MATAWAN-ABERDEEN REGIONAL SCHOOL DISTRICT

LOCAL GOVERNMENT ENERGY AUDIT

FOR
NEW JERSEY
BOARD OF PUBLIC UTILITIES

NOVEMBER 2013

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CHA PROJECT NO. 27221

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REPORT DISCLAIMER

This audit was conducted in accordance with the standards developed by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) for a Level II audit. Cost and savings calculations for a given measure were estimated to within ±20%, and are based on data obtained from the owner, data obtained during site observations, professional experience, historical data, and standard engineering practice. Cost data does not include soft costs such as engineering fees, legal fees, project management fees, financing, etc.

A thorough walkthrough of the school was performed, which included gathering nameplate information and operating parameters for all accessible equipment and lighting systems. Unless otherwise stated, model, efficiency, and capacity information included in this report were collected directly from equipment nameplates and /or from documentation provided by the owner during the site visit. Typical operation and scheduling information was obtained from interviewing staff and spot measurements taken in the field.

1.0 EXECUTIVE SUMMARY

This energy audit is performed by CHA in connection with the New Jersey Board of Public Utilities' Local Government Energy Audit (LGEA) Program for the Matawan-Aberdeen Regional School District. The purpose of this report is to identify energy savings opportunities associated with major energy consumers and inefficient practices. This report details the results of the energy audit conducted for the buildings listed in Table 1:

Buildings Evaluated:

Building Name	Address	Square Feet	Construction Date
Matawan Regional High School	450 Atlantic Avenue Aberdeen, NJ 07747	153,914	1962
Cambridge Park Administration Building	One Crest Way Aberdeen, NJ 07747	46,525	1970
Matawan Avenue Middle School	469 Matawan Avenue Cliffwood, NJ 07721	89,864	1970
Cliffwood Elementary School	422 Cliffwood Avenue Cliffwood, NJ 07721	67,450	1958, 1996
Ravine Drive Elementary School	170 Ravine Drive Matawan, NJ 07747	46,848	1966, 1969, 1998
Lloyd Road Elementary School	401 Lloyd Road Aberdeen, NJ 07747	102,364	1967
Strathmore Elementary School	282 Church Street Aberdeen, NJ 07747	60,110	1963

The potential annual energy and cost savings for each energy conservation measure (ECM) is shown below in Table 1. Each individual measure's annual savings are dependent on that measure alone, there are no interactive effects calculated. There are three options shown for Lighting ECM savings; only one option can be chosen. Incentives shown (if any) are based only on the SmartStart Incentive Program. Other NJBPU or local utility incentives may also be available/ applicable and are discussed in Section 5.0.

Each measure recommended by CHA typically has a simple payback period of 15 years or less to be consistent with the requirements of the Energy Savings Improvement Plan (ESIP) which has a maximum payback period of 15 years. Occasionally, we will recommend an ECM that has a longer payback period, based on the need to replace that piece(s) of equipment, such as a boiler for example. The following table summarizes the total recommended ECM savings and project payback per building.

Summary of Energy Savings

Building Name	Total Savings (R)	Payback
Matawan Regional High School	17,016	17.5
Cambridge Park Administration Building	11,830	15.1
Matawan Avenue Middle School	19,258	16.7
Cliffwood Elementary School	12,068	14.9

Building Name	Total Savings (R)	Payback
Ravine Drive Elementary School	328	12.2
Lloyd Road Elementary School	11,280	9.1
Strathmore Elementary School	6,837	15.6

Summary of Energy Conservation Measures

Cambridge Park Elementary School	Lloyd Road Elementary School	Ravine Drive Elementary School	Strathmore Elementary School	Matawan Regional High School	Cliffwood Elementary School	Matawan Avenue Middle School	ECM #	Energy Conservation Measure	Est. Costs ($)	Est. Savings ($/year)	Payback w/o Incentive	Potential Incentive ($)*	Payback w/ Incentive	Recommended
X							1	Window Replacements and Reduced Glazing	409,900	5,685	>15	0	>15	
X							2	Replace Boilers with Condensing HW Boilers	222,773	3,224	>15	4,000	>15	
	X								185,856	4,984	>15	3,000	>15	
		X							304,000	3,092	>15	6,000	>15	
			X						126,000	1,387	>15	0	>15	
				X					317,000	864	>15	7,000	>15	
						X			263,000	5,270	>15	6,000	>15	
X							3	Replace Window A/C Units w/ Ductless Splits	234,800	302	>15	2,208	>15	
	X								18,000	24	>15	92	>15	
		X							169,000	416	>15	2,208	>15	
									3,000	125	>15	920	>15	
					X				48,000	235	>15	552	>15	
						X			112,000	196	>15	1,288	>15	
X							4	Replace Old Motors with Premium Efficiency Motors	2,065	180	11.5	0	11.5	X
		X							4,000	328	12.2	0	12.2	X
	X						5	Install VFDs & Premium Pumps on Hot water Pumps	29,693	4,358	6.8	1,200	6.5	X
			X						12,000	711	>15	552	>15	
					X				12,816	1,048	12.2	600	11.7	X
						X			15,000	1,511	9.9	900	9.3	X
							6	HVAC Replacements						
						X			32,000	42	>15	260	>15	

Summary of Energy Conservation Measures - Continued

Cambridge Park Elementary School	Lloyd Road Elementary School	Ravine Drive Elementary School	Strathmore Elementary School	Matawan Regional High School	Cliffwood Elementary School	Matawan Avenue Middle School	ECM #	Energy Conservation Measure	Est. Costs ($)	Est. Savings ($/year)	Payback w/o Incentive	Potential Incentive ($)*	Payback w/ Incentive	Recommended
X							7A	Replace Existing Condensing Units (Standard Efficiency Model)	81,100	625	>15	2,697	>15	
	X								15,800	70	>15	248	>15	
		X												
			X											
X							7B	Replace Existing Condensing Units (Higher Efficiency Model)	94,800	848	>15	2,697	>15	
	X								21,900	95	>15	248	>15	
		X												
			X											
X							8	Replace Electric PTAC Units	5,400	10	>15	0	>15	
	X						9	Demand Control Ventilation	16,000	4,717	3.4	0	3.4	X
			X						8,000	1,232	6.5	0	6.5	X
					X				5,000	3,497	1.4	0	1.4	X
						X			16,000	6,707	2.4	0	2.4	X
X							10	Install Vending Machine Controllers	600	549	1.1	0	1.1	X
				X					2,000	1,891	1.1	0	1.1	X
						X			1,000	734	1.4	0	1.4	X
				X			11	Install Network Controller	5,000	3,533	1.4	0	1.4	X
						X			5,000	2,284	2.2	0	2.2	X
X							12A	Replace Existing DHW Heater with a Condensing Natural Gas	20,931	472	>15	300	>20	
					X				19,410	1,924	10.1	300	9.9	X
					X		12B	Replace Gas-Fired DHW Heater w/	10,997	152	>15	300	>15	
				X			13	Install Kitchen Hood Controller	39,000	274	>15	0	>15	
						X			38,000	148	>15	0	>15	
	X						14	Install Walk-in Cooler / Freezer Controls	15,000	430	>15	0	>15	
				X					30,000	2,037	14.7	0	14.7	X
						X			15,000	1,104	13.6	0	13.6	X
X							L1	Lighting Replacement / Upgrades	122,000	6,744	>15	11,830	>15	X
	X								63,315	2,205	>15	5,660	>15	X
		X							56,000	1,342	>15	6,040	>15	
			X						110,000	5,606	>15	11,500	>15	X
				X					294,000	9,555	>15	32,660	>15	X
					X				162,852	5,599	>15	19,590	>15	X
						X			304,000	6,918	>15	33,600	>15	X
								Total	**4,099,009**	**105,281**	**38.9**	**164,450**	**37.4**	
								Total (Recommended)	**1,242,752**	**74,260**	**16.7**	**117,840**	**15.1**	**X**

2.0 BUILDING INFORMATION AND EXISTING CONDITIONS

2.1 Matawan Regional High School

Address: 450 Atlantic Avenue, Aberdeen, NJ 07747
Gross Floor Area: 153,914 ft^2
 # Floors: 1
Year Built: 1962
Description of Spaces: This school has classrooms, offices, gymnasiums (auxiliary gym and main gym), cafeteria, kitchen and a media center.
Description of Occupancy: The school serves 1,076 students from 9th to 12th grade. There are 132 school faculty and staff members.
# of Computers: The school has XXX desktop computers, XXX laptop computers, and XXX iPad tablet computers.
Building Usage: Hours of operation are 7:25am-2:14pm Monday through Friday, with various after-school activities.

Building Envelope

Construction Materials: Structural steel framing with concrete masonry blocks having a brick exterior veneer.
Façade: Brick veneer
Roof Type: Flat roof supported by structural-steel having an adhered white rubber membrane roofing over layers of rigid insulation board. The roof appears to be in good condition.
Windows: Double pane windows with aluminum frames, in good condition.
Exterior Doors: Aluminum framed doors. Seals around the doors are in fair condition.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating Systems: There are (2) gas fired Cleaver Brooks model CB655-250 hot water boilers each having and input of 10,500,000 BTUH and efficiencies of 80.0%. These boilers were installed in 1962 and are past the useful life as reported by ASHRAE. Hot water is distributed by (2) 7.5 HP pumps and (2) 1.5 HP to all areas of the building. The boilers operate in lead/lag fashion as do the pumps.

The building is 100% heated using hot water. Classrooms are heated by unit ventilators having hot water coils. Each classroom has at least one unit ventilator. Hallways have perimeter hydronic fin tube baseboard heating and cabinet unit heaters. The larger spaces such as the gymnasiums are heated using larger heating and ventilation units (HV).

Cooling Systems: The building is 75% cooled**.** Approximately 50% is cooled by 14 constant air volume direct expansion (DX) cooling only rooftop units. The areas that are cooled include the cafeteria, main Office, 600 wing classrooms, special needs classrooms, 500 classroom wing, coaches & trainers offices, computer lab, network room, library, and various specialty classrooms. The roof top AC units are 10-12 years old and in fair condition. 15% of the school is

cooled by 8 DX split systems and approximately 10% is cooled by 12 window air conditioning units having an average capacity of 24,000 BTU/ hr.

Ventilation Systems: Offices and classrooms are ventilated by unit ventilators. The main gymnasium is ventilated separately by (2) 10,000 CFM Nesbitt heating & ventilation (HV) units. The auxiliary gym is heated separately by (2) 4,500 CFM Nesbitt heating & ventilation (HV) units. All units appear to be original to the building and in good condition.

Exhaust Systems: The school has several roof mounted exhaust fans of various sizes to exhaust restrooms and storage areas.

The main kitchen, which is located on the first floor, has (1) 28'x4' and (1) 10'x3' kitchen hoods. This hoods are served by (1) 3/8 HP, 2,100 CFM exhaust fan and (1) ¼ 2,000 CFM exhaust fan. There is a separate 0.5 HP, 900 CFM exhaust fan which the maintenance personnel did not know what it served. Make- up air is provided by a rooftop unit serving the cafeteria.

Controls Systems

The building HVAC is controlled by a hybrid system consisting of a web-based Johnson Controls Metasys Direct Digital Control system (DDC) and pneumatically actuated dampers and valves. The pneumatic system uses a Quincy duplex air compressor to produce the air needed to actuate the valves and dampers. The Metasys system can operate r the pneumatic controls operation. Upgrading to full DDC control would remove the air compressor and eliminate associated air leakage. The head custodian has monitors and controls the system through the web from a dedicated PC.. The Metasys System monitors the status of the pumps, boilers, and exhaust fans.

The Library Addition has a separate electronic DDC Control System manufactured by PQ Energy.

Typical setpoints in the school are 69°F heating and 71°F cooling during occupied times, and 65°F heating and 80°F cooling during unoccupied times. Each setpoint has +/- 4 degree variance. Each space has a sensor that is tied into the BAS.

Domestic Hot Water Systems

The building is served by (2) gas fired A.O. Smith domestic hot water heaters rated at 740 MBH heating capacity and having 85 gallon storage tanks. These heaters have modulating capacity burners and were installed in 2013.

Kitchen Equipment

The kitchen is opened from 7:30am to 1pm and prepares meals for the students and faculty each day.

The kitchen has (3) 8'x8' walk-in freezers and (1) walk-in cooler. There is no dishwasher, due to all plates and utensils used being disposable.

The kitchen has (6) energy star Blodgett electric ovens, (1) gas stove / oven combo unit, (2) Vulcan ovens, (1) Fryer and (2) refrigerators. These units appear to be in good condition.

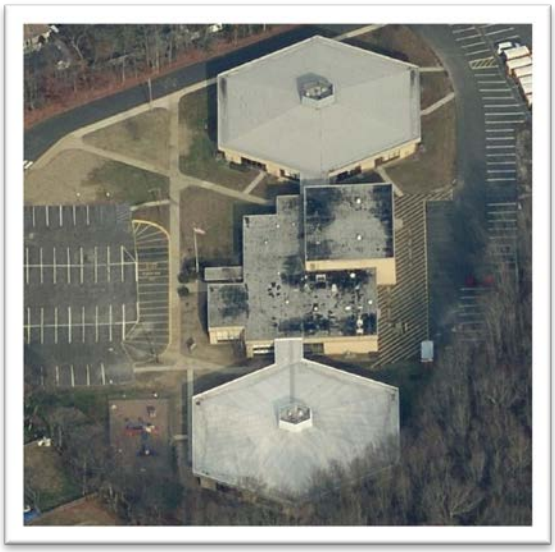
Plumbing Systems

The school has been renovating restrooms and upgrading the plumbing fixtures in the process. In general fixtures installed after 1990 have low flow flush valves. Fixtures installed before 1980 typically have high-flow flush valves and faucets. The toilets were 1.28 gpf, the urinals were 0.5 gpf. The sinks were assumed to be low flow (0.5 gpm) based on the other work done to the restrooms.

Lighting Systems

The school utilizes 34 watt T-8 fluorescent tube fixtures for offices, mechanical rooms, cafeteria, hallways, and classrooms. The ballast are electronic. Our lighting survey confirmed that occupancy sensors have been installed in some classrooms. The gymnasium has been retrofitted with T-5 high output fluorescent fixtures. The building exterior is illuminated by 250W metal halide wall packs and 70W HPS fixtures that are controlled by a photocell sensor.

2.2 Cambridge Park Administration Building



Address: One Crest Way, Aberdeen, NJ 07747
Gross Floor Area: 46,525 ft^2
 # Floors: 1
Year Built: 1970
Description of Spaces: This school / Administration building has classrooms, offices, multi-purpose room, and a media center.
Description of Occupancy: The school serves 82 students from daycare and preschool. There are 75 school faculty and staff members.
# of Computers: The school has XXX desktop computers, XXX laptop computers, and XXX iPad tablet computers.
Building Usage: Hours of operation are from 8:00 AM – 5:00 PM Monday through Friday, with various after-school activities.

Building Envelope

Construction Materials: Concrete masonry blocks
Façade: Brick veneer
Roof Type: Flat roof comprised of structural-steel, adhered white rubber membrane roofing. The roof appears to be in good condition. The pitched roofs of the education and administration wings are constructed in a similar manner.
Windows: Single pane windows with aluminum frames, in fair condition.
Exterior Doors: Aluminum framed doors with single pane windows. Seals around the doors are in fair condition.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating Systems: This building is heated by (2) gas fired Cleaver Brooks, model CB760-125 hot water boilers havings inputs of 230 MBH and efficiencies of 80.0%. These boilers were installed in 1969 and are past the useful life as per ASHRAE. Hot water is distributed by (4) 1.0 HP pumps that supply three zones. The fourth pump is a backup. The boilers operate in lead/lag to provide heating to different sections of the building.

Hot water is used to heat the entire school. Classrooms are heated by unit ventilators having hot water coils. Each classroom has a minimum of one unit ventilator. Hallways have perimeter hydronic baseboard heating.

Cooling Systems: The building is 80% cooled**.** Approximately 40% of the building is cooled by Lennox split systems having remote condensing units. This includes operations and maintenance, accounts payable, superintendent office, Room 18, Room 19, faculty dining, IT office, Business Office, Business Administration office, and server room. The remaining 40% is occupied by classrooms which are cooled by window air conditioning units having an average size of 24,000 BTU/hr

Ventilation Systems: The multipurpose room is served by (2) ceiling mounted air handlers. Each one brings in 4,500 of OA and serves half of the space. Offices and classrooms are ventilated by unit ventilators.

Exhaust Systems: The building uses roof mounted exhaust fans of various sizes exhaust restrooms and storage areas.

Controls Systems

The building is controlled by a hybrid of a web-based Johnson Controls Metasys direct digital control system (DDC) and pneumatically actuated dampers and valves. The system utilizes a Quincy dual compressor air compressor to produce compressed air needed to actuate valves and dampers. The Metasys system can monitor the pneumatic controls operation. Upgrading to full DDC control would remove the compressor and associated air leaks. Each head custodian has control over the system at their school and monitors their system through the web from a dedicated PC. The window units are controlled manually. System has status indicator for pumps, boilers, and exhaust fans.

Typical setpoints in the facility are 69°F heating and 71°F cooling during occupied times, and 65°F heating and 80°F cooling during unoccupied times. Each setpoint has +/- 4 degree variance. Each space has a sensor that is monitored and controlled by the BAS.

Domestic Hot Water Systems

The building domestic loads are served by the heating boilers which supply a heat exchanger to produce domestic hot water only during the heating season.

