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Answers to Questions by Board of Supervisors Members Related to Albemarle County Athletic Fields

APRIL 18, 2022

Background

The Board of Supervisors met on March 31, 2022 for a dedicated budget work session related to the community's athletic fields. With the support of a consulting engineer and the Albemarle High School Athletic Director, staff presented information to facilitate a Board discussion, with the following agenda:

Parks and Recreation athletic fields

- Background
- Needs Study
- Current Inventory
- ACPS Experience

Review the formerly funded Darden Towe synthetic turf and lights CIP

- History of project
- Project scope
- Proposed Biscuit Run Park development

Pre-design study summary

- Summary was drafted early 2020 in response to questions posed related the potential environmental impacts and legal concerns associated with an approved CIP project on install synthetic turf fields and lighting at Darden Towe Park

Current state

- Emerging environmental concerns (plastics, light pollution)
- Increasingly standardized manufacturer selection
- Updated capital cost estimates

The work session generated a number of questions from Board members, some of which required that staff gather additional information. Board members were also asked to send any additional questions they may have to the County Executive's office, so that staff could compile questions and provide answers in written form in advance of a future work session – which has since been scheduled to occur on April 27.

This memorandum contains those compiled/combined questions and answers, arranged in the following categories:

- Existing amenities, practices, and related operational procedures
- Natural grass fields (new or renovated)
- Synthetic turf fields (existing and new)
- Comparing natural gras and synthetic turf fields
- Athletic field lighting
- Other Questions: Legal, Funding, Execution, Economic Impacts

Existing Athletic Field Amenities, Practices and Related Operational Procedures

1. Provide an inventory of all County fields, including Those managed by Albemarle County Public Schools (ACPS) and Parks and Recreation (ACPR):

    a. How many are multi-purpose?
        - 43 multi-purpose grass fields
        - 3 multi-purpose synthetic turf fields, located at the three high schools
    b. How many are irrigated?
        - 23 fields are irrigated
    c. How many are "Regulation" size?
        - 30 regulation size fields (300ft X 180ft)
    d. How many are considered game fields?
        - 23 game fields
    e. How many are considered practice fields?
        - 20 practice fields
    f. Which ones are maintained by ACPS vs ACPR?
        - ACPR Grass Fields Maintained: Darden Towe Park (5), Crozet Park (1), Dorrier Park (1), Simpson Park (1), Western Park (1), AHS (1), WASH (1), Henley (2), Lakeside (1), Agnor Hurt (1), Baker Butler (2), Crozet (1), Hollymead (2), Stone Robinson (1)
        - ACPS Grass Fields Maintained: AHS (1), MHS (4), WAHS (3), Burley (1), Jouett (2), Walton (1), Broadus Wood (1), Brownsville (1), Greer (1), Meriwether Lewis (1), Mountainview (1), Murray (1), Red Hill (1), Scottsville (1), Stony Point (1), Woodbrook (1)
        - ACPS Synthetic Turf Fields Maintained: AHS, MHS, WAHS
    g. Which ones are scheduled by ACPS vs ACPR?
        - ACPR Schedules: Park fields, All Elementary and Middle School Fields.
        - ACPS Schedules: All High School Fields (grass and synthetic)

2. What are "Parks Co-sponsored Sports Leagues" and by what criteria are those identified or selected?

   ACPR Co-Sponsors with the following local youth and adult leagues for each sport group, which includes: SOCA, YMCA Sports, Soccer Shots, Liga Latino, Seminole Lacrosse, FOCUS field hockey CUDO ultimate frisbee, Peachtree Baseball/Softball, Central Baseball/Softball, Northside Baseball/Softball, McIntire Baseball/Softball, Monticello Baseball, Charlottesville Cricket Club. ACPR has yet to deny any sports organizations that can provide the following: proof of insurance, play book (policies, procedures and Organization structure).

3. What is the annual budget for maintenance of ACPR-managed fields?

   Current Parks total "field" budget: $50,000 for Grass seed, fertilizer, top dressing. Includes work directly on athletic fields. Does not include costs of mowing, fuel, equipment.

4. What is the water usage for all ACPR/ACPS natural grass fields and associated costs within the County?

   18 irrigated fields = $198,000 (average annual cost of 1 field = $11,000). Water consumption to irrigate 1 regulation soccer field equals 200,000 gallons per month (industry standard of 1" of water per week on natural turf)

   Source: ACPS Albemarle Soccer Field actual cost $11,000 in 2021

   Associated costs = $13,000 (includes repairs and required/regulated backflow/anti-siphoning device testing for water system infrastructure. This maintenance is an annual requirement of the Albemarle County Service Authority.)

