



U.S. Department of Education Green Ribbon Schools 2013

For Public Schools only: [] Charter Title I [] Magnet [] Choice

Name of Principal Mr. Gerard Terrell
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name Summerfield Elementary School
(As it should appear in the official records)

School Mailing Address 1 Summerfield Lane
(If address is P.O. Box, also include street address.)

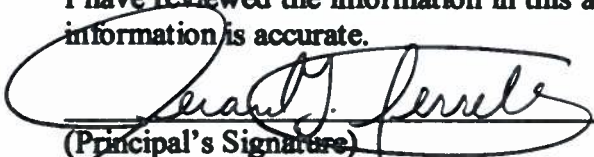
Neptune, NJ 07753
City State Zip

County Monmouth State School Code Number* 25-3510-100

Telephone (732) 776-2200 Fax (732) 643-8695

Web site/URL www.neptune.k12.nj.us E-mail jterrell@neptune.k12.nj.us

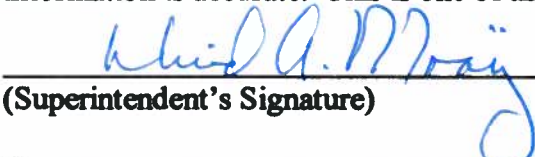
I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

 Date 1/7/13
(Principal's Signature)

Name of Superintendent* Mr. David A. Mooij
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name* Neptune Township School District Tel. (732) 776-2200

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate. This is one of the highest performing green schools in my jurisdiction.

 Date 1/7/13
(Superintendent's Signature)

*Private Schools: If the information requested is not applicable, write N/A in the space.

The Neptune Township School District is deeply invested in providing its students with an exciting educational experience enriched with environmental literacy. To accomplish this goal, three elementary Environmental Science teachers are employed to teach four distinct environmental and sustainability programs that focus on Live Event Learning activities that use Summerfield and its surrounding areas as a Living Textbook. These programs include the SummerWood trips, the Gardening Program, the LEED Green Schools Curriculum, and the Marine Science Program. As students explore SummerWood, plant a garden, or identify marine life, their curiosity and awe is used to inspire their writing and their art. These cross curricular, student-centered Science labs exercise the students' Math and Language Arts skills and answer the question of, "Why do we have to learn this stuff?"

SummerWood is roughly 30 acres of forested land adjacent to the Summerfield campus and is recognized as a Green Acres Preserve. For the SummerWood Curriculum, every K-5 student in the district takes two trips there each year. The students do inquiry-based ecology lessons that study the relationship between dynamic environmental and human systems. During the winter months, the classes visit the Science Room to do indoor experiments related to their fieldtrips. These lessons begin with the kindergarteners identifying the differences among living, nonliving, and once living objects. By fourth grade the students participate in the NJDEP Biological Water Monitoring Program. Classes collect and identify the different benthic macro-invertebrates present in the Jumping Brook, a Category One Stream. They then calculate the water quality index of the stream using the State's Water Quality Rating system. The water quality and macro-invertebrate data is entered into an online form for comparison with past results.

The second elementary Environmental Science teacher is responsible for the Gardening Program and the LEED Green Schools Curriculum. The K-3 students plant perennials on campus to attract and support native species of birds and butterflies. The fourth and fifth grade classes plant salad gardens. In these gardening lessons the Summerfield students study water conservation. They learn that the school's roof was designed to direct rain water to an underground collection tank able to store 6,000 gallons. This tank has a level gauge in the school's lobby for the students to read. The tank is also connected to lockable and freeze proof faucets located near the raised beds so that students are able to use the recycled rainwater to irrigate their gardens.

During the winter months the Gardening teacher travels to the five elementary schools to do the LEED Green Schools lessons. Students do sustainability-based labs that focus on topics such as alternative forms of energy and clean water. It is during these lessons that Summerfield and its campus are utilized the most as Living Textbooks. The students learn about the building's geothermal heating and cooling system. They also are brought out to see the sunscreens that are located over the south and west facing windows. They learn how the angles of the crossbars can control the effects of sunlight by allowing passive solar heating in the winter when the sun is low in the sky, but that they shade the windows in the summer when the sun is higher in the sky. During the lesson on the importance of clean water and wise water usage, they study the school's bio-retention swale. They learn that it is planted with native vegetation so that it does not need to be irrigated and that it also acts as a rain garden buffering the campus from storm water that may come from the road.

Summerfield Elementary School also serves as the home school for the Environmental Science teacher that runs the district's Marine Science Program. For this program every fifth grade student in the district takes a class trip to Sandy Hook. They study each of the marine ecosystems but focus on the Sandy Hook Bay. During their trip they are able to put on waiters and seine in the bay to collect and identify different forms of marine life. In seventh grade, the students board the district's A.N.S.W.E.R.

(Area Network of Shore Water Emergency Responders) Water Rescue Boat. They travel about half a mile out into the Atlantic and use technology such as digital anemometers, thermometers, Secchi disks, and a titration kit to test the effects of water temperature, wind speed, and water clarity on the percentage of dissolved oxygen at ocean depths of 3m and 10m.

From the initial planning and conceptual design to the daily instructional activities, Neptune Township's Summerfield Elementary School has made a commitment to reducing environmental impact and costs, improving student and staff health, and providing effective environmental and sustainability education. Because of initiatives like these, Summerfield Elementary School was honored as the first New Jersey public school to ever receive a LEED Gold Certification.



PART II – SUMMARY OF ACHIEVEMENTS

Instructions to School Principal

Provide a concise and coherent "snapshot" that describes how your school is representative of your jurisdiction's highest achieving green school efforts in approximately 800 words. Summarize your strengths and accomplishments. Focus on what makes your school worthy of the title U.S. Department of Education Green Ribbon School.

PART III – DOCUMENTATION OF STATE EVALUATION OF NOMINEE

Instructions to Nominating Authority

The Nominating Authority must document schools' high achievement in each of the three ED-GRS Pillars and nine Elements. For each school nominated, please attach documentation in each Pillar and Element. This may be the Authority's application based on the Framework and sample application or a committee's written evaluation of a school in each Pillar and Element.

