



## Project Understanding

Performance Services' understands the overarching project goals of safety, security, and efficiency that this short-term project offers the district. In addition, our team believes that NNSC is looking for the approved Design-Build firm to support the district with its long-term vision, whether that be for growth, expansion, or reduction. Our current team is well-positioned to help provide a masterplan with multiple options that North Newton can evaluate/consider as enrollment and trends become clearer.

### Program Goals:

- **Solar Installations (with LED upgrades) at each Elementary School:** LED upgrades are one of the best payback solutions available today. New LED fixtures will reduce the overall building consumption and come with a significant labor and parts warranty that will help reduce troubleshooting time spent on the current lighting system. The remaining building usage will be offset by solar photovoltaic (PV). This will create tremendous electric cost savings for the district that will provide financial benefits for decades to come. Furthermore, K-12 state-approved renewable energy curriculum will be provided as part of this installation.
- **High School Pool Renovation:** The current High School pool is due for several significant upgrades. Some are due to operational issues and efficiencies and others are due to code compliance. Our team has engaged the expertise of Spear Corporation to provide guidance on needed changes to ensure the pool renovations are completed properly and all aspects are fully compliant with today's codes.
- **Lake Village Chilled Water Couplings:** After discussions with maintenance and review of the 40+ year-old piping/couplings, our team agrees these need to be replaced before there is a potential failure and possible flooding in spaces. In fact, our team plans to price two options for North Newton to review (coupling replacement as well as coupling and main piping replacement). The latter option is included in our base proposal even though it does require more cost. We feel this is the best way to confidently solve the leaking coupling/piping issues.
- **Roofing at Lake Village and Lincoln:** PSI has fully evaluated both roofing systems with our roofing architect. The good news is not all areas of each roof needs a full replacement. For this proposal, we have included the replacement of the north section at Lake Village as that section is in the worst condition and has experienced the most leaks. Other sections at Lincoln have additional life left assuming some annual maintenance is performed.

The following pages will provide more detailed Narratives that will fully describe the current issues and proposed solutions for the items referenced above.



## Solar Solutions

Performance Services has examined the buildings (and associated property) at each elementary campus as it relates to a solar PV system. Utilizing Helioscope, our solar design software, we have created several concepts that will significantly reduce consumption by utilizing ground and solar carport arrays. The software analyzes forty years of historical weather averages, which allows Performance Services to generate conservative, but realistic expectations from each solar array. Additionally, our designs utilize industry best practices to meet the current National Electric Codes demonstrating resiliency, safety, and security for the students, staff, and the local community. To keep costs in check, Performance Services purchases major components directly. This not only reduces layers of potential markup but also helps ensure a high level of quality on all material or products. Through this method, we can keep operations and maintenance costs very low for our customers and produce more power over the life of the system.

The design goal for the solar systems at North Newton School Corporation is to maximize the production offsets of the annual electric consumption at each facility. The solar arrays will accomplish this by utilizing net metering, which enables the school district to capture credit for any excess energy delivered back to the grid. It would not be designed to completely offset the need for electricity from the utility during peak consumption periods or when sunlight is not sufficiently available for solar production. Performance Services will be able to meet the design goal at each proposed location. Performance Services has worked with NIPSCO through the interconnection approval process. We are happy to report **that all three sites have been approved by NIPSCO!**

Performance Services' solutions include a turnkey, fully functioning ground-mount and carport solar system installed at three elementary facilities. Our solutions include all of the equipment and labor required to install and connect to the existing building electrical system. Fencing and signage will be installed around the perimeter of the ground mount systems for safety and security. Performance Services will lead the way in obtaining permits, working with the city for zoning approval, and to help address any additional concerns from the community that may arise along the way. We will assist with any paperwork and all available rebates and renewable energy credits will be payable directly to the owner.

Performance Services has completed phase 1 civil reviews for the proposed solar sites at Lincoln, Lake Village, and Morocco Elementary Schools. Through multiple preliminary design approaches and important school advisory feedback, Performance Services was able to take all inputs and utilized civil site drawings to propose engineered designs for North Newton School Corporation. These designs follow all compliance for local and national codes and permitting. These designs offer the highest level of performance production with the lowest Operations and Maintenance cost available in the solar industry today. Performance Services has long term supply contracts that offer our customers the best pricing while not cutting any corners on engineering or safety of the system that will maximize North Newton School Corporation's return on investment. If selected by North Newton Schools, Performance Services can start the installation process immediately to benefit the North Newton School Corporation by lowering future utility spend.



Additionally, Performance Services has partnered with National Energy and Educational Development Project (NEED). This organization will send a K-12 curriculum specialist to work with North Newton Schools on the integration of state-approved renewable energy curriculum. This benefit comes with each solar project we install. It would be helpful for North Newton Schools to consider if there would be a teacher champion (or two) that could help “kick-off” this program.

