



BOND REFERENDUM
OCTOBER 29, 2013
QUESTIONS & ANSWERS

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NYACK PUBLIC SCHOOLS BOND REFERENDUM

Q & A

A school district renovation plan is being put before the voters on October 29. The project would renovate aging facilities, provide enhanced technology to support instructional program, renovate athletic facilities, improve school security and expand special education programming.

INTRODUCTION

Q: What is a bond referendum?

A: A bond referendum is an opportunity for voters to decide if the school district will be authorized to raise funds to upgrade and renovate the District's facilities.

Q: Why is the Nyack Public School District going out to referendum?

A: Many of the needs identified in the prior referendum have not been addressed and cannot remain on hold forever. A Citizens Advisory Committee was formed to review the conditions of our facilities as reported by our architectural firm, LAN Associates. LAN Associates was selected by the Board of Education after the District solicited proposals from architectural firms that specialize in public school construction. LAN performed an extensive physical inspection of our facilities as well as a review of our State mandated Five Year Capital Plan. Just as in a home, equipment structures, electrical systems, roofs, boilers, etc. in our schools have a life span. The bond will address many areas in need of replacement that may not otherwise be financed through the annual operating budget. Educational technology is richly embedded into the Common Core Standards and this project will provide for a high speed and well-maintained infrastructure, and school-wide access for students and staff to support academic achievement and global learning. The proposal will also increase the district's commitment to school security through a number of enhancements. As demonstrated by past events, tragedy can strike any school at any location. The plan will address some significant shortcomings of our athletic facilities that due to overuse of the fields are in poor condition.

Q: Why now?

A: From a fiscal perspective, there are several reasons why the Board of Education determined that this was the right time to ask the community to consider financing upgrades to their school facilities:

1. Borrowing interest rates remain historically low.
2. The State is continuing to provide building aid that will assist with the financing of this plan. The State will pay 37.6% of allowable costs associated with the proposed improvements to our buildings and grounds. State building aid is available for upgrades to our athletic fields and other site work as long as the work is combined with work to the adjacent school

building. As long as State building aid is permitted at the time that the voters approve a capital project, the State will continue to provide the aid for the duration of the project's financing. Given the uncertainty of State finances, we cannot be sure that this aid will be available if the projects were put off until sometime in the future.

3. The District currently has three outstanding bonds that will retire over the next several years. The financing of this project will be structured so that it is coordinated with the retirement of the existing bonds, thus there will be no increase in the tax levy as a result of taking on this new debt.
4. The District is positioned to allocate \$5 million from the Capital Reserve Fund towards the financing of the project. The Capital Reserve Fund was approved by the voters several years ago to permit funds to be saved for the type of improvements in the proposed project. By using the funds saved and financing the remainder of the project by issuing debt in phases, this project will have a neutral affect on the existing tax levy - and in some years the debt service payments will actually decrease as the new bonds are rolled out and the existing bonds are retired.

Q: How was the scope of the work of this plan decided?

A: The Board of Education is ultimately responsible for the regular and orderly development of the school district's facilities. In carrying out this responsibility the Board of Education maintains a mandatory five year capital facilities plan. The plan includes a district wide building inventory including the number and type of facilities; the age, capacity, use and size of each building; and each building's safety ratings, energy sources, probable useful life, and major system repairs needed. In a separate mandated AHERA report, the District maintains an asbestos management plan to ensure that asbestos is either contained or abated during projects. Recognizing that providing appropriate facilities and equipment are required in order to best support and accommodate the needs of a quality educational program for its students, the Board of Education established a **Citizens Advisory Committee** in October 2012 to evaluate existing conditions. Outreach was made to members of the community to participate in this process through key communicator letters, postings in the newspapers, a letter of invitation on the School District website and notes home to parents. The architectural firms of LAN Associates and HMH Site and Sports Design were hired to assist the committee and to provide professional advice to the Board of Education. The two firms conducted a facilities analysis, which was reviewed by the Board and shared with the committee. A third professional consultant, CCC Computer Center, assisted with an analysis of the District's current technology infrastructure. This information, together with the long range facilities plan, AHERA Management Plan, the plans from the 2007 referendum, and building tours formed the basis of the committee's work. The committee began meeting in December 2012 and reported their work to the Board of Education at a special meeting held on June 13.