Nominating Authority's Certifications

The signature by the Nominating Authority on this page certifies that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct.

1. The school has some configuration that includes one or more of grades K-12. (Schools on the same campus with one principal, even a K-12 school, must apply as an entire school.)
2. The school is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
3. The school meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency New Jersey Department of Education

Name of Nominating Authority Bernard E. Piaia, Jr.

(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application and certify to the best of my knowledge that the



school meets the provisions above.

Bernard E. Laird Jr.
(Nominating Authority's Signature)

Date February 14, 2013

The nomination package, including the signed certifications and documentation of evaluation in the three Pillars should be converted to a PDF file and emailed to green.ribbon.schools@ed.gov according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509
Expiration Date: February 28, 2015

Public Burden Statement

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email ICDocketMgr@ed.gov and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.

School Contact Information

School Name: Summerfield Elementary School District: Neptune Township

Street Address: 1 Summerfield Lane

City: Neptune State: NJ Zip: 07753

Website: http://www.neptune.k12.nj.us Facebook page: _____

Principal Name: Mr. Jerard L. Terrell

Principal Email Address: jterrell@neptune.k12.nj.us Phone Number: (732)776-2200 x5401

Lead Applicant Name (if different): Mr. David A. Mooij, Superintendent of Schools

Lead Applicant Email: damooij@neptune.k12.nj.us Phone Number: (732)776-2200

Level	School Type	How would you describe your school?	District Name
<input checked="" type="checkbox"/> Elementary (PK - 5 or 6)	<input checked="" type="checkbox"/> Public	<input checked="" type="checkbox"/> Urban	<u>Neptune</u>
<input type="checkbox"/> K - 8	<input type="checkbox"/> Private/Independent	<input type="checkbox"/> Suburban	() Largest 50 Districts
<input type="checkbox"/> Middle (6 - 8 or 9)	<input type="checkbox"/> Charter	<input type="checkbox"/> Rural	Total Enrolled:
<input type="checkbox"/> High (9 or 10 - 12)			<u>460</u>
Does your school serve 40% or more students from disadvantaged households? <input checked="" type="checkbox"/> Yes () No	% receiving FRPL <u>49.6%</u> % limited English proficient <u>0%</u> Other measures <u>7.17% Auditory Impaired</u>		Graduation rate: <u>100%</u> Attendance rate: <u>94.7%</u>

SUMMARY NARRATIVE: Provide an 800 word maximum narrative describing your school’s efforts to reduce environmental impact and costs, improve student and staff health, and provide effective environmental and sustainability education. Focus on unique and innovative practices and partnerships.

From the initial planning and conceptual design to the daily instructional activities, Neptune Township’s Summerfield Elementary School has made a commitment to reducing environmental impact and costs, improving student and staff health, and providing effective environmental and sustainability education. Because of this commitment, in 2007 Summerfield Elementary was honored as the first New Jersey public school to ever receive a LEED Gold Certification. Summerfield was also recognized by the Design Build Institute of America as its 2006 Project of the Year in the Legacy Category. It has also been featured in countless publications and news articles including the American School Board Journal’s “Learning by Design”, Geo Outlook Magazine, and a NJIT study on school designs that support the inclusion of students with disabilities.

Summerfield uses several unique and innovative technologies to reduce its environmental impact and cost. Two electric vehicle charging stations are located in parking spots near the main entrance. A Geothermal heating and cooling system utilizes variable frequency drives, flow control valves, and an energy recovery system to capture energy that would normally be lost through exhaust. Sunscreens placed over the south and west facing windows control the effects of sunlight by allowing passive solar heating in the winter, but shading the windows in the summer. Day lighting controls, occupancy sensors, and a building automation system add to the efficiency. The automation system gives the facilities

director precise control and timing of heating, air conditioning, and lighting systems remotely through a mobile device 24 hours a day. This all add up to a 33% reduction in energy use.

To reduce the domestic water use, waterless urinals and low flow toilets were installed. To reduce irrigation, the roof was designed to direct rain water to an underground collection tank able to store 6,000 gallons. Overflow is passed through soft storm water infiltration chambers for gradual recharging of the ground water. The collection tank has a level gauge in the school's lobby for the students to read. The tank is connected to lockable and freeze proof faucets located near the raised beds so that students are able to use the recycled rainwater to irrigate their gardens. The campus also hosts a bio-retention swale planted with native vegetation to help treat on-site storm water and act as a buffer from the road. These innovations, and the use of regionally appropriate landscaping, have completely eliminated Summerfield's irrigation cost.

Neptune's commitment to improve student and staff health is evident through its efforts to control and improve indoor air quality, manage chemical use, encourage fitness both in and out of the building, provide healthy meals, and educate the students about nutrition. Research finds that healthy environments are the key to improving student and staff attendance, which directly correlates to student achievement. Summerfield's ventilating system uses under-floor air distribution to continually sweep contaminants from floor to ceiling reducing asthma triggers and the spread of airborne pathogens. The Physical Education curriculum ensures that the students receive over 150 minutes of physical education each week; over 50% of which occurs outside. To inspire even more outdoor physical activity, the Science curriculum includes hikes through the woods, gardening, and on-site marine ecology labs. The students and staff also participate in programs such as the American Heart Association's "Jump Rope for Heart" and a staff weight loss competition called the "Neptune Meltdown".