During non-heating season months (summer), domestic hot water is produced by a single Rudd electric domestic hot water heater, tagged DHW-1. This unit has a rated heating capacity of 4500 watts and a 52 gallon storage tank. It was installed in 2004 and in good condition

Kitchen Equipment

This school has no kitchen.

Plumbing Systems

The school has been renovating restrooms and upgrading the plumbing fixtures in the process. In general fixtures installed after 1990 have low flow flush valves. Fixtures installed before 1980 typically have high-flow flush valves and faucets. The toilets were 1.28 gpf, the urinals were 0.5 gpf. The sinks were assumed to be low flow (0.5 gpm) based on the other work done to the restrooms.

Lighting

The facility has some older incandescent fixtures in some areas that can be upgraded to compact florescent lighting (CFLs). Magnetic ballasts have been upgraded to electronic; and classrooms, offices, common area, and corridor fixtures have been upgraded to four foot T-8 32W recessed fluorescents. Storage areas have compact fluorescent twin biaxial lamps. The majority of lights are switched manually

Parking lot lighting consists of pole mounted high pressure sodium light fixtures which are on a timer. The building exterior lighting includes 200W High Pressure Sodium (HPS) lamps and MH400 Wall packs.

2.3 Matawan Avenue Middle School

Address: 469 Matawan Avenue, Cliffwood, NJ 07721
Gross Floor Area: 89,864 ft^2
 # Floors: 1
Year Built: 1970
Description of Spaces: The school has classrooms, offices, gymnasiums (auxiliary gym and main gym), cafeteria, kitchen and a media center.
Description of Occupancy: The school serves 872 students from 7th to 8^{th} grade. There are 97 school faculty and staff members.
# of Computers: The school has XXX desktop computers, XXX laptop computers, and XXX iPad tablet computers.
Building Usage: Hours of operation are from 8:04 AM – 2:30 PM Monday through Friday, with various after-school activities.

Building Envelope

Construction Materials: Concrete masonry blocks
Façade: Brick veneer

Roof Type: Flat roof comprised of structural-steel decking, adhered white rubber membrane roofing having rigid insulation board beneath. The roof appears to be in good condition.
Windows: Double pane windows with aluminum frames, in good condition.
Exterior Doors: Aluminum framed doors with double pane glass. Non-student doors were aluminum. Seals around the doors were in fair condition at the time of the field visit.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating Systems: There are (2) gas fired boilers serving the school. These boilers are Cleaverbrooks, CB760-150 hot water boilers with inputs of 6,275,000 BTUH and efficiencies of 80.0% each depending on hot water return temperatures. These boilers were installed in 1969 and are past the useful life as reported by ASHRAE. Hot water is pumped by (2) 7.5 HP pumps to areas of the school. The boilers operate in lead/lag to provide heating to different sections of the building.

Hot water is used to heat the entire school. Classrooms are heated by unit ventilators having hot water coils. Each classroom has a minimum of one unit ventilator. Hallways have perimeter hydronic baseboard heating.

Cooling Systems: The building is 70% cooled**.** Approximately 60% is cooled by (17) Rooftop units. There are (6) Variable Volume units and the remaining are Constant Air Volume (CAV) DX Cooling Rooftops of various sizes. Amongst these rooms are the Cafeteria, the new Gymnasium, Main Office, Nurse and auditorium. The spaces on the VAV systems have dedicated VAV boxes that vary the airflow to the space. The remainder of the building that is conditioned is cooled by (7) window air conditioning units with an average size of 2-tons.

Ventilation Systems: Offices and classrooms are ventilated by unit ventilators. The main gymnasium is heated separately by (2) Nesbitt heating & ventilation (HV) unit each. Each unit serves half of the space. Drawings found in the plan room show the capacity of the units to be 10,000 CFM with 50% OA. The units appear to be original to the building.

Exhaust Systems: The school utilizes exhaust fans of various sizes located on the roof to exhaust restrooms and storage areas.

The main kitchen, which is located on the first floor, has (2) 9'x5' kitchen hoods. This hood gets it's make up air from the aforementioned rooftop units serving the cafeteria.

Controls Systems

The building is controlled by a hybrid of a web-based Johnson Controls Metasys direct digital control system (DDC) and pneumatically actuated dampers and valves. The system utilizes a Quincy dual compressor air compressor to produce compressed air needed to actuate valves and dampers. The Metasys system can monitor the pneumatic controls operation. Upgrading to full DDC control would remove the compressor and associated air leaks. Each head custodian has control over the system at their school and monitors their system through the web from a dedicated PC. The window units are controlled manually. System has status indicator for pumps, boilers, and exhaust fans.

Typical setpoints in the facility are 69°F heating and 71°F cooling during occupied times, and 65°F heating and 80°F cooling during unoccupied times. Each setpoint has +/- 4 degree variance. Each space has a sensor that is tied into the BAS.

Domestic Hot Water Systems

The building is served by (2) gas fired A.O. Smith domestic hot water heaters. DHW-1 has a rated 75 MBH heating capacity and 98 gallon storage tank and serves the main building. The efficiency of this heater is 80%. It was installed in 2009. DHW-2 has a rated 120 MBH heating capacity and 71 gallon storage tank and serves the auxiliary gym wing. It was installed in 2007.

Kitchen Equipment

The main kitchen, which is located on the first floor, has (2) 9'x5' kitchen hoods. This hood gets it's make up air from the aforementioned rooftop units serving the cafeteria.

The kitchen has an electric combo stove and oven unit. There are 3 additional electric ovens. There is (1) 8'x8' walk-in freezer. The rest of the appliances include (2) deep freezers and (2) refrigerators. These units appear to be in good condition.

Plumbing Systems

The school has been renovating restrooms and upgrading the plumbing fixtures in the process. In general fixtures installed after 1990 have low flow flush valves. Fixtures installed before 1980 typically have high-flow flush valves and faucets. The toilets were 1.28 gpf, the urinals were 0.5 gpf. The sinks were assumed to be low flow (0.5 gpm) based on the other work done to the restrooms.

Lighting

The school utilizes 34 watt T-8 fluorescent tube fixtures for offices, multipurpose room, hallways, and classrooms. It appears from the lighting survey that occupancy sensors and T-5 bulbs have been installed in some classrooms. The gymnasium has an older style technology light bulb that consumes more energy than newer bulbs. These bulbs are 250 MV. The building exterior utilizes a 250W metal halide wall packs and 200 W HPS that are controlled by a photocell sensor.

2.4 Cliffwood Elementary School

Address: 422 Cliffwood Avenue, Cliffwood, NJ 07721
Gross Floor Area: 67,450 ft^2
 # Floors: 2
Year Built: 1958, 1996
Description of Spaces: The school has classrooms, offices, gymnasium, cafeteria, kitchen and a media center.

Description of Occupancy: The school serves 317 students from kindergarten to 6th grade. There are 54 school faculty and staff members.
# of Computers: The school has XXX desktop computers, XXX laptop computers, and XXX iPad tablet computers.
Building Usage: Hours of operation are from 9:20 AM – 3:35 PM Monday through Friday, with various after-school activities.

Building Envelope

Construction Materials: Concrete masonry blocks
Façade: Brick veneer
Roof Type: Flat roof comprised of structural-steel, built up rubber membrane roofing. Approximately 50% of roof has a high solar reflectance which helps to reflect sunlight and heat away from a building, reducing roof temperatures. The roof appears to be in good condition.
Windows: Double pane windows with aluminum frames, in good condition.
Exterior Doors: Aluminum framed doors. Seals around the doors were in fair condition at the time of the field visit.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating Systems: There are (2) new gas fired Steam boilers serving the original 1958 portion of the school. These boilers are Rockmills, MP-100 Steam boilers with inputs of 3,378 MBH and efficiencies of 85.0%. These boilers were installed in 2012 and are in good condition. The boilers operate in lead/lag to provide heating to different sections of the building. The new addition has (2) Smith gas fired hot water boilers that have a rated capacity of 783 MBH and an efficiency of 91% each depending on hot water return temperatures. Hot water is pumped to this new addition by (2) 5 HP Armstrong motors.

Hot water is used to heat the new addition of the school and steam is the medium to heat the main portion. Classrooms are heated by unit ventilators having either a steam or hot water coil (depending on location). Each classroom has a minimum of one unit ventilator. Hallways have perimeter baseboard heating.

Cooling Systems: The building is 25% cooled by (4) constant air volume (CAV) DX cooling rooftops. These rooms are cafeteria, gymnasium and main office. There are portions of the building that utilize 10-ton split systems for cooling. (3) spaces of the building is conditioned is cooled by window air conditioning units with an average size of 2-tons.

Ventilation Systems: Offices and classrooms are ventilated by unit ventilators. The main gymnasium is heated separately by a Nesbitt heating & ventilation (HV) unit. This HV unit has a separate 10-ton condensing unit on the roof for cooling. Drawings indicate the HV unit is 8,400 CFM with 3,000 CFM OA.

Exhaust Systems: The school utilizes exhaust fans of various sizes located on the roof to exhaust restrooms and storage areas.

Controls Systems

The building is controlled by a hybrid of a web-based Johnson Controls Metasys direct digital control system (DDC) and pneumatically actuated dampers and valves. The system utilizes a

(1) Quincy dual compressor air compressor to produce compressed air needed to actuate valves and dampers. The Metasys system can monitor the pneumatic controls operation. Upgrading to full DDC control would remove the compressor and associated air leaks. Each head custodian has control over the system at their school and monitors their system through the web from a dedicated PC. The window units are controlled manually. System monitors status of pumps, boilers, and exhaust fans.

Typical setpoints in the facility are 69°F heating and 71°F cooling during occupied times, and 65°F heating and 80°F cooling during unoccupied times. Each setpoint has +/- 4 degree variance. Each space has a sensor that is tied into the BAS.

Domestic Hot Water Systems

The building is served by (1) gas fired and (1) electric A.O. Smith domestic hot water heater. DHW-1 has a rated 18 KW heating capacity and 119 gallon storage tank. There is also a remote storage tank that has a capacity of 300 Gallons. The new boilers have a heat exchanger attached to the heating system and domestic hot water is produced during the heating season. This system was offline at the time of the audit. The new addition is served by the gas fired heater with a heating capacity of 75 MBH and an efficiency of 80%. It can store 74 gallons.

Kitchen Equipment

The kitchen is opened from 9:30am to 12pm and prepares meals for the students and faculty each day.

The kitchen does not have a walk-in freezer or cooler. There is no dishwasher.

The kitchen has (2) gas Vulcan ovens, (1) gas stove / oven combo unit, (2) Vulcan pizza ovens, (1) deep freezer and (3) refrigerators; one is an energy star unit. These units appear to be in good condition.

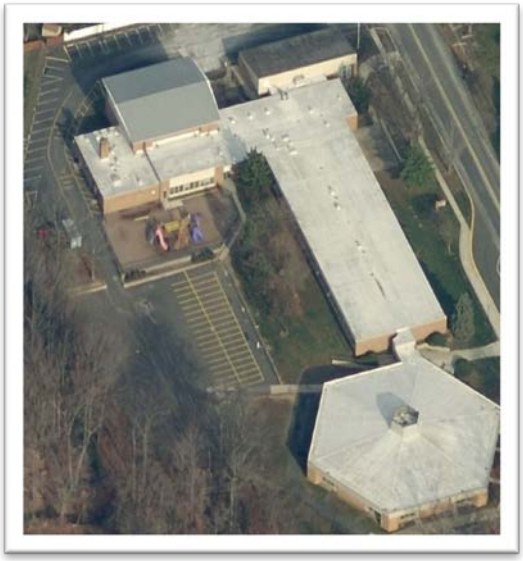
Plumbing Systems

The school has been renovating restrooms and upgrading the plumbing fixtures in the process. In general fixtures installed after 1990 have low flow flush valves. Fixtures installed before 1980 typically have high-flow flush valves and faucets. The toilets were 1.28 gpf, the urinals were 0.5 gpf. The sinks were assumed to be low flow (0.5 gpm) based on the other work done to the restrooms.

Lighting / Electrical Systems

The school utilizes 34 watt T-8 fluorescent tube fixtures for offices, multipurpose room, hallways, and classrooms. It appears from the lighting survey that occupancy sensors and T-5 bulbs have been installed in some classrooms. The gymnasium has an older style technology light bulb that consumes more energy than newer bulbs. These bulbs are 250W metal halides. The building exterior utilizes a 250W metal halide wall packs and 100W metal halides that are controlled by a photocell sensor.

2.5 Ravine Drive Elementary School



Address: 170 Ravine Drive, Matawan, NJ 07747
Gross Floor Area: 46,848 ft^2
 # Floors: 1
Year Built: 1966, 1969, and 1998
Description of Spaces: The school has classrooms, offices, gymnasium, cafeteria, kitchen and a media center.
Description of Occupancy: The school serves 397 students from kindergarten to 6th grade. There are 46 school faculty and staff members.
# of Computers: The school has XXX desktop computers, XXX laptop computers, and XXX iPad tablet computers.
Building Usage: Hours of operation are from 9:20 AM – 3:35 PM Monday through Friday, with various after-school activities.

Building Envelope

Construction Materials: Concrete masonry blocks
Façade: Brick veneer
Roof Type: Flat roof comprised of structural-steel, built up white rubber membrane roofing with a high solar reflectance which helps to reflect sunlight and heat away from a building, reducing roof temperatures. The roof appears to be in good condition.
Windows: Double pane windows with aluminum frames, in good condition.
Exterior Doors: Aluminum framed doors. Seals around the doors were in fair condition at the time of the field visit.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating Systems: There are (2) Cleaverbrooks, CB810-100, gas fired boilers serving the school. The boilers are rated with a heating capacity of 3,450 MBH with an efficiency of 80% depending on hot water return temperatures. They were installed in 1966. This boiler is past the useful life as reported by ASHRAE. Hot water is pumped to the school by 8 pumps. (2) 1 HP pumps serve the pods. (2) 1-1/2 serves the existing building and (4) ¾ HP pumps serve the remaining portions of the school. The boilers operate in lead/lag to provide heating to different sections of the building.

Hot water is used to heat the entire school. Classrooms are heated by unit ventilators having hot water coils. Each classroom has a minimum of one unit ventilator. Hallways have perimeter hydronic baseboard heating.

Cooling Systems: The building is 25% cooled. The Library is conditioned by (2) 4-ton constant air volume (CAV) DX cooling rooftops. There is another rooftop unit that was believed to serve the multipurpose room. The main office is conditioned by a 10-ton split system. (5) spaces of the building is conditioned is cooled by window air conditioning units with an average size of 2-tons.

Ventilation Systems: Offices and classrooms are ventilated by unit ventilators.

Exhaust Systems: The school utilizes exhaust fans of various sizes located on the roof to exhaust restrooms and storage areas.

Controls Systems

The building HVAC is controlled by a hybrid system consisting of a web-based Johnson Controls Metasys Direct Digital Control system (DDC) and pneumatically actuated dampers and valves. The pneumatic system uses a Quincy duplex air compressor to produce the air needed to actuate the valves and dampers. The Metasys system can operate r the pneumatic controls operation. Upgrading to full DDC control would remove the air compressor and eliminate associated air leakage. The head custodian has monitors and controls the system through the web from a dedicated PC. The Metasys System monitors the status of the pumps, boilers, and exhaust fans.

Typical setpoints in the facility are 69°F heating and 71°F cooling during occupied times, and 65°F heating and 80°F cooling during unoccupied times. Each setpoint has +/- 4 degree variance. Each space has a sensor that is tied into the BAS

Domestic Hot Water Systems

The building is served by (1) gas fired A.O. Smith with a rated 65 MBH heating capacity and 65 gallon storage tank and serves the main building. The efficiency of this heater is 80%. It was installed in 2008.

Kitchen Equipment

The kitchen at this school is capable of warming food up and minor cooking. There is no kitchen hood. Paper utensils are used so there is no dishwasher. The kitchen operates for close to four hours per day.

The kitchen has (1) Blodgett Natural Gas Ovens. The rest of the appliances include (1) refrigerator, (1) energy star freezer and (1) Deep Freezers. These units appear to be in good condition.

Plumbing Systems

The school has been renovating restrooms and upgrading the plumbing fixtures in the process. In general fixtures installed after 1990 have low flow flush valves. Fixtures installed before 1980 typically have high-flow flush valves and faucets. The toilets were 1.28 gpf, the urinals were 0.5 gpf. The sinks were assumed to be low flow (0.5 gpm) based on the other work done to the restrooms.

Lighting / Electrical Systems

The school utilizes 34 watt T-8 fluorescent tube fixtures for offices, mechanical rooms, cafeteria, hallways, and classrooms. The ballast are electronic. It appears from the lighting survey that occupancy sensors have been installed in some classrooms. The gymnasium has an older style technology light bulb that consumes more energy than newer bulbs. These bulbs are 400 metal halides.

2.6 Lloyd Road Elementary School

Address: 401 Lloyd Road, Aberdeen, NJ 07747
Gross Floor Area: 102,364 ft^2
 # Floors: 2
Year Built: 1967
Description of Spaces: The school has classrooms, offices, gymnasium, auditorium, cafeteria, kitchen and a media center.
Description of Occupancy: The school serves 604 students from kindergarten to 6th grade. There are 69 school faculty and staff members.
# of Computers: The school has XXX desktop computers, XXX laptop computers, and XXX iPad tablet computers.
Building Usage: Hours of operation are from 8:50 AM – 3:05 PM Monday through Friday, with various after-school activities.