Q: *Is the District required to complete the State Environmental Quality Review (SEQRA) for these projects?*

A: Whenever a public school district needs to do a capital project they must first comply with the requirements of SEQRA. The District completed the Full Environmental Assessment Form to comply with the requirements of SEQRA. The Board of Education acted as lead agent in the process and had to fulfill all requirements of SEQRA prior to passing a resolution to place a bond referendum before the voters. The District's architects worked with our Business and Facilities Departments to complete all required information and to notify all interested agencies. The purpose of State Environmental Quality Review Act is designed to identify any potential negative environmental impacts that may occur as the result of the project and to determine how to remediate any such impact. Based on the findings of the FEAF there will be no significant negative impact on the environment as a result of the proposed project.

FINANCIAL

Q: *How much will the project cost?*

A: The proposed cost of the project is \$26.4 million, of which \$5 million will be paid for through funds saved in our Capital Reserve Fund. The remainder of \$21.4 million will be bonded. Bonds will be repaid over a 15 year period, by making annual principal and interest payments, similar to a mortgage.

Q: *How will the project be financed?*

A: The Board of Education is putting forth a referendum to ask the voters to consider the use of \$5 million from our Capital Reserve Fund and \$21.4 million in bonds to be issued in increments over the next several years as existing debt retires. By taking on the new debt in phases, the year-to-year local tax levy impact will remain neutral or actually decline in some years since payments on the new debt will replace payments on expiring debt.

Q: *What will the annual tax increase be on my school tax bill for this referendum?*

A: Given the fact that the debt will be phased in over several years to replace retiring debt, the level of declining debt will mitigate any year-to-year increase to annual school tax bills as a result of issuing the new debt.

Q: *What would my school tax bill be without the new debt from the proposed project?*

A: Over the next couple of years there would be little to no change in tax bills as a result of the retiring debt. The final payment will be made on our outstanding bond for the project done in the 1990's during the 2016-2017. After the final payment is made, a homeowner with an average assessed value of \$148,700 in the Town of Clarkstown (or \$228,800 assessed value in Orangetown for a similar property) would experience a decrease of approximately \$95 in their annual school tax bill as a result of declining debt service. However, this decrease will be offset by increases to the annual budget when the infrastructure needs deteriorate to the point where they can no longer be delayed.

Q: *What is the anticipated interest rate on the bonds?*

A: The Board of Education's fiscal advisors used an interest rate of 4.5% to calculate the projected debt service payments. Currently the rate that applies to the issuance of school district debt is historically low, but the Board of Education wanted to be very conservative so they could put forth a financing plan that they believe will be the worst case scenario, especially given the fact that the borrowings will be phased in over several years.

Q: *What will be the length of bond payments?*

A: 15 years

SCOPE OF WORK

Q: *What is the scope of the work that will be included in this project?*

A: Listed below is a project description of the improvements and alterations at each of the District's school buildings. A more complete listing of each area of improvement may be found on the District website.

Nyack High School:

- Miscellaneous improvements and replacements for fire alarms, emergency lighting, plumbing, HVAC, and exterior doors.
- Replace entire building roof.
- Provide retention pond structure improvements.
- Construct new 8 lane all-weather track with synthetic turf infield, jumping events in D-zones, new athletic field lighting, new bleacher grandstand, and new concession building.
- Replace existing natural grass fields with synthetic turf; add athletic field lighting.
- Construct new natural grass softball field with athletic field lighting.

Nyack Middle School:

- Miscellaneous improvements and replacements for fire alarms, emergency lighting, plumbing, HVAC, flooring/ceiling finishes, and interior doors.
- Replace entire building EPDM roof.
- Repair stormwater drainage.

Upper Nyack Elementary School:

- Miscellaneous improvements and replacements for fire alarms, emergency lighting, plumbing, HVAC, flooring/ceiling finishes, and exterior windows and doors.
- Replace ballasted EPDM roof at addition.
- Repair/repaint stucco soffits at original building.
- Install retention pond with weir outlet.
- Regrade west side of site to improve drainage and pipe to street.
- Repair/replace playground equipment sets.

Liberty Elementary School:

- Miscellaneous improvements and replacements for fire alarms, emergency lighting, plumbing, HVAC, flooring/ceiling finishes, and exterior windows and doors.
- Repair exterior soffits at original building.

Valley Cottage Elementary School:

- Miscellaneous improvements and replacements for fire alarms, emergency lighting, plumbing, HVAC, flooring finishes, and exterior doors.
- Repair wood fascia and soffit at 1927 and 1954 buildings.