### **LED Upgrades**

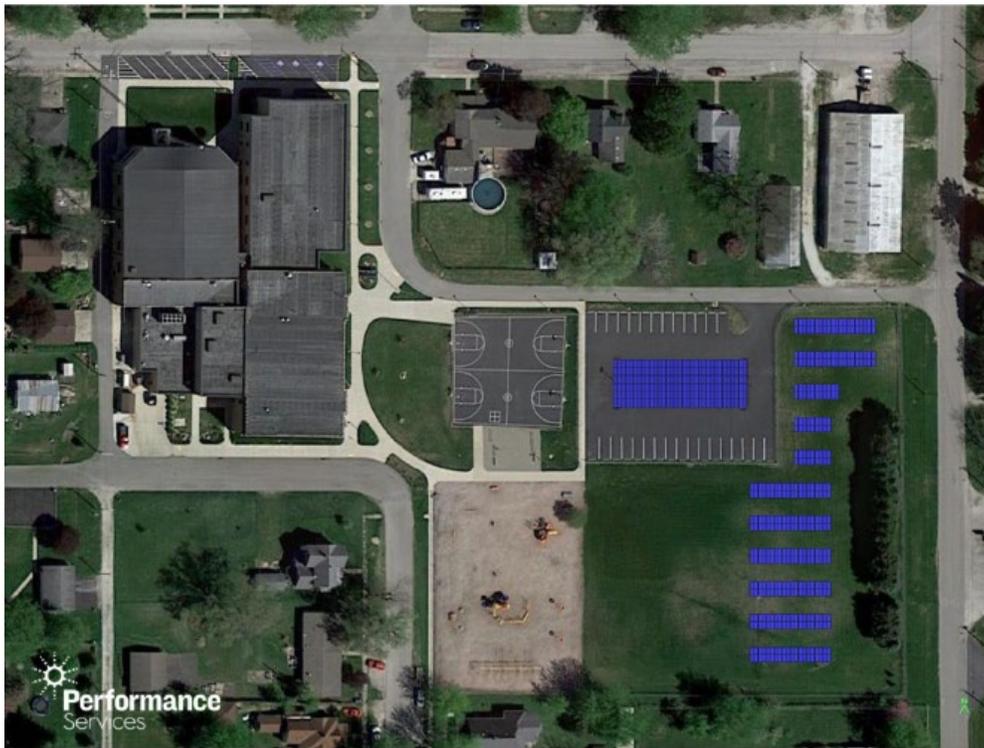
Performance Services plans to upgrade all building interior and exterior lighting to LED technology at Morocco, Lake Village, and Lincoln Elementary Schools. This improvement paired with your solar arrays will create extremely efficient facilities that are properly lit to support classroom learning environments and safety/security needs outside.

To obtain an accurate baseline of current lighting we completed a full lighting audit of each elementary school. From these audits, we can determine the best LED solution for each space. We plan to use new LED fixtures that will come with a 3-year parts and labor warranty and 10-year parts warranty. This will be a huge benefit to your maintenance department and the amount of time/money spent on replacing tubes and ballasts. We do not plan to replace existing LED lighting as that would be wasteful. If any fixtures are not able to be replaced with a new LED fixture PSI plans to retrofit the fixture as best we can.

Lastly, and specific to Morocco, we are adding lighting under the solar carport. This lighting will provide the needed safety and security during nighttime use of the parking lot. Furthermore, the existing light poles will be replaced and moved to the perimeter of the parking lot to ensure adequate lighting around the carport.

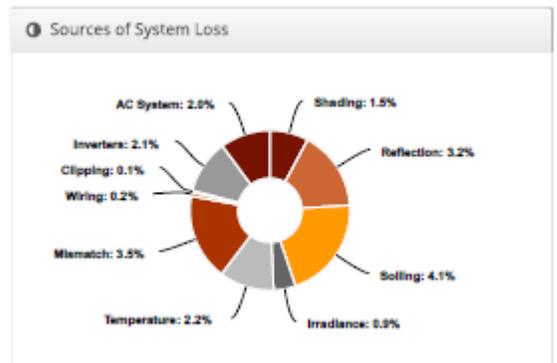
### Morocco Elementary Narrative

Morocco is a prime prospect for solar. A solar ground and carport system are capable of offsetting nearly 100% of the electrical usage after LED conversion. Ground space is available to the east/south-east portion of the property and in a more urban area. Performance Services has immense experience in solar locations in residential areas and will work with the school to ensure proper screening is utilized if this location is selected. The addition of a solar carport structure will allow for covered parking without compromising valuable land needed for school activities. The carport solar solution will also remove the need for solar panels on the roof. The proposed solution will reduce the need to move the panels over the life of the system compared to rooftop solar solutions, reducing future costs and headaches for North Newton School. The two mounting solutions in this proposal will allow the students at Morocco Elementary to further enhance their curriculum through the use of multiple angled solar mounting solutions.



Report	
Project Name	IN - North Newton - Morocco ES
Project Description	2019: 416,640 kWh After LED = 296,426 kWh
Project Address	310 S Lincoln St, Morocco, IN 47963
Prepared By	Raj Goriparthi vgoriparthi@performanceservices.com

System Metrics	
Design	Ground & Carport Updated 07242020
Module DC Nameplate	230.4 kW
Inverter AC Nameplate	199.8 kW Load Ratio: 1.15
Annual Production	291.3 MWh
Performance Ratio	81.9%
kWh/kWp	1,264.5
Weather Dataset	TMY, CHICAGO MIDWAY AP, NSRDB (tmy3.1i)
Simulator Version	42a36d1f14-20597d2e01-2c09c180cf-da28479feb