However, the most unique aspect of Summerfield is that all of these innovative technologies and programs allow the building and its campus to serve as a "living textbook". To this end, there are three Elementary Environmental Science teachers employed to teach four distinct environmental and sustainability literacy programs that engage the students in Live Event Learning. These programs include the SummerWood trips, the LEED Green Schools Curriculum, the Gardening Program, and the Marine Science Program. Students participate in a Service Learning Project to remove invasive species from SummerWood, a Green Acres Preserve adjacent to Summerfield's campus. Classes gather and record data for the NJDEP Biological Water Monitoring Program by collecting and identifying benthic macro-invertebrates present in the Jumping Brook Stream, an NJDEP Category One Stream in SummerWood. First through third grade students grow perennials to attract and support local fauna. Fourth and fifth graders design and conduct gardening experiments and then have a salad party to celebrate the fruits of their labor. Students travel to Sandy Hook and seine in the bay to collect and identify marine life just like true Marine Biologists. As an elementary school in an urban school district, Summerfield strives to rescue children from what Richard Louv calls "Nature Deficit Disorder". The Elementary Science Curriculum makes every effort to engage the students in memorable, real-life outdoor experiences to produce well-equipped, environmentally literate citizens.

Instructions for Completing this form: Please answer all of the questions below to the best of your ability. A more complete application will increase your chances of success. You may supplement the information in these questions by describing alternative benchmarks or indicators of progress (see final question in each section).

SCHOOL PROFILE: GREEN SCHOOL PROGRAM AND AWARDS (Cross-Cutting Question)

1. Is your school participating in a local, state, or national program, which asks you to benchmark progress in some fashion in any or all of the Pillars? Yes X No . If yes, please explain what program and what level you are currently at, and state the years you have been involved in these programs. (e.g. local Green Strategic Plan, Eco-Schools USA, PLT Green Schools, NJPALS, Green Schools Leadership Institute, NJ Learns, NJ Sustainable Schools Project, NJ Recycling).

This year, Summerfield Elementary has enrolled in the NJNG "See the Light" energy saving/monitoring program.

2. Has your school, staff or student body received any awards for facilities, health or environment?

Yes X No Award(s) and year(s) LEED Gold Certified since 2007 and Design Build Institute of America's 2006 Project of the Year in the Legacy Category

3. Has your school identified or created a place for teachers to go to share lessons on Sustainability?

Yes X No If yes, where? All of the teachers in the district have access to a shared hard drive. Teachers post and utilize lesson plans related to the Gardening, SummerWood, LEED Green Schools, Project Learning Tree, and Project WET activities. Teachers also share lesson plans during their one hour weekly Professional Learning Communities (PLCs), yearly Grade Level Meetings, and the District's Share Fair Professional Development Day.

4. Has your School Board adopted a Green Strategic Plan? Yes X No

5. Has your school created a Green Team? Yes X No If yes, list team members and their roles.

The Green Team includes Joseph Woerner (Green Team Coordinator/Environmental Science Teacher), Nancy Venice (Art Teacher), Katherine Haughwout (Music Teacher), Shanay Walker (2012 Teacher of the Year), Shane Toohey (Gardening/LEED Green Schools teacher), Joshua Loveland (Science Department Chair). Each member of the green team participates in promoting the environmental/sustainability initiatives.

6. Has your school seen a cost savings from green initiatives? Yes X No If yes, describe the savings.

We have realized a 33% savings in energy use, 100% reduction in irrigation, and a 34.64% reduction in domestic water use.

PILLAR I: REDUCED ENVIRONMENTAL IMPACT AND COSTS

Element 1A: Reduced or eliminated greenhouse gas (GHG) emissions - Energy/Buildings

(Please convert energy data to Portfolio Manager Format if possible)

1. Can your school demonstrate a reduction in Greenhouse Gas emissions?

(X) Yes () No Percent reduction: 15.45 . Over (m/yy - m/yy): 6/09 – 5/10

Initial GHG emissions rate (MT eCO2/person): 1.33

Final GHG emissions rate (MT eCO2/person): 1.33

Element 1B: Improved water quality, efficiency, and conservation – Water/Grounds

8. Can you demonstrate a reduction in your school's total water consumption (measured in gal/square foot) from an initial baseline? Yes X No Please provide:

Percentage reduction in domestic use: 34.64 %

Percentage reduction in irrigation: 100 %

Percentage reduction: 134.64 %

Time period: from 2005 to 2006

Do you include after-hour activities in your water consumption calculations? (adult sport leagues, adult education, scouting, other community events etc.?) Yes

9. Describe any strategies you use to discourage single-use beverage containers on school property. Describe how you assure the recycling of those containers at athletic locations. The Science Curriculum highlights the negative impact single-use beverage containers have on the environment. To discourage their use, Summerfield has a cold water bottle filling station attached to a water fountain outside of the gymnasium. To encourage proper disposal, multiple recycling containers are strategically placed in high traffic areas.

10. What percentage of your landscaping is considered water-efficient and/or regionally appropriate? 100%

11. What plants are native to your geographic location and how have you incorporated them? All of the landscaping on the Summerfield campus uses native or geographically appropriate species to conserve water. For example, the bio-retention swale and its surrounding areas include winter berry, sweet pepperbush, inkberry, and winged sumac. The first, second, and third grade classes plant native perennials such as purple coneflower, milk weed, and wild columbine to attract and support goldfinches, monarch butterflies, and ruby-throated hummingbirds. The fifth grade students work with middle school students on a service learning project to remove Japanese knotweed (an invasive species) from SummerWood. For this activity the students remove the knotweed and plant sand coreopsis, swamp rose mallow, and other native species so that the invasive species is less likely to return.

12. Describe alternate water sources used for irrigation (e.g. roof run-off, parking lot runoff). (50-words max) Rainwater is diverted from the roof to a 6,000gl storage tank. The water is then pumped up to yard hydrants and used for irrigation as needed. Students can monitor the tank level from a digital gauge in the school lobby. Tank overflow passes through infiltration chambers for ground water re-charge

13. Describe any efforts to reduce stormwater runoff and/or reduce impermeable surfaces (e.g. rain gardens, swales, ponds). (50-words max) The storage tank, infiltration chambers, and the paved surfaces feed the bio-retentions swale. This system is designed to recharge storm water quantities equivalent to a 100 year event. The sidewalks that rap around the back of the school and the paths through SummerWood are made from pervious materials.