Hilltop Administration Building:

- Miscellaneous improvements and replacements for fire alarms, HVAC, and emergency generator.

Old Nyack High School:

- Replace existing fire alarm system.
- Replace built up roof and clearstory window flashings on 1950 building.
- Install fire separation assemblies for stair tower doors.

TECHNOLOGY

Q: *How will this plan alter the District's integration of technology in our classrooms?*

A: In preparing students to develop to their fullest potential for living in the society of today and tomorrow, the Board of Education recognizes our classrooms must include the utilization of technology to enhance learning through research, communication, and productive strategies and tools. The District's vision includes a method of instruction that shifts the dominant mode of instruction away from one-way transmission of information towards an increase in student-centered learning and the development of skills in communication, collaboration, information literacy, problem-solving, critical thinking, innovation, technology-literacy, self-direction, adaptability and responsibility. Currently, the District's technology infrastructure cannot support our instructional vision or the NY State Department of Education's intention to shift its student assessment program to online testing. The District will be shifting to a 100GB pipe from the current 30GB to accommodate NYSED Partnership for Assessment of Readiness for College and Careers (PARCC) and to address the insufficient and consistent overloads during peak usage. In addition, the following technology upgrades are included in this project:

- **Wireless Upgrades in All Buildings-** access points (aps) and Power over Ethernet (POE) switches and cabling will expand wireless coverage in all buildings to support student and staff computer devices;
- **Server and Switch Upgrades-** in order to handle the higher speed transmission of data, new more powerful Power over Ethernet (POE) switches will be added to each school building;
- **New Cabling and Network Patches-** the District is currently wired with a combination of Category 5 and Category 5e cabling. The majority of all network patch panels are Category 5. The cabling will be replaced with Category 6 to improve gigabit speeds and Network Patch Cables to Category 6.

- Equipment Cabinets- new lockable equipment cabinets will be added to house patch panels, wire management, switches and routers that are currently mounted in unsecured Telco racks and subject to damage.

SPECIAL EDUCATION

Q: *Will there be any changes to special education programming as a result of this project?*

A: Yes, the project will include retrofitting classroom space at the Middle School and High School to construct a life skills program allowing students with moderate to severe learning disabilities to learn with state-of-the-art equipment and a well equipped life skills experience. The classrooms will include equipment such as a kitchen and bedroom area, laptops with personalized software, and academic centers to accommodate the individualized needs of the students combining academics and life skills together. Many of the students that the program will serve have been placed in isolated settings outside of the District and will now become part of our home-based school community. Students will develop academic and life skills that will include learning experiences that will bring them directly into the Nyack community. Activities such as shopping at the local supermarket, dealing with money, reading a recipe and learning self-management skills will be incorporated into the curriculum. Effective July 1, 2013, an IEP diploma is no longer available for all students with disabilities. However, the IEP diploma is being replaced by a Career Preparation and Skills Credential (CSC). The new Life Skills classrooms will allow the District to prepare students with disabilities to meet the eligibility requirements for this new credential by documenting foundation skills, career awareness, career development and work based experiences.

FINE AND PERFORMING ARTS

Q: *Does the plan call for any changes to the fine and performing arts programs?*

A: Yes, there are funds allocated to improve the spaces that house the fine and performing arts programs. The primary improvement will be to provide air conditioning units for the High School music room, auditorium and Da Vinci Center. The music room and auditorium are now used throughout the calendar year. The instruments in the music room can be damaged by the levels of high humidity. The auditorium serves as the main center for performances and ceremonies throughout the school year. The auditorium will also be attractive to outside organizations and provide a form of revenue through rental fees. The Da Vinci center serves as the hub to support programming in the area of media communication, TV production, computer-aided design (CAD), and computer graphics. The District is working with *The Foundation to Inspire Excellence in Nyack Schools*, which has committed funds for the development of a MacLab that will support new course programming in music production and computer art design. The air conditioning will provide a climate controlled environment that will expand the life of the hardware.

SCHOOL SAFETY & SECURITY

Q: How will this plan address issues concerning school safety and security?