### Morocco Elementary Solar Renderings



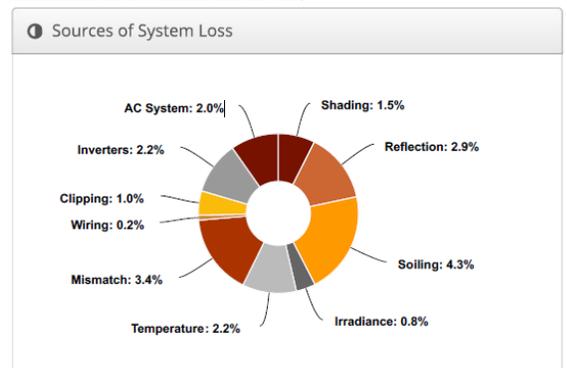
### Lake Village Elementary Narrative

Lake Village is also a prime prospect for solar. The available land and low electric consumption after LED conversion are optimal for a solar solution. The 2019 building consumption is 231,040 kWh. Through the building conversion to LED, the building consumption can be reduced to 169,964 kWh. The potential to offset 100% of the electricity usage is available through a ground mount array. The land space available to the south of the property with minimal tree removal offers options for 100% consumption offset to the building. This section of land offers long east/west spans for two long rows of solar panels. This configuration is optimal for a cost-efficient solar installation. Smaller arrays of this size tend to be exponentially more expensive due to hard costs to connect the system to the facility and installation mobilization costs. Due to the engineered design of the proposed solar system at Lake Village Elementary School, Performance Services can deliver this solar array at a much lower cost compared to the average cost of arrays of the same size. This array will be North Newton’s fastest installed array with production feeding back into the school to offset consumption in just a few months.



Report	
Project Name	IN - North Newton - Lake Village E5
Project Description	2019: 231,040 kWh After LED = 169,964 kWh
Project Address	3281 W 950 N, Lake Village, IN 46349
Prepared By	Raj Goriparthi vgoriparthi@performanceservices.com

System Metrics	
Design	090320 Option 2
Module DC Nameplate	129.6 kW
Inverter AC Nameplate	99.9 kW Load Ratio: 1.30
Annual Production	167.2 MWh
Performance Ratio	81.2%
kWh/kWp	1,290.3
Weather Dataset	TMY, CHICAGO MIDWAY AP, NSRDB (tmy3, II)
Simulator Version	9a821714ec-82965283c1-402e7a74ad-0e356b6517



### Lake Village Elementary Solar Renderings



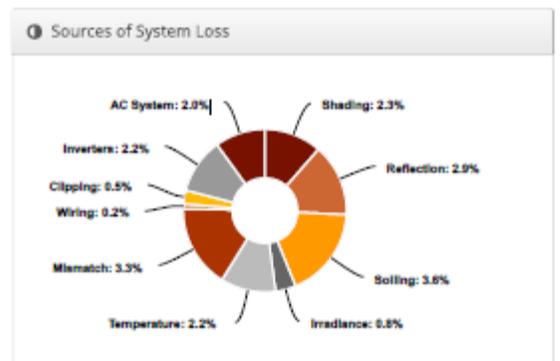
### Lincoln Elementary Narrative

Lincoln’s 2019 electric consumption was 710,784 kWh of electricity. The conversion to LED lighting will reduce future consumption to a conservative estimation of 543,477 kWh annually. Roof space, angle, and layout is not ideal to place solar on the roof at Lincoln Elementary School. Ground space is available to the south of the building. To offset all the school’s consumption and maintain a portion of open ground in this area some tree removal is needed to facilitate the solar array. Aesthetically, this tree removal will benefit the school and cost of the project as most trees to the northeast section of the proposed solar location are either dead or dying. The system size will help absorb the tree removal cost as well on a per watt basis for this solar array. The proposed solar array will meet the design goal and offset 100% of the school’s consumption. The solar array at Lincoln Elementary School will be the largest solar array for the three elementary schools and make for a nice onsite outdoor learning lab for the students to help enhance the curriculum.