14. Our school's drinking water comes from: (X) Municipal water source () Well on school property

() Other: _____

15. Describe how the water source is protected from potential contaminants. (50-words max) The supply is monitored by a public utility through EPA Source Water Assessment Program and Unregulated Contaminant Monitoring. Once on site, any connection to non-potable use is protected by a backflow preventer. The backflow preventers are inspected annually.

16. Describe the program you have in place to control lead in drinking water. (50-words max) We monitor an annual water quality report from our public supplier. We also monitor repairs to the plumbing system and prohibit the use of lead containing products for repair or replacement to components of the system.

17. Does your school have its own well? Yes ___ No X. If yes, did your school comply with all monitoring requirements and did the drinking water meet all applicable standards? Yes ___ No ___

18. Describe how your school's site grading and irrigation system and schedule is appropriate for your climate, soil conditions, plant materials, and climate, with an emphasis on water conservation: (50-word max) All of our landscaping requires little or no irrigation. We have no automatic irrigation systems. When we manually irrigate, we use rainwater from a 6,000 gallon storage tank which collects runoff from the roof. Some runoff is diverted through a bio-retention swale to irrigate the plantings in that area.

Element 1C: Reduce waste production – Waste/Hazardous Waste

19. What percentage of solid waste is diverted from landfilling or incinerating due to reduction, recycling and/or composting? Complete all the calculations below to receive points.

A - Monthly garbage service in cubic yards (garbage dumpster size(s) x number of collections per month x percentage full when emptied or collected): 9,600 Cu Yd.

B - Monthly recycling volume in cubic yards (recycling dumpster sizes(s) x number of collections per month x percentage full when emptied or collected): 4,800 Cu Yd.

C - Monthly compostable materials volume(s) in cubic yards (food scrap/food soiled paper dumpster size(s) x number of collections per month x percentage full when emptied or collected): Less than 1 Cu Yd. (food scraps)

Recycling Rate = ((B + C) ÷ (A + B + C) x 100): 33.3%

Monthly waste generated per person = (A/number of students and staff): 20.86 Cu Yd.

20. What percentage of your school's total office/classroom paper content is post-consumer material, fiber from forests certified as responsibly managed and/or chlorine-free? 100%

21. Do you include after-hour activities in your garbage reduction calculations? (adult sport leagues, adult education, scouting, other community events etc.?) Yes

22. Describe how you have reduced your paper consumption, and how you measured that reduction (e.g. working and reviewing online, white boards). (50-word max) The purchase orders show reduced paper consumption over the past few years. This has been accomplished through the use of Smartboards in the classrooms, electronic forms of communication for all staff and parent notifications, and the installation of swipe cards to monitor and regulate the use of copy machines.

23. List the types and amounts of hazardous waste generated at your school:

Flammable liquids	Corrosive liquids	Toxics	Mercury	Other: Medical waste, sharps (.002 lbs. per student)
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How is this calculated? By dividing the total pounds generated in one year by the number of students.

How is hazardous waste disposal tracked? In accordance with state guidelines, it is picked up and transported using a chain of custody method from generator to destination. Signed documents are returned to confirm proper disposal.

24. Which green cleaning custodial standard is used? Green Seal Certified

What percentage of all products is certified? 98%

What specific third party certified green cleaning product standard does your school use? Green Seal Certified and occasionally we use Green Seal Select products.

Describe the measures your school has taken to use only green cleaning product. Extensive research is done to determine the proper fit of products for our specific use. This is enforced through continued training. We also prohibit the use of any product other than those we provide.

25. Describe other measures taken to reduce solid waste and eliminate hazardous waste (on-site composting). (100-word max) We have a central clearing house for the ordering and storage of supplies. Supplies are requested through requisitions approved by administration. This prevents impulse ordering and product spoilage caused by overstock. We evaluate products before we purchase them to prevent the use of hazardous materials. Also, the Gardening Curriculum teaches the students the benefits of composting. Some food scraps are collected from the cafeteria and placed in a compost tumbler. Students then use this compost on the school's goldfinch gardens, butterfly gardens, and hummingbird gardens.

26. If your school has a nurse's office, how does the nurse track regulated medical waste? Describe the tools or mechanisms to track waste. In accordance with state guidelines, medical waste is picked up and transported using a chain of custody method from generator to destination. Signed documents are returned to confirm proper disposal.

27. Is a Hazardous Waste Policy for storage, management and disposal of chemicals in laboratories and other areas with hazardous waste, in place and actively enforced? Yes No

28. Are there any Underground Storage Tanks located at your School? Yes No If yes, do you have the proper permits for using an underground tank? Yes No

Element 1D: Use of alternative transportation

29. What percentage of your students walk, bike, bus, or carpool (2 + student in the car) to/from school? (Note if your school does not use school buses) 25% of the Summerfield students are walkers and 75% of the students are bused by law because of IEPs, mileage (NJSA 18A;39-1), or hazardous routes (NJSA 18A;39-1.5). Summerfield is located on a busy county road and the neighborhood is split by a four lane highway (Route 33). It is also a magnet school for the district's Launch (Honors) Program and the receiving school for the Tri-county Comprehensive Deaf Education Program. Therefore, students are bused in from Monmouth, Ocean, and Middlesex counties.

How is this data calculated? (50-word max) These numbers were provided by the District's Transportation Department.

30. Has your school implemented?

designated carpool parking stalls.

a well-publicized no idling policy that applies to all vehicles (including school buses).

Vehicle loading/unloading areas are at least 25 feet from building air intakes, doors, and windows.

Safe Pedestrian Routes and/or Bicycle Routes to School

Walk and Bike to School Days?

A Walking School Bus program?

Walking and bicycling safety curriculum?

Describe activities in your safe routes program: (50-word max). Maps are available to parents recommending the safest route to school. Factors such as sidewalks, crossing guards, crosswalks, street lighting, and traffic lights are considered while developing the safest route maps. Bike racks have also been installed to encourage students to ride their bikes to school.

31. Describe how your school transportation use is efficient and has reduced its environmental impact (e.g. more efficient bus routes, diesel retrofits for buses, use of biodiesel fuel, electric vehicles). (50-word max) By coordination of bell schedules, shared services with other districts, and the re-structuring of bus routes, in October of 2011 we were able to achieve an efficiency rating of 212%, placing Neptune School District in the top 1% of the most efficient school districts in Monmouth County relative to transportation.