5. Can you clarify what a high-quality field is defined as for ACPR?

   This term was used at the March 31st meeting of the Board of Supervisor to reflect the fields that are irrigated. In addition to programmed watering of the fields, an irrigated field is mowed at a greater frequency than other fields (twice per week April- November) and is aerated, overseeded, and fertilized in the Fall.

6. What would be long-term budget impacts for maintenance of a "High Quality" (Irrigated) field if implemented?

   Cost for one grass field: $24,000 annually. The cost includes nutrient plan (seed, fertilizer, lime, and aerating), plus misc. operating expenses such as water, fuel and mower blades.

   ACPS 18 fields @ $24,000 per grass field = $432,000

   Darden Towe Park 4 fields @ $24,000 = $96,000

Associated Costs to repair and performed testing of irrigation systems at all fields $13,000

Total Cost Estimated for Darden Towe Park and School Fields $541,000*

*Note budget estimate would be contingent upon collaboration with ACPS to define an improved maintenance program and policy for field use implementing best management practices. If supported by the BOS, this policy development work would be done over the next year for a proposed implementation to phase in starting in the FY24 budget cycle. Budget request would also recommend 1 Full Time Equivalent Field Manager for ACPR as a separate, additional cost to the above estimate.

7. Have the existing Synthetic Turf Fields at Albemarle Schools required repairs?

   Repairs reported by ACPS staff were occasional re-stitching of seams related to normal use and a few repairs related to graffiti, along with seasonal grooming.

8. Clarify what products are used in painting of the grass athletic fields. Does line paint pose an environmental concern as it relates to stormwater runoff?

   Lines are sprayed weekly with Pioneer (5-gallon bucket) and Ameri-Stripe (aerosol) paints. Safety Data Sheets indicate there are no environmental concerns related to stormwater runoff.

9. How would fields be "rested" and what would that drive the need for total fields for the community?

   If there is concurrence by the Board of Supervisors, ACPR will work with ACPS leadership to develop an overall field use policy to establish use and maintenance guidelines regarding:

   - When and under what conditions field rest periods should occur
   - Methodology for rotation of rest periods of fields, in order to balance the care for the grass with the communities' field play needs
   - Create Annual Field Use Schedules to reflect when fields will be offline for rest/renovation
   - Sports Organizations would be required to adjust their season schedules based upon the Annual Field Use Schedule
   - Adoption of a Field Use Policy would necessarily result in fewer hours of play available for Sports Organizations.
   - Increased utilization of ACPS synthetic fields and other local agencies' synthetic fields may partially offset the reduction in play time on grass fields.
   - Future funding request (FY24) for ACPR and ACPS to support enhanced natural grass play fields.

10. Provide information on the ACPR rental fee structure and programming parameters of fields:

- What is the current rental fee structure for ACPR Fields? How is the Fee structure implemented today? What is the per user fee paid by each of the organizations to use ACPR field space? Do we have a per registrant fee? How is this rental fee allocated?

  No rental fees are currently charged for ACPR programming on athletic fields.

- How are participant numbers verified?

  ACPR does not verify participant numbers, as no fees are charged for ACPR programming of fields and relies on the Co-sponsored league to manage.

- How is the "Fee per hour for Field Rental" chart used in Albemarle?

  As noted above, ACPR does not charge for field rental. The fee chart for field reservations previously provided to the Board of Supervisors was data collected from Virginia Parks and Recreation Department across the state for comparison purposes.

- What is the process to assign fields to different users? How are the competing users prioritized for field assignment?

  ACPR's Recreation Manager serves as a liaison with all Sports Organizations. The Sports Organizations send in their field requests to ACPR each Fall and Spring. The Recreation Manager allocates the field space to ensure all sports organizations receive space. All sports organizations, no matter the size or if they are new groups are current groups, receive field space. The Recreation Manager ensures the organizations with smaller requests receive a majority of their field requests, while also ensuring all organizations receive fair distribution of fields.

- How many fields or field hours are reserved for each of the users?

  The following data is the field reservations scheduled through ACPR: Field Use for August 2021 – June 2022 (hours per week scheduled per Organization):

  SOCA - 954
  YMCA - 64
  Soccer Shots – 32
  Lacrosse – 54
  Liga Latina Soccer- 32
  Scottsville Soccer – 26
  Ultimate Frisbee – 10

- Is there a permit (posting) system?