Building Envelope

Construction Materials: Concrete masonry blocks
Façade: Brick veneer
Roof Type: Flat roof comprised of structural-steel, built up white rubber membrane roofing with a high solar reflectance which helps to reflect sunlight and heat away from a building, reducing roof temperatures. The pitched roof over the gymnasium and auditorium is constructed of metal decking. The roof appears to be in good condition.
Windows: Double pane windows with aluminum frames, in good condition.
Exterior Doors: Aluminum framed doors. Seals around the doors were in fair condition at the time of the field visit.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating Systems: There are (2) gas fired boilers serving the school. The first is a new Easco gas fired high efficiency hot water boiler with input of 5,277 MBH and efficiency of 91.0% depending on hot water return temperatures. The second was installed with the existing building in 1967. This boiler is a Cleaverbrooks, CB810-200 hot water boiler with input of 8,375 BTUH and efficiencies of 80.0% depending on hot water return temperatures. This boiler is past the useful life as reported by ASHRAE. Hot water is pumped to four zones (Cafeteria, Gym, Auditorium, and Zone 4) by (4) 4.0 HP pumps to areas of the school. The boilers operate in lead/lag to provide heating to different sections of the building.

Hot water is used to heat the entire school. Classrooms are heated by unit ventilators having hot water coils. Each classroom has a minimum of one unit ventilator. Hallways have perimeter hydronic baseboard heating.

Cooling Systems: The building is 30% cooled**.** The Main office is served by 7.5- ton constant air volume (CAV) DX Cooling Rooftop. The Auditorium is served by a 12,700 CFM. The Lobby of the Auditorium is served by a 8,550 CFM unit. The library has its own dedicated rooftop unit. The copy room and Rooms 18 & 22 have dedicated split systems. Rooms 19-21 have dedicated

heat pumps that provide heating and cooling to these spaces. The IT Room is cooled by a 2-ton window air conditioning unit.

Ventilation Systems: Offices and classrooms are ventilated by unit ventilators. The main gymnasium is heated separately by a (2) 16,300 CFM Nesbitt heating & ventilation (HV) unit.

Exhaust Systems: The school utilizes exhaust fans of various sizes located on the roof to exhaust restrooms and storage areas.

Controls Systems

The building is controlled by a hybrid of a web-based Johnson Controls Metasys direct digital control system (DDC) and pneumatically actuated dampers and valves. The system utilizes a Quincy dual compressor air compressor to produce compressed air needed to actuate valves and dampers. The Metasys system can monitor the pneumatic controls operation. Upgrading to full DDC control would remove the compressor and associated air leaks. Each head custodian has control over the system at their school and monitors their system through the web from a dedicated PC. The window units are controlled manually. System monitors status of pumps, boilers, and exhaust fans.

Typical setpoints in the facility are 69°F heating and 71°F cooling during occupied times, and 65°F heating and 80°F cooling during unoccupied times. Each setpoint has +/- 4 degree variance. Each space has a sensor that is tied into the BAS.

Domestic Hot Water Systems

The building is served by (1) gas fired A.O. Smith and (1) O State electric domestic hot water heaters. DHW-1 has a rated 365 MBH heating capacity and 85 gallon storage tank and serves the main building. The efficiency of this heater is 80%. It was installed in 2011. DHW-2 has a rated 1,000W heating capacity and 10 gallon storage tank and serves the cust closet, men & women's faculty restroom.

Kitchen Equipment

The kitchen, which is located on the first floor, has (1) 3'x2' kitchen hood which is used for warming. This hood gets it's make up air from the kitchen. There is an intake on the exterior wall.

The kitchen has an electric combo stove and oven unit. There are (2) Blodgett Natural Gas Ovens. There is (1) 8'x8' walk-in freezer. The rest of the appliances include (1) refrigerator and (1) electric hot box. These units appear to be in good condition.

Plumbing Systems

The school has been renovating restrooms and upgrading the plumbing fixtures in the process. In general fixtures installed after 1990 have low flow flush valves. Fixtures installed before 1980 typically have high-flow flush valves and faucets. The toilets were 1.28 gpf, the urinals were 0.5 gpf. The sinks were assumed to be low flow (0.5 gpm) based on the other work done to the restrooms.

Lighting / Electrical Systems

The school utilizes 34 watt T-8 fluorescent tube fixtures for offices, multipurpose room, hallways, and classrooms. It appears from the lighting survey that occupancy sensors and T-5 bulbs have been installed in some classrooms. The gymnasium has an older style technology light bulb that consumes more energy than newer bulbs. These bulbs are 250 MV. The building exterior utilizes a 1,000W incandescent bulbs and 200W HPS that are controlled by a photocell sensor.

2.7 Strathmore Elementary School

Address: 282 Church Street, Aberdeen, NJ 07747
Gross Floor Area: 60,110 ft^2
 # Floors: 1
Year Built: 1963
Description of Spaces:
Description of Occupancy: The school serves 505 students from kindergarten to 6th grade. There are 51 school faculty and staff members.
# of Computers: The school has XXX desktop computers, XXX laptop computers, and XXX iPad tablet computers.
Building Usage: Hours of operation are from 9:20 AM – 3:35 PM Monday through Friday, with various after-school activities.

Building Envelope

Construction Materials: Concrete masonry blocks
Façade: Brick veneer
Roof Type: Flat roof comprised of structural-steel, built up white rubber membrane roofing with a high solar reflectance which helps to reflect sunlight and heat away from a building, reducing roof temperatures. The pitched roof over the cafeteria is constructed of pine slates, one layer of tar (felt) paper, and finished with asphalt shingles. The roof appears to be in good condition.
Windows: Double pane windows with aluminum frames, in good condition.
Exterior Doors: Aluminum framed doors. Seals around the doors were in fair condition at the audit.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating Systems: There are (2) gas fired boilers serving the school. The first is a new Smith gas fired high efficiency hot water boiler with input of 2,185 MBH and efficiency of 91.0% depending on hot water return temperatures. The second was installed with the existing building in 1963. This boiler is a Cleaverbrooks, HB Smith hot water boiler with input of 2,939 BTUH and efficiencies of 80.0% depending on hot water return temperatures. This boiler is past the useful life as reported by ASHRAE. Hot water is pumped to school by (2) 3.0 HP pumps with 89.5% efficiencies. The boilers operate in lead/lag to provide heating to different sections of the building.

Hot water is used to heat the entire school. Classrooms are heated by unit ventilators having hot water coils. Each classroom has a minimum of one unit ventilator. Hallways have perimeter hydronic baseboard heating.

Cooling Systems: The building is 55% cooled**.** The Cafeteria, Network Room and CST Offices are amongst the spaces that have dedicated DX cooling rooftop units. There are (5) rooftop units total. The network room has a dedicated split system. Some classrooms utilize 2-ton window air conditioners to condition the air.

Ventilation Systems: Offices and classrooms are ventilated by unit ventilators. The gymnasium is heated separately by a 10,000 CFM Nesbitt heating & ventilation (HV) unit. The kitchen is ventilated by a separate Nesbitt heating & ventilation (HV) unit. The unit was tagless and the capacity could not be determined.

Exhaust Systems: The school utilizes exhaust fans of various sizes located on the roof to exhaust restrooms and storage areas.

Controls Systems

The building is controlled by a hybrid of a web-based Johnson Controls Metasys direct digital control system (DDC) and pneumatically actuated dampers and valves. The system utilizes a (2) Quincy single compressor air compressor to produce compressed air needed to actuate valves and dampers. The Metasys system can monitor the pneumatic controls operation. Upgrading to full DDC control would remove the compressor and associated air leaks. Each head custodian has control over the system at their school and monitors their system through the web from a dedicated PC. The window units are controlled manually. System monitors status of pumps, boilers, and exhaust fans.

Typical setpoints in the facility are 69°F heating and 71°F cooling during occupied times, and 65°F heating and 80°F cooling during unoccupied times. Each setpoint has +/- 4 degree variance. Each space has a sensor that is tied into the BAS.

Domestic Hot Water Systems

The building is served by (1) gas fired A.O. Smith and (1) Bradford White gas-fired domestic hot water heaters. DHW-1 has a rated 75 MBH heating capacity and 98 gallon storage tank and serves a portion of the main building. The efficiency of this heater is 80%. DHW-2 has a rated 88 MBH heating capacity and 100 gallon storage tank and serves the remainder of the building.

Kitchen Equipment

The kitchen has (1) Blodgett Natural Gas Ovens. The rest of the appliances include (1) refrigerator and (2) Deep Freezers. These units appear to be in good condition. They should be replaced with energy star appliances through attrition as these units fail. There is no kitchen hood or dishwasher.

Plumbing Systems

The school has been renovating restrooms and upgrading the plumbing fixtures in the process. In general fixtures installed after 1990 have low flow flush valves. Fixtures installed before 1980 typically have high-flow flush valves and faucets. The toilets were 1.28 gpf, the urinals were 0.5 gpf. The sinks were assumed to be low flow (0.5 gpm) based on the other work done to the restrooms.

Lighting / Electrical Systems

The school utilizes 34 watt T-8 fluorescent tube fixtures for offices, mechanical rooms, cafeteria, hallways, and classrooms. The ballast are electronic. It appears from the lighting survey that occupancy sensors have been installed in some classrooms. The gymnasium has an older style technology light bulb that consumes more energy than newer bulbs. These bulbs are 400 metal halides. The building exterior utilizes a 400W metal halide wall packs and 200W HPS that are controlled by a photocell sensor.

3.0 UTILITY

Utilities include electricity and natural gas. Electricity is supplied and delivered Jersey Central Power & Light (JCP&L). Natural gas is supplied and delivered by New Jersey Natural Gas. Water bills were not provided at the time of the audit.

For the 12-month period ending in June 2013, the utilities usages for the buildings were as follows:

Table 1: Actual Cost & Site Utility Usage

Electric						
School Name	**Annual Usage**	**Annual Cost**	**Blended Rate**	**Supply Rate**	**Peak Demand**	**Demand Rate**
Unit	kWh	$	$/kWh	$/kWh	kW	$/kW
Cambridge Park Elementary School	305,400	34,799	0.11	.080	159.1	6.23
Cliffwood Elementary School	345,760	39,286	0.11	.080	142.6	7.60
Lloyd Road Elementary School	358,640	39,788	0.11	.080	122.7	6.21
Matawan Avenue Middle School	805,840	102,268	0.13	.085	391.7	6.88
Matawan Regional High School	1,201,265	135,069	0.12	.080	84.8	5.89
Ravine Drive Elementary School	253,120	28,482	0.11	.080	96.60	5.93
Strathmore Elementary School	285,068	35,011	0.123	.087	137.4	6.25

Blended Rate: Average rate charged determined by the annual cost / annual usage
Supply Rate: Actual rate charged for electricity usage in kWh
Demand Rate: Rate charged for actual electrical demand in kW

Natural Gas			
School Name	**Annual Usage**	**Annual Cost**	**Rate**
Unit	Therms	$	$/Therm
Cambridge Park Elementary School	27,084	30,146	1.11
Cliffwood Elementary School	21,048	27,685	1.32
Lloyd Road Elementary School	36,919	46,596	1.26
Matawan Avenue Middle School	42,386	49,274	1.16
Matawan Regional High School	69,723	80,720	1.16
Ravine Drive Elementary School	24,049	28,913	1.20
Strathmore Elementary School	23,343	25,941	1.11

Electrical usage was higher in the winter months when the school is operational. Natural gas consumption was highest in winter months for heating. See Appendix A for a detailed utility analysis.

Under New Jersey's energy deregulation law, the supply portion of the electric (or natural gas) bill is separated from the delivery portion. The supply portion is open to competition, and customers can shop around for the best price for their energy suppliers. The electric and natural gas distribution utilities will still deliver the gas/ electric supplies through their wires and pipes – and respond to emergencies, should they arise – regardless of where those supplies are purchased. Purchasing the energy supplies from a company other than your electric or gas utility is purely an economic decision; it has no impact on the reliability or safety of the service. Additional information on selecting a third party energy supplier is available here:

http://www.state.nj.us/bpu/commercial/shopping.html.

See Appendix A for a list of third-party energy suppliers licensed by the Board of Public Utilities to sell within the building's service area.

4.0 EPA PORTFOLIO MANAGER

The EPA Portfolio Manager benchmarking tool was used to assess the building's energy performance. Portfolio Manager provides a site and source Energy Use Intensity (EUI), as well as an Energy Star performance rating for qualifying building types. The EUIs are provided in kBtu/ft^2/year, and the performance rating represents how energy efficient a building is on a scale of 1 to 100, with 100 being the most efficient. In order for a building to receive and Energy Star label, the energy benchmark rating must be at least 75. As energy use decreases from implementation of the proposed measures, the Energy Star rating will increase.

The site EUI is the amount of heat and electricity consumed by a building as reflected in utility bills. Site energy may be delivered to a facility in the form of primary energy, which is raw fuel burned to create heat or electricity, such as natural gas or oil; or as secondary energy, which is the product created from a raw fuel such as electricity or district steam. To provide an equitable comparison for different buildings with varying proportions of primary and secondary energy consumption, Portfolio Manager uses the convention of source EUIs. The source energy also accounts for losses incurred in production, storage, transmission, and delivery of energy to the site, which provide an equivalent measure for various types of buildings with differing energy sources. The results of the Portfolio Manager benchmarking tool are contained in the table below.

Building	Site EUI kBtu/ft^2/yr	Source EUI kBtu/ft^2/yr	Energy Star Rating (1-100)
Cambridge Park ES	80.6	131.5	87
Cliffwood ES	48.7	87.7	93
Lloyd Road ES	48	75.4	95
Matawan Avenue MS	77.8	145.6	49
Matawan Regional HS	71.9	131.2	58
Ravine Drive ES	69.8	111.8	84
Strathmore ES	55	91.6	93

The schools with the exception of Matawan Avenue MS School has a below average site EUI and therefore an above average Energy Star Rating Score (50 being the median score). This is most likely attributed to the control system shut down schedule. By implementing the measures discussed in this report, it is expected that the EUI can be further reduced and the Energy Star Rating further increased.

The Portfolio Manager account can be accessed by entering the username and password shown below at the login screen of the Portfolio Manager website (https://www.energystar.gov/istar/pmpam/).

A full EPA Energy Star Portfolio Manager Report is located in Appendix G.

The user name and password for the building's EPA Portfolio Manager Account has been provided to Patrick DeGeorge Matawan-Aberdeen Board of Education Business Administrator.

5.0 ENERGY CONSERVATION MEASURES

Energy conservation measures (ECM's) are energy savings recommendations that typically require a financial investment. Energy savings can be in the form of:

- electrical demand (KW=kilowatts),
- electrical usage (Kwh=Kilowatt-hour),
- natural gas (Therms=100,000 BTU),
- propane gas (Gallons=91,650 BTU),
- Fuel Oil (Gallons =138,700 Btu), and
- water (KGAL=1,000 gallons).

These recommendations are influenced by the time period that it takes to "break even" referred to as "Simple Payback". Simple payback is calculated by dividing the cost of implementing the ECM by the energy cost savings (in dollars) of that ECM.

Another financial indicator of the performance of a particular ECM is the Return on Investment or ROI.

Two other financial analyses included in this report are Internal Rate of Return (IRR) and Net Present Value (NPV). Internal Rate of Return is the discount rate at which the present value of a project costs equals the present value of the project savings. Net Present Value is the difference between present value of an investment's future net cash flows and the initial investment. If the NPV equals "0", the project would equate to investing the same amount of dollars at the desired rate. NPV is sometimes referred to as Net Present Worth. These values are provided in the summary in appendix C.

5.1 Building Envelope

5.1.1 ECM-1 Window Replacements and Reduced Glazing

Cambridge Park Administration Building was the only building that had single pane windows out of all the buildings surveyed. Energy loss attributed to windows accounts for nearly 25 percent of the annual heating and cooling costs for the average American building, according to the Department of Energy. Replacing these windows with energy efficient ones can lower a buildings utility consumption.

The calculation uses bin weather data estimate the occupied and unoccupied bin hours. This is converted to existing energy for the occupied and unoccupied cases using the existing window U-factor and the heating and cooling temperature. The two are summed together to create the annual utility usage for the baseline. The same steps are done to calculate the proposed utility usage. The difference in heating losses through the windows results in annual heating natural gas and cooling electricity savings.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized as follows:

ECM-1 Window Replacements and Reduced Glazing

Building Name	Budgetary Cost	Annual Utility Savings			Annual Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cambridge Park	409,900	0	1,913	4,912	5,685	(0.7)	0	>15	>15

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.2 HVAC Systems

The following are ECMs associated with the HVAC Systems.

5.2.1 ECM-2 Replace Boilers with Condensing HW Boilers

The energy saving calculations for this measure is based on annual gas usage to create HHW along with the nameplate data of the existing and proposed boilers. The gas usage of these two boilers was calculated by multiplying the capacity percentage with the annual HHW gas usage from the utility data. Older style boilers have maximum nameplate efficiencies of 80%. It is estimated that the proposed condensing boilers have an average 92% efficiency based on manufacturer's specification data.