Summary Question for Pillar 1

32. Describe any other efforts toward reducing environmental impact, focusing on innovative or unique practices and partnerships. (100-word max) Mechanical systems: geothermal heating and cooling with variable frequency drives and flow control valves and an energy recovery system to recover and reuse energy that would be lost through exhaust. Electrical systems: day lighting controls and occupancy sensors. Plumbing systems: waterless urinals and rainwater collection. Building automation system: allows for precise control and timing of heating, air conditioning, and lighting systems. Sunscreens allow winter sunlight to provide heating but block the summer sun. Two electric vehicle charging stations are located in prime parking spots and are free of charge to district employees as an incentive to purchase an electric vehicle.

PILLAR 2: IMPROVE THE HEALTH AND WELLNESS OF STUDENTS AND STAFF

Element 2A: Integrated school environmental health program – Integrated Pest Management/Contaminant controls and Ventilation/Asthma control/Indoor air quality/Moisture control/Chemical management

1. List all actions taken by your school to control and or manage student's exposure to pesticides. For each action listed, rate the action's effectiveness. We adopted and enforce New Jersey Department of Health Integrated Pest Management guidelines. We have a site specific policy which prohibits the use of pesticides unless absolutely necessary. All preventive measures have to be exhausted first. If pesticide use is necessary, our IPM coordinator has to approve and sign off on the product. The date and time of application is sent home to parents and occurs when the building is unoccupied. This policy is very effective. No pesticides have been used on campus since we opened the school in 2007. The preventive approach is 100% effective.

2. Which of the following practices does your school employ to minimize exposure to hazardous contaminants? Provide specific examples of actions taken for each checked practice.

Our school prohibits smoking on campus and in public school buses. Signs display the State law and Board policy that prohibit smoking anywhere on school property.

Our school has identified and properly removed sources of elemental mercury and prohibits its purchase and use in the school. _____

Our school uses fuel burning appliances and has taken steps to protect occupants from carbon monoxide (CO) Carbon monoxide detectors are located in areas where fuel burning mechanical appliances are.

Our school does not have any fuel burning combustion appliances (e.g. boilers, emergency generators, hot water heaters, etc.)

If Applicable - Our school has tested all frequently occupied rooms in contact with the ground, and first floor rooms above basement spaces that are not frequently occupied for radon gas and has fixed and retested rooms with levels that tested at or above 4 pCi/L OR our school was built with radon resistant construction features and tested to confirm levels below 4 pCi/L. Our school has been tested and is well below the EPA recommended action guideline.

Our school has identified any wood playground or other structures that contain chromate copper arsenate and has taken steps to eliminate exposure. Our playground equipment and play surface materials meet all current codes and do not contain any wood.

3. Describe how your school controls and manages chemicals routinely used in the school, as well as construction or cleaning activity that produces odors or dust, to minimize student and staff exposure. (100-word max) Cleaning products are stored in locked closets accessible only to custodial staff. We prohibit the use of cleaning products during the day, excluding emergencies. We use vacuums with HEPA filters instead of sweeping dirt and dust, preventing it from becoming airborne. We follow our indoor air quality policy for construction activities. Non-essential work takes place after hours. We utilize the use of negative pressure in work areas to prevent cross contamination of product odor and dust into non work areas. We follow New Jersey guidelines for Renovation and Construction and the EPA Renovation Repair and Paint rule.
4. Describe actions your school takes to prevent exposure to asthma triggers in and around the school. (100-word max) We restrict the use of offensive products during the day to the fullest extent possible. We use vacuums with HEPA filters instead of sweeping dirt and dust preventing it from becoming airborne. We follow our indoor air quality policy. Non-essential work takes place after hours. We utilize the use of negative pressure in work areas to prevent cross contamination of product odor and dust into non work areas. We follow New Jersey guidelines for Renovation and Construction in Schools.
5. Describe actions your school takes to control moisture from leaks, condensation, and excess humidity and promptly cleanup mold or removes moldy materials when it is found. (100-word max) Our indoor air quality policy requires a prompt investigation into any air quality complaint or inquiry. We treat water infiltration as an urgent matter, similar to any other school mechanical emergency. The source of intrusion is detected, corrected or contained, and then drying techniques are implemented if necessary. Any mold is immediately removed. We keep air conditioning set points slightly higher to prevent condensation on walls and furniture. Condensate pumps and drains are checked quarterly to ensure they are functioning properly.
6. Our school has installed local exhaust systems for major airborne contaminant sources. (X)Yes ()No
Each area has mechanical exhaust meeting ASHRAE standards.
7. Describe your school's practices for inspecting and maintaining the building's ventilation system and all unit ventilators to ensure they are clean and operating properly. (100-word max) We perform quarterly inspections in accordance with our indoor air quality policy. All HVAC units have a unique identifier number on them corresponding

to a record in an indoor air quality binder. This ensures that quarterly inspections, maintenance, and filter changes take place as required. It also allows repairs to be tracked to see if there are any patterns of breakdowns

8. Describe actions your school takes to ensure that all classrooms and other spaces are adequately ventilated with outside air, consistent with state or local codes, or national ventilation standards. (100-word max) During construction we hired a commissioning agent to ensure the mechanical systems were installed according to specifications and code. One year later we hired a company to return and re-commission the building to detect any possible problems. We have a chain of command electronic work order system for building occupants to report any unit failures. When repairs are made, the initiator of the work order receives an email informing them that repairs are complete. This prevents working on the wrong unit and ensures occupant satisfaction.
9. Describe other steps your school takes to protect indoor environmental quality such as:
- implementing EPA IAQ Tools for Schools and/or
 - conducting other periodic, comprehensive inspections of the school facility to identify environmental health and safety issues and take corrective action.
 - participating in the Pediatric/Adult Coalition of NJ's Asthma Friendly Awareness Program (200-word max) We regularly conduct facility inspections using checklists provided by the New Jersey Department of Education. We participate in the Pediatric/Adult Asthma Coalition of New Jersey Asthma Friendly School program. We have trained our nurse on asthma basics and treatment plans, provided a nebulizer, prohibit idling of vehicles and provided training to faculty and staff on Indoor Air Quality and asthma management.

