Purpose of Meeting

• Brief the full Board on the Property Committee’s recommendation for the Stadium Project
• Provide project information to the Rancocas Valley public
• Obtain Board and public feedback
• Prepare for formal Board action at the 26 Nov BOE Meeting
Current State

• 4 lane cinder track for Physical Education classes and interscholastic athletics. Group IV schools have 6-8 lane all-weather tracks

• Natural grass field for Physical Education and football

• No field lighting eliminates school district’s ability to play any late afternoon/evening games…excludes many families from opportunities to support their children and RV

• Home bleachers are off center, not ADA compliant, and several decades old

• Dated inadequate Sound System

• Safety and drainage are serious concerns
EXAMPLES OF CURRENT PROBLEM AREAS
Running Track - Jacksonville Road Turn

- Poor Drainage, swampy conditions
Running Track - Jacksonville Road Turn

• Standing water for days after rainfall
• Old metal edging along running track is unsafe by today’s standards
Poor Drainage Around the Track

- Poor Drainage Conditions extend beyond the Track & Field
Natural Grass Fields Take a Beating

- All of the high school’s Natural Grass fields experience significant “wear and tear” each year. Bare soil is present in many areas. Poor drainage conditions are obvious.
DISTRICT PRIORITIES
District Priorities

• Create a track that is safe and available for the 2200 students, 40 Cross Country runners, 137 winter track runners, and 150 spring track athletes

• Create a field surface that is safe and available for our 2200 students who take PE, and the 6 fall and spring teams (boy’s and girl’s soccer, football, field hockey, boy’s and girl’s lacrosse, ) plus track and field

• Facility upgrades that ensure ADA compliance, student safety, and eliminates drainage issues

• Improved availability for all our youth programs
Board of Education Responsibilities

• Provide a comprehensive educational program (Academics, Extra-Curricular Activities, and Athletics)

• Ensure that the school district is well run

• Ensure that state & local funding is managed well

• Provide and maintain the necessary facilities & infrastructure in support of student achievement
• Construct a 6 lane (8 for sprints) synthetic track, surrounding a lighted all-weather multipurpose field, with a new ADA compliant and centered grandstand, new concession stand, improved storage, and greatly improved drainage.

• This will be done without significantly moving our stadium any closer to our neighboring property lines.

• To minimize the impact of field lighting to the neighboring properties, the BOE has selected a “State-of-the-Art” lighting solution.

• Estimated total project cost range: $4 – 5 million
Summary of Goals

The RV Stadium Project:

• Replaces outdated cinder track, single-sport high maintenance athletic field, and aged non-ADA compliant grandstand

• Eliminates student safety hazards and drainage issues

• Enhances RV’s comprehensive educational program & student achievement

• Planned for minimal impact to the neighboring properties

• Project funded through existing Capital Reserve Account at no additional cost to the regional taxpayers
Existing Stadium
Existing Stadium

- The Existing High School Stadium is Natural Grass and is surrounded by an undersized 4-lane, cinder running track.
- The Home and Visitor Grandstands are not centered on the field.
- The Running Track is undersized and cannot accommodate Track and Field tournaments.
- Pedestrian access to the field level is not currently ADA-compliant.
PLANNED STADIUM UPGRADES
Summer 2014 - Construction Program

- Convert natural grass football field to multi-sport Artificial Turf field
- Convert 4-lane cinder running track to 6-lane 400m rubberized surface running track.
- Construct new 1,400 spectator Home Grandstand with Press Box, to align with the center of the new turf field
- Move the existing Visitor Grandstand to align with the center of the new turf field.
- Install “state of the art” Sports Lighting System
- Construct new Concession Stand & Maintenance/Storage Building
- Install Chain Link Fencing around the entire Running Track & Turf Field
- Improve ADA & emergency vehicle access to the stadium
ARTIFICIAL TURF FIELD
Artificial Turf Field Topics

- History of Artificial Turf
- Turf Field Design
- Usage
- Safety & Health Issues
- Maintenance
- Cost Analysis
- Artificial Turf Warranty
- Misinformation
History of Artificial Turf Development