  Field assignments are not posted at the fields. Field assignments are emailed to all Sport Organization contacts.

- How do groups who have been authorized to use a field assert their access if another user group happens to be there on a given day?

  Once the overall field use is developed, a list of assignments is emailed to all Sport Organization contacts. If there are any issues the Recreation Manager is contacted to settle the matter.

11. What is the replacement cost of the oldest ACPS Synthetic turf field (the one that now needs to be replaced) and where will the turf be disposed? What, if any, of the existing field construction (drainage, infill, stone, etc.) needs to be replaced in this process?

    ACPS's FY 23 budgeted for the replacement of the Monticello High School synthetic turf field is $670,000 and is based on the assumption of replacing in kind infill material (crumb rubber). The consulting firm, Kimley-Horn & Associates, is of the opinion this amount is at the high end of the range for replacement and should be ample funding for the project.

    The turf material replacement will be determined during the design and specification development process, including disposal requirements.

    Extensive material replacement of stone and drainage materials is unlikely. Provided the original construction project included good quality materials and care taken when the fields were built, the synthetic turf carpet and infill are the only two materials that would need to be replaced. This project will be managed by Building Services at ACPS.

Natural Grass Fields (New or Renovated)

12. On the natural grass field research side, which organizations who specialize in natural grass field installation and maintenance have been hired to provide information?

    Kimley-Horn & Associates' Parks & Recreation design team was engaged starting in January 2020, to provide expertise for both grass fields and synthetic turf fields. KHA is a respected global engineering firm with a team that has extensive experience designing parks, recreation facilities, trails, and open spaces. KHA's Jason Kanak and Ron Kagawa are KHA's lead engineers for athletic fields design. Each joined KHA from other firms, where they also specialized in design natural grass and turf fields for all sports, ranging in scale from small community fields to major professional sports facilities. Since joining KHA, the two have designed over 400 synthetic turf fields and 105 natural grass fields, including LEED

certified projects for both surface types. (See link for more detail: (Parks & Recreation Design | Kimley-Horn)

13. Are there any safety issues associated with grass fields? Are sprinkler heads dangerous?

There are a number of potential hazards that require attention on natural grass fields. Holes, depressions, and bare spots can increase risk of lower body injuries. Bare spots also increase the risk upper body injuries, including concussions.

High-use areas like goalmouths and the middle of the field require extra attention as these areas are at high risk for turf loss and elevated surface hardness.

If the field has an in-ground irrigation system, sprinkler heads can present a risk of injury if they become loose or work their way up or down as compared to the surface immediately around the head. The earth around the head tends to be wetter, longer and may settle. This causes the top of the irrigation head to expose itself and become a hazard. Maintenance staff should correct soil settling around each head as needed.

14. What is the current cost for replacing an existing Natural Grass field?

An estimate has been prepared for the cost of renovating the four fields at Darden Towe Park and will be provided as an attachment to the Executive Summary for the April 27th meeting.

The CIP estimate of $300,000 per field assumes the upper end of the typical cost range for field replacements – which range from $3.00 per square foot to $5.00 per square foot – as no formal assessment of required work has been performed.

The assumed scope in the CIP estimate includes removal of existing turf, tilling of existing soil, rolling, laser grading for proper drainage, rolling again, and installation of new sod. Depending upon the time of year, this process can take several weeks to several months to complete, and all fields would need to rest for a full year after completion of the grass field upgrade.

Estimated annual operating budget impact at Darden Towe Park to maintain 4 fields at a higher quality of play level is $108,000 (FY24). If it is necessary to switch from using pond water to municipal water, then the total would increase to $156,000 after. That figure includes:

- An additional full-time employee with a high level of experience and knowledge using best management practices and standards in Turf Grass Management with their primary responsibility and focus in maintaining the athletic fields at an improved level. The estimated burdened cost of the position is $60,000.

- $48,000 for Nutrient Management Plan (seed, fertilizer, top dressing, aeration – frequency increased from once / year to twice / year in the fall & spring)
- $48,000 for public water rather than pond water, if necessary

15. How often does a Natural Grass field need to be replaced?

    The life cycle of a natural grass field depends on how well the natural grass is taken care of. If best management practices related to soil amendments, irrigation practice and use manager are not followed, a field will require significant rest or replacement. The typical life cycle for a field that is well-constructed and cared for is between 20 and 30 years.