Element 2B: Nutrition and Fitness – Fitness and outdoor time/Food and Nutrition

10. Which practices does your school employ to promote nutrition, physical activity and overall school health? Provide specific examples of actions taken for each checked practice, focusing on innovative or unique practices and partnerships. (100-word max each)

- Our school participates in the USDA's Healthier US School Challenge. Level and year: _____
- Our school participates in a Farm to School program to use local, fresh food.
- Our school has an on-site food garden. The fourth and fifth grade classes plant salad gardens in the fall and the spring. These gardens are in raised beds located on campus. The students read the seed packets, plan their garden accordingly, plant the seeds, weed the gardens, water the gardens with recycled rainwater collected from the roof and stored in an underground tank, and harvest their vegetables.
- Our school garden supplies food for our students in the cafeteria, a cooking or garden class or to the community. At the end of the two growing seasons, each fourth and fifth grade class has a Salad Party using the fresh vegetables they grew on campus.
- Our students spent at least 120 minutes per week over the past year in school supervised physical education. The students received 30 minutes of physical education each week with a certified PE teacher. They received 120 minutes each week of classroom teacher directed PE. Students also engaged in additional PE hours as they hiked through SummerWood with the Environmental Science teacher and tended their gardens with the Gardening teacher.
- At least 50% of our students' annual physical education takes place outdoors. The gymnasium is only utilized during inclement weather. Most of the physical education activities happen outdoors even in the winter. The district's athletic complex is located on campus and teachers are encouraged to use the football field for their teacher directed PE. The classes also have access to the playground on campus for unstructured, but teacher supervised, play. The SummerWood, Gardening, and Marine Science Programs also remove the students from the traditional classroom setting and expose them to the local ecosystems.

- Health measures are integrated into assessments. Students are taught Health through the Health and Science Curricula. These Health-related concepts are integrated into quarterly assessments.
- At least 50% of our students have participated in the EPA's Sunwise (or equivalent program).
- Our school's food services program is working to bring more local produce and sustainably produced foods into the schools. The Neptune Township School District is committed to providing fresh locally and sustainably produced foods to its students and staff members. At Summerfield, this commitment is reinforced each year. During the last week of September, the Youth Advisory Committee (composed of Summerfield students) meets with the food service management to highlight and promote the value and importance of New Jersey agriculture and fresh foods. They also plan out the food service menu and discuss topics related to the value of farm fresh foods for children and the impact nutrition has on their general health and their success in school.

Percentage: 20% Type: Seasonal fruits and vegetables: lettuce, greens, apples, peaches, tomatoes, spinach, corn, peppers, cucumbers, & zucchini.

11. Does your school compost lunch waste on-site? If so, what percent? How much is used in your outdoor classroom? Yes, a small percentage of school lunch waste is composted on site. Students collect the waste, add it to a compost tumbler, and use it to fertilize the goldfinch gardens, butterfly gardens, and hummingbird gardens on campus. The compost is not used on the vegetable gardens.

12. What environmental technology is used at your school? (e.g. weather station, composting, rain garden) Students at Summerfield Elementary interact with Vernier Environmental Science Probes, pedometers, a digital weather station connected to WeatherBug.com, a compost tumbler, a bio-retention swale/rain garden, and 17 raised beds for planting and managing their own gardens. The campus also houses two electric vehicle charging stations with preferred designated parking, 30 acres of SummerWood trails that contain emergency call stations that serve as Wi-Fi hotspots and lightning storm warning stations, a 6,000 gallon collection tank with infiltration chambers (used to recycle rainwater, irrigate the vegetable gardens, and recharge ground water), a geothermal heating and cooling system, sunscreens angled to allow passive solar heating in the winter but block the summer sun, and occupancy sensors for indoor lighting.

13. Describe the type of outdoor education, exercise and recreation available. (100-word max) During school hours students participate in PE and teacher directed PE as described above. These PE activities utilize the Memorial Athletics Complex for structured play and the playground for unstructured play. Students also hike through SummerWood, manage their gardens, and use nets to capture marine life off of Sandy Hook. Summerfield facilitates outdoor recreation after school hours by having open public access to the playground and to the SummerWood trails from dawn to dusk every day. Students frequently use the playground afterhours and community members are often seen walking their dogs, jogging, hiking, or bird watching in SummerWood.

Summary Question for Pillar 2

14. Describe any other efforts to improve nutrition and fitness, highlighting innovative or unique practices and partnerships. (100-word max) The district's K-5 Gardening Program is a fun and innovative way to teach proper nutrition. One unique partnership is the Joint Use Agreement for SummerWood that Summerfield shares with the township. This cooperative effort transformed an unused space into a Green Acres Preserve that provides trails and several scenic overlooks to encourage outdoor activities and exploration. Each year, Summerfield students participate in the American Heart Association's "Jump Rope for Heart" program. Staff members are encouraged to participate in the "Neptune Meltdown", a district wide initiative to promote healthy life choices through a Biggest Loser-style weight loss competition.

Pillar 3: Provide effective environmental and sustainability education, incorporating STEM, civic skills and green career pathways:

Element 3A: Interdisciplinary learning about the key relationships between dynamic environmental, energy and human systems.

1. Which practices does your school employ to help ensure effective environmental and sustainability education?

Provide specific examples of actions taken for each checked practice, highlighting innovative or unique practices and partnerships.