A: The Board of Education strives to ensure a safe and secure environment to all persons including students, staff, and visitors, who lawfully enter upon District property. Appropriate precautions are taken to protect the safety of all students, employees, visitors and other persons present on District property or at school-sponsored events. The District implements a safety program that focus on in-service training, plant inspection, fire prevention, and emergency procedures and drills for the safety of students, employees and the community. The safety program is continuously reviewed for the purpose of improvement and learning from our experiences as well as other schools and communities. As demonstrated by past events, tragedy can strike any school in any location. The Board of Education places its commitment to a safe and secure environment for its students, staff and visitors as its highest priority. The following areas are included in this plan for the purpose of improving school safety and security:

- **Replacement of fire alarm systems at all school buildings.** Current fire alarm systems are outdated and require ongoing repairs. The new systems utilizing the newest technology enhancements will provide emergency responders with immediate information regarding the location of the alarm that has sounded to improve response time.
- **The installation of 98 additional security cameras at the High School (4); Middle School (30); and twenty-two (22) at each of our three elementary schools.** The amount and location of cameras were determined following an analysis of existing camera coverage and consultation with school officials and consultants to determine where added coverage was needed;
- **Connectivity of security cameras** to the Clarkstown and South Nyack Police Departments to assist law enforcement during emergency situations;
- **Installation of security safety film to reinforce glass** covered areas to control 'glass failure'(flying shattered glass)that may occur during severe storms, terrorism or vandalism;
- **Installation of access card readers** for exterior doors and essential interior doors to improve security. The access card readers will enable the District to identify doors left unsecure and provide monitored control over access;
- **Replace emergency lighting** at Valley Cottage and Upper Nyack Elementary Schools.

ATHLETIC FIELDS

Q: Why are synthetic surfaced fields included in this plan?

A: Our fields are heavily used by our athletic teams at the varsity, junior varsity and modified levels. In addition to the 17 interscholastic athletic teams supported by the Board of Education, the fields are also used by community based youth programs. The District has made strong efforts to maintain the condition of the fields; however, the fields are unable to withstand the current levels of usage. The chronically poor condition of the fields has led to cancelled practices, scheduling of home events to other locations and limited availability for youth programs. Grass fields suffer a lot of damage when they are used during or after rain storms. Resting a grass field to allow for rejuvenation of root systems is an essential component of maintaining grass surfaces. Due to the limited space available our fields are used continuously to support the numerous programs at the various age levels leaving limited time for the necessary resting of the fields. The compacted dirt on our fields creates a poor surface for playing on and contributes to a higher possibility of concussion injuries than a softer surface would.

Q: What are the advantages of a synthetic all-weather field vs. a natural playing surface?

A: Playability is one of the primary benefits of synthetic turf, with the newer generation of infill systems exhibiting improved playability over traditional synthetic varieties. Research indicates that artificial turf provides a greater number of playable hours than natural turf. Studies suggest that average hours of playability in a three-season year for synthetic turfs range between 2,000 and 3,000 hours, with most research pointing towards 3,000 hours. Natural fields, on the other hand, provide far less playability, with studies estimating a range between 300 and 816 hours in a three-season year on average. Studies show, furthermore, that switching from natural to synthetic turf results in a drastic increase of playtime. This is due, in part, to the vulnerability of natural fields to fluctuations in weather. In addition, natural fields require rest, with managers recommending against using fields more than 20-24 hours a week. Natural fields are also vulnerable to poor management, which can detract significantly from use time. Source: UNIVERSITY OF CALIFORNIA, BERKELEY LABORATORY FOR MANUFACTURING AND SUSTAINABILITY (February 2010)

Q: What are the health related concerns that have been identified with synthetic surfaces?

A: Health and environmental concerns have been raised concerning the use of synthetic turf.

The main health concerns are:

- Exposure to toxic chemicals in crumb rubber (through skin contact, ingestion, or offgassing).
- The high level of heat on synthetic fields.
- An increased possibility of infection as a result of abrasion.

The environmental issues include:

- The heat effect on carbon footprint.
- Possible water contamination and runoff.

