Montgomery County Public Schools

Artificial Turf

At Albert Einstein High School

Community Presentation

January 26, 2017

Malcolm Baldrige National Quality Award
2010 Award Recipient

AGENDA

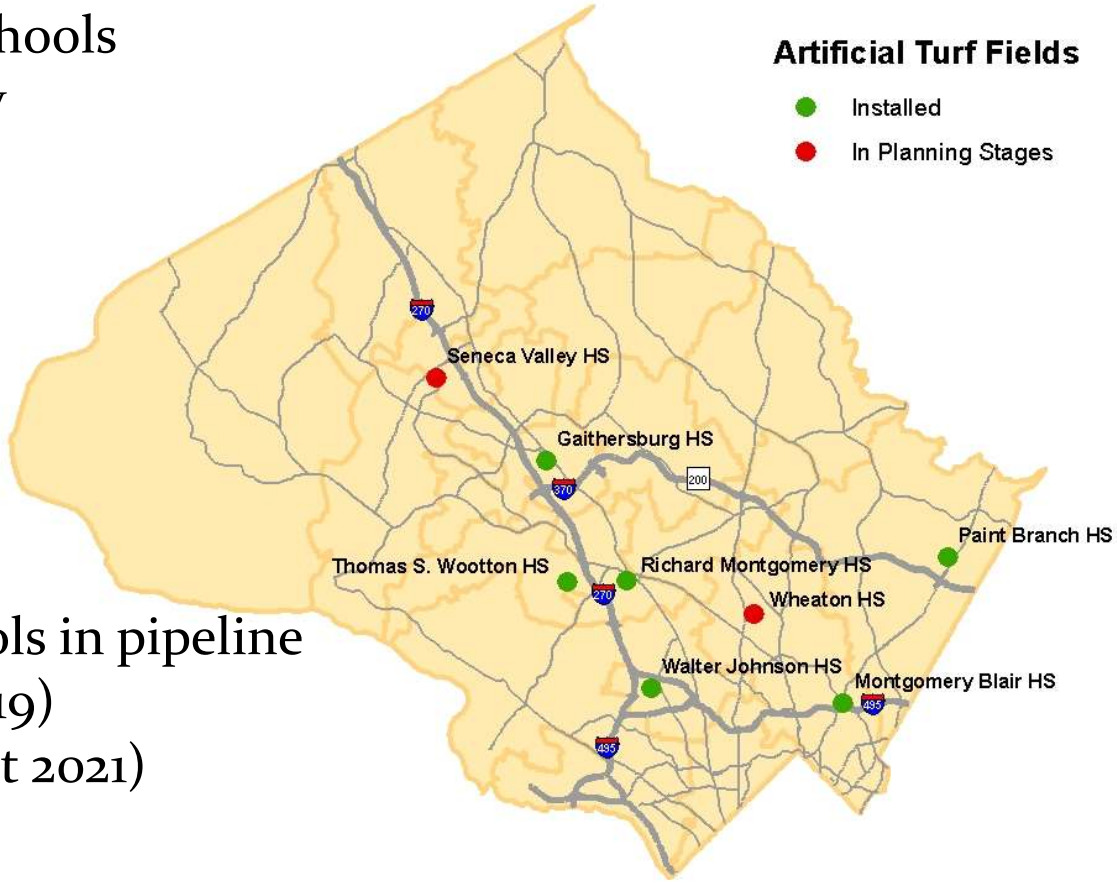
- **PROJECT BACKGROUND**
- **TIMELINE**
- **ARTIFICIAL TURF DISCUSSION**
- **DESIGN CONSIDERATIONS**
- **QUESTIONS / FEEDBACK**

Background

- Current state - Six high schools
  - Richard Montgomery
  - *Montgomery Blair*
  - Walter Johnson
  - Paint Branch
  - Gaithersburg
  - Wootton

  (Montgomery Blair HS field is installed and owned by M-NCPPC)

- Two additional high schools in pipeline
  - Wheaton (August 2019)
  - Seneca Valley (August 2021)