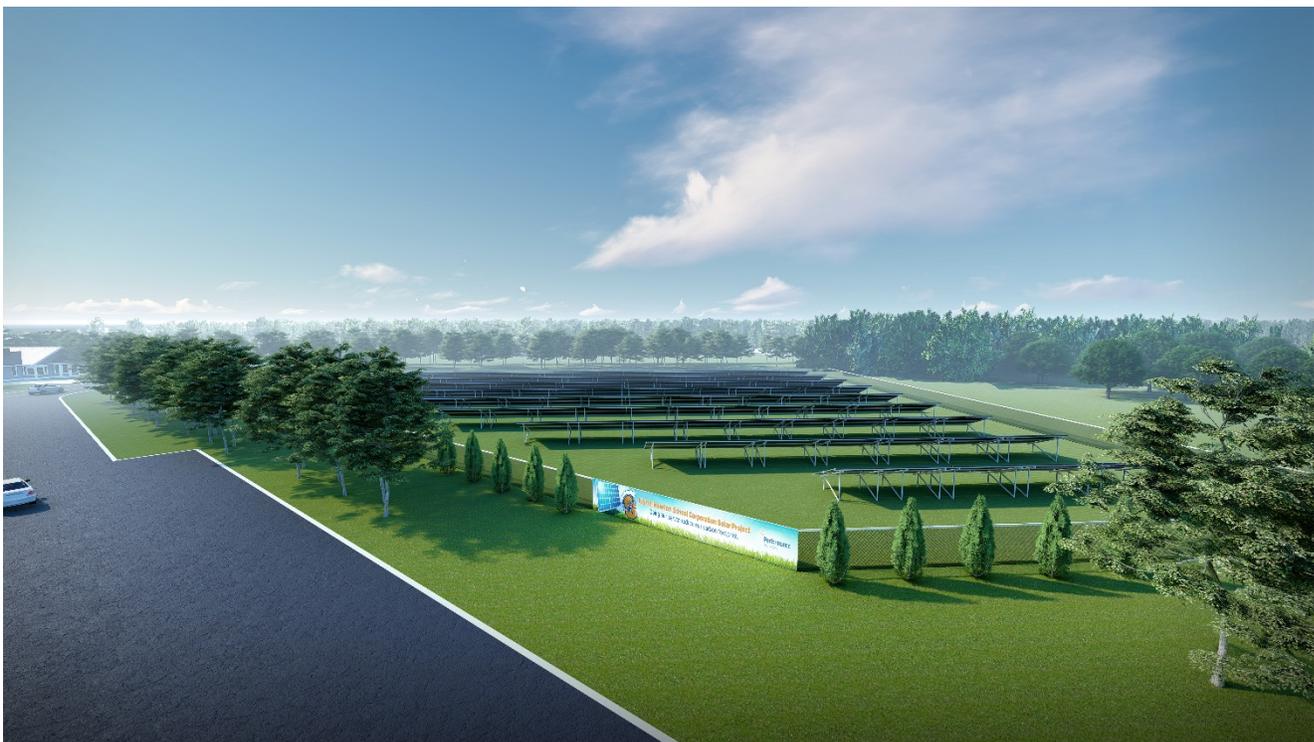


Report	
Project Name	IN - North Newton - Lincoln ES
Project Description	2019 Consumption: 710,784 kWh After LED = 543,477 kWh
Project Address	10280 N. 450 E.   Demotte, IN 46310
Prepared By	Raj Goriparthi vgoriparthi@performanceservices.com

System Metrics	
Design	Ground updated 2HP
Module DC Nameplate	416.0 kW
Inverter AC Nameplate	333.0 kW Load Ratio: 1.25
Annual Production	539.6 MWh
Performance Ratio	81.7%
kWh/kWp	1,297.2
Weather Dataset	TMY, CHICAGO MIDWAY AP, NSRDB (tmy3, I)
Simulator Version	9bf6378768-44f2520517-968ea7b8c4-12264d6439