Q: *What are the concerns surrounding toxicity?*

A: Crumb rubber is made from recycled tires that have been finely ground. Tire production requires the use of many chemicals and the concern is that exposure to the chemicals will negatively affect people or the environment. Over the last ten years many studies have been conducted and reports have been issued. One of the most recent papers on the concerns of crumb-rubber infill is from the University of California (*Impacts of Crumb Rubber in Artificial Turf Applications*. Rachel Simon. University of California, Berkeley. February 2010) and provides the following: “A review of existing literature points to the relative safety of crumb rubber fill playground and athletic field surfaces. Generally, these surfaces, though containing numerous elements potentially toxic to humans, do not provide the opportunity in ordinary circumstances for exposure at levels that are actually dangerous. Numerous studies have been carried out on this material and have addressed numerous different aspects of the issue. For the most part, the studies have vindicated defenders of crumb rubber, identifying it as a safe, cost-effective, and responsible use for tire rubber.”(p.7) However, “[researchers] have noted the present existence of “knowledge gaps”; a lack of full understanding at the general theoretical level which renders the inquiries to some degree inconclusive.” (p.31) **The Board of Education understands that there are very divergent views on how the available information should direct a decision on the use of synthetic turf. Ultimately, a community member has to evaluate the information and make a decision and vote. Additional studies that have been reviewed include:**

- Fact Sheet: Crumb –Rubber Infilled Synthetic Turf Athletic Fields; New York State Department of Health (August 2012);
http://www.health.ny.gov/environmental/outdoors/synthetic_turf/crumb-rubber_infilled/fact_sheet.htm
- The Use of Recycled Tire Materials on Playgrounds and Artificial Turf Field; The United States Environmental Protection Agency (December 2009);
http://www.epa.gov/nerl/features/tire_crumbs.html
- Risk Assessment of Artificial Turf; Connecticut Department of Energy and Environmental Protection; (July 2010);
http://www.ct.gov/deep/cwp/view.asp?a=2690&Q=463624&depNav_GID=1511

Q: *What are the alternatives to crumb rubber infill?*

A: The synthetic turf market has developed several different types of fill to address the concerns raised by crumb rubber. They are sold under different trade names. Two products reviewed by the District’s landscape architect were Geoturf and Brock Powerbase. These options are more expensive to install than crumb rubber. Organic infill will break down over time and can allow for the development of weed growth just by its very nature. This defeats one of the many advantages of having a

synthetic turf field. Products such as Brock Powerbase can to be a good product for many applications, especially where good quality base stone is unavailable. It allows for less excavation of existing subsoil which can save on excavation cost but it takes the place of the stone base that is used in this area. This stone base material acts as a filter and a detention basin of sorts because it is comprised of 40% void space, which can retain water under the synthetic turf, allowing us to essentially hold a good portion of the water from the initial storm surge and meter it out into the existing stream corridors by reducing exiting pipe sizes. The storage capacity is quite limited in the Brock Powerbase and would require a large pipe system to be installed somewhere in the project vicinity to address the same storage requirements.

Q: *Is it true that synthetic fields absorb heat and cause the surface air temperatures to rise and if so, what will be the policy of the District to prevent heat stress in our student athletes?*

A: Synthetic turf is praised for its availability in all weather conditions. However, high heat can create an obstacle for synthetic turf use, as the surface can become uncomfortable on which to play. While this may be an advantage in early March, it is an issue for the fall sports that begin practice in August. It has been shown that the difference between turf temperatures and the surrounding air can be significant. In one study, the ambient air above both surfaces differed by 30 degrees at 12 inches. (*University of California Laboratory for Manufacturing and Sustainability*; February 2010). The District will implement policies similar to other districts and universities and not hold practices on synthetic fields when temperatures are above a certain level (e.g. 90 degrees). Practices could be shifted to MacCalman or rescheduled for later in the day when temperatures drop.

Q: *What about injuries? Do synthetic fields have a greater incident rate of injuries than a natural grass field?*

A: One of the primary concerns for organizations considering the implementation of synthetic turf is whether it poses any significant health or injury risks. Numerous studies have been conducted assessing the likelihood of injury on natural grass and synthetic turf (*Penn State College of Agricultural Science*; <http://plantscience.psu.edu/research/centers/ssrc/research/synthetic-turf-injuries>). Studies indicate that there are not significant differences, though there may be some tendency for leg/ankle injury on synthetic as a result of how the athlete's footwear grabs the surface.