Background

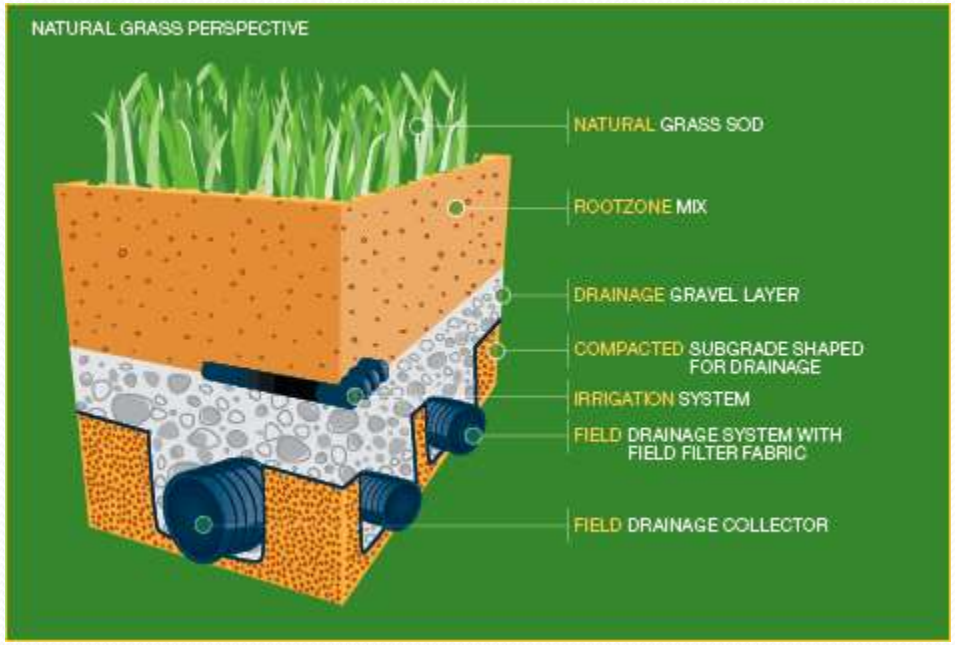
Private Partnerships

- Montgomery County Board of Education has approved a settlement agreement with Montgomery Soccer, Inc. (MSI)
- MSI will contribute up to $5.2 million to construct new artificial turf fields at Walt Whitman High School, Albert Einstein High School and Julius West Middle School in exchange for access to the fields when not in use by the schools
- MSI will provide $1.2 million to construct an artificial turf field at Albert Einstein High School

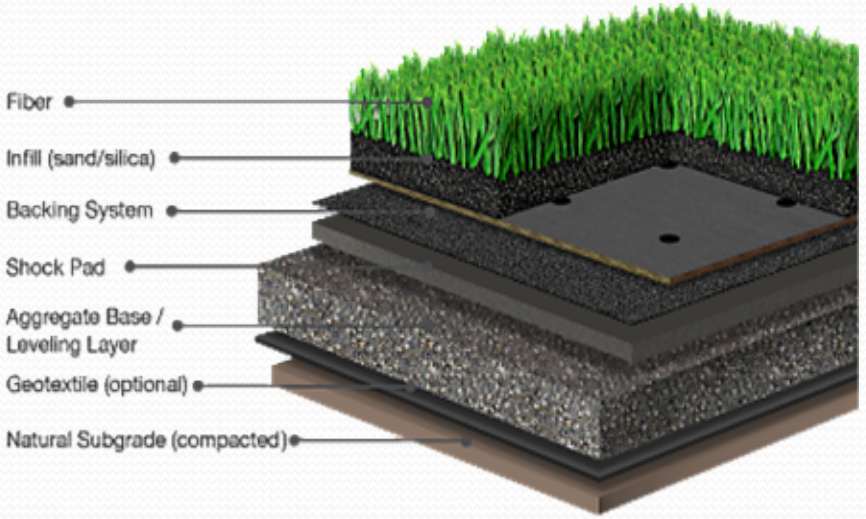
Natural Grass and Artificial Turf

Cross-sections

Natural Grass



Artificial Turf



Stadium Field Comparison

PROJECT APPROVAL REQUIREMENTS

Approvals Required to Begin Design

- Board of Education Supplement Appropriation Review & Approval
- County Executive Review and Recommendation
- County Council – Education Committee Review
- County Council Action following Public Comments

Approvals Required to Begin Construction

- Required Building Permits
- Construction Contract Approval – Board of Education