I. First Generation Artificial Turf Fields (1960’s)

- Original “Astro Turf” (thin pile carpet atop concrete or granular base), **NO LONGER USED**
  - Installed in the Houston Texas Astrodome in 1966, hence the name “Astro Turf” became synonymous with artificial turf.
  - Poor field play (like playing on pavement)
  - More frequent injuries (ankle twists, abrasions, “turf toe”)

II. Second Generation Turf Fields (mid – 1990’s)

- Nylon and Nylon/Polyethylene Fields - (Experienced UV deterioration, Broke Down More Easily, Dusty, and Utilized Lead Chromate to stabilize color) **NO LONGER USED**
- Slit Film - (Still Heavily Utilized for Various Applications, Material becomes Matted Down Over Time, Cut from sheets of Polymer), looks like a shag carpet.
III. THIRD GENERATION ARTIFICIAL TURF FIELDS (2006-Present)

- Today’s Third Generation Turf Fields use **Monofilament Polyethylene Fibers** – Grass Fibers Stand Straight Up for More Consistent Surface, Extruded As Singular Strands
- Monofilament Fibers look and play more like real grass
- **Polyethylene does not contain lead** and is approved for public drinking water. Many homes have potable water supplies made of polyethylene pipe.
- Ground up rubber crumbs or rubber crumb & sand infill creates a cushioned surface between the grass blades.
- **MADE IN USA**
Turf Field Design
Turf Field Design

• An Artificial Turf field may look like green grass, but it is actually a fully-engineered sports field surfacing system:

  – Beneath the Turf Field is a sophisticated Storm Water Management System that meets all NJ State Storm Water Regulations.
  – The Turf Field will drain efficiently in the most severe weather conditions
  – The surface of the Turf Field will be sloped and graded to accommodate all physical education needs and will support all sports programs and other extra-curricular activities
  – The Turf Field will contain line work and markings for all popular sports activities. The line work and markings for each sport will be assigned its own color
  – The Size of the Turf Field will satisfy the National Federation of State High School Associations field design guidelines for ALL SPORTS PROGRAMS!
The new Turf Field will be located further away from the Gymnasium building so that its footprint can be enlarged.
• Grandstands will be centered on the new Turf Field.
Turf Field Usage
Turf Field Usage

- Artificial Turf Field can be Used for:
  - Physical Education classes
  - Football
  - Boys & Girls Soccer
  - Boys & Girls Lacrosse
  - Field Hockey
  - Marching Band practice

- A Turf Field Will Increase Earlier Access for High School Programs and Increased Availability for Youth Programs

- Reduce the Number of High School Student-Athletes Traveling to Off-Campus Fields, thus reducing transportation costs
Turf Field Usage

• Turf Fields do not need to rest between activities like a natural grass field, therefore, ONE (1) Turf Field can replace as many as SIX (6) Natural Grass fields!

• A Turf Field can be used during rainfall and snow events, without damaging the field.

• There will Never be a Rain Out that is the result of poor field conditions. The field dries quickly in most cases and regular play can resume immediately following precipitation.

• A Turf Field can be used during the winter and there are standard operating procedures for removing snow cover.
Safety & Health Issues
Artificial Turf Carpet

• First and Second Generation Turf Carpets, manufactured from Nylon and Nylon/Polypropylene blends were known to contain Lead which was used to stabilize the carpet color. These carpets are no longer being manufactured.

• New Third Generation Turf Carpet is made from Polyethylene a safe, inert plastic that is approved by the EPA for public drinking water.

• There are still some old reports floating around the Internet that incorrectly state that Artificial Turf Carpet contains Lead. This information is outdated.
Artificial Turf Carpet

Rubber Infill Mix

- Rubber and/or Rubber and Sand mix placed around the Artificial Turf Carpet Fibers provides the cushioning for the play surface.
- The source for the Rubber in most fields is Recycled Tires.
- Sand is screened, clean sand, comparable to beach sand.
Rubber Infill Mix

- There have been many studies on the safety of the Rubber Granules that comprise the Infill Mix.
- This Study by the US EPA can be viewed at: http://www.epa.gov/nerl/download_files/documents/tire_crumbs.pdf
Rubber Infill Mix

- The US EPA Study on Health Risks Associated with Turf Fields reveals that there is **no evidence of any health risks** associated with Artificial Turf Fields.