Q: *Is there any enhanced risk to staph infections (e.g., MRSA) to school-age athletes playing on a synthetic surface?*

A: The studies we have reviewed do not suggest that turf will carry an additional risk of infection. (*A Survey of Microbial Populations in Infilled Synthetic Fields*; McNitt, Petrunak; *Center for Turf Grass*; *Penn State University*). Unsanitary conditions in locker rooms and poor hygiene and wound care are the likely sources in the cases that were studied. Student-athletes can protect themselves from infections by

practicing good hygiene (e.g., keeping hands clean by washing with soap and water or using an alcohol-based hand rub and showering after working out); covering any open skin area such as abrasions or cuts with a clean dry bandage; and avoiding sharing personal items such as towels or razors; using a barrier (e.g., clothing or a towel) between skin and shared equipment; and wiping surfaces of equipment before and after use.

Q: *How does the carbon footprint of a synthetic field compare to a natural grass surface?*

A: Synthetic turf, as it heats up more than natural grass, does not sequester carbon, and must be recycled and/or disposed of at the end of its life, clearly has a greater carbon footprint than a natural field. A study by the Athena Institute (2006): http://www.athenasmi.org/wp-content/uploads/2012/01/UCC_project_ATHENA_technical_paper.pdf helps to quantify the difference. They estimate a range of 75 to 120 tons of carbon over the life of a synthetic field, including replacement. The range is fairly wide because of different assumptions on recyclability. See <http://www.carbonfootprint.com> or <http://carbonyatra.weebly.com>.) It is well known that grass, plants and trees absorb CO₂ from the atmosphere and sequester carbon in their roots, stalks and trunks. Larger and faster growing organic systems, such as pine trees, are particularly effective in this regard. So, it is logical to assume that the synthetic surface would reduce the healthy absorption of CO₂ in the area. The absorption of CO₂ is only half of the carbon cycle with plants and grasses. Gardeners and turf managers know that when these systems decay, they release nutrients into the soil, and heat and sequestered carbon, in the form of CO₂, back into the atmosphere. This is the principle behind “grass cycling” or allowing grass clippings, which decay rapidly, to remain in the grass as a natural fertilizer. Furthermore, with grass fields at the High School, the carbon sequestration process primarily occurs during the growing seasons (not year-round). The final issue is the health of the grass. Lush thick grasses will absorb more CO₂ (and give more back when mowed). However, fields with large dirt areas and thinned, over-stressed grass absorb and give off a comparatively small amount of CO₂.

A 2008 article in the Boston Globe discusses the organic decay process when describing Boston’s plans to harness the biogases released in this process to generate “environmentally friendly” electricity. Jerry Hannan, PhD, a retired researcher from the Naval Research Laboratories in Washington, D.C., who now works with the Environmental Protection Agency, cautions people to keep the issue of carbon sequestration in perspective. He states that “grass absorbs CO₂ but only on a short term basis. Grass clippings decompose or are eaten, but in a relatively short time much of the carbon is released back into the atmosphere as CO₂.”

As a result, natural grass fields that are mowed regularly offer no meaningful “net” CO₂ absorption. According to the Cornell University Turfgrass Times (2008 Issue 2, Volume 19, Number 2), a newsletter published by the New York Greengrass

Association, “managed turf (such as a golf course) is a carbon sink. Trees are an even greater carbon sink. Native vegetation and grassland is neutral.”

Q: *How will the installation of the synthetic fields at the High School affect water run-off?*

A: The plan is to design the field(s) so that the peak rate of runoff does not increase after the field is installed. While the total amount of runoff will probably increase slightly due to the compaction of the sub grade under the field(s) which will reduce its ability to absorb water, we plan to put in a piping system under the field(s) that will collect the water and meter it out into the existing stream corridor that runs down the north property line. We will also have an 8-10” layer of porous drainage stone under the field(s) (called dynamic stone base) that has approximately 40% void space in it that can act as a bathtub to hold this water before releasing it to the stream. At 8” 40% void space equates to the ability of the field(s) to theoretically handle a 3” rain event without sending any water to the stream. The project will also include improvements to the retention pond structure located on the property of the High School that will further improve water run-off.