PROJECT STEPS/MILESTONES

- Engineering Design
  - Consultant Procurement
  - Natural Resource Inventory/Forest Stand Delineation
  - Stormwater Management Concept
  - Engineered Sediment Control Design
  - Construction Documents
- Project Bidding
- Construction Contract Execution
- Construction
- Warranty Phase

PROJECT TIMELINE

- Project Approval – 4 Months
- Design – 5 Months
- Bid Process – 1 Month
- Contract Award – 1 Month
- Construction – 4 Months

Total Duration – 1 Year & 3 Months

Anticipated Completion – April 2018

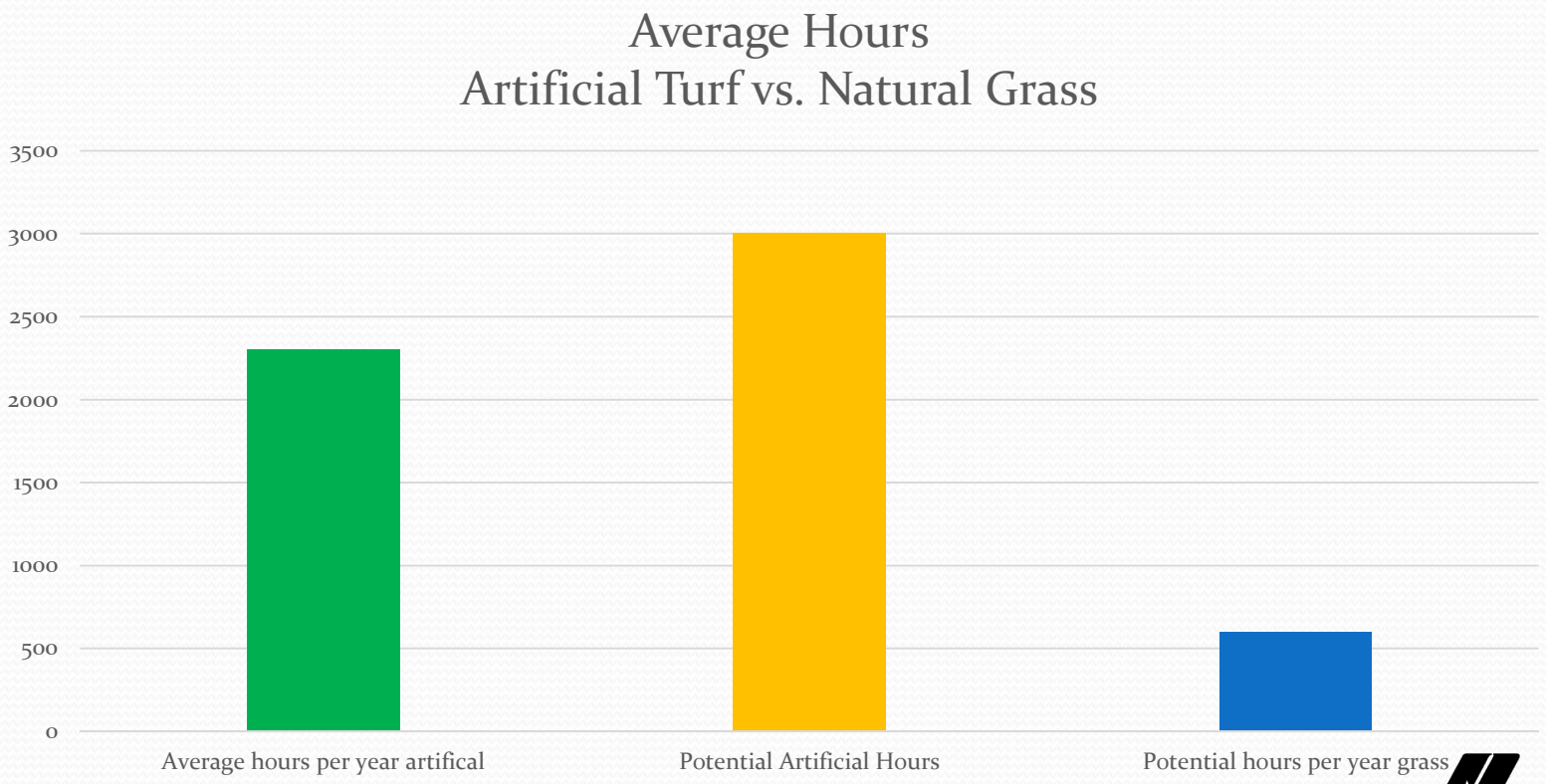
Artificial Turf Playability

Other Considerations

- Outdoor recess opportunities increased
- Year-round use
- Watering costs eliminated (Infill Mix Dependent)
- Use of pesticides eliminated
- Potential for additional booster club revenues