### Lincoln Elementary Solar Renderings

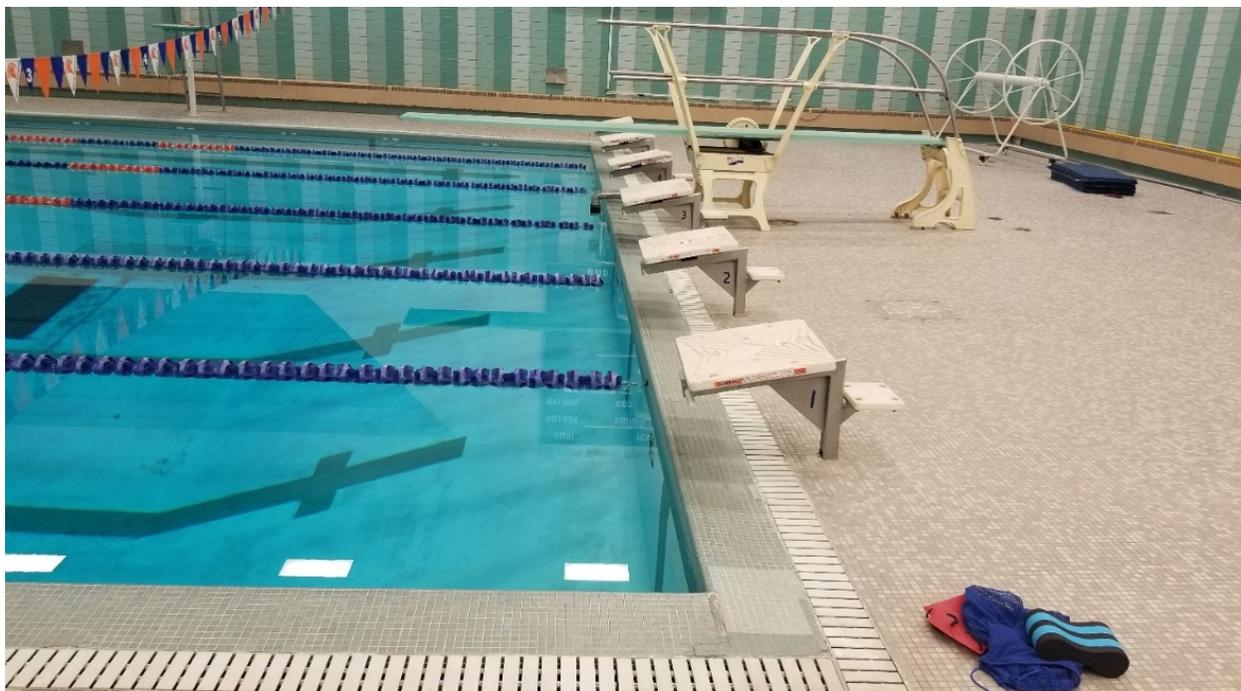


## High School Pool Renovation

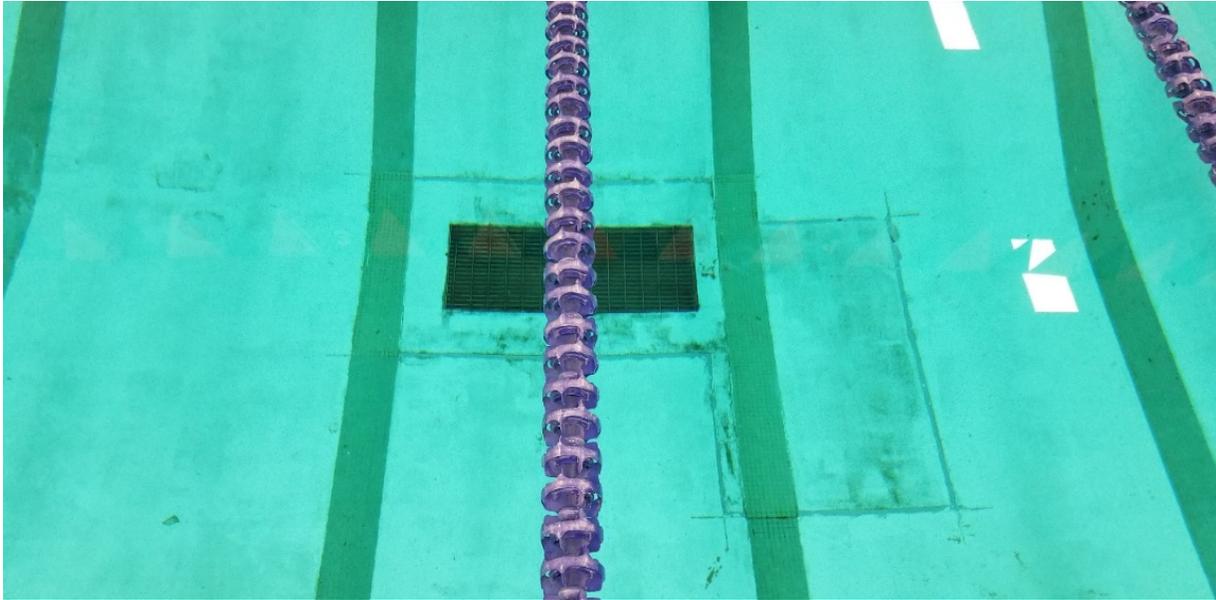
Performance Services contacted Spear Corporation to inspect and provide their professional opinion on the condition of the swimming pool at North Newton Junior-Senior High School. Spear's assessment includes an overall assessment of the existing swimming pool; to report on observed conditions of the pool and related equipment, code violations, health and safety concerns, pool ADA access requirements, and make recommendations to the School Corporation for testing, repairs, and replacement of equipment and/or systems.

### Overall Pool System Operation and Observations

The swimming pool is not currently compliant with the Virginia Graeme Baker Act. The painted finish on the pool is worn off and needs to be refinished. The expansion joint at the break has failed and needs replaced. Structurally, the swimming pool concrete envelopes appear to be in generally good condition with no major concerns and only minor expansion cracks of the concrete were observed. The gutter channel is worn out and the grating needs replaced. The swimming pool water level is kept below the gutter due to the balance tank being undersized and does not provide the required surge capacity per Indiana Swimming Pool Code. With the pool not having enough surge capacity the water level is maintained below the rim of the gutter. By not rim flowing the gutter system, it does not meet the intent of the Indiana Swimming Pool Code. The pool does not have depth markers located on the horizontal line of the gutter as required by code. The pool does not comply with current ADA standards. Flow meters and gauges were not operational at the time of the evaluation. All metallic items located in the equipment rooms show signs of heavy corrosion.



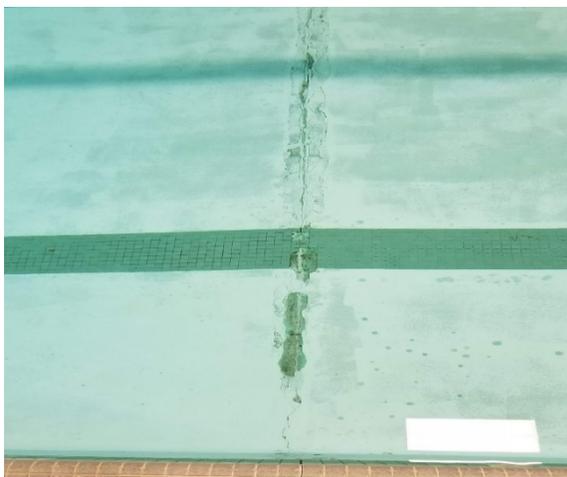
Water depth a plummet does not comply with Indiana Swimming Pool Code and NFHS. Solution is to remove the deep end and slopes adjusted bringing pool deep end into compliance



Main drain does not comply with Virginia Graeme Baker Act. Solution is to add two new main drains and piping when deep end is brought into code for diving.

### **Swimming Pool Structure, Gutter, and Return Piping**

The swimming pool is used for competition and recreational swimming. It is classified as a Type “A” structure by the present Indiana Swimming Pool Code definition. The present circulation (turnover) rate of the pools could not be determined. It appears that the systems have been sized for a 6-hour turnover rate. The concrete walls and floor observed throughout the structure appear to be in generally good condition with a limited number of expansion cracks. There was no evidence of concrete “spalling” or differential surface cracks, which would indicate a weakness of the concrete. The pool floor expansion joint has failed and must be replaced. The original steel piping system is failing and must be replaced with schedule 80 PVC piping. The rollout gutter system is a concrete gutter. The gutter system is not rim flowing around the perimeter of the pool. With the condition of the existing piping, we would recommend removing and replacing the gutter system with a stainless-steel deck level gutter with an integral return system and deck drain.