The implementation of this project requires redundant condensing boilers, new flue piping, rebalance the HHW piping system, and boiler control programming.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-2 Replace Boilers with Condensing Boilers

Building Name	Budgetary Cost	Annual Utility Savings			Annual Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cambridge Park	222,773	0	0	2,897	3,224	(0.6)	4,000	>15	>15
Lloyd Road Elementary School	185,856	0	0	3,949	4,989	(0.3)	3,000	>15	>15
Ravine Drive Elementary School	304,000	0	0	2,572	3,092	(0.7)	6,000	>15	>15
Matawan Regional High School	317,000	0	0	746	864	(0.9)	7,000	>15	>15
Matawan Avenue Middle School	263,000	0	0	4,533	5,270	(0.5)	6,000	>15	>15
Strathmore Elementary School	126,000	0	0	1,248	1,387	(0.7)	3,000	>15	>15

* Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.2.2 ECM-3 Replace Window A/C Units w/Ductless Splits

The school district has numerous window mounted A/C units for classrooms. These units are averaged at 24,000 Btu/hr and 9.8 SEER efficiency units and the condition of the units is fair to poor. An assessment was performed which considered replacing the window units with DX cooling split systems.

The assumption of this calculation is that the operating hours and capacity remain the same. The energy savings is the result of operating a higher efficiency unit.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-3 Replace Window A/C Units w/Ductless Splits

Building Name	Budgetary Cost	Annual Utility Savings			Annual Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cambridge Park	234,800	0	2,647	0	302	(1.0)	2,208	>15	>15
Lloyd Road Elementary School	18,000	0	221	0	24	(1.0)	92	>15	>15
Ravine Drive Elementary School	3,000	0	1,103	0	125	(0.4)	920	>15	>15
Matawan Regional High School	169,000	0	2,647	0	416	(1.0)	2,208	>15	>15
Cliffwood Elementary School	48,000	0	2,071	0	235	(0.9)	552	>15	>15
Matawan Avenue Middle School	112,000	0	1,544	0	196	(1.0)	1,288	>15	>15

* Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.2.3 ECM-4 Replace Old Motors with Premium Efficiency Motors

The HHW pump motors are all standard efficiency motors. It is suggested to replace them with premium efficiency motors.

The total savings of this measure comes from motor efficiency improvement. Savings from replacing the motors with premium efficiency motors were calculated first by using the efficiency of each motor to get the actual electric demand drawn by the motor and then multiplying them with load percentage and run hours.

Implementation of this measure will require installation of premium efficiency motors.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-4 Replace Old Motors with Premium Efficiency Motors

Building Name	Budgetary Cost	Annual Utility Savings			Annual Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cambridge Park	2,065	0.3	1,374	0	180	0.3	0	11.5	11.5
Ravine Drive Elementary School	4,000	0.7	2,899	0	328	0.1	0	12.2	12.2

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.2.4 ECM-5 Install VFDs & Premium Pumps on Hot water Pumps

Schools with varying heating loads and pump sizes of 5 HP or larger could save a significant amount of energy by adding a variable frequency drive (VSD) and changing the pump motor to premium efficiency if they do not currently have them. This ECM looks at the energy savings from installing VSDs to pumps and replacing the motors.

The calculation use a system “on” set point of 55°F and bin weather data to estimate the heating hours of the building for the year. It was calculated that the heating hours are 4,887. The assumption of this calculation is that the operating hours, motor horsepower, and capacity stay the same.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-5 Install VFDs & Premium Pumps on Hot Water Pumps

Building Name	Budgetary Cost	Annual Utility Savings			Annual Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Lloyd Road Elementary School	29,693	0.6	48,442	0	4,358	1.7	1,200	6.8	6.5
Cliffwood Elementary School	12,816	0.2	12,574	0	1,048	0.7	600	12.2	11.7
Matawan Avenue Middle School	15,000	0.4	15,697	0	1,511	1.1	900	9.9	9.3
Strathmore Elementary School	12,000	0.0	5,791	0	711	(0.1)	552	>15	>15

* Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.2.5 ECM-6 HVAC Replacement of Rooftop Units

The HVAC roof top units (RTUs) contain DX cooling and natural gas heating (or hot water coils). Medium pressure gas piping is routed on the roof, and is pressure regulated to low pressure at each unit. Each RTU is mounted on an extended curb, with gravity pressure relief dampers and full economizer dampers. Supply and return ductwork is routed down through the roof curbs to a duct distribution system above the ceilings to each space. The roof tops vary in age but most are over ten years old and several are past their useful life. It is recommended that the RTUs be replaced through attrition with higher energy efficiency ratio (EER) models. This ECM assesses the replacement of each size of RTU and gives the resulting energy savings. The total energy savings is the sum of all of the rooftop unit replacements.

The assumption of this calculation is that the operating hours, number of units, and capacity stays the same. The energy savings result from operating higher efficiency units than the existing.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-6 HVAC Replacement of Rooftop Units

Building Name	Budgetary Cost	Annual Utility Savings			Annual Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Matawan Avenue Middle School	32,000	0	329	0	42	(1.0)	260	>15	>15

* Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.2.6 ECM-7A Replace Existing Condensing Units (Standard Efficiency)

The schools have several split system air conditioning systems that provide cooling to classroom and support spaces. There are several different sizes and manufacturer. These units also have varying efficiencies. The units use R-22 refrigerant, which is currently being phase out of production and costs are anticipated to increase significantly. The replacement units are the same capacity, use environmentally friendly 410A refrigerant and have higher efficiencies. It is recommended that the split systems or condensing units be replaced through attrition with higher energy efficiency ratio (EER) models. This ECM looks at replacing each size of split system and gives the energy savings opportunity.

The assumption of this calculation is that the operating hours, number of units, and capacity stays the same. The energy savings result is from operating higher efficiency units than the existing.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-7A Replace Existing Condensing Units (Standard Efficiency)

Building Name	Budgetary Cost	Annual Utility Savings			Annual Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cambridge Park	81,100	0	5,484	0	625	(0.9)	2,697	>15	>15
Lloyd Road Elementary School	15,800	0	630	0	70	(0.9)	248	>15	>15

* Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.2.7 ECM-7B Replace Existing Condensing Units (Higher Efficiency)

The schools have several split system air conditioning systems that provide cooling to classroom and support spaces. There are several different sizes and manufacturer. These units also have varying efficiencies. The units use R-22 refrigerant, which is currently being phase out of production and costs are anticipated to increase significantly. The replacement units are the same capacity, use environmentally friendly 410A refrigerant and have higher efficiencies. It is recommended that the split systems or condensing units be replaced through attrition with higher energy efficiency ratio (EER) models. This ECM looks at replacing each size of split system and gives the energy savings opportunity.

The assumption of this calculation is that the operating hours, number of units, and capacity stays the same. The energy savings result is from operating higher efficiency units than the existing.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-7B Replace Existing Condensing Units (Higher Efficiency)

Building Name	Budgetary Cost	Annual Utility Savings			Annual Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cambridge Park	94,800	0	7,440	0	848	(0.9)	2,697	>15	>15
Lloyd Road Elementary School	21,900	0	855	0	95	(0.9)	248	>15	>15

* Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.2.8 ECM-8 Replace Existing PTAC Unit

The maintenance supervisor has an old PTAC unit in his office. This unit should be replaced with a newer efficiency model.

The assumption of this calculation is that the operating hours, number of units, and capacity stays the same. The energy savings result is from operating higher efficiency units than the existing.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-8 Replace Existing Condensing Units (Standard Efficiency)

Building Name	Budgetary Cost	Annual Utility Savings			Annual Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cambridge Park	5,400	0	85	0	10	(1.0)	0	>15	>15

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.3 Control Systems

The following are ECMs associated with the Controls Systems:

5.3.1 ECM-9 Install Demand Control Ventilation

Existing operation of the HVAC units serving the gymnasiums, cafeteria, or auditorium utilize a fixed damper position, so that the required amount of outdoor air is always introduced into the space to meet ventilation code, regardless of occupancy whenever the unit is operating. The percentage of outdoor air is generally calculated based on maximum occupancy of the space, which results in more outside air being heated than necessary for less than maximum space occupancy. This measure evaluates implementing demand control ventilation (DCV), which consists of installing Carbon Dioxide (CO_2) sensors in several spaces to control the ventilation rate based on air quality thresholds. The sensors will monitor CO_2 levels in the return duct, when this level is sufficiently low (i.e. less people in the space), the damper positions will change to allow less outside air to be introduced into the HV units, and more return air circulated

throughout the space. This will decrease the amount of heating needed for the outside air, resulting in energy savings.

The saving calculation for this measure quantified the heating load of each heating and ventilating unit, based on the amount of outdoor air introduced into the space. Scheduled outdoor air values were used, along with estimated averaged temperature differential between indoor air and outdoor air to determine existing energy usage in each HV unit. The proposed case assumed a 25% reduction in outdoor air ventilation required at each bin temperature range.

The cost of implementing this measure includes installing CO_2 sensors, dampers, damper actuators, electric wiring, and the labor cost on doing programming on these new devices.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-9 Install Demand Control Ventilation

Building Name	Budgetary Cost	Annual Utility Savings			Total Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Lloyd Road Elementary School	16,000	0	0	3,738	4,717	3.4	0	3.4	3.4
Cliffwood Elementary School	5,000	0	12,608	1,569	3,497	9.5	0	1.4	1.4
Matawan Avenue Middle School	16,000	0	2,311	5,517	6,707	5.3	0	2.4	2.4
Strathmore Elementary School	8,000	0	0	1,109	1,232	1.3	0	6.5	6.5

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.3.2 ECM-10 Install Vending Machine Controls

The buildings in the school have snack and beverage vending machines. These machines consume electricity regardless of occupancy and run 24 hours a day. Utilizing a Vendimiser Control System a refrigerated beverage vending machines use less energy and are comparable in daily energy performance to new ENERGY STAR qualified machines.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-10 Install Vending Machine Controls

Building Name	Budgetary Cost	Annual Utility Savings			Total Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cambridge Park Elementary School	600	0	4,818	0	549	12.7	0	1.1	1.1
Matawan Regional High School	2,000	0	12,045	0	1,891	16.7	0	1.1	1.1
Matawan Avenue Middle School	1,000	0	5,782	0	734	12.8	0	1.4	1.4

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.3.3 ECM-11 Install Network Controller

A few of these schools have many desktop computers for student and administration use. These computers have power saving options that place the computer in sleep mode when not in use. The school can install a network controller to manage these computers and save more energy that just using the standard sleep mode.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-11 Install Network Controller

Building Name	Budgetary Cost	Annual Utility Savings			Total Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Matawan Regional High School	5,000	0	22,500	0	3,533	(1.0)	0	1.4	1.4
Matawan Avenue Middle School	5,000	0	18,000	0	2,284	5.9	0	2.2	2.2

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.4 Domestic Hot Water System

The following are ECMs associated with the Domestic Hot Water Systems.

5.4.1 ECM-12A Replace Electric Domestic Hot Water Heaters with Natural Gas

These water heaters use a substantial amount of electricity to heat water that is not used. Converting to lower cost natural gas will result in fuel savings. This ECM assesses replacing the electric powered DHW heaters with high efficiency gas-fired

condensing gas water heaters. To implement this ECM, piping and electrical wiring will need to be modified as well as new venting installed. The electrical power currently supplied to these units could be used to power other equipment.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-12A Replace Electric Domestic Hot Water Heaters with Natural Gas

Building Name	Budgetary Cost	Annual Utility Savings			Total Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cambridge Park	20,931	4.5	1,910	(74)	472	(0.7)	300	>15	>15
Cliffwood Elementary School	19,410	18.0	3,890	(27)	1,924	0.3	300	10.1	9.9

* Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.4.2 ECM-12B Replace Gas-Fired DHW w/ Condensing Natural Gas DHW Heater

This ECM assesses replacing the large tank-type water heater with an high- efficiency water heater that will produce an adequate amount of hot water with having stand-by losses.

According to the U.S. Department of Energy, 2.5% of stored capacity is lost every hour during DHW heater standby. This value was applied to the total volume to determine annual standby losses. Proposed efficiency was based on a typical high efficiency natural gas condensing type hot water heater; it was calculated that $400 would be saved per year. The new water heaters will require water and gas piping modifications, venting, and electrical connections.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-12B Replace Gas-Fired DHW w/ Condensing Natural Gas DHW Heater

Building Name	Budgetary Cost	Annual Utility Savings			Total Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cliffwood Elementary School	10,997	0	0	116	152	(0.8)	300	>15	>15

* Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.5 Kitchen Equipment

The following are ECMs associated with the Kitchen Equipment.

5.5.1 ECM-13 Install Kitchen Hood Controller

The cafeteria kitchens in the High & Middle Schools contain kitchen hoods with enclosed motors for the exhaust fans located on the roof. The capacity and efficiency of the motors were not available at the time of the site visit. However, capacity information was received from the architectural drawings and used in the calculations.

Installing a Melink hood control system was evaluated. Upon activation of the Melink system, the hood lights will turn on and the fans reach a preset minimum speed of 10 and 50 percent. When cooking appliances are turned on, the fan speed will increase based on temperature sensed in the exhaust duct. During actual cooking, an optical sensor will sense particulates entering the hood and the speed will increase to 100 percent until smoke and heat are removed.

Energy saving is calculated from reduction of exhaust fan speed and the amount of heated air diffused from other heated rooms.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized as follows:

ECM-13 Install Kitchen Hood Controller

Building Name	Budgetary Cost	Annual Utility Savings			Total Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Matawan Regional High School	39,000	0	1,747	0	274	(0.9)	0	>15	>15
Matawan Avenue Middle School	38,000	0	1,167	0	148	(0.9)	0	>15	>15

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.5.2 ECM-14 Install Walk-in Cooler / Freezer Controls

Several cafeteria kitchens contained walk-in cooler(s) and (1) walk-in freezer(s). These do not have controls and run continuously throughout the day. Installing a CoolTrol® Cooler Control System was assessed. The system will monitor both dry and wetbulb temperature within the walk-in and allow evaporators and compressors to modulate up and down based on enthalpy setpoints rather than by dry bulb temperature alone. Savings is a result of reduced run time of evaporator fans, compressors and door heaters.

The implementation cost and savings related to this ECM are presented in Appendix C and summarized as follows:

ECM-14 Install Walk-in Cooler / Freezer Controls

Building Name	Budgetary Cost	Annual Utility Savings			Total Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Lloyd Road Elementary School	15,000	0	3,873	0	430	(0.6)	0	>15	>15
Matawan Regional High School	30,000	0	12,974	0	2,037	0.0	0	14.7	14.7
Matawan Avenue Middle School	15,000	0	8,703	0	1,104	0.1	0	13.6	13.6

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

5.6 Plumbing Systems

There are no ECMs associated with the Plumbing Systems.

5.7 Lighting/Electrical Systems

The following are ECMs associated with the Lighting/Electrical Systems.

5.7.1 ECM-L1 Lighting Replacement / Upgrades

The school district has been proactive with updating the older style fixtures to newer T-8s with electronic ballast and in some cases LEDs. The classrooms and offices have occupancy sensors installed currently. Each space was documented and this ECM assesses updating select fixtures to conserve more energy.

Energy savings for this measure were calculated by comparing the existing and proposed fixture wattages and using estimated times of operation. These calculations are based upon 1 to 1 replacements with the fixtures. They do not take into account lumen output and square footage. A more comprehensive study may be performed to determine correct lighting levels.

Supporting calculations, including assumptions for lighting hours and annual energy usage for each fixture, are provided in Appendix C and summarized below:

ECM-L1 Lighting Replacement / Upgrades

Building Name	Budgetary Cost	Annual Utility Savings			Total Savings	ROI	Potential Incentive*	Payback (without Incentive)	Payback (with Incentive)
		Electricity		Natural Gas					
	$	kW	kWh	Therms	$		$	Years	Years
Cambridge Park	122,000	17.0	48,021	0	6,744	(0.2)	11,830	>15	>15
Lloyd Road Elementary School	63,315	8.0	18341	0	2,205	(0.4)	5,660	>15	>15
Ravine Drive Elementary School	56,000	5.0	10,640	0	1,342	(0.6)	6,040	>15	>15
Matawan Regional High School	294,000	28.0	79,372	0	9,555	(0.3)	32,660	>15	>15
Cliffwood Elementary School	162,852	19.0	47,191	0	5,599	(0.3)	19,590	>15	>15
Matawan Avenue Middle School	304,000	24.0	51,990	0	6,918	(0.6)	33,600	>15	>15
Strathmore Elementary School	110,000	15.0	46,570	0	5,606	(0.1)	11,500	>15	>15

* Incentive shown is per the New Jersey SmartStart Program. See section 5.0 for other incentive opportunities

The other two ECMs (Occupancy Sensors and Lighting Replacements w/ Occupancy Sensors) were not looked at due to the buildings having functional occupancy sensors already installed.

6.0 PROJECT INCENTIVES

6.1 Incentives Overview

The following sections give detailed information on available incentive programs including New Jersey Smart Start, Direct Install, New Jersey Pay for Performance (P4P) and Energy Savings Improvement Plan (ESIP). If the School District wishes to and is eligible to participate in the Energy Savings Improvement Plan (ESIP) program and/or the Pay for Performance Incentive Program (P4P), it cannot participate in either the Smart Start or Direct Install Programs. Refer to appendix D for more information on the Smart Start program.

6.1.1 New Jersey Smart Start Program

For this energy audit, The New Jersey Smart Start Incentives are used in the energy savings calculations, where applicable. This program is intended for medium and large energy users and provides incentives for:

- Electric Chillers
- Gas Chillers
- Gas Heating
- Unitary HVAC
- Ground Source Heat Pumps
- Variable frequency Drives/ motors
- Refrigeration
- Prescriptive and performance lighting and lighting controls

The equipment is procured using a typical bid- build method, installed and paid for and then the incentives are reimbursed to the school.