Natural Grass vs. Artificial Turf

Playability (hours of Use)



Natural Grass Fields

Advantages	Limitations
Lower installation costs than artificial turf	Higher annual maintenance costs
Lower life-cycle costs than artificial turf	Use limited to only necessary sporting events (games only)
Cooler field temperatures	Practices not permitted
215 – 470 playing hours*	Off-site practices likely
Environmental benefits including water quality, soil/erosion control	Irrigation required and application of pesticides and fertilizers
	Off-limits for community use
	Equity Issues concerning quality and maintenance standards

**215 hours is MCPS typical use, 470 hours is the high end of use spectrum, (www.blonkconsultants.nl/en/upload/pdf/English%20brochure_plantum_carbon-footprint.pdf and www.modernturf.com/modern-turf-news/how-many-hours-of-use-per-week-can-a-natural-turf-support)*

Natural Grass Maintenance

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Artificial Turf Fields

Advantages	Limitations
2,500 – 3,000 annual use hours*	Higher costs for installation
Allows for Physical Education class use	Field temperatures high in hot weather
Allows for high school team and other community organization practices	Re-skinning required every eight to ten years
Lower annual maintenance costs	Concerns about crumb rubber in-fill mix
Team practices 500, games 215, community use 1300, unassigned 400	Maintenance costs increases possible as fields age.
Environmental benefits include limited water use, limited weed control	
Revenue potential	

**Actual MCPS/partnership use hours and potential community use hours between hours of 6:00 a.m. and 11:00 p.m.*

Artificial Turf Maintenance

Sweeping


Stitching


Gmax Testing

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Natural Grass vs. Artificial Turf Field Maintenance Costs

Annual Operating Costs	Bermuda Grass	Artificial Turf
Grass – overseeding, coring, topdressing, fertilizers/pesticides	$19,000	*$0
Mowing	$6,000	$0
Irrigation system maintenance	$1,100	$0
Field paint, inlaid lines, logo	$7,500	$0
ATF Maintenance and Gmax testing	$0	$12,000
Subtotal	*$33,600*	*$12,000*
Water Costs	$10,000	*$0
Average Total Operating Costs	**$43,600**	**$12,000**

** Costs for weed control and water would be incurred if coconut husk and cork mix in-fill mix is used*

Natural Grass vs. Artificial Turf

10-Year Life Cycle Costs*

	Natural Grass	Artificial Turf
Installation	**$302,500	$1,200,000
Maintenance	$ 436,000	$120,000
Control/enforcement costs	TBD	None
Total	**$738,500**	**$1,320,000**
Usable hours	*2,150*	*30,000*
Cost per Hour	**$343.49**	**$44.00**

**Inflation and other costs escalations not included*
*** Costs for renovating an existing field*

Clarified during presentation. This slide is not representative of product life-cycle cost but rather maintenance costs over a 10 year period.

Artificial Turf In-fill Mix Options

In-fill Mix *Information from supplier	Advantages	Disadvantages
EcoGrind/Sand (Nike shoe rubber)	Durability, playability, low maintenance costs, equity	Initial costs, availability, heat retention
Organic Cork/Sand	Playability, heat reduction, public perception, equity	Durability, initial costs, maintenance costs
Organic coconut/rice/cork	Heat reduction, public perception, equity	Durability, initial costs, maintenance costs, watering costs, dust issues, weed control
Ecogreen TPE (thermoplastic elastomer)	Durability, playability, lower heat than SBR, low maintenance costs, equity	Initial costs, heat retention, quality control

Other Design Considerations

- Project is a retrofit of the existing field.
- Original installation is not inclusive of current erosion and sediment control laws.
- Anticipate SWM under field. Depth of excavation similar to Wooton HS at five [5] feet.
- Disturbance inside track is approximately 2.4 acres or 104,544 sqft.
- Significant construction project.