Failed expansion joint to be replaced during deep end reconfiguration and replacement.

### Diving Stands

There is a 1M dive stand with a 16' Duraflex diving board. The stands appear to be in fair operational condition and the Duraflex board is worn and needs to be replaced.

### Decks

The tiled deck around the pool appears to be in good condition. Any missing or broken tile should be replaced.

### Below Deck Piping

All the piping around the pools is original steel piping and leaking. This piping must be removed and replaced with a schedule 80 PVC piping.

### Filtration and Circulating Systems

The mechanical room is in the basement below the swimming pool deck. Moisture and humidity must be eliminated from the mechanical room to help reduce corrosion. Anything made of metal located in this room has corroded and should be replaced. Acid has ruined some areas of the concrete floor and should be replaced. All chemicals should be stored in double-walled containers on spill containment pallets. The balance tank does not allow for adequate surge capacity as required by code and should be replaced. Replace existing pumps with new energy-efficient pumps and motors. Remove and replace dilapidated sand filters with a new energy-efficient regenerative media filter system. We recommend installing medium pressure UV systems to remove the combined chlorine from the water and atmosphere. The existing chemical controller needs to be replaced with new systems that communicate with building management systems.

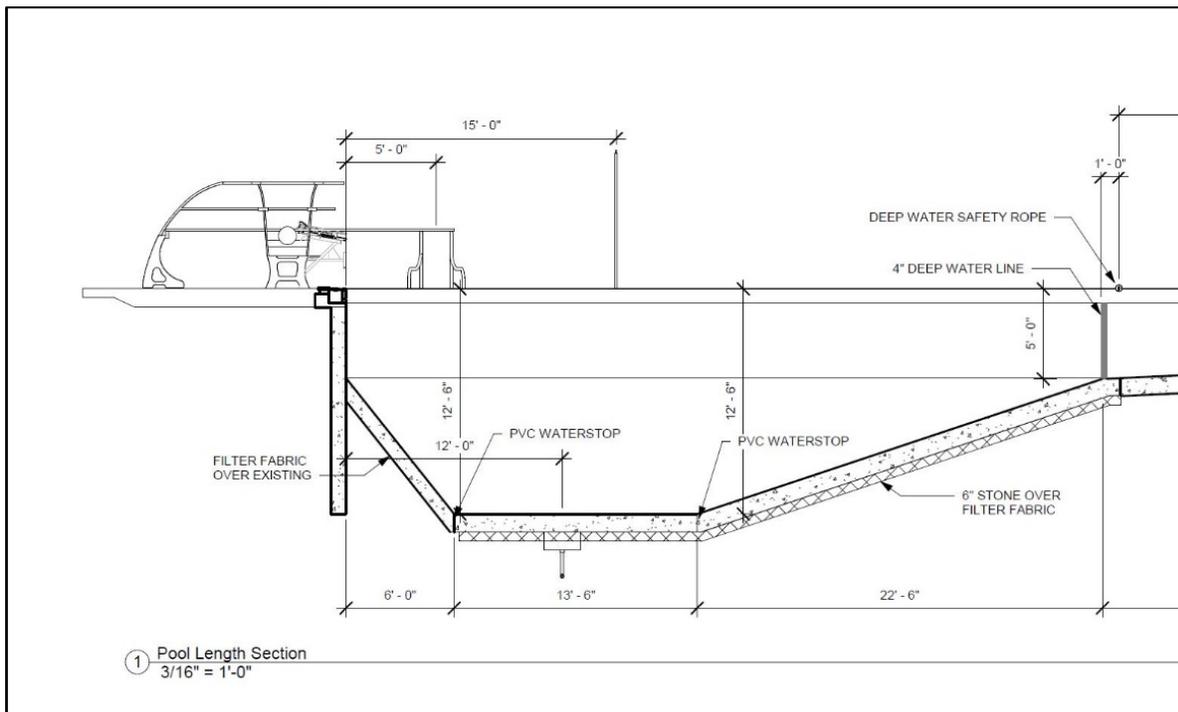


Old sand filter system and piping to be replaced with new energy efficient system to include VFD's, energy efficient pump, medium pressure uv system, chemical automation and regenerative media filter.