Synthetic Turf Fields (Existing and New)

16. What is the cost for Synthetic Turf Fields at Darden Towe with the BrockFill infill and without?

    The total projected cost to install 4 artificial turf fields with lighting at Darden Towe Park is $5,071,678. The estimated cost of BrockFill brand infill for the fields is ~$400,000 and included in the total estimate above.

    It should be noted that infill is integral to the performance and durability of athletic turf systems. Infill provides safety protection with appropriate cushioning to absorb impact and sets the foundation for a field's performance level by offering traction for players to cut, plant and release. Without infill, the fibers of the turf will be more susceptible to swaying, breaking, and getting damaged. Also, if the infill is not present, any shoes, feet or paws moving on the artificial turf will dig into the backing of the artificial turf to gain grip, in order to move forward. This will, in turn, damage the turf backing and the blades that are held together by the backing. Furthermore, once the artificial turf has been installed, without infill, there is the possibility that the turf will move or wrinkle.

17. What is proposed rental fee if synthetic turf fields are built?

    If synthetic turf fields are constructed and the Board of Supervisors supports charging of fees for their use, ACPR recommends utilizing the same fee structure as ACPS, as adopted by the School Board:

    $50/hour for ACPR Co-Sponsored Sports Leagues

    $100/hour all others

18. If fees were charged for grass fields, what would staff's recommendation be??

    Should the Board of Supervisors support charging fees for grass fields, ACPR recommends utilizing the same fee structure as ACPS, as adopted by the School Board:

    $31/hour for ACPR Co-Sponsored Sports Leagues

    $62/hour for profit organizations

19. Provide more information on the Rematch facility, any legal issues and recycling program.

    Re-Match Turf Recycling is a Denmark-based company. Their European facilities are the world's sole source to recycle all the components of turf grass systems at an industrial scale. There are no known legal issues related to this company.

    Re-Match has completed an agreement with the Commonwealth of Pennsylvania to build a recycling center in Hanover. The facility is projected to be built in 2023.

    The Re-Match process makes it possible to dispose of worn-out synthetic turf without leaving any waste from the original components. The turf is separated into clean, raw materials using advanced separation technology. The raw material; sand, backing, rubber and plastic fiber, is then sold on and used in new production cycles – and even used for installation of new synthetic turf pitches. This process is an example of the emerging "cradle to cradle" global standard.

    The Re-Match process is ETV-verified and the Herning factory is both ISO 9001 and ISO 14001-certified. Staff has researched any legal issues and to date have found no information on current or pending lawsuits.

    The Re-March website has more detail on the process, as well as helpful tips

20. What is the warranty period for a synthetic turf field? What are the current estimated replacement costs of a field? What is the typical replacement life cycle? What factors can shorten that life cycle?

    All major turf system manufacturers offer warranties on their products for a 10+ years.

    Estimated replacement costs in today's dollars ranges from $300,000 to $500,000. If initially installed as part of the design, replacement of shock pad is normally only required every other time a field is replaced; in other words, a new shock pad would be installed the second time the synthetic turf grass is replaced, the fourth time, and so on.

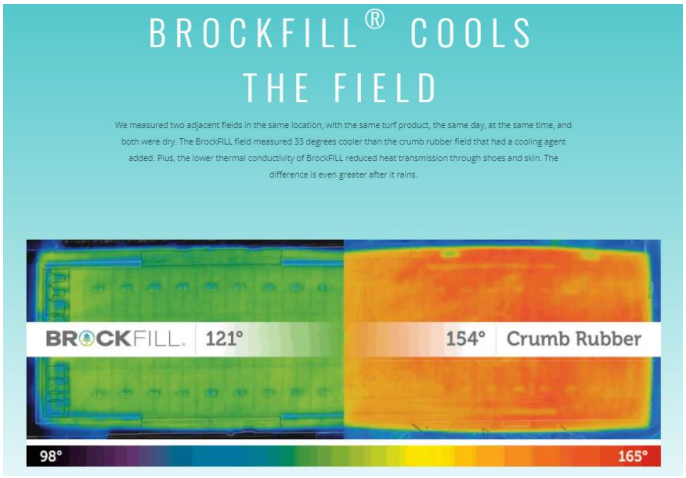
A well-maintained synthetic turf field's life cycle is typically 12-14 years (note this is consistent with ACPS experience so far).