Refer to appendix D for more information on the Smart Start program.

6.1.2 Direct Install Program

The Direct Install Program applies to smaller facilities that have a peak electrical demand of 200 kW or less in any of the previous 12 months. Buildings must be located in New Jersey and served by one of the state's public, regulated electric utility companies.

Direct Install is funded through New Jersey's Clean Energy Program and is designed to provide capital for building energy upgrade projects to fast track implementation. The program will pay up to 70% of the costs for lighting, HVAC, motors, refrigeration, and other equipment upgrades with higher efficiency alternatives. If a building is eligible for this funding, the Direct Install Program can reduce the implementation cost of energy conservation projects.

The Direct install program has specific HVAC equipment and lighting requirements and are generally applicable only to smaller package HVAC units, small boilers and lighting retrofits.

The program pays a maximum amount of $75,000 per building, and up to $250,000 per customer per year. Installations must be completed by an approved Direct Install participating contractor, a list of which can be found on the New Jersey Clean Energy Website. Contractors will coordinate with the applicant to arrange installation of recommended measures identified in a previous energy assessment, such as this energy audit. The incentive is reimbursed to New Providence Middle/High School upon successful replacement and payment of the equipment.

The following table summarizes the eligibility of each school for direct install. If a school does not qualify, it is because the electrical demand is greater than the maximum peak electrical demand of 200 kW for the last 12 month period.

Building Name	Eligible for Direct Install (Y/N)	Eligible Categories
Cambridge Park	Y	ECM-2, ECM-5, ECM-4, ECM-7A, ECM-7B, ECM-8, ECM-12, ECM-L1
Lloyd Road Elementary School	Y	ECM-2, ECM-3, ECM-7A, ECM-7B, ECM-5, ECM-L1
Ravine Drive Elementary School	Y	ECM-2, ECM-5, ECM-4, ECM-L1
Matawan Regional High School	N	-
Cliffwood Elementary School	Y	ECM-3, ECM-5, ECM-12A, ECM-12B, ECM-L1
Matawan Avenue Middle School	N	-
Strathmore Elementary School	Y	ECM-2, ECM-5, ECM-L1

Refer to appendix D for more information on this program.

6.1.3 New Jersey Pay For Performance Program (P4P)

The facility will be eligible for incentives from the New Jersey Office of Clean Energy. The most significant incentives are available from the New Jersey Pay for Performance (P4P) Program. The P4P program is designed for qualified energy conservation projects applied to facilities whose demand in any of the preceding 12 months exceeds 100 kW. This average minimum has been waived for buildings owned by local governments or municipalities and non-profit organizations, however. Facilities that meet this criterion must also achieve a minimum performance target of 15% energy reduction by using the EPA Portfolio Manager benchmarking tool before and after implementation of the measure(s). If the participant is a municipal electric company customer, and a customer of a regulated gas New Jersey Utility, only gas measures will be eligible under the Program. Available incentives are as follows:

Incentive #1: Energy Reduction Plan – This incentive is designed to offset the cost of services associated with the development of the Energy Reduction Plan (ERP).

- Incentive Amount: $0.10/SF
- Minimum incentive: $5,000
- Maximum Incentive: $50,000 or 50% of Facility annual energy cost

The standard incentive pays $0.10 per square foot, up to a maximum of $50,000, not to exceed 50% of facility annual energy cost, paid after approval of application. For building audits funded by the New Jersey Board of Public Utilities, which receive an initial 75% incentive toward performance of the energy audit, facilities are only eligible for an additional $0.05 per square foot, up to a maximum of $25,000, rather than the standard incentive noted above.

Incentive #2: Installation of Recommended Measures – This incentive is based on projected energy savings as determined in Incentive #1 (Minimum 15% savings must be achieved), and is paid upon successful installation of recommended measures.

Electric

- Base incentive based on 15% savings: $0.09/ per projected kWh saved.
- For each % over 15% add: $0.005 per projected kWh saved.
- Maximum incentive: $0.11/ kWh per projected kWh saved

Gas

- Base incentive based on 15% savings: $0.90/ per projected Therm saved.
- For each % over 15% add: $0.05 per projected Therm saved.
- Maximum incentive: $1.25 per projected Therm saved

Incentive cap: 25% of total project cost

Incentive #3: Post-Construction Benchmarking Report – This incentive is paid after acceptance of a report proving energy savings over one year utilizing the Environmental Protection Agency (EPA) Portfolio Manager benchmarking tool.

Electric

- Base incentive based on 15% savings: $0.09/ per projected kWh saved.
- For each % over 15% add: $0.005 per projected kWh saved.
- Maximum incentive: $0.11/ kWh per projected kWh saved

Gas

- Base incentive based on 15% savings: $0.90/ per projected Therm saved.
- For each % over 15% add: $0.05 per projected Therm saved.
- Maximum incentive: $1.25 per projected Therm saved

Combining incentives #2 and #3 will provide a total of $0.18/ kWh and $1.8/therm not to exceed 50% of total project cost. Additional incentives for #2 and #3 are increased by $0.005/kWh and $0.05/therm for each percentage increase above the 15% minimum target to 20%, calculated with the EPA Portfolio Manager benchmarking tool, not to exceed 50% of total project cost.

Total P4P incentives for this project are summarized below:

Cambridge Park Administration Building	Incentives $		
	Electric	Gas	Total
Incentive #1	$0	$0	$5,000
Incentive #2	$8,106	$9,669	$17,775
Incentive #3	$8,106	$9,669	$17,775
Total	**$16,212**	**$19,338**	**$40,551**

Matawan Regional High School	Incentives $		
	Electric	Gas	Total
Incentive #1	$0	$0	$0
Incentive #2	$0	$0	$0
Incentive #3	$0	$0	$0
Total	**$0**	**$0**	**$0**

Cliffwood Elementary School	Incentives $		
	Electric	Gas	Total
Incentive #1	$0	$0	$0
Incentive #2	$0	$0	$0
Incentive #3	$0	$0	$0
Total	**$0**	**$0**	**$0**

Ravine Drive Elementary School	Incentives $		
	Electric	Gas	Total
Incentive #1	$0	$0	$0
Incentive #2	$0	$0	$0
Incentive #3	$0	$0	$0
Total	**$0**	**$0**	**$0**

Matawan Avenue Middle School	Incentives $		
	Electric	Gas	Total
Incentive #1	$0	$0	$8,986
Incentive #2	$11,607	$11,324	$22,931
Incentive #3	$11,607	$11,324	$22,931
Total	**$23,214**	**$22,647**	**$54,848**

Lloyd Road Elementary School	Incentives $		
	Electric	Gas	Total
Incentive #1	$0	$0	$10,236
Incentive #2	$7,960	$9,093	$17,053
Incentive #3	$7,960	$9,093	$17,053
Total	**$15,920**	**$18,186**	**$44,343**

Strathmore Elementary School	Incentives $		
	Electric	Gas	Total
Incentive #1	$0	$0	$0
Incentive #2	$0	$0	$0
Incentive #3	$0	$0	$0
Total	$0	$0	$0

For the purpose of demonstrating the eligibility of the ECM's to meet the minimum savings requirement of 15% for the Pay for Performance Program, the recommended ECM's which have less than 15 years payback have been included in the incentive calculations.

Refer to appendix D for more information on this program.

6.1.4 Energy Savings Improvement Plan (ESIP)

The Energy Savings Improvement Program (ESIP) allows government agencies to make energy related improvements to their facilities and pay for the costs using the value of energy savings that result from the improvements. Under the recently enacted Chapter 4 of the Laws of 2009 (the law), the ESIP provides all government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources.

ESIP allows local units to use "energy savings obligations" to pay for the capital costs of energy improvements to their facilities. This can be done over a maximum term of 15 years. Energy savings obligations are not considered "new general obligation debt" of a local unit and do not count against debt limits or require voter approval. They may be issued as refunding bonds or leases. Savings generated from the installation of energy conservation measures pay the principal of and interest on the bonds; for that reason, the debt service created by the ESOs is not paid from the debt service fund, but is paid from the general fund.

For local governments interested in pursuing an ESIP, the first step is to perform an energy audit. Pursuing a Local Government Energy Audit through New Jersey's Clean Energy Program is a valuable first step to the ESIP approach. The "Local Finance Notice" outlines how local governments can develop and implement an ESIP for their facilities. The ESIP can be prepared internally if the entity has qualified staff. If not, the ESIP must be implemented by an independent contractor and not by the energy savings company producing the Energy Reduction Plan.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Local units should carefully consider all alternatives to develop an approach that best meets their needs. Refer to appendix D for more information on this program.

7.0 ALTERNATIVE ENERGY SCREENING EVALUATION

7.1 Solar

7.1.1 Photovoltaic Rooftop Solar Power Generation

The schools were evaluated for the potential to install rooftop photovoltaic (PV) solar panels for power generation. Present technology incorporates the use of solar cell arrays that produce direct current (DC) electricity. This DC current is converted to alternating current (AC) with the use of an electrical device known as an inverter. The amount of available roof area determines how large of a solar array can be installed on any given roof. The table below summarizes the approximate roof area available on each school and the associated solar array size that can be installed.

School Name	Available Roof Area	System Size
	Ft^2	kW
Cambridge Park ES	47,111	210
Cliffwood ES	52,847	220
Lloyd Road ES (Flat)	50,150	210
Lloyd Road ES (Tilted)	10,584	40
Matawan Avenue MS	127,398	600
Matawan Regional HS	158,150	770
Ravine Drive ES	38,932	160
Strathmore ES	56,764	240

The PVWATTS solar power generation model was utilized to calculate PV power generation; this model is provided in Appendix E.

Installation of (PV) arrays in the state New Jersey will allow the owner to participate in the New Jersey solar renewable energy certificates program (SREC). This is a program that has been set up to allow entities with large amounts of environmentally unfriendly emissions to purchase credits from zero emission (PV) solar-producers. An alternative compliance penalty (ACP) is paid for by the high emission producers and is set each year on a declining scale of 3% per year. One SREC credit is equivalent to 1000 kilowatt hours of PV electrical production; these credits can be traded for period of 15 years from the date of installation. Payments that will be received by the PV producer

(school) will change from year to year dependent upon supply and demand. There is no definitive way to calculate an exact price that will be received by the PV producer for SREC credits over the next 15 years. Renewable Energy Consultants estimates an average of $(138)/ SREC for 2012 and this number was utilized in the cash flow for this report.

The system costs for PV installations were derived from recent solar contractor budgetary pricing in the state of New Jersey and include the total cost of the system installation (PV panels, inverters, wiring, ballast, controls). The cost of installation is currently about $4.00 per watt or $4,000 per kW of installed system, for a typical 100 kW system. There are other considerations that have not been included in this pricing, such as the condition of the roof and need for structural reinforcement. Photovoltaic systems can be ground mounted if the roof is not suitable, however this installation requires a substantial amount of open property (not wooded) and underground wiring, which adds more cost. PV panels have an approximate 20 year life span; however, the inverter device that converts DC electricity to AC has a life span of 10 to 12 years and will most likely need to be replaced during the useful life of the PV system.

The implementation cost and savings related to this ECM are presented in Appendix E and summarized as follows:

Photovoltaic (PV) Rooftop Solar Power Generation

Building Name	Budgetary Cost	Annual Utility Savings			Total Savings	New Jersey Renewable Energy Incentive*	New Jersey Renewable SREC**	Payback (without incentive)	Payback (with incentives)	Recommended
		Electricity		Natural Gas						
	$	kW	kWh	Therms	$	$	$	Years	Years	Y/N
Cambridge Park ES	840,000	210	270,298	0	29,733	0	37,166	28.3	12.6	N
Cliffwood ES	880,000	220	283,169	0	31,149	0	38,936	28.3	12.6	N
Lloyd Road ES (Flat)	840,000	210	270,298	0	29,733	0	37,166	28.3	12.6	N
Lloyd Road ES (Tilted)	160,000	40	38,824	0	4,271	0	5,338	37.5	16.7	N
Matawan Avenue MS	2,400,000	600	772,279	0	100,396	0	106,575	23.9	11.6	N
Matawan Regional HS	3,080,000	770	991,092	0	118,931	0	136,771	25.9	12.0	N
Ravine Drive ES	640,000	160	205,941	0	23,173	0	28,420	27.6	12.4	N
Strathmore ES	960,000	240	308,912	0	37,069	0	42,630	25.9	12.0	N

** Estimated Solar Renewable Energy Certificate Program (SREC) at $138/1000 kWh

Note: The installation of PV Solar arrays are only recommended for schools whose individual paybacks are less than 15 years. Before implementation is pursued, the school should hire a certified solar PV contractor.

7.1.2 Solar Thermal Hot Water Generation

Active solar thermal systems use solar collectors to gather the sun's energy to heat water, another fluid, or air. An absorber in the collector converts the sun's energy into heat. The heat is then transferred by circulating water, antifreeze, or sometimes air to another location for immediate use or storage for later utilization. Applications for active solar thermal energy include providing hot water, heating swimming pools, space heating, and preheating air in residential and commercial buildings.

A standard solar hot water system is typically composed of solar collectors, heat storage vessel, piping, circulators, and controls. Systems are typically integrated to work alongside a conventional heating system that provides heat when solar resources are not sufficient. The solar collectors are usually placed on the roof of the building, oriented south, and tilted around the site's latitude, to maximize the amount of radiation collected on a yearly basis.

Several options exist for using active solar thermal systems for space heating. The most common method involves using glazed collectors to heat a liquid held in a storage tank (similar to an active solar hot water system). The most practical system would transfer the heat from the panels to thermal storage tanks and transfer solar produced thermal energy to use for domestic hot water production. DHW is presently produced by gas-fired water heaters and, therefore, this measure would offer natural gas utility savings.

7.2 Demand Response Curtailment

Presently, Electricity is delivered by Jersey Central Power & Lights (JCP&L), which receives the electricity from regional power grid RFC East. PJM Interconnection is the regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia including the State of New Jersey.

Utility Curtailment is an agreement with the utility provider's regional transmission organization and an approved Curtailment Service Provider (CSP) to shed electrical load by either turning major equipment off or energizing all or part of a facility utilizing an emergency generator; therefore, reducing the electrical demand on the utility grid. This program is to benefit the utility company during high demand periods and utility provider offers incentives to the CSP to participate in this program. Enrolling in the program will require program participants to drop electrical load or turn on emergency generators during high electrical demand conditions or during emergencies. Part of the program also will require that program participants reduce their required load or run emergency generators with notice to test the system.

A pre-approved CSP will require a minimum of 100 kW of load reduction to participate in any curtailment program. From March 2012 through February 2013 the following table describes the electricity load profile for each school.

School Name	Peak Demand	Min Demand	Avg Demand	Onsite Generation	Eligible?
	kW	kW	kW	Y/N	Y/N
Cambridge Park ES	159.1	73.1	110.0	N	N
Cliffwood ES	142.6	91.4	121.5	N	N
Lloyd Road ES	122.7	65.8	105.63	N	N
Matawan Avenue MS	391.7	189.1	317.45	N	N
Matawan Regional HS	404.1	287.4	323.5	N	N
Ravine Drive ES	96.60	64.6	85.7	N	N
Strathmore ES	137.4	89.4	103.7	N	N

Implementation for this measure will require a load shedding sequence to be established by using a demand control system. If the school has onsite electricity generation available, some load can be supplemented by running that device.