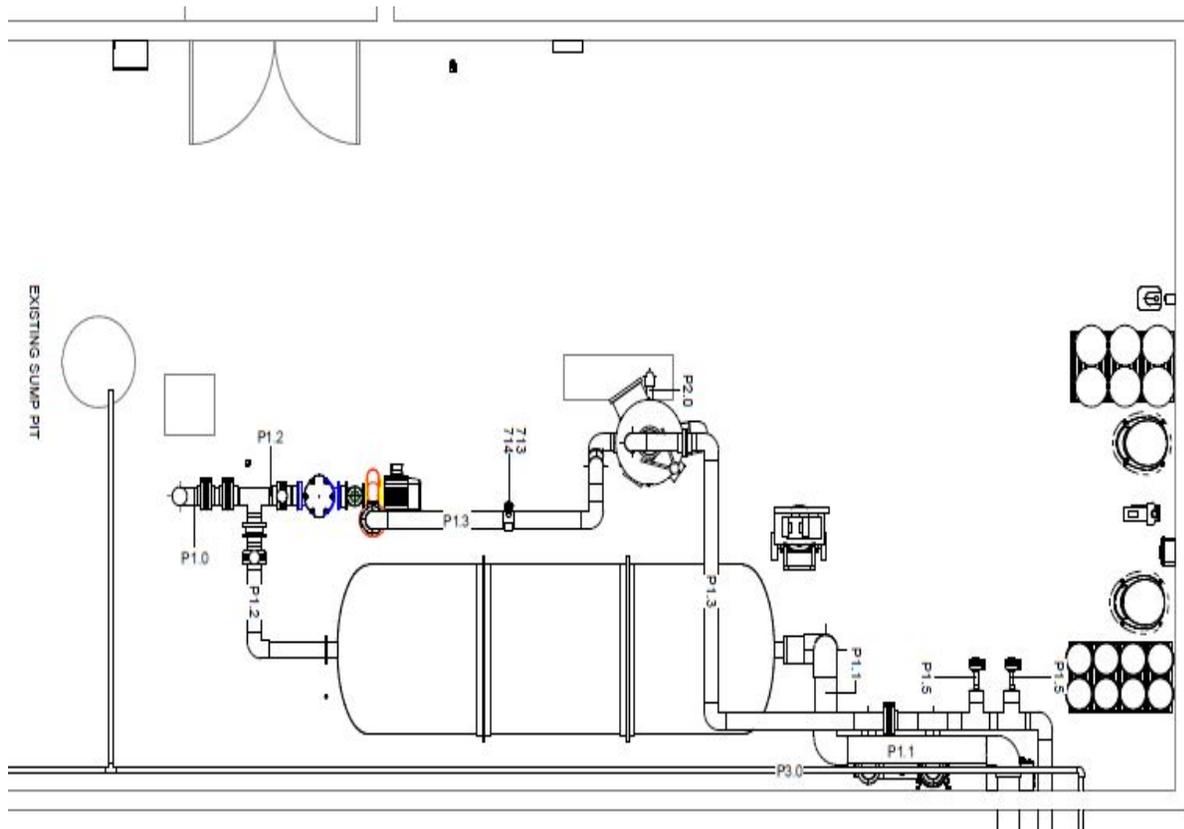


Deck drains and gutter drops are piped to swimming pool balance tank. Code requires deck drains to be routed to sanitary sewer and surge tank sized to provide one gallon of surge capacity per square foot of swimming pool water surface. This piping cross connection will be abated when the swimming pool mechanical systems are replaced, and a new surge tank is installed.

The proposed solution is for deep end replacement, main drain replacement, and expansion joint replacement. A new deck level stainless steel gutter system with slightly sloped parallel grating, integral deck drains and pressure return tube will be installed around the entire perimeter of the pool. The water surface agitation system will also be provided which will provide a stream of water under the diving board improving visibility of the water for the divers along with a new 1M Duraflex dive stand and 16' maxi "B" board. Single post starting blocks will be provided which also are equipped with angled foot wedge and handle. The pool will also be equipped with appropriate deck equipment including lifeguard chairs, grab rails, backstroke stanchion posts, lane lines, and an ADA lift.



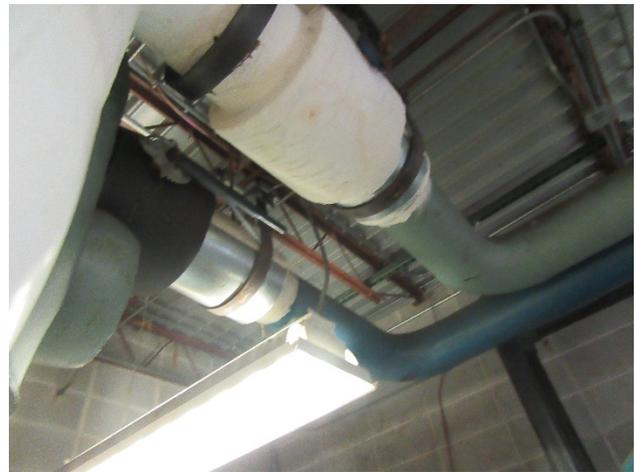
Water displaced by swimmers and their actions must be stored in the new surge tank which is sized to accommodate both active and static surge and meets code with a capacity to handle 1 gallon for every square foot of pool surface area. There are multiple components needed for the sanitization of the pool. The use of pelletized chlorine (calcium hypochlorite) will be used as the primary sanitizer. This product will be stored in 50# pails and delivered to the pool system via an erosion feeder. The pH of the water will be adjusted using a dry chemical (sodium bisulfate) delivered to the pool system via an erosion feeder. The pool will also be designed with a medium-pressure ultraviolet supplemental sanitizing system which will sterilize the water significantly reducing chloramine formation and mitigating common recreational water pathogens. A programmable chemical automation system will be furnished to continuously monitor the water chemistry and for automatic control of the chemical feeders and water level.



## Lincoln Piping/Coupling Replacement

### Existing Conditions:

Water is leaking at many of the main chilled water piping couplings. The insulation around the piping is saturated and corroding the piping underneath. The piping in the building is 40+ years old and approaching life expectancy. Furthermore, North Newton Maintenance has shared that several sections of branch piping are also problematic.