[X] Our school has an environmental or sustainability literacy requirement. (200-word max) The Neptune Township School District employs three Elementary Environmental Science teachers to cover four distinct environmental/sustainability literacy programs. All of the Summerfield students are required to participate in all four programs. For the first, every student attends two fieldtrips each year to SummerWood, a natural plot of land that has been preserved by the township and the NJDEP Green Acres Program. During these trips, the students do inquiry-based ecology lessons that study the relationship between dynamic environmental and human systems. During the winter months, the classes visit the Science Room to do indoor experiments related to their fieldtrips. The second Environmental Science teacher runs the next two programs. For the Gardening Program, the different grade levels plant goldfinch gardens, butterfly gardens, hummingbird gardens, and salad gardens on the school's campus. In the winter, he teaches our LEED Green Schools Curriculum. Students do sustainability-based labs that focus on topics such as alternative forms of energy (wind/solar) and clean water. The third Environmental Science teacher runs the Marine Science Program. All of the fifth grade students go to Sandy Hook and seine in the bay to collect and identify marine life. Each of these programs contains a graded written component.

[X] Environmental and sustainability concepts are integrated throughout the curriculum. (200-word max) The entire Science Curriculum contains activities that are designed to be cross curricular. This includes the units covered by the classroom teachers as well as the SummerWood, LEED Green Schools, Gardening, and Marine Science Programs. For example, the fourth grade Salad Garden Unit integrates Social Studies (students identify native crops as they learn about the agricultural history of NJ) and Math (students use fractions, geometry, and graph paper to divide up the available area into different size plots for different crops). However, Neptune also emphasizes environmental and sustainability concepts in the other curriculum documents. For example, the fifth grade Language Arts Literacy curriculum states, "They [the students] will enhance writing skills by using descriptive language, writing poetry, as well as persuasive writing. Students will write a local business and the township to address environmental issues, and arrange to plant a tree to beautify their school environment. As a culminating activity, 5th grade students will organize a fundraiser using multimedia, and donate to an environmental agency of their choice." The LAL Curriculum has also integrated many of the activities designed by Project Learning Tree. For example, classes do several writing assignments based on the Adopt a Tree activity.

[X] Environmental and sustainability concepts are integrated into assessments. (200-word max) The Science assessments include Collins Writing assignments, labs, Common Unit Assessments, and the NJASK State Test for fourth grade. Each grade level has one Science unit per marking period and each of those units integrates environmental and sustainability concepts. For example, to learn about Forces and Motion (Fourth Grade Science Unit 2) the students study wind power. They do an online experiment that allows them to manipulate blade size, number, and shape as they try to design the most efficient wind turbine. At the end of the marking period they will take the Fourth Grade Unit 2 Science

Assessment. These are being written by teachers and administrators this year so that each student will take a Benchmark in September and then four Unit Assessments throughout the year. Those tests will be done online through LinkIt, the testing software used by the district. Each question can be linked to the NJCCC Standards for Science, a curriculum unit, and other skills to will allow staff to quickly identify issues related to curriculum, instruction, or an individual student.

[X] Students evidence high levels of proficiency in these assessments. (100-word max) Neptune’s commitment to Science education has produced impressive student achievement. Students consistently evidence high levels of proficiency on the district’s in-house assessments. However, the clearest data to show student achievement on an unbiased test would be the results of the 2012 NJASK 4th Grade Science Test. 94% of the Summerfield Elementary students scored Proficient or better with 42% scoring Advanced Proficient. This compares to 49% of the fourth graders that were Proficient or better in Language Arts and 69% that were Proficient or better in Math. Because of the successful student achievement in Science, the district continues to identify ways to use Science as a tool to teach Language Arts and Mathematics.

[X] Professional development in environmental and sustainability education are provided to all teachers. (200-word max) In 2008 the architects, engineers, and planners from EI Associates coordinated a professional development workshop to introduce the entire school staff to the newly-built Summerfield Elementary School. This in-service focused on the energy efficient and environmentally sensitive design concepts that were incorporated into the building. The topics included but were not limited to rainwater collection, groundwater recharge through infiltration chambers and the bio-retention swale, natural daylight control, preserving the natural features of the land, and high performance heating, cooling, and ventilating systems. This was done to facilitate the use of the building and the campus as a “living textbook”. The entire district staff has been invited to attend professional development through Project Learning Tree, Project WET, and the New Jersey Audubon Society’s Bridges to the Natural World. At least 90% of our elementary staff attended one or more of these workshops. We have also had teachers turnkey what they have learned after attending the annual ANJEE Conference and the Green Schools Leadership Institute. Each year the teachers also attend Grade Level Meetings to address the details of the SummerWood, Gardening, LEED Green Schools, and Marine Science programs.

Elements 3B: Use of the environment and sustainability to develop STEM content, knowledge, and thinking skills

2. For schools serving grades 9-12, provide:

Percentage of last year's eligible graduates who completed the AP Environmental Science course during their high school career: N/A Percentage scoring a 3 or higher: N/A

3. How does your school use sustainability and the environment as a context for learning science, technology, engineering and mathematics thinking skills and content knowledge? (200-word max) Summerfield Elementary is dedicated to teaching the STEM problem solving skills through environmental issues. The fifth grade LEED Green Schools lessons are a perfect example. Students participate in a series of problem solving stations that contain increasingly more complex light mazes. The team has to use mirrors to reflect light through each maze to power a solar panel at the exit. Through this activity, they also measure how the angle and location of the light source will have an effect on the energy output of the solar cell. The lesson concludes with a discussion of the benefits and challenges of solar energy. The Experimental Gardening Program is another excellent example. It’s a year-long, student-led

experiment with the teacher only serving as a guide. The students select a variable related to gardening. In the past classes have tested the differences between hydroponics and traditional soil or have even experimented with different amounts of water, fertilizer, or light. They form a hypothesis, design an experiment, collect data, determine how they will measure success of a plant, and construct charts and graphs from their results. This lab concludes with a celebratory Salad Party. The salads are made from the vegetables the students grew.