21. Does grooming of a synthetic field require a particular Machine?

Grooming of a field requires a turf groomer (shown below). The equipment costs ~$7,500. It is towed by a small tractor or four-wheeler. The brushes and tines on the groom comb through the settled infill, eliminating compaction, standing up the synethic fibers, filling low spots and re-orienting infill material. This process ensures a soft, level playing surface.

22. Can you provide additional information on the cooling capabilities of BrockFill infill material?

The BrockFill brand of infill is a wood material. As such, it holds rainwater, which evaporates slowly over time, cooling the surface. It absorbs less heat than rubber or similar composite products. Some fields are designed with irrigations to be used during periods of drought and high heat.



Additional information and testing documents are available online at: https://www.brockusa.com/safety-heat/

23. Do you use cleaners for the synthetic turf field, specifically with BrockFILL as the infill product?

Spot cleaning of the turf grass may be necessary to clean spills but is not required on a programmed basis for the entire field. There is no special guidance for varying infill material alternatives. The instructions below describe the process of spot cleaning the turf grass system:

How to Remove Stains & Blemishes from Artificial Grass

Tools: Use a spatula or plastic table knife to remove hard or "pasty" deposits on your synthetic turf. Just be careful not to damage the turf fibers. Blot up small liquid stains with a paper towel or washcloth. You can also cover them with a dry absorbent product like kitty litter. After it's absorbed the liquid, vacuum or sweep it away. Then, rinse your turf to get rid of the kitty litter scent.

Treating Minor Blemishes: A 5% solution of warm water and an organic household detergent is all you need to remove most minor stains. Use one teaspoon of detergent for every pint of water. The detergent should be granular or low-sudsing; the kind you would use on fine fabrics. Tougher stains may require a 3% a solution of ammonia and water. Both these solutions can be applied liberally to your turf. Just blot up excess liquid when you're done sponge mopping the area. Rinse away any remaining soap or ammonia solution with cold water. These solutions remove a wide range of stains, including these common ones: coffee, tea, ketchup, fruit and vegetable juice, alcohol, butter, latex paint, blood, urine, mustard, glue, butter, soda, milk, ice cream, and even dye.

Treating Tougher Blemishes: Sometimes you may need a stronger cleaner to remove a blemish. In these cases, you can use mineral spirits or grease spot remover. Don't sponge mop with these substances. Instead, lightly soak a washcloth then carefully apply to the stain. These type of stain removers are ideal for the following: chewing gum, cooking oil, asphalt, tar, lipstick, crayon, grease, motor oil, floor wax, shoe polish, paraffin wax, suntan oil, and nail polish.

24. What are the turf fibers made from?

Most fibers are made from polypropylene. Some certain synthetic turf fiber is made of nylon.

25. How often does someone need to walk the synthetic turf fields for inspections?

    The maintenance staff should establish a plan to walk the fields (as a rule of thumb) prior to practices beginning that week and prior to tournament games on the weekend. The alternative is to walk the fields every 60-80 hours of field play. Once an owner has field utilization hours outlined for each season, the more specific a schedule can be put in place. It will most likely be different based upon hours and type of play.

26. Does the grooming of the Synthetic turf fields catch all the infill that migrates to the edge of the field?

    Infill doesn't migrate to the edge as some may think. Rainwater is not shed from a synthetic turf field like it does on a natural grass field. Water drains through the field vertically, so does not push infill to the edge.

27. How does the Stormwater Management system keep infill, other materials out of the water shed?

    Stormwater drains vertically through the profile. Infill stays trapped above the synthetic turf carpet and will not migrate down.

    Owners who select organic infill products can expect significantly reduced "human migration", as the particulars are manufactured to significantly reduced the amount of material that attaches to clothing, footwear and other materials.

    Organic infill products also are inherently more environmentally friendly than older technologies.

Comparing Grass Fields & Synthetic Turf Fields

28. What are the current hours of play at Darden Towe and how could that change with Synthetic turf?

    Current hours per week: 31 hours per field: Monday – Friday, 5-8pm or dark, Saturday & Sunday 9am-5pm. Note: Industry Standard of Best Management is 24 hours a week for grass fields. If Towe had Synthetic Turf and lights hours could be expanded to ~50 hours a week Monday – Friday 5-10pm, Saturday & Sunday 9am-10pm. With Synthetic Turf Fields there would be less canceling of games due to weather, field maintenance, and no need to rest and renovate fields.