8.0 CONCLUSIONS & RECOMMENDATIONS

The LGEA energy audit conducted by CHA for the Matawan-Aberdeen Regional School District Board of Education identified potential annual savings of $74,260 may be realized for the recommended ECMs, with a summary of the costs, savings, and paybacks as follows:

Cambridge Park Elementary School	Lloyd Road Elementary School	Ravine Drive Elementary School	Strathmore Elementary School	Matawan Regional High School	Cliffwood Elementary School	Matawan Avenue Middle School	ECM #	Energy Conservation Measure	Est. Costs ($)	Est. Savings ($/year)	Payback w/o Incentive	Potential Incentive ($)*	Payback w/ Incentive	Recommended
X							4	Replace Old Motors with Premium	2,065	180	11.5	0	11.5	X
		X							4,000	328	12.2	0	12.2	X
	X						5	Install VFDs & Premium Pumps on Hot water Pumps	29,693	4,358	6.8	1,200	6.5	X
			X						12,000	711	>15	552	>15	
					X				12,816	1,048	12.2	600	11.7	X
						X			15,000	1,511	9.9	900	9.3	X
	X						9	Demand Control Ventilation	16,000	4,717	3.4	0	3.4	X
			X						8,000	1,232	6.5	0	6.5	X
					X				5,000	3,497	1.4	0	1.4	X
						X			16,000	6,707	2.4	0	2.4	X
X							10	Install Vending Machine Controllers	600	549	1.1	0	1.1	X
				X					2,000	1,891	1.1	0	1.1	X
						X			1,000	734	1.4	0	1.4	X
				X			11	Install Network Controller	5,000	3,533	1.4	0	1.4	X
						X			5,000	2,284	2.2	0	2.2	X
X							12A	Replace Existing DHW Heater	20,931	472	>15	300	>20	
					X				19,410	1,924	10.1	300	9.9	X
X							L1	Lighting Replacement / Upgrades	122,000	6,744	>15	11,830	>15	X
	X								63,315	2,205	>15	5,660	>15	X
		X							56,000	1,342	>15	6,040	>15	
			X						110,000	5,606	>15	11,500	>15	X
				X					294,000	9,555	>15	32,660	>15	X
					X				162,852	5,599	>15	19,590	>15	X
						X			304,000	6,918	>15	33,600	>15	X
								Total	**1,242,752**	**74,260**	**16.7**	**117,840**	**15.1**	**X**

APPENDIX A

Utility Usage Analysis

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

Utility Bills: Account Numbers

Account Number	School Building	Location	Type	Notes
100011887344	Cambridge Park Administration Building	One Crest Way, Aberdeen, NJ 07747	Electricity	
20-2398-2085-2Y	Cambridge Park Administration Building	One Crest Way, Aberdeen, NJ 07747	Natural Gas	
			Water	

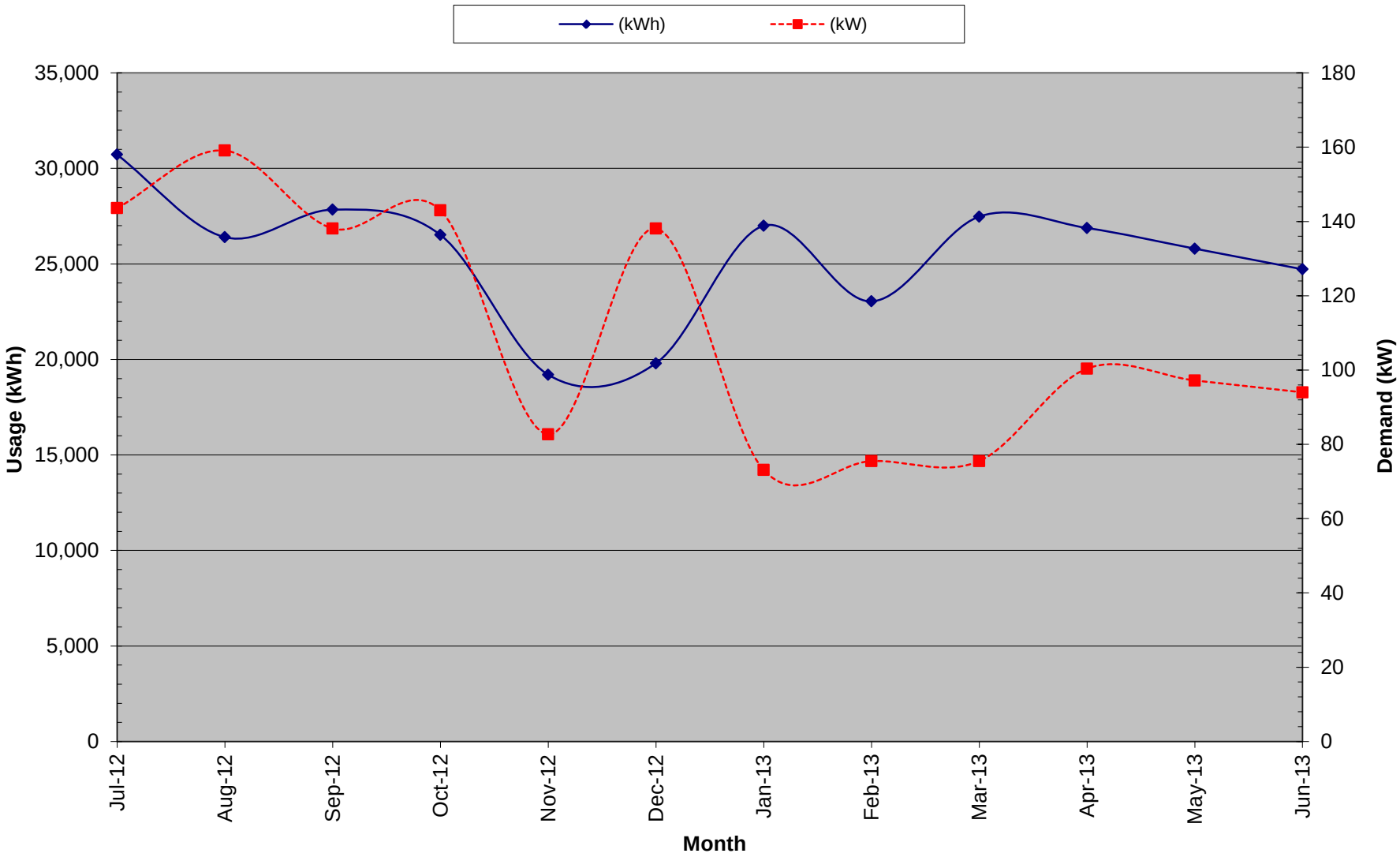
Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Cambridge Park Administration Building**
Account No.: **100011887344** **Delivery -** JCP&L
Meter No.: **S35281452** **Supplier -**
Electric Service

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	**Consumption (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Blended Rate ($/kWh)**	**Consumption ($/kWh)**	**Demand ($/kW)**
July-12	30,720	143.60	1,203.99	2,409.06	3,613.05	2,685.87	927.18	0.12	0.09	6.46
August-12	26,400	159.10	1,145.22	2,184.55	3,329.77	2,440.76	889.01	0.13	0.09	5.59
September-12	27,840	138.10	1,241.00	2,184.55	3,425.55	2,440.76	984.79	0.12	0.09	7.13
October-12	26,520	143.00	1,070.95	2,078.81	3,149.76	2,320.95	828.81	0.12	0.09	5.80
November-12	19,200	82.70	711.49	1,381.07	2,092.56	1,345.31	747.25	0.11	0.07	9.04
December-12	19,800	138.10	1,022.87	1,554.29	2,577.16	1,748.35	828.81	0.13	0.09	6.00
January-13	27,000	73.10	237.14	2,601.86	2,839.00	2,822.13	16.87	0.11	0.10	0.23
February-13	23,040	75.50	657.90	1,836.33	2,494.23	1,909.58	584.65	0.11	0.08	7.74
March-13	27,480	75.50	923.83	1,944.24	2,868.07	2,148.10	719.97	0.10	0.08	9.54
April-13	26,880	100.40	809.92	2,104.93	2,914.85	2,329.96	584.89	0.11	0.09	5.83
May-13	25,800	97.20	782.28	2,020.93	2,803.21	2,239.03	564.18	0.11	0.09	5.80
June-13	24,720	94.00	754.64	1,936.93	2,691.57	2,148.10	543.47	0.11	0.09	5.78
Total (All)	**305,400**	**159.10**	**$10,561.23**	**$24,237.55**	**$34,798.78**	**$26,578.90**	**$8,219.88**	**$0.11**	**$0.09**	**$6.23**
Total (last 12-months)	**305,400**	**159.10**	**$10,561.23**	**$24,237.55**	**$34,798.78**	**$26,578.90**	**$8,219.88**	**$0.11**	**$0.09**	**$6.23**
Notes	1	2	3	4	5	6	7	8	9	10

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider G13=F13+E13
5.) Total charges (Delivery + Supplier)
6.) Charges based on the number of kWh of electric energy used =interpolated data
7.) Charges based on the number of kW of power measured
8.) Total Charges ($) / Consumption (kWh)
9.) Consumption Charges ($) / Consumption (kWh)
10.) Demand Charges ($) / Demand (kW)

Electric Usage - Cambridge Park Administration Building

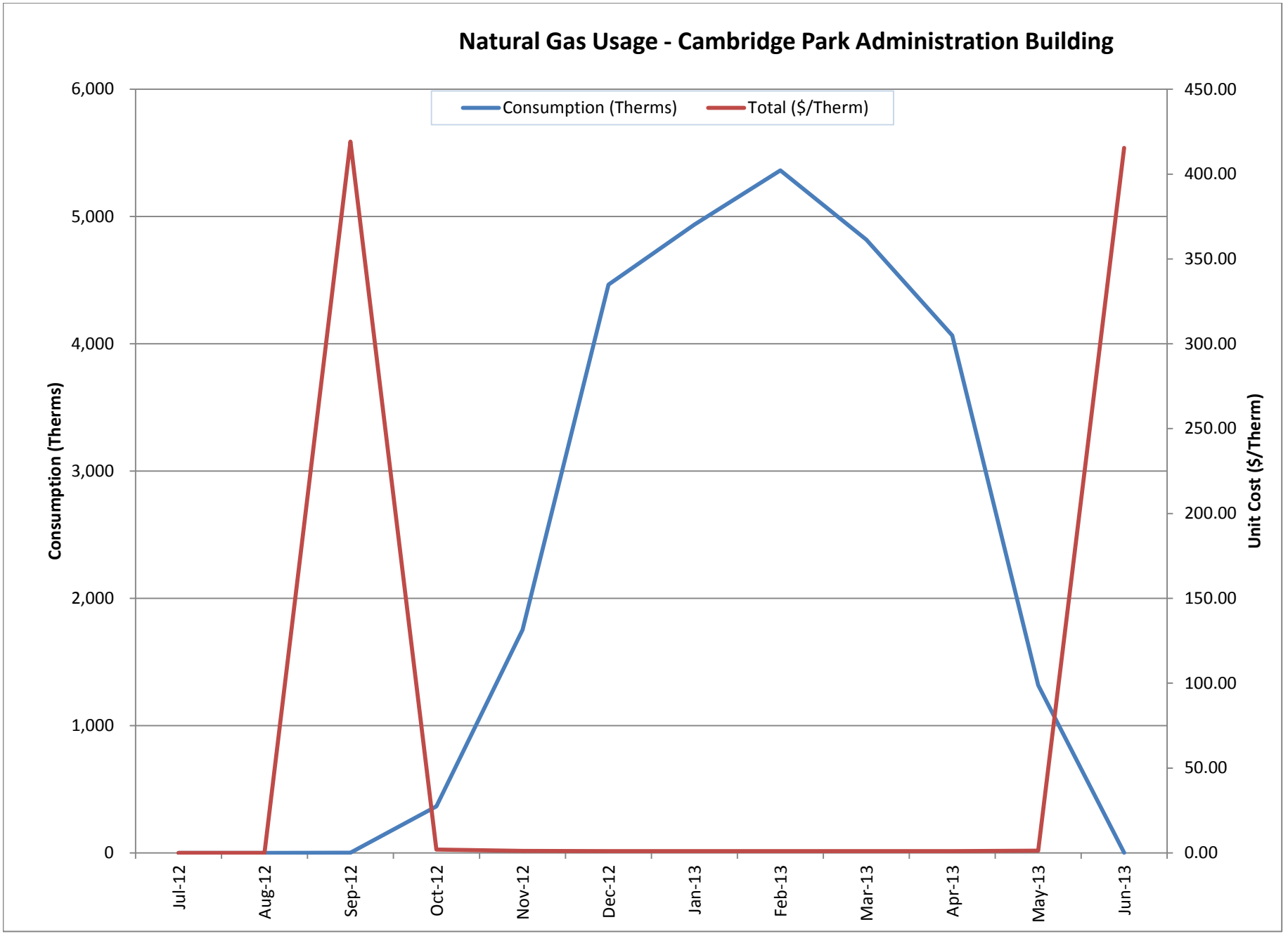


Utility Data -Cambridge Park Administration Building
Electric Graph

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Cambridge Park Administration Building**
Account No.: **202398-2085-2Y**
Natural Gas Service
Delivery - **NJNG**
Supplier - **NJNG**

		Charges			Unit Costs		
Month	**Consumption (Therms)**	**Delivery ($)**	**Supply ($)**	**Total ($)**	**Delivery ($/Therm)**	**Supply ($/Therm)**	**Total ($/Therm)**
July-12	0	$ -	$ 443.41	$ 443.41	#DIV/0!	#DIV/0!	#DIV/0!
August-12	0	$ -	$ 443.00	$ 443.00	#DIV/0!	#DIV/0!	#DIV/0!
September-12	1	$ 0.88	$ 443.41	$ 444.29	$ 0.830	$ 418.311	$ 419.142
October-12	365	$ 294.19	$ 443.41	$ 737.60	$ 0.806	$ 1.214	$ 2.020
November-12	1,752	$ 1,544.85	$ 443.41	$ 1,988.26	$ 0.882	$ 0.253	$ 1.135
December-12	4,465	$ 4,091.62	$ 443.41	$ 4,535.03	$ 0.916	$ 0.099	$ 1.016
January-13	4,937	$ 4,581.97	$ 443.41	$ 5,025.38	$ 0.928	$ 0.090	$ 1.018
February-13	5,363	$ 4,911.42	$ 443.41	$ 5,354.83	$ 0.916	$ 0.083	$ 0.999
March-13	4,818	$ 4,382.72	$ 443.41	$ 4,826.13	$ 0.910	$ 0.092	$ 1.002
April-13	4,065	$ 3,744.70	$ 443.41	$ 4,188.11	$ 0.921	$ 0.109	$ 1.030
May-13	1,318	$ 1,271.97	$ 443.41	$ 1,715.38	$ 0.965	$ 0.336	$ 1.302
June-13	1	$ 1.06	$ 443.41	$ 444.47	$ 0.991	$ 414.402	$ 415.393
Total	**27,084**	**$ 24,825.38**	**$ 5,320.51**	**$ 30,145.89**	**$ 0.917**	**$ 0.196**	**$ 1.113**


Natural Gas Usage - Cambridge Park Administration Building
Consumption (Therms)
Total ($/Therm)
6,000
5,000
4,000
3,000
2,000
1,000
0
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Consumption (Therms)
Unit Cost ($/Therm)
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

Utility Bills: Account Numbers

Account Number	School Building	Location	Type	Notes
100009079441	Cliffwood Elementary School	422 Cliffwood Avenue, Cliffwood, NJ 0772	Electricity	
01-2303-1535-21	Cliffwood Elementary School	422 Cliffwood Avenue, Cliffwood, NJ 0772	Natural Gas	
			Water	

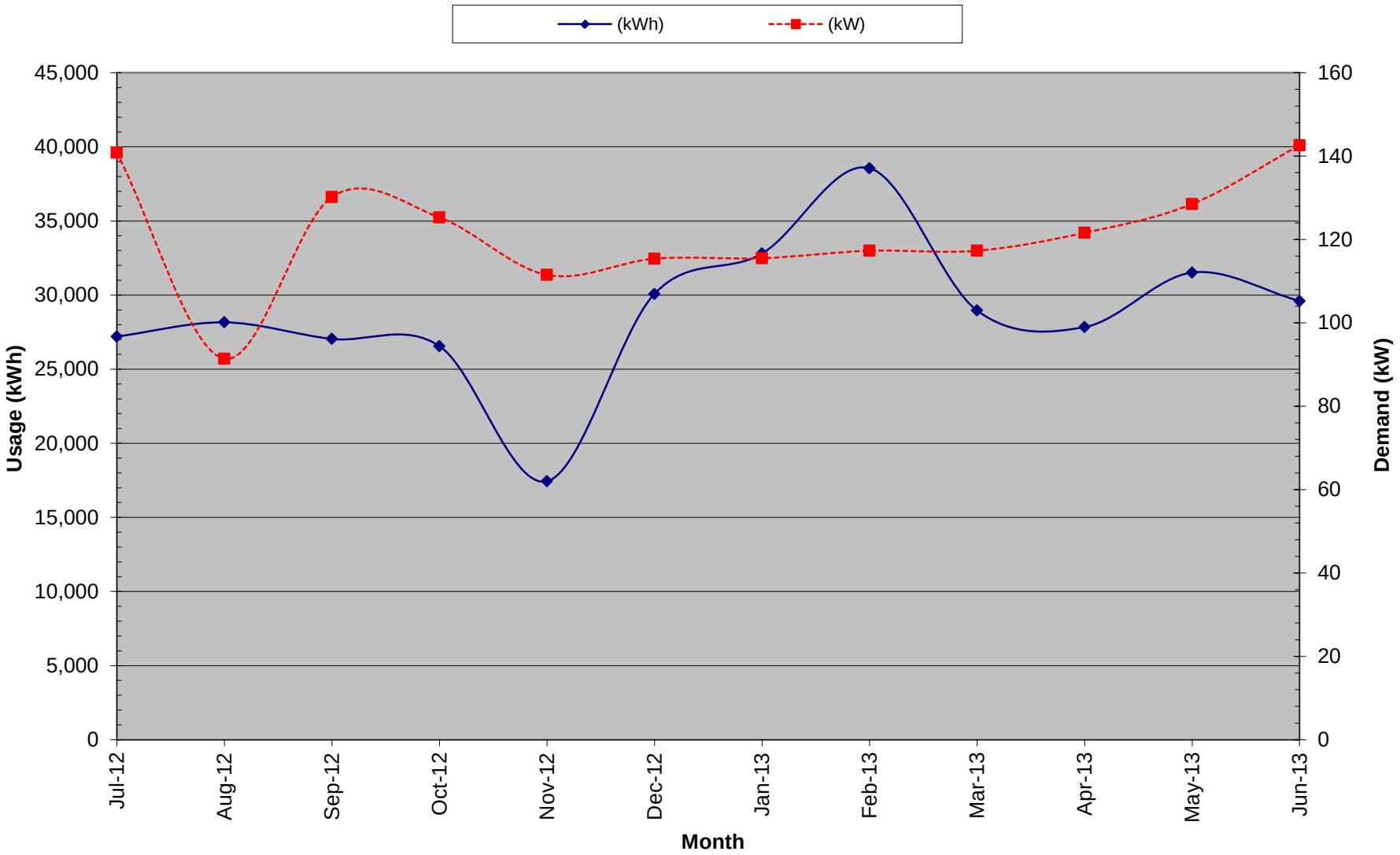
Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Cliffwood Elementary School**
Account No.: **100009079441** **Delivery -** JCP&L
Meter No.: **G28672680** **Supplier -**
Electric Service

