilolite, a natural silicate zeolite	Yes	Yes	<ul style="list-style-type: none"> Listed as organic by Organic Materials Research Institute (OMRI) as a "Deodorizer Infill" Its molecular structure absorbs and evaporates moisture, and can cool artificial turf fibers as much as 20 degrees 	<ul style="list-style-type: none"> Zeolite has a negative charge that attracts positively-charged liquid ions, such as ammonia found in urine, and prevents ammonia from turning into a gas, therefore eliminating urine odor 	<ul style="list-style-type: none"> Requires irrigation or rainfall for cooling. Can be abrasive Too lightweight; inadequate ballast to stabilize turf carpet 	\$6.40 [\$1.65] (Plus irrigation) (Requires pad)	ZEOLITE	
TPE (THERMOPLASTIC ELASTOMER)	Thermoplastic elastomers consist of materials with both thermoplastic and elastomeric properties.	Yes	No	<ul style="list-style-type: none"> Strong history; product has been installed on over 500 fields worldwide for the past 10 years Virgin material, raw materials can be controlled Consistent shape 	<ul style="list-style-type: none"> Good compression and compaction characteristics Can be melted so they can be recycled after use Can be colored 	<ul style="list-style-type: none"> Varying grades of TPE. Improper formulation can lead to premature aging issues and potential failure (well documented cases) Very expensive; higher quality materials must be imported from Europe Virgin material 	<ul style="list-style-type: none"> All particles are the same size and do not settle together Round particles can create slipping problems on sidewalks or tracks 	\$6.60 [\$1.85] (Requires pad)	TPE (THERMOPLASTIC ELASTOMER)
ORGANIC (FIBER BASED)	Primarily coconut husks, coconut peat and rice husks	Yes	Yes	<ul style="list-style-type: none"> Fully organic material Proven heat reduction Natural UV Resistance Infill looks like natural soil Natural product-not chemically produced 	<ul style="list-style-type: none"> Provides playing characteristics similar to natural turf Retains water for evaporative cooling Feels like soil 	<ul style="list-style-type: none"> Fiber material will break down over time. Requires a watering system and water to maintain playability Some migration of infill may occur Additional maintenance needed Higher price 	<ul style="list-style-type: none"> Requires more maintenance and refreshing than crumb rubber fields Limited resiliency Organic infill field in San Carlos reported to require irrigation for one-hour per night 	\$7.40 [\$2.65] (Plus irrigation) (Requires pad)	ORGANIC (FIBER BASED)
COATED SAND	Rounded quartz silica sand from Texas coated with an acrylic polymer	Yes	Some due to possible sand migration if the turf does not have a thatch layer	<ul style="list-style-type: none"> Firm and fast playing surface Can be 25% cooler surface temperature compared to SBR rubber Has antimicrobial coating Durable and reusable for multiple turf life cycles 	<ul style="list-style-type: none"> 16 year warranty on infill Environmentally clean product Infill can be re-coated after two life cycles Good ballast for turf carpet 	<ul style="list-style-type: none"> Surface can be too firm Sand can be abrasive The infill is manufactured by a non-turf company; the turf manufacturer needs to agree to use this infill in their system Infill manufacturer recommends to use a turf 	<ul style="list-style-type: none"> system with a thatch layer and limited pile heights to 1.5"-1.75" for monofilament and 1" thick thatch layer for silt film Ultimate end of life disposal could be a challenge Very limited installation history in California (installed in 60+ sports national fields since 2005) 	\$7.50 [\$2.75] (Requires Pad)	COATED SAND



Source: This matrix is prepared by Carducci Associates. The information included is based on input from synthetic turf companies and our professional opinion.

LOCAL ALTERNATIVE INFILL FIELDS



ORGANIC (CORK BASED) INFILL

FACILITY	LOCATION	INSTALL YEAR
New Highland Academy	Oakland	2012
Acalanes USD	Lafayette	2013
Analy High School	Sebastopol	2015
Foothill College Football	Los Altos	2015
Linda Beach Playfield	City of Piedmont	2015
Casa Grande HS	Petaluma	2015
Facebook Corporate Campus	Menlo Park	2015
Saratoga High School	Saratoga	2015
Red Morton Park	City of Redwood City	2015
Garfield Park - Franklin Park	City of San Francisco	2016
Ohlone College	Fremont	2016
Santa Cruz High School	Santa Cruz	2016
Emeryville CCL	Emeryville	2016
Livermore High School	Livermore	2016
Granada High School	Livermore	2016



RECYCLED TURF AS INFILL

FACILITY	LOCATION	INSTALL YEAR
Milpitas HS Soccer	Milpitas	2016
Milpitas HS Football	Milpitas	2016
Bellarmine Football	San Jose	2016
Sports City Indoor Soccer Facility	Santa Rosa	2016
Athenian School	Danville	2016
Gellert Park	Daly City	2016



ORGANIC (FIBER) INFILL

FACILITY	LOCATION	INSTALL YEAR
Stanton Field	Santa Clara University	2011
Highlands Park	San Carlos	2011
Sonoma Academy	Sonoma	2015
Kings Academy	Sunnyvale	2015
Junipero Serra High School	San Mateo	2015
Canada College	Redwood City	2015
Skyline College	San Bruno	2015



SAND INFILL

FACILITY	LOCATION	INSTALL YEAR
Gideon Hausner School	Palo Alto	2015
Branson	Ross	2015
University of San Francisco Baseball Stadium	San Francisco	2016
University of San Francisco Soccer Stadium	San Francisco	2016
Stanford Athletics Synthetic Soccer/Lacrosse Field	Stanford University	2016



TPE INFILL

FACILITY	LOCATION	INSTALL YEAR
Red Morton Griffin Bechet	Redwood City	2016
Red Morton McGarvey	Redwood City	2016



Department of Parks, Recreation and Waterfront

Tom Bates Regional Sports Complex

NEXT MEETING MARCH 25, 2017 (tentatively)

- Present Selection Criteria
- Present Infill Evaluation Matrix
- Present Proposed Optimal Infill Options
- Community Input & Comment

comments and input:

NeLam@cityofberkeley.info

January 28, 2017 Meeting Participant Priorities

- A healthier, safer infill alternative to crumb rubber
- Assessment of life cycle costs
- Consider phased field development
- Cost is less of a priority than safety

SYNTHETIC TURF REPLACEMENT

TOM BATES REGIONAL SPORTS COMPLEX

FOR THE CITY OF BERKELEY
JANUARY 28, 2017