4. How does your school use sustainability and the environment as a context for learning green technologies and career pathways? (200-word max) The Science Curriculum forms a strong foundation for learning about green technologies and green career paths. The fourth grade LEED Green Schools activities focus on wind power. Students begin by using an interactive website to set up ideal conditions for a wind farm. They analyze how the sun can heat the land, the sea, and the air differently and they examine the effects this can have on wind generation. The students also use the district's three internet-linked WeatherBug stations to keep a wind log. This data is analyzed and used to determine whether Neptune is a good location for building a wind farm. The Marine Science program also engages the students with green technologies for career readiness. Beginning in fifth grade, the students take a class trip to Sandy Hook and seine in the bay to collect and identify marine life. In seventh grade, the students board the district's A.N.S.W.E.R. (Area Network of Shore Water Emergency Responders) Water Rescue Boat. The students use technology such as digital anemometers, thermometers, Secchi disks, and a titration kit to test the effects of water temperature, wind speed, and water clarity on the percentage of dissolved oxygen at different ocean depths (3m vs. 10m).

3C: Development and application of civic knowledge and skills

5. Describe students' civic/community engagement projects that integrate the environment, environmental justice ([as defined by EPA](#)) and sustainability topics. (200-word max) One good example of Summerfield's commitment to environmental justice, as it relates to the fair treatment of families living in low income areas, is the fourth grade SummerWood curriculum. Students visit SummerWood and participate in the NJ DEP Biological Water Monitoring Program. They collect and identify the different benthic macro-invertebrates present in the Jumping Brook, a Category One Stream located in this urban district. They then calculate the water quality index of the stream using the State's Water Quality Rating system. The water quality and macro-invertebrate data is entered into an online data form for comparison with past results. The Gardening Program also promotes environmental justice by teaching the students how to test soil quality and by encouraging them to plant gardens in their own back yards. Summerfield is also proud of the Joint Use Agreement it shares with Neptune Township. For \$1 a year, the district leases SummerWood and maintains the trails, which are used daily for student field trips. However, this Green Acres Preserve also offers equal access to the public free of charge from dawn to dusk every day. Members of the community use the trails for dog walking, biking, birding, jogging, hiking, and cross-country skiing.

6. Describe how outdoor learning is used to teach an array of subjects in contexts, engage the broader community, and develop civic skills. (200-word max) All of the outdoor learning experiences tied to the Environmental curriculum teach an array of subjects. The Gardening, SummerWood, and Marine Science Programs emphasize Language Arts, Humanities, Math, Art, and Physical Education. Summerfield Elementary also offers several Service Learning Projects that engage the broader community and develop civic skills. The NJROTC and the Environmental JumpStart Academy students from Neptune High School have participated in SummerWood Cleanups. During these Cleanups, students monitor the types of trash they are removing so that they can identify and address sources of pollution. The fifth through eighth grade students engage in a Service Learning Project to remove Japanese Knotweed, an invasive species, from SummerWood. Students learn about the ecological and social impacts of invasive species. They come up with

creative ways to recycle/reuse the Knott Weed. Then they spend a day removing the Knott Weed and planting native species. The first through third graders learn about birds and butterflies that migrate through the area. They plant goldfinch gardens, monarch butterfly gardens, and ruby throated hummingbird gardens to attract and support these migratory species.

7. Describe your partnerships to help your school and other schools achieve in the 3 Pillars. Include both the scope and impact of these partnerships. (Maximum 200-words) A few examples of Summerfield’s partnerships include: the opening of SummerWood as a field trip site to other local school districts, the coordinated effort of the district, the township, the Audubon Society, and the NJDEP to convert SummerWood to a Green Acres Preserve, and the fact that all of the schools in the district use SummerWood to enhance their Environmental Literacy Curricula. Many organizations and architectural firms have used Summerfield Elementary as a model to showcase sustainable design. Each of the following has booked Summerfield for tours and seminars on green buildings: NJDEP’s Office of Economic Growth and Green Energy (formerly known as the Office of Sustainable Communities), the American Institute of Architects New Jersey Chapter, the Monmouth County Environmental Council, and the Western Monmouth League of Women Voters. Because of the close relationship with the Jersey Shore University Medical Center, Neptune was influential in their decision to design and construct a green building. Before any plans were made, the architectural team from the JSUMC toured Summerfield. Once the construction was completed, their new building also won a LEED Gold certification.

Summary Questions for Pillar 3

8. Describe any other ways that your school integrates core environment, sustainability, STEM, equity and environmental justice issues ([as defined by EPA](#)), green technology and civics into curricula to provide effective environmental and sustainability education, highlighting on innovative or unique practices and partnerships. (Maximum 200-words) The Environmental Science Teachers are doing amazing things with the Green School Programs, but the classroom teachers are also expected to teach a rigorous Science Curriculum that integrates environmental and sustainability issues into the STEM content. This curriculum emphasizes the need for students to be engaged in the act of doing Science instead of just reading about it. Students are required to do hands-on, student-centered, problem-based lab activities. Each grade level does two to four of these labs per marking period. Students use the district’s three WeatherBug stations to track weather patterns, study tree cookies with Project Learning Tree, identify ways to use water wisely with Project WET, find and identify fossils, build electrical circuits, experiment with magnets, build roller coasters, and use chemical reactions to launch projectiles. Whenever possible, these classroom STEM activities are tied into the Live Event Learning lessons taught by the Environmental Science Teachers. For example, while the first graders are studying weather with their classroom teacher they are also learning about the influences of weather/climate on habitats with the gardening teacher. While the third graders are learning about the ecosystems trapped in the fossil record, they are also observing the dynamic ecosystems in SummerWood.

9. How are your descriptions in number 8 supported or enhanced by your efforts in Pillar 1 to reduce environmental impact and costs for your school. (Maximum 100-words) The LEED Curriculum uses the Summerfield campus as a “living textbook”. Completing the Project WET activities related to wise water usage, classes tour the grounds and observe the bio-retention swale and collection tank. They see how rainwater is funneled by the roof, collected, and used for irrigation. They read the tank’s digital gauge before using it to water their gardens. For the second grade Sun Unit,

students observe the functions of the sunscreens and do sunlight related experiments in the solarium. Students are also recruited to enforce the water and energy saving techniques taught by NJNG's "See the Light" program.