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	**Consumption (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Blended Rate ($/kWh)**	**Consumption ($/kWh)**	**Demand ($/kW)**
July-12	27,200	140.80	1,159.38	2,131.99	3,291.37	2,383.62	907.75	0.12	0.09	6.45
August-12	28,160	91.40	823.42	2,206.83	3,030.25	2,465.33	564.92	0.11	0.09	6.18
September-12	27,040	130.20	1,084.68	2,119.51	3,204.19	2,370.00	834.19	0.12	0.09	6.41
October-12	26,560	125.30	988.42	2,078.37	3,066.79	2,320.80	745.99	0.12	0.09	5.95
November-12	17,440	111.50	833.89	1,368.06	2,201.95	1,545.24	656.71	0.13	0.09	5.89
December-12	30,080	115.40	949.55	2,351.15	3,300.70	2,618.76	681.94	0.11	0.09	5.91
January-13	32,800	115.50	954.07	2,562.71	3,516.78	2,834.19	682.59	0.11	0.09	5.91
February-13	38,560	117.30	1,008.51	3,010.69	4,019.20	3,310.73	708.47	0.10	0.09	6.04
March-13	28,960	117.30	932.63	2,264.05	3,196.68	2,502.45	694.23	0.11	0.09	5.92
April-13	27,840	121.60	912.23	2,217.96	3,130.19	2,261.81	868.38	0.11	0.08	7.14
May-13	31,520	128.50	1,015.54	2,469.14	3,484.68	2,146.80	1,337.88	0.11	0.07	10.41
June-13	29,600	142.60	1,119.94	2,722.96	3,842.90	1,448.02	2,394.88	0.13	0.05	16.79
Total (All)	**345,760**	**142.60**	**$11,782.26**	**$27,503.42**	**$39,285.68**	**$28,207.75**	**$11,077.93**	**$0.11**	**$0.08**	**$7.60**
Total (last 12-months)	**345,760**	**142.60**	**$11,782.26**	**$27,503.42**	**$39,285.68**	**$28,207.75**	**$11,077.93**	**$0.11**	**$0.08**	**$7.60**
Notes	1	2	3	4	5	6	7	8	9	10

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider G13=F13+E13
5.) Total charges (Delivery + Supplier)
6.) Charges based on the number of kWh of electric energy used = interpolated data
7.) Charges based on the number of kW of power measured
8.) Total Charges ($) / Consumption (kWh)
9.) Consumption Charges ($) / Consumption (kWh)
10.) Demand Charges ($) / Demand (kW)

Electric Usage - Cliffwood Elementary School

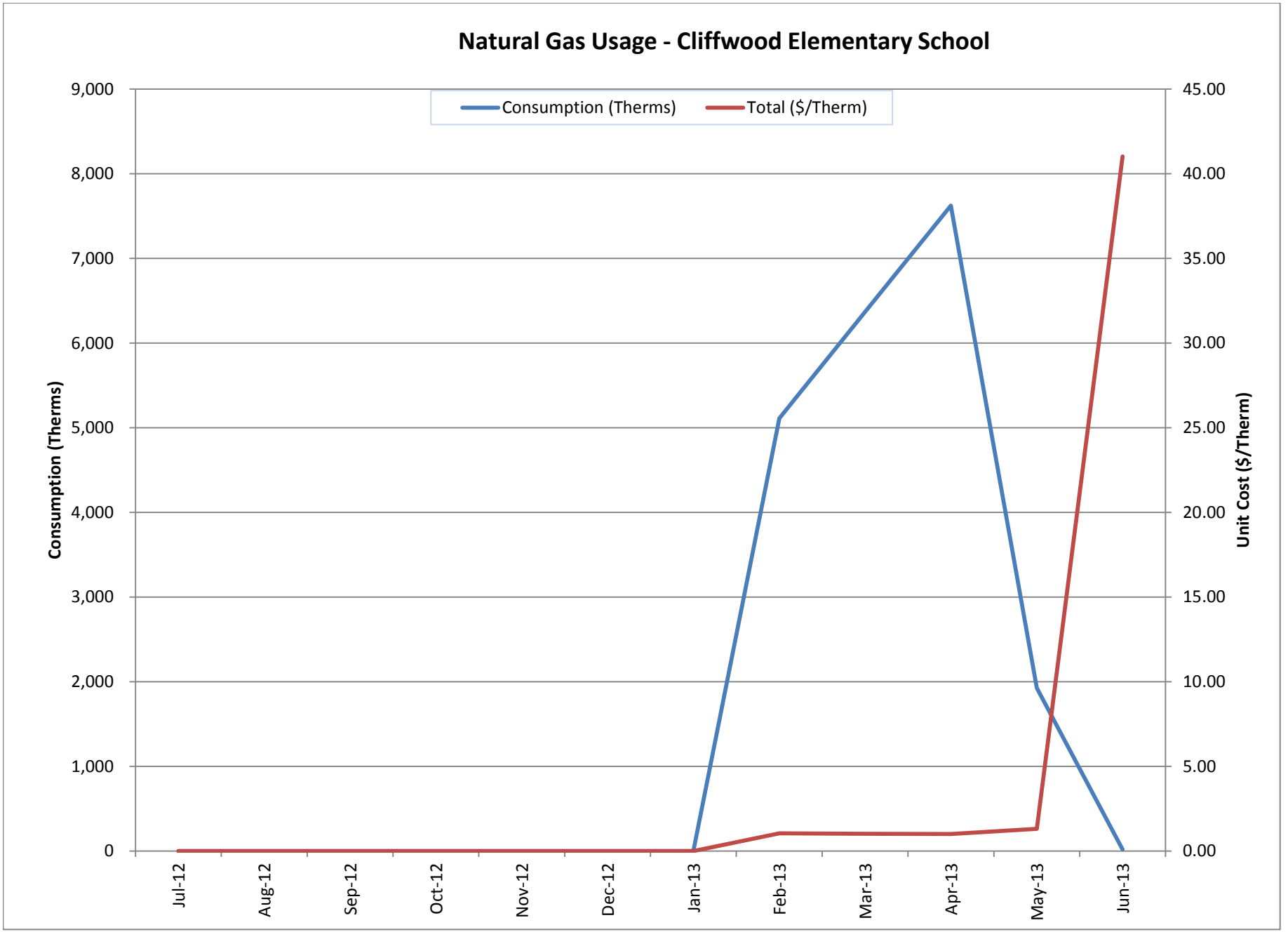


Utility Data -Cliffwood Elementary School
Electric Graph

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Cliffwood Elementary School**
Account No.: **01-2303-1535-21**
Natural Gas Service
Delivery - **NJNG**
Supplier - **NJNG**

		Charges			Unit Costs		
Month	**Consumption (Therms)**	**Delivery ($)**	**Supply ($)**	**Total ($)**	**Delivery ($/Therm)**	**Supply ($/Therm)**	**Total ($/Therm)**
July-12	0	$ -	$ 696.84	$ 696.84	#DIV/0!	#DIV/0!	#DIV/0!
August-12	0	$ -	$ 696.83	$ 696.83	#DIV/0!	#DIV/0!	#DIV/0!
September-12	0	$ -	$ 696.84	$ 696.84	#DIV/0!	#DIV/0!	#DIV/0!
October-12	0	$ -	$ 696.84	$ 696.84	#DIV/0!	#DIV/0!	#DIV/0!
November-12	0	$ -	$ 696.84	$ 696.84	#DIV/0!	#DIV/0!	#DIV/0!
December-12	0	$ -	$ 696.84	$ 696.84	#DIV/0!	#DIV/0!	#DIV/0!
January-13	0	$ -	$ 696.84	$ 696.84	#DIV/0!	#DIV/0!	#DIV/0!
February-13	5,112	$ 4,695.82	$ 696.84	$ 5,392.66	$ 0.919	$ 0.136	$ 1.055
March-13	6,368	$ 5,825.23	$ 696.84	$ 6,522.07	$ 0.915	$ 0.109	$ 1.024
April-13	7,624	$ 6,954.64	$ 696.84	$ 7,651.48	$ 0.912	$ 0.091	$ 1.004
May-13	1,926	$ 1,839.67	$ 696.84	$ 2,536.51	$ 0.955	$ 0.362	$ 1.317
June-13	17	$ 17.22	$ 696.84	$ 714.06	$ 0.989	$ 40.025	$ 41.014
Total	**21,048**	**$ 19,332.58**	**$ 8,362.07**	**$ 27,694.65**	**$ 0.919**	**$ 0.397**	**$ 1.316**


Natural Gas Usage - Cliffwood Elementary School
Consumption (Therms)
Total ($/Therm)
Consumption (Therms)
Unit Cost ($/Therm)
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

Utility Bills: Account Numbers

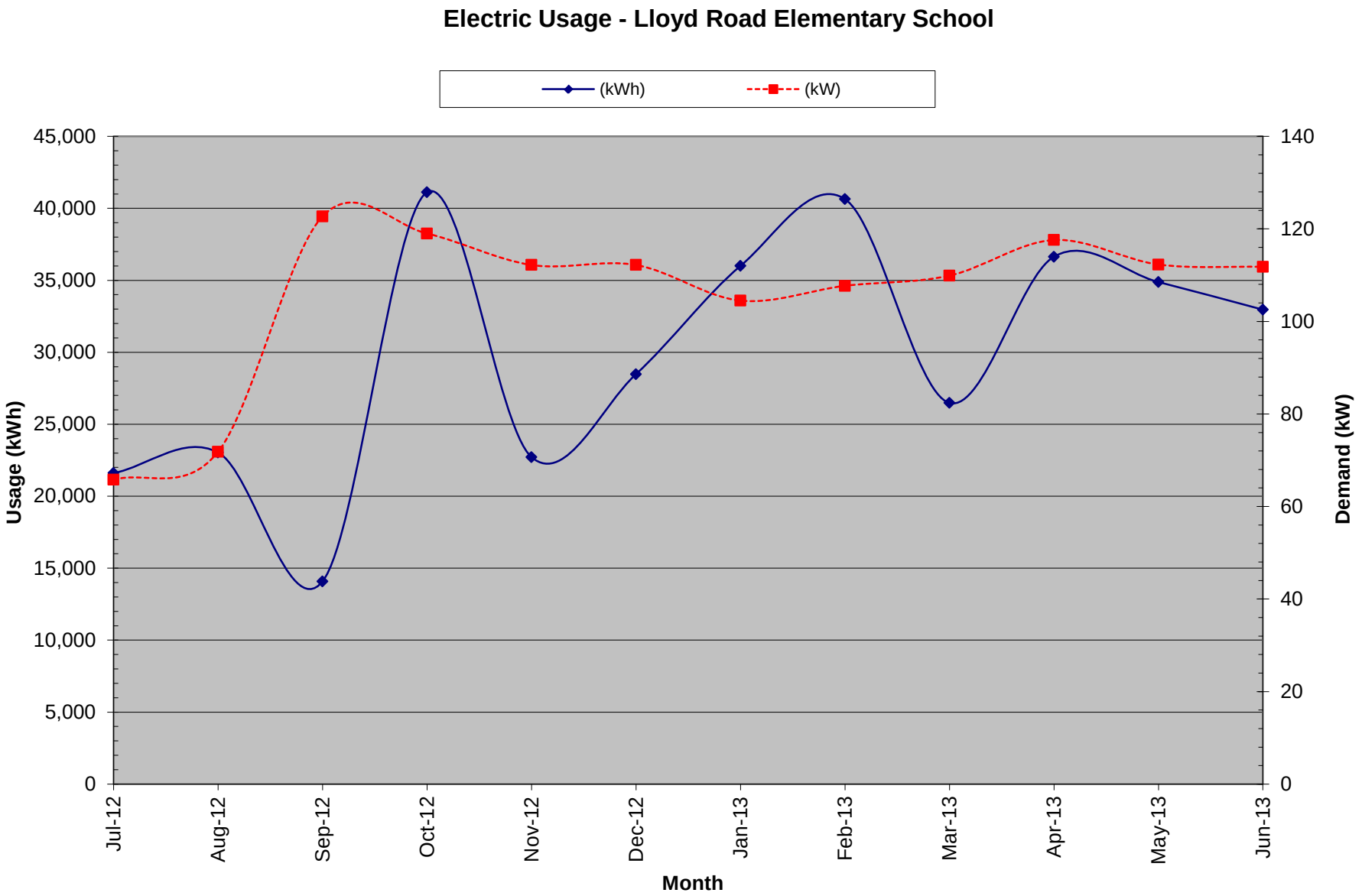
Account Number	School Building	Location	Type	Notes
100011883343	Lloyd Road Elementary School	401 Lloyd Road, Aberdeen, NJ 07747	Electricity	
20-2398-1598-29	Lloyd Road Elementary School	401 Lloyd Road, Aberdeen, NJ 07747	Natural Gas	
			Water	

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Lloyd Road Elementary School**
Account No.: **100011883343** **Delivery -** JCP&L
Meter No.: **G23741533** **Supplier -**
Electric Service

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	**Consumption (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Blended Rate ($/kWh)**	**Consumption ($/kWh)**	**Demand ($/kW)**
July-12	21,600	65.80	598.81	1,698.12	2,296.93	1,909.68	387.25	0.11	0.09	5.89
August-12	23,040	71.80	1,127.41	1,333.72	2,461.13	1,522.96	938.17	0.11	0.07	13.07
September-12	14,080	122.70	939.91	1,111.91	2,051.82	1,269.68	782.14	0.15	0.09	6.37
October-12	41,120	119.00	1,051.81	3,215.37	4,267.18	3,561.95	705.23	0.10	0.09	5.93
November-12	22,720	112.20	685.85	1,777.56	2,463.41	1,978.51	484.90	0.11	0.09	4.32
December-12	28,480	112.20	917.39	2,229.38	3,146.77	2,485.54	661.23	0.11	0.09	5.89
January-13	36,000	104.50	912.01	2,814.24	3,726.25	3,114.83	611.42	0.10	0.09	5.85
February-13	40,640	107.70	945.53	3,175.12	4,120.65	3,488.53	632.12	0.10	0.09	5.87
March-13	26,480	109.90	933.04	2,851.57	3,784.61	3,138.26	646.35	0.14	0.12	5.88
April-13	36,640	117.60	948.64	2,899.25	3,847.89	3,190.73	657.16	0.11	0.09	5.59
May-13	34,880	112.30	903.62	2,761.82	3,665.44	3,010.81	654.63	0.11	0.09	5.83
June-13	32,960	111.80	975.20	2,980.58	3,955.78	3,249.29	706.49	0.12	0.10	6.32
Total (All)	**358,640**	**122.70**	**$10,939.22**	**$28,848.64**	**$39,787.86**	**$31,920.77**	**$7,867.09**	**$0.11**	**$0.09**	**$6.21**
Total (last 12-months)	**358,640**	**122.70**	**$10,939.22**	**$28,848.64**	**$39,787.86**	**$31,920.77**	**$7,867.09**	**$0.11**	**$0.09**	**$6.21**
Notes	1	2	3	4	5	6	7	8	9	10

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider G13=F13+E13
5.) Total charges (Delivery + Supplier)
6.) Charges based on the number of kWh of electric energy used
7.) Charges based on the number of kW of power measured = interpolated data
8.) Total Charges ($) / Consumption (kWh)
9.) Consumption Charges ($) / Consumption (kWh)
10.) Demand Charges ($) / Demand (kW)