- **No study** has determined that there are any long term health risks associated with exposure to the Rubber Granules. Some people have experienced temporary nasal irritation from the rubber.
• It is common knowledge that the Temperatures across Artificial Turf Fields are higher than Natural Grass Fields.
There have been many studies on Turf Field Temperature and means and methods to lower the playing field temperatures.

All proposed solutions were deemed to be short term.
The general consensus is to monitor field conditions and limit field activities to cooler periods.
Injuries

Studies on the safety of turf fields have been undertaken and in many cases the incidents of serious injuries on Turf Fields are less than those on Natural Grass.
Injuries

- The results of the Journal of Sports Medicine Study on the safety of Turf Fields can be found at: [http://www.hindawi.com/journals/jsm/2013/380523/](http://www.hindawi.com/journals/jsm/2013/380523/)

- Although there is no conclusive evidence that Turf Fields are safer, the data does show that Turf Fields are at least as safe as Natural Grass Fields.
Turf Field Maintenance
Artificial Turf Field Maintenance

- Turf Fields do not require daily or weekly maintenance.
- General Maintenance includes Visual Inspection, Debris Removal and Removal of Bodily Fluids (Routine Basis or As Specified By Manufacturer)
- Periodic Maintenance includes Grooming, Brushing, Aerating, Raking, Sweeping (4 to 6 Weeks As Specified By Manufacturer)
- Can Be Done In-House or Out-Sourced.
- Turf Fields do not require watering, seeding, or the application of fertilizers and pesticides, which are heavily regulated and in some cases prohibited.
- Turf Fields do not require mowing.
Artificial Turf Field Maintenance

- The equipment used to perform maintenance can be towed behind light duty equipment, such as a lawn tractor.
Natural Grass Field Maintenance

- Mowing (Weekly or Bi-Weekly)
- Irrigation
- Aeration
- Topdressing (After Each Season of Play)
- Reseeding (After Each Season of Play)
- Thatching (As Necessary)
- Fertilization (Weed Control, Insect Control, Plant Nutrients)
- Line Marking
Cost Analysis of Turf Field v. Grass Field
COST ANALYSIS
Artificial Turf vs. Natural Grass

• Compares Life-Cycle Costs for an Artificial Turf Football Field to Equivalent Size Natural Grass Field

• Initial Cost of Artificial Turf Field

• Initial Cost of Natural Grass Field

• Cost of Turf Replacement and Annual Maintenance Over a 10-Year Period

• Assumes 2% Rate of Inflation
TURF FIELD CONSTRUCTION COST

• Typical cost to convert an existing Natural Grass High School Stadium (within a running track) to Artificial Turf is approximately: $1 Million.
  – This cost includes a “one time” expense for constructing the underground Storm Water Management System
  – This cost includes a “one time” expense for soil excavation and removal from the site
  – This cost includes a “one time” expense for constructing peripheral site work (curb, track repair, etc.)

• Turf Carpet replacement is required after approximately 10 years. Only the Carpet is replaced. This cost is currently estimated at $450,000.00, and we expect the future cost at the 10 year (2024) mark to be approximately $600,000.00.
NATURAL GRASS FIELD CONSTRUCTION COST

- Typical cost to construct a Natural Grass High School Stadium (within, but not including, a running track) is approximately: $300,000.00
  - This cost includes a field drainage system consisting of surface inlets and interconnected storm sewer pipes.
  - This cost includes a modest amount of earthwork needed to properly grade land to the tolerances needed for sports play.
  - This cost includes the cost of topsoil, fertilizer, & seeding.

- To maximize the utilization of a Natural Grass field, a healthy grass root zone is imperative. Therefore, the field should have an automated irrigation system at an additional cost of approximately $50,000.00

- Note: A new Natural Grass field **cannot be used for two (2) full growing seasons** (Spring & Fall) after its initial seeding to allow time for the grass root zone to develop, before exposure to foot traffic.
COST ANALYSIS
Natural Grass Yearly Maintenance Cost Estimate

• The Annual maintenance of Natural Grass Fields includes, mowing, watering, seeding, weeding, fertilizing, pesticide control, repair of wear & tear, aeration, and related labor costs.