29. Is there a grass field that is similar to a synthetic field – drainage issues?

    A USGA sand-based rootzone with a stone base under the rootzone layer will drain similarly to a synthetic turf field, moderately increasing the amount of play time by limiting the amount of time play must be delayed after heavy rains. The

durability of these fields is not, however, significantly improved beyond normal grass fields. Installation costs for these systems is comparable to synthetic turf installations.

30. How do best practice management practices compare between synthetic turf fields and grass fields?

    Natural grass fields require a nutrient management program combined with water, sunlight and rest to flourish. Programmed mowing should be inspection of the field for safety concerns, such as bare spots, depressions, holes and trip hazards such as sprinkler heads. Painting of lines is performed with frequency consistent with mowing schedules.

    Synthetic turf must be inspected to ensure seams are intact and repaired as necessary. Infill material should be inspected to ensure that it is level. Infill grooming should be performed weekly or approximately once 60-80 hours of hours of play depending on use.

31. Are grass fields being rested while the synthetic fields are being used?

    They are not currently being rested at a Best Management Practice level due to demands of use. They could be rested as part of an overall program and protocol to improve the fields including scheduling of play. As a rule of thumb: if a grass field has experienced stress, it will begin to decline. At that point, it will require care and rest. Please see question #9.

32. What Climate Action plan considerations were considered with this study, compare impacts of a BrockFill product as compared to natural grass?

    The pre-design study conducted in 2019-2020 did not include an assessment of impacts related to climate change. Staff have not identified a third-party study that directly compares natural grass versus artificial turf in that light. FIFA sponsored an Environmental Impact Study on Artificial Football Turf (2017) products, however, which does include findings on the life cycle climate impacts of various turf infill alternatives. The chart below reflects greenhouse gas emissions (per square meter) for the full life cycle of a combination of infill materials, from manufacture through disposal. This study pre-dated the BrockFill product. The most relevant comparison to BrockFill shown in the chart is Cork with Shock Pad, shown in light yellow.

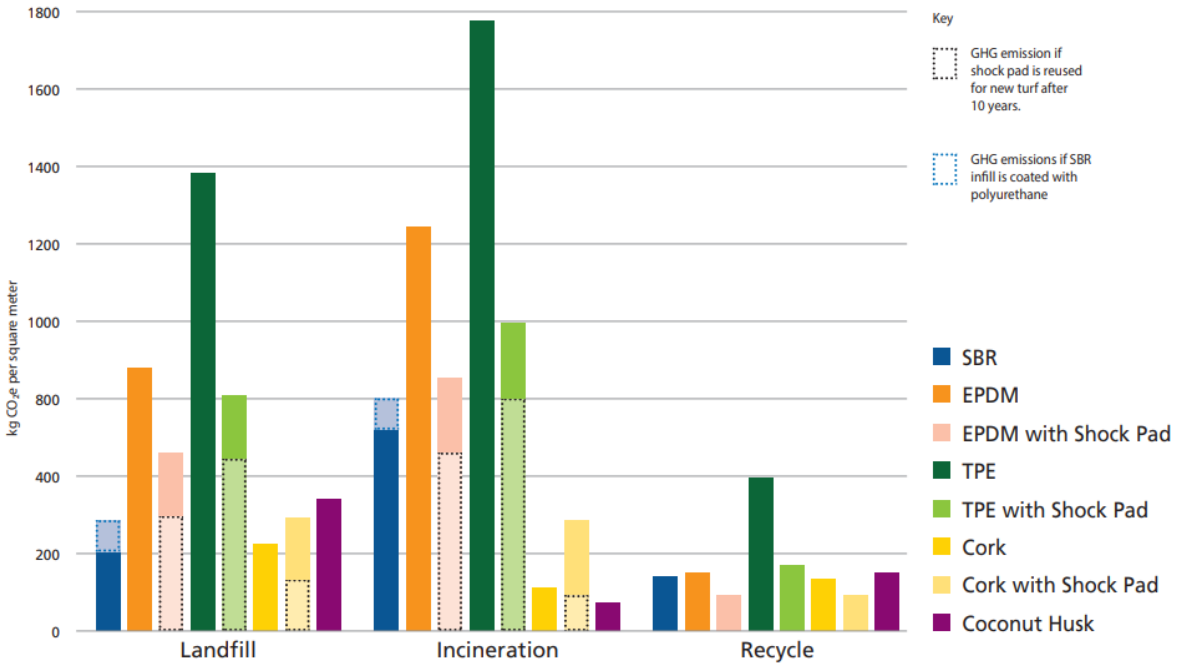


Figure 8: Climate Change Comparison between Turf Containing Different Infill Materials

The BrockFill infill is a wood product. As such, it is essentially captured carbon. Additionally, it has a lower "embodied carbon footprint" than either cork or coconut husks, as it manufactured regionally (in Georgia) from trees grown primarily in the southeast US coastal areas.