Q: *Will the drainage on the field surface result in leaching of carcinogenic PAHs, lead or zinc into the water table over time?*

A: Concerns have been raised on the basis that crumb rubber fibers may breakdown over time and release toxins into the water table. Several studies have looked into this and found no basis for health environmental concern due to leaching of hazardous materials from synthetic surface installations. Some groups, such as Environment and Human Health, Inc. (EHHI), claim that traces of metals can remain in the soil. However, their conclusions appear to be based on extreme laboratory testing methodology that do not replicate natural field conditions according to Dr. D. Michael Johns, Ph.D. and Tom Goodlin, who conducted an evaluation for King County Water and Land Resource Division in Seattle. King County looked at the long term effects of water quality of synthetic turf runoff and found that the runoff had no effect on the test organisms and met all state and federal water quality standards. A study conducted by the New York State Department of Environmental Conservation (2009) found the potential for release of some chemical compounds or elements such as zinc associated with the crumb rubber infill, as the matter moves through the soil to the groundwater table, contaminant concentrations are further diluted by absorption and degradation. As a result the study indicates that crumb rubber may be used without significant impact on groundwater quality provided attention is given water management. As indicated in the above question, the District will be installing drainage systems to assist with stormwater run-off as well as improving the existing retention pond located on the property of the High School.

Q: *How will this plan change the usage across District fields?*

A: Currently our High School athletic programs are spread across three separate site locations. The football program and boys’ and girls’ lacrosse programs play at MacCalman Field. The girls’ softball program is played at Upper Nyack Elementary

School and spring track, cross country, field hockey, baseball, boys' and girls' soccer are housed at the High School. The plan will allow for all varsity programs to be played at the High School campus. The athletic trainer currently must cover three separate sites during the spring athletic season while the new plan will promote student safety as he will be able to cover the programs at the one site.

Q: *What are the plans for MacCalman Field if the bond referendum is approved?*

A: MacCalman Field will continue to be maintained as a natural grass field and will be fully utilized to support the District's athletic program as well as community-based youth programs. During the fall season MacCalman will be used for Modified soccer practices and games for both the boys and girls program; Junior Varsity boys and girls soccer games; and Modified football games. In the spring season MacCalman will support Modified boys and girls lacrosse practice and games along with our modified track program. In addition the athletic department will continue to work with our alumni and current student body to schedule special events at MacCalman.

Q: *What is the life expectancy of the synthetic surface?*

A: Synthetic turf fields are composed of layers including a drainage layer that is covered in stone, an underlay, and a grass layer into which infill is mixed. The drainage system beneath the field surface is permanent. The synthetic turf typically will carry an 8-10 year warranty. However, once the field reaches the end of its usable life, the fiber "carpet" and sand/rubber infill will be replaced. Anecdotal evidence from districts in our area that have installed synthetic fields indicates that the surfaces are lasting longer than 10 years. Some districts have reported that when the grass blade layer has been removed for replacement, the underlays are in good shape and have not needed to be replaced. Currently the grass layer can be recycled.

Q: *What are the actual cost differences to maintain a synthetic field vs. a natural grass field?*

A: The cost of maintaining a synthetic field is minimal in comparison to a natural surface. The primary maintenance item is removing leaves and other debris that may stray onto the field. Removal is accomplished by a tractor-pulled vacuum system that pulls up the fill and runs it through a filter to remove the debris that isn't visible or has become embedded. These tractors can be used without removing the fill material. It is also recommended that a synthetic field be brushed every 4-6 weeks to redistribute infill material that may have migrated. A natural grass surface requires mowing/removal of grass clippings, fertilization, seeding, topdressing, thatch removal, and watering. There are also labor and material costs involved in the striping and re-striping of the field lines. Below is a listing of our current annual costs for field maintenance at the High School and MacCalman Field as they compare to the projected costs associated with the synthetic surfaces:

	NATURAL GRASS	SYNTHETIC TURF
LIFETIME COST COMPARISON		
Installation Costs	\$1,601,290	\$2,786,245
Annual Depreciation of Initial Install	160,100	232,200
Expected Life Span	10	12
Annual Maintenance Cost	37,254	7,500
Natural Grass Replacement Cost at 10 Years (today's dollars)	800,645	0
Annual Depreciation of Replacement Install	80,065	0
Synthetic Turf Replacement Costs at 12 years (today's dollars)	0	1,441,161
Annual Depreciation of Replacement Install	0	120,097
Annual Maintenance Cost	37,254	7,500
15-Year Annualized Cost	170,675	217,279
ANNUAL DIFFERENCE		46,604
MAINTENANCE COST COMPARISON		
Sprinklers On/Off/Repairs	1,900	0
Grass Cutting/Fertilizing/Aerating/Seeding	19,184	0
Athletic Field Paint	3,162	0
Labor – Line and Maintain	8,740	3,500
United Water	4,268	500
Infill Replacement Allowance	0	3,500
TOTAL	37,254	7,500

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