• The maintenance of lawn care equipment must also be considered.

• Annual Maintenance Cost of a Natural Grass field can be as much as $40,000, if the field is heavily utilized.

• 2% Inflation Over 10 Years = $487,600 Total Cost

• $48,760 / Year Adjusted for Inflation
COST ANALYSIS

Summary

- Artificial Turf Field Initial Cost $1 Million
- Natural Grass Field Initial Cost $350,000.00
- Artificial Turf Field Annual Cost $60,000.00
  (10-Year Life-Cycle for Carpet Replacement)
- Natural Grass Field Annual Cost $48,760.00
  (10-Year Life-Cycle)
- This analysis is for a single field comparison. Keep in mind that ONE (1) Turf Field replaces as many as SIX (6) Natural Grass fields. This means that a higher utilization of the Turf Field means less stress and damage to remaining Natural Grass Fields at the High School.
Reported Maintenance Costs from Area Schools

**NATURAL GRASS**
- Bernard High School
  - $30,000 per year
- Eastern High School
  - $40,000 to $50,000 per year
  (Prior to installation of artificial turf)

**ARTIFICIAL TURF**
- Bishop Eustace High School
  - Approx. $2,150 per year
  Over 6 Years
  - $1200/year for maintenance (1X)
  - $5700 for recent addition of rubber
- Eastern High School
  - $0
  - 1 hour per month to aerate

(Prior to installation of artificial turf)
Artificial Turf  Carpet Warranty
Artificial Turf Warranty

- 8-Year Warranty
- Covers Materials, Workmanship, General Wear, and UV Degradation of the Carpet only.
- Warranty does not cover the underground field drainage system.
- Excludes Acts of God and Vandalism
- Third Party Insured
- Minimum Insurance Policy – $10 Million Annual Limit
NEW RUNNING TRACK
• The existing 4-lane running track is undersized for track and field tournaments and its surface is comprised of cinders.
A new 6-lane 400 meter Rubberized Surface Running Track will be constructed around the new Turf Field. The “D” zones of the field will be equipped with Pole Vault, Long Jump & High Jump Areas. Safety Netting will be included & the entire running track will be surrounded by fencing.
NEW GRANDSTANDS
The Existing Home Grandstands are old, outdated and not code-compliant. They cannot be moved, therefore, they must be replaced.
New Home Grandstands

- New Home Grandstands, complete with a Press Box, will be constructed. The Grandstands will be ADA compliant.
SPORTS LIGHTING
New Sports Lighting

• A Sports Lighting system will extend the use of a Turf Field, by allowing sports play to continue past dusk.

• Today’s Sports Lighting Systems are energy efficient and lighting levels can be controlled so lighting is directed at the field and not onto neighboring properties. Note how quickly light levels drop off a short distance away from the field.
• Musco Sports Lighting System offers the state-of-the-art “Green Lighting System”. This system can be programmed by a phone or computer and lighting levels can be adjusted for practice or competition.

• Lighting levels can also be adjusted instantly based upon the activity planned on the field. For example, Marching Band practice or Track and Field meets can use lower levels.

• Most school districts adopt strict policies with regard to the usage of Sports Lighting out of consideration of neighboring property owners.
30 Footcandles on the Field

- Maximum 0.03 fc at nearest neighbor.
- Moonlight is 0.01 fc
50 Footcandles on the Field

- Maximum 0.05 fc at nearest neighbor.
- Moonlight is 0.01 fc
Evergreen Plantings will be added along the property line to provide additional screening of lighting for the neighbors.
NEW CONCESSION BUILDING
The relocation of the Field and new Home Grandstands will require the demolition of the existing Concession Stand and Maintenance Storage Building. These elements will be replaced with separate buildings.

Note: Actual Concession Building will probably not look like a Hot Dog.
- Multi-Sport Artificial Turf Field, Rubberized 6-Lane Running Track, Rubberized “D” Zones, New Home Grandstands, New Concession Building, Sports Lighting, Fencing, Improved ADA accessibility
Questions