### Piping/Coupling Replacement Narrative:

Originally Performance Services was planning to remove and replace all couplings. However, after better understanding the concerns from North Newton Schools we are also going to design and price replacing all water piping mains 2 ½" and above. We believe this is the best long-term solution for the issue.

The scope of work will also include the removal of existing ceilings, temporarily hanging lights, and any other devices as required. Demolition of existing chilled water piping, couplings, and insulation. New chilled water piping mains including new couplings and insulation to be installed and reconnected to all branch lines. Existing ceiling, lights, and other devices to be reinstalled.

To help address the branch piping that is a more recent issue, Performance Services recommends an Owner Directed Allowance for these possible repairs or replacements. If selected, Performance Services will quickly work with our plumbing engineers to best understand the issues and potential needs regarding branch piping. If this works and is selected by North Newton, we will also incorporate multiple isolation valves into the system; this way North Newton maintenance can easily isolate small areas in the future without impacting the overall system.



## Lake Village and Lincoln Roofing

### Existing Roof Conditions: Lake Village Elementary School

The building is a masonry structure with slight structurally sloped roofs over the main building and a barrel roof over the gymnasium. The building consists of three types of roof systems on the roof areas; a TPO membrane system approximately 2 years old (approximately 7,800 square feet), an Adhered EPDM membrane system of unknown age (approximately 20,000 square feet), and an Aggregate Ballasted EPDM membrane system of unknown age (approximately 16,250 square feet). There are past and current leaks reported at the time of our site visit throughout the school.

The Adhered EPDM roof system deficiencies include, but are not limited to, membrane wrinkles, membrane flashing wrinkles, membrane flashing tenting/bridging, previous membrane repairs, and previous membrane flashing repairs. The Aggregate Ballasted EPDM roof system deficiencies include, but are not limited to, open membrane seams, open membrane flashing seams, membrane wrinkles, membrane flashing blisters, membrane flashing tenting/bridging, previous membrane repairs, previous membrane flashing repairs, displaced aggregate, rusting metal flashings, poor detail heights, obsolete mechanical curbs, vegetation, and poor pipe supports.

### Existing Roof Conditions: Lincoln Elementary School

The building consists of four types of roof systems on the roof areas; an Adhered EPDM membrane system approximately 9 years old (approximately 21,500 square feet), a Metal roof system of unknown age (approximately 31,300 square feet), a Modified Built-up roof system of unknown age (approximately 7,750 square feet), and a Shingle roof system of unknown age (approximately 33,700 square feet).

The Adhered EPDM roof system deficiencies include, but are not limited to, membrane wrinkles, membrane flashing wrinkles, membrane flashing tenting/bridging, previous membrane repairs, and previous membrane flashing repairs. The Metal roof system deficiencies include, but are not limited to, dents in the sheet metal, exposed fasteners, backing out fasteners, rusting metal, damaged snow/ice guard fence, previous repairs, and lack of a proper drainage system. The Modified Built-up roof system deficiencies include, but are not limited to, poorly attached membrane, membrane blisters, membrane wrinkles, membrane flashing blisters, membrane flashing wrinkles, open membrane/membrane flashing seams, previous membrane repairs, previous membrane flashing repairs, and ponding. The Shingle roof system deficiencies include, but are not limited to, poor details and granule loss. The mechanical screen wall however has dislodged/missing shingles, exposed fasteners due to the missing shingles, and poor detail installation.



*Lake Village Elementary Existing Roof*



*Lincoln Elementary Existing Roof*

**Lake Village Elementary Roof Replacement Design Narrative:**

Based on the condition of the installed aggregate ballasted EPDM roof system that appears to have passed its intended design life, the reported deficiencies, amount of current and past leakage, repairs to the roof systems, repairs to the interior, visual investigation, and information provided by building personnel, the existing roof system is considered to be in poor condition. Roof replacement should be considered within one year.

The new roof system would consist of a new Adhered EPDM Roof System over a 25 R-value insulation system on the slight structurally sloped roofs. Added insulation crickets/saddles and drain sumps will be installed, as necessary. New associated sheet metal flashings will be included with the project.

Based on the condition of the remaining roof area and installed masonry systems, the reported deficiencies, visual investigation, and information provided by building personnel, the existing roof and masonry systems should be considered in fair to poor condition. The roof areas and masonry wall systems should be thoroughly surveyed, and any repairs conducted.

**Lincoln Elementary School Roof Replacement Design Narrative:**

Based on the condition of the installed Modified Built-up roof system, that appears to have passed its intended design life, the reported deficiencies, amount of current and past leakage, repairs to the roof systems, repairs to the interior, visual investigation, and information provided by building personnel, the existing roof system is considered to be in very poor condition. Roof replacement should be considered within one year.

The new roof system would consist of a new Adhered EPDM Roof System over a 25 R-value insulation system on the slight structurally sloped roofs. Added insulation crickets/saddles and drain sumps will be installed, as necessary. New associated sheet metal flashings will be included with the project.

Based on the condition of the remaining roof area and installed masonry systems, the reported deficiencies, visual investigation, and information provided by building personnel, the existing roof and masonry systems should be considered in fair to poor condition. The roof areas and masonry wall systems should be thoroughly surveyed, and any repairs conducted.