Although no direct scientific comparison between artificial turf and grass has been found, simple conclusions about the relative positive climate impacts of grass fields are apparent or easily researched.

- Grass fields capture carbon from carbon-dioxide, creating oxygen
- That captured carbon builds both the blades of grass and root system, and is permanently captured in the soil, down as much as 15" below the field surface
- Reading suggests that, over time, "once planted and reasonably cared for [grass] will immediately start sequestering carbon and keep doing so for twenty to thirty years, until a saturation point is reached."
- The capacity of grass playing fields to capture carbon is less than forested land. A grass field the size initially planned for Biscuit Run (230' x 330' including walk-off area) would capture ~ 0.4 tons of carbon / year. The same sized area of forest (in Central Virginia) would capture ~1.43 tons per year.

33. Compare the costs for turf fields and natural grass fields at Darden Towe Park and Biscuit Run Park, including the operational/long term costs for higher care for a higher level of care of grass fields.

    The table below summarizes estimated initial capital costs and annual operating costs for natural grass and synthetic turf fields. Costs at Biscuit Run Park will be higher than Darden Towe Park, due to the fact that Biscuit Run is an undeveloped property. Significant clearing and grading will be required, stormwater management facilities will be required, and provision of utilities will be required. It should be noted that the cost estimates for Biscuit Run Park do not include amenities which would likely be necessary, such as public restrooms.

Location	Field Type	# Fields	Field System Cost / Field	Lighting Cost / Field	Total Project Cost	Annual Operating Cost (FY24)
Darden Towe Park	Natural Grass	4	$ 462,000	NA	$ 1,848,000	$ 186,644
Darden Towe Park	Synthetic Turf	4	$ 1,044,170	$ 223,750	$ 5,071,678	$ 89,234
Biscuit Run Park	Natural Grass	4	$ 1,247,688	NA	$ 4,990,750	$ 192,764
Biscuit Run Park	Synthetic Turf	4	$ 1,258,944	$ 223,750	$ 5,930,775	$ 95,354

34. If added to the current CIP scheduled completion of the Darden Towe field improvements, please indicate timelines for both synthetic turf and grass fields:

    If designed is funded in FY23, either synthetic turf or natural grass replacement could be completed in FY24. However, a new natural grass system may require an additional year of rest to grow and establish strong root systems

35. The current CIP includes funding for multiple phases of the Biscuit Run Park project. Please indicate timelines for both synthetic turf and grass fields.

    If designed is funded in FY23, either synthetic turf or natural grass replacement could be completed as soon as FY24. However, due to the fact that Biscuit Run Park is an undeveloped site, there are more variables that will influence the design timeline and potentially the construction timeline. The duration of the project could be extended as a result.

    As noted above, new natural grass athletic fields may require an additional year of rest to grow and establish strong root systems

Athletic Field Lighting

36. Provide more information on the proposed lighting:

    The Proposed Lighting system: LED lighting at the recommended minimum color and brightness (4,000K) for player safety. 6 poles per field @ 60’ tall with

approximately 20-24 fixtures per pole. Meets or exceed minimum requirements for lighting at our parks and lighting ordinance. Meets or exceed the International Dark-Sky Association program called Community Friendly Outdoor Sports Lighting. https://www.darksky.org/our-work/lighting/lighting-for-industry/apply-osl/

37. If lights were not included, how does that affect play time for a Synthetic Turf field (compared to grass)?

    A synthetic turf field that is un-lit will not reach the full potential of its possible usage schedule. Compared to the current grass field use at Darden Towe of 31 hours per week there is a potential of 20 additional hours of play per field, per week that will not be realized without illumination at each field. (This assumes allowable play hours of Monday – Friday 5-10pm, Saturday & Sunday 9am-10pm.) It is worth noting additional play would likely occur as compared to the natural grass due to the fact that play could still occur if wet conditions existed, and it was deemed safe to play (e.g. no lightning).