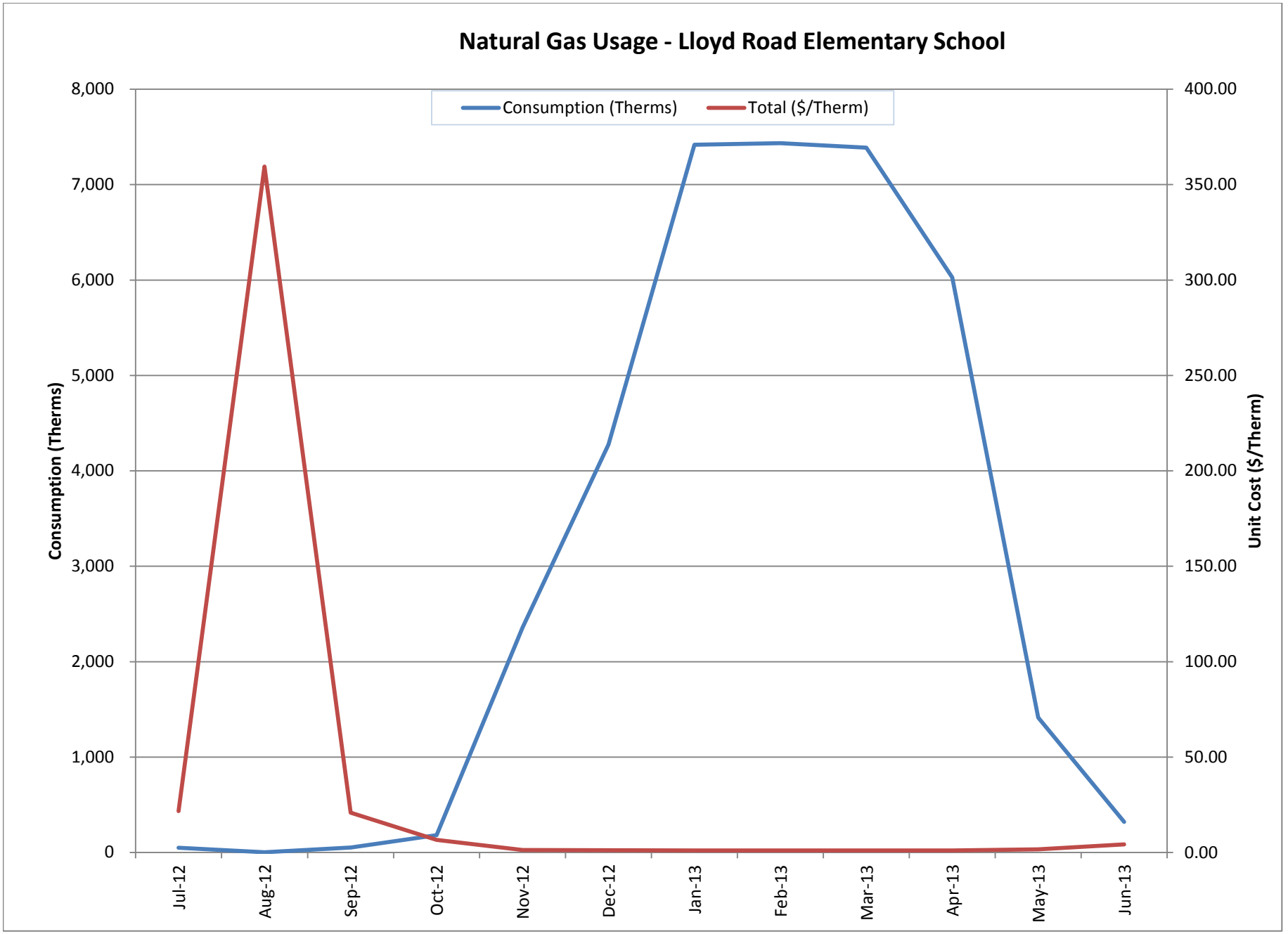


Utility Data -Lloyd Road Elementary School
Electric Graph

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Lloyd Road Elementary School**
Account No.: **20-2398-1598-29**
Natural Gas Service
Delivery - **NJNG**
Supplier - **NJNG**

		Charges			Unit Costs		
Month	**Consumption (Therms)**	**Delivery ($)**	**Supply ($)**	**Total ($)**	**Delivery ($/Therm)**	**Supply ($/Therm)**	**Total ($/Therm)**
July-12	50	$ 23.26	$ 1,060.06	$ 1,083.32	$ 0.465	$ 21.201	$ 21.666
August-12	3	$ 18.19	$ 1,060.06	$ 1,078.25	$ 6.063	$ 353.353	$ 359.417
September-12	53	$ 43.99	$ 1,060.06	$ 1,104.05	$ 0.830	$ 20.001	$ 20.831
October-12	182	$ 146.23	$ 1,060.06	$ 1,206.29	$ 0.806	$ 5.840	$ 6.646
November-12	2,356	$ 2,077.43	$ 1,060.06	$ 3,137.49	$ 0.882	$ 0.450	$ 1.331
December-12	4,276	$ 3,918.23	$ 1,060.06	$ 4,978.29	$ 0.916	$ 0.248	$ 1.164
January-13	7,417	$ 6,883.84	$ 1,060.06	$ 7,943.90	$ 0.928	$ 0.143	$ 1.071
February-13	7,434	$ 6,808.38	$ 1,060.06	$ 7,868.44	$ 0.916	$ 0.143	$ 1.058
March-13	7,387	$ 6,720.37	$ 1,060.06	$ 7,780.43	$ 0.910	$ 0.143	$ 1.053
April-13	6,026	$ 5,551.67	$ 1,060.06	$ 6,611.73	$ 0.921	$ 0.176	$ 1.097
May-13	1,415	$ 1,365.38	$ 1,060.06	$ 2,425.44	$ 0.965	$ 0.749	$ 1.715
June-13	320	$ 317.80	$ 1,060.06	$ 1,377.86	$ 0.993	$ 3.311	$ 4.303
Total	**36,919**	**$ 2,188.31**	**$ 2,165.05**	**$ 46,595.49**	**$ 0.059**	**$ 0.059**	**$ 1.262**


Natural Gas Usage - Lloyd Road Elementary School
Consumption (Therms)
Total ($/Therm)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Consumption (Therms)
Unit Cost ($/Therm)
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

Utility Bills: Account Numbers

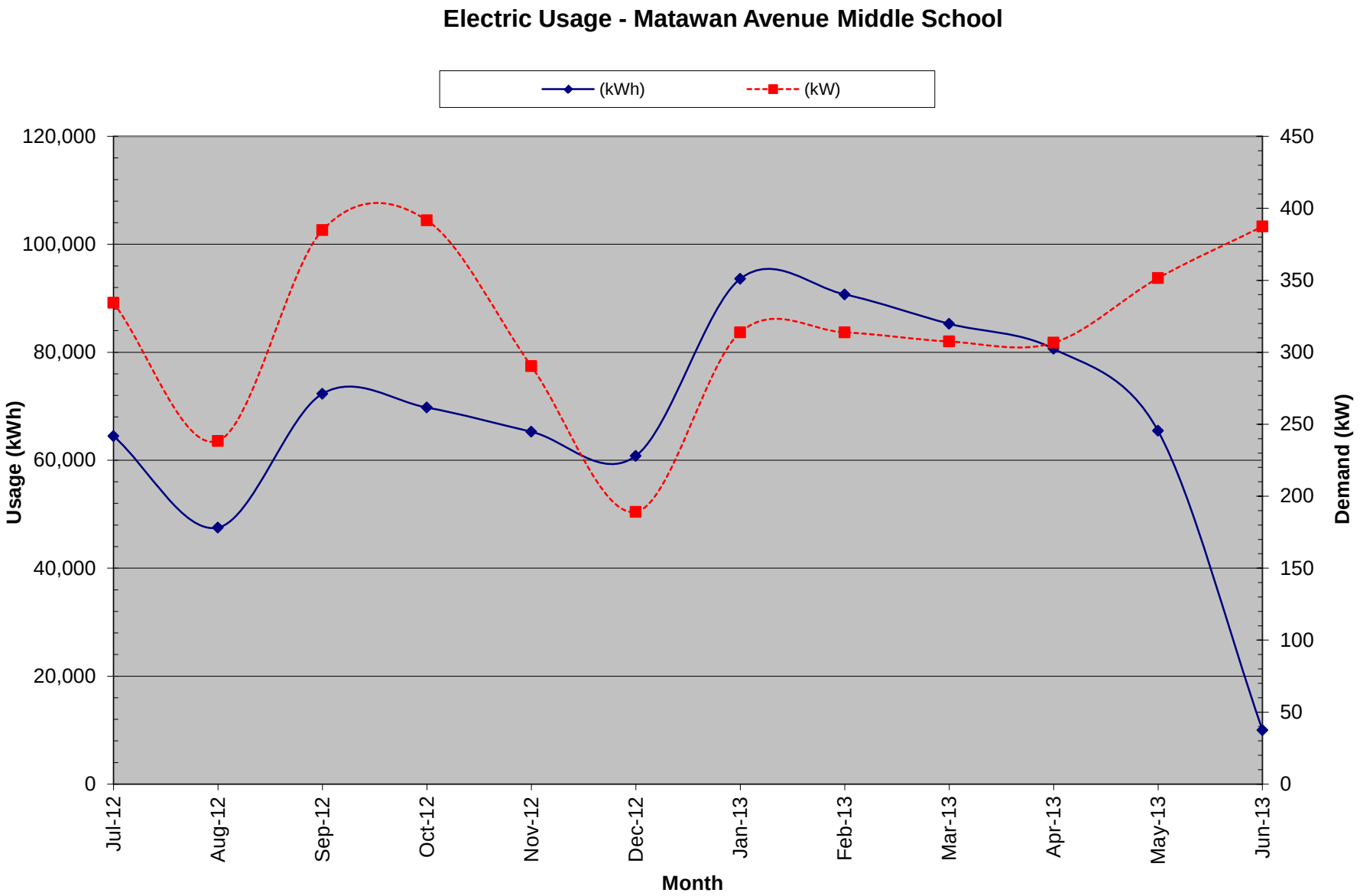
Account Number	School Building	Location	Type	Notes
100008403188	Matawan Avenue Middle School	469 Matawan Avenue, Cliffwood, NJ 0772	Electricity	
03-2313-4590-22	Matawan Avenue Middle School	469 Matawan Avenue, Cliffwood, NJ 0772	Natural Gas	
			Water	

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Matawan Avenue Middle School**
Account No.: **100008403188** **Delivery -** JCP&L
Meter No.: **G16567040** **Supplier -**
Electric Service

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	**Consumption (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Blended Rate ($/kWh)**	**Consumption ($/kWh)**	**Demand ($/kW)**
July-12	64,480	334.40	2,769.67	5,040.80	7,810.47	5,559.13	2,251.34	0.12	0.09	6.73
August-12	47,520	238.40	2,050.75	3,650.02	5,700.77	3,392.07	2,308.70	0.12	0.07	9.68
September-12	72,320	384.80	3,175.52	5,651.95	8,827.47	6,226.36	2,601.11	0.12	0.09	6.76
October-12	69,760	391.70	3,012.07	5,455.55	8,467.62	5,998.02	2,469.60	0.12	0.09	6.30
November-12	65,280	290.40	4,099.50	3,325.63	7,425.13	4,636.00	2,789.13	0.11	0.07	9.60
December-12	60,800	189.10	3,001.80	3,380.84	6,382.64	4,550.20	1,832.44	0.10	0.07	9.69
January-13	93,600	313.80	2,643.23	7,294.15	9,937.38	7,971.79	1,965.59	0.11	0.09	6.26
February-13	90,720	313.80	2,600.60	7,070.15	9,670.75	7,685.16	1,985.59	0.11	0.08	6.33
March-13	85,280	307.50	2,524.91	6,647.04	9,171.95	7,247.12	1,924.83	0.11	0.08	6.26
April-13	80,640	306.60	2,415.76	6,359.69	8,775.45	6,933.83	1,841.62	0.11	0.09	6.01
May-13	65,440	351.50	2,137.91	5,628.22	7,766.13	6,136.33	1,629.80	0.12	0.09	4.64
June-13	10,000	387.40	3,318.40	9,013.91	12,332.31	9,713.15	2,619.16	1.23	0.97	6.76
Total (All)	**805,840**	**391.70**	**$33,750.12**	**$68,517.95**	**$102,268.07**	**$76,049.16**	**$26,218.91**	**$0.13**	**$0.09**	**$6.88**
Total (last 12-months)	**805,840**	**391.70**	**$33,750.12**	**$68,517.95**	**$102,268.07**	**$76,049.16**	**$26,218.91**	**$0.13**	**$0.09**	**$6.88**
Notes	1	2	3	4	5	6	7	8	9	10

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider G13=F13+E13
5.) Total charges (Delivery + Supplier)
6.) Charges based on the number of kWh of electric energy used
7.) Charges based on the number of kW of power measured
8.) Total Charges ($) / Consumption (kWh)
9.) Consumption Charges ($) / Consumption (kWh)
10.) Demand Charges ($) / Demand (kW)

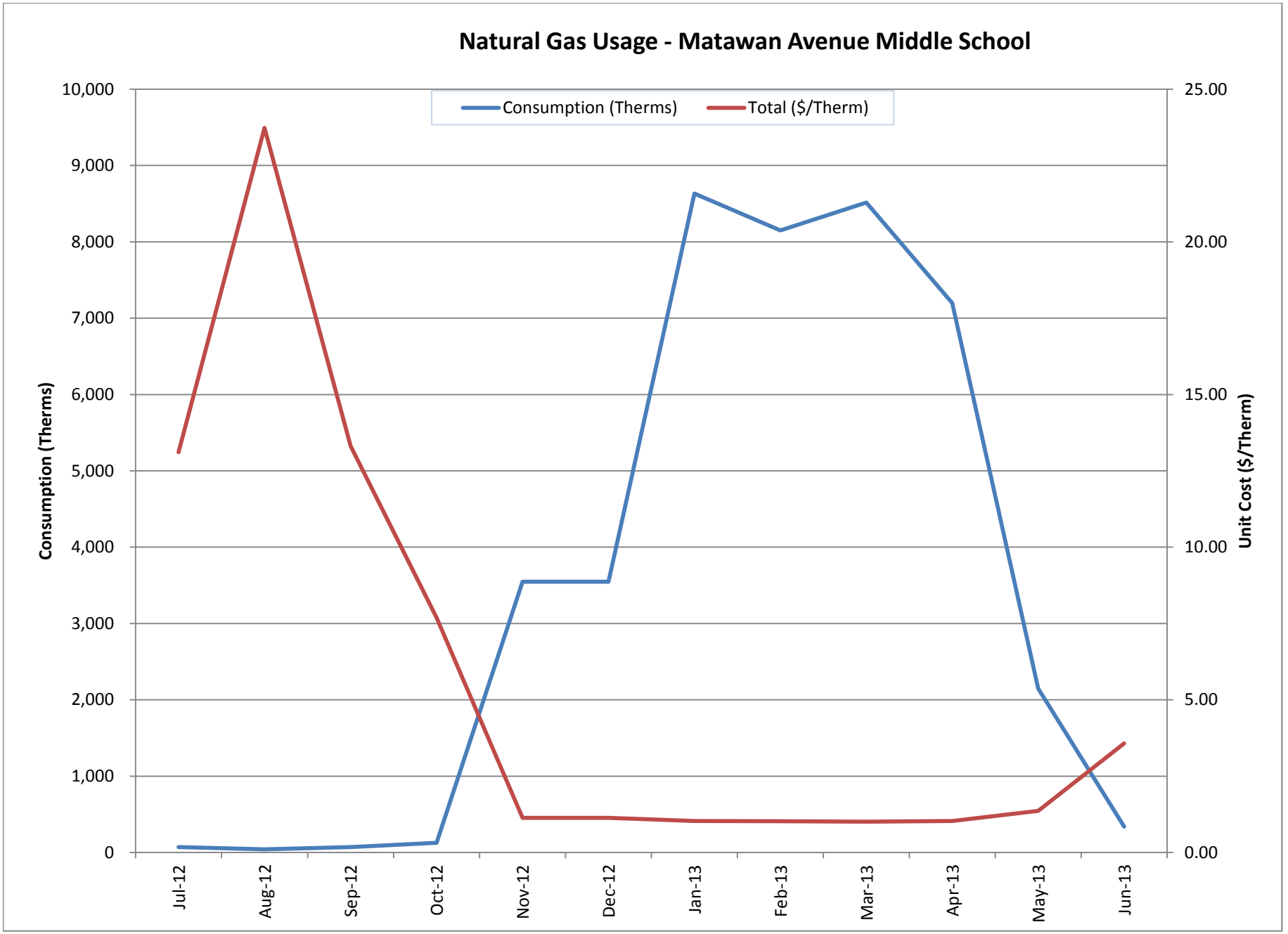


Utility Data - Matawan Avenue Middle School
Electric Graph

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Matawan Avenue Middle School**
Account No.: **03-2313-4590-22**
Natural Gas Service
Delivery - **NJNG**
Supplier - **NJNG**

		Charges			Unit Costs		
Month	**Consumption (Therms)**	**Delivery ($)**	**Supply ($)**	**Total ($)**	**Delivery ($/Therm)**	**Supply ($/Therm)**	**Total ($/Therm)**
July-12	70	$ 43.97	$ 873.91	$ 917.88	$ 0.628	$ 12.484	$ 13.113
August-12	40	$ 75.27	$ 873.91	$ 949.18	$ 1.882	$ 21.848	$ 23.730
September-12	70	$ 58.64	$ 873.91	$ 932.55	$ 0.837	$ 12.474	$ 13.311
October-12	127	$ 101.23	$ 873.91	$ 975.14	$ 0.798	$ 6.891	$ 7.689
November-12	3,548	$ 3,148.13	$ 873.91	$ 4,022.04	$ 0.887	$ 0.246	$ 1.134
December-12	3,548	$ 3,148.14	$ 873.91	$ 4,022.05	$ 0.887	$ 0.246	$ 1.134
January-13	8,633	$ 8,023.52	$ 873.91	$ 8,897.43	$ 0.929	$ 0.101	$ 1.031
February-13	8,150	$ 7,482.52	$ 873.91	$ 8,356.43	$ 0.918	$ 0.107	$ 1.025
March-13	8,516	$ 7,748.09	$ 873.91	$ 8,622.00	$ 0.910	$ 0.103	$ 1.012
April-13	7,198	$ 6,566.81	$ 873.91	$ 7,440.72	$ 0.912	$ 0.121	$ 1.034
May-13	2,148	$ 2,055.28	$ 873.91	$ 2,929.19	$ 0.957	$ 0.407	$ 1.364
June-13	338	$ 335.01	$ 873.91	$ 1,208.92	$ 0.991	$ 2.585	$ 3.576
Total	**42,386**	**$ 38,451.60**	**$ 9,613.01**	**$ 49,273.53**	**$ 0.907**	**$ 0.227**	**$ 1.162**


Natural Gas Usage - Matawan Avenue Middle School
Consumption (Therms)
Total ($/Therm)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
25.00
20.00
15.00
10.00
5.00
0.00
Consumption (Therms)
Unit Cost ($/Therm)
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

Utility Bills: Account Numbers

Account Number	School Building	Location	Type	Notes
100012178537	Matawan Regional High School	