Other Questions: Legal, Funding, Execution, Economic Impacts

38. What was the Original approved CIP request, including scope and size of fields and cost of lights?

    The scope approved in FY19 for Darden Towe Park Field Improvements included replacement of four existing multi-use grass fields with synthetic turf fields. The new fields would have a 300' x 200' play area, with a 15' walk off area on all sides (total area per field of 330' x 230'). The scope also included lighting for all new fields. The total approved budget was $2,762,800. Lighting of the fields was assumed to be $195,700 per field; $790,000 for all four fields.

39. Outline a renovation plan for grass fields (Darden Towe) and how that would take fields offline and for how long? Clarity field size and scope on the Turf project to meet the CIP requirements for (4) regulation fields.

    Renovation Plan for a Grass Field at Darden Towe:

    Removal of existing grass turf, tilling of existing soil, rolling, laser grading, rolling again, install and root in new sod. Depending upon the time of year, this process can take from several weeks to several months to complete. All new (330' x 230') fields may need to rest for a full year. The current estimate for this work is $462,000 per field.

40. How does the current agreement with the city allow for lighting at Darden Towe?

    Per the County Attorney's Office, approval of the CIP by both organizations constituted approval of the project and satisfies the agreement. It would be

preferable to also have a separate MOU and or amendment to the Darden Towe agreement if the synthetic turf/lighting project were to move forward.

41. Does the Biscuit Run lease agreement with the state have any restrictions of use? What would be the requirements to change the approved Master Plan to allow Synthetic turf and/or lights?

    The Virginia Department of Conservation and Recreation (DCR) recently confirmed concurrence with the potential change in scope of athletic fields. DCR staff recommends that, if a change is to be made to the scope assumed in the approved Biscuit Run Master Plan, further public engagement be conducted related synthetic fields and/or lighting occur. A formal revision to the BOS approved Biscuit Run Master plan is also recommended.

    The County's lease for the on Biscuit Run Park properties prohibits permanent stadium seating. It also prohibits the construction of a golf course.

    The Biscuit Run property is subject to the deed from Forest Lodge (grantor) to the Commonwealth of Virginia establishing the conservation purposes of the property, the lease between the Commonwealth DCR, and the memorandum of agreement between the parties.

42. What are the potential local economic impacts from a Synthetic turf field?

    Adding turf fields with lights would make Albemarle County a more attractive location for youth soccer, lacrosse, field hockey, etc. tournaments. These tournaments can have a positive impact on local hotels, restaurants, retail stores and tourist destinations because of the "family aspect" of these events. -There are many studies available and what is now referred to as Sports Tourism is now a $45 billion dollar industry in the U.S. and that has resulted in capital planning in some localities that strongly consider the positive impacts of these tournaments and if the strategy of "If we build it, they will come" applies.

    If the Board so desires, staff could initiate a study to estimate the potential additional revenue for the Charlottesville/Albemarle area. The study would be based on the number of available fields, the type of fields, and assumptions regarding the number of tournaments per year, number of players and parents attending. Potential revenue factors would include per person discretionary spending, hotel stays and any reservation fees that the County might charge.

43. When UVA disposed of their turf several years ago, did they replace the fields with synthetic turf, or did they convert them to grass?

    UVA replaced their synthetic turf fields at "The Park" facility near the JAG School off Massie Rd in the fall of 2018 and kept them as synthetic turf using a cryogenic crumb rubber as the type of infill.

44. Is it possible to calculate or reasonably estimate how much plastic waste is recycled; as well as how much is landfilled; each year in Albemarle County? Is it possible to calculate or estimate the amount of plastic that is used in a typical Turf Field?

    The Thomas Jefferson Planning District Commission (TJPDC) works with solid waste haulers and its district partners (Albemarle, Charlottesville, Greene County and Fluvanna County) for solid waste planning and tracking of landfilled and recycled waste. A 2016 Recycling Rate Fact Sheet, the TJPDC estimated that Albemarle and Charlottesville collectively recycled 274 tons of plastic. The region's projected recycling rate of 33% can be used to extrapolate that twice that amount of plastic was likely landfilled: approximately 550 tons.

    According to a FIFA Environmental Impact Study specific to turf fields, which breaks down (on Page 8) breaks down the components of a synthetic turf field by weight. The average FIFA field is reported to weight approximately 274 metric tonnes. The plastic-based grass blades (pile), and backing materials represent 8% of that. Converted to US Tons, that would come to approximately 25 tons of plastics to be replaced at the end of a field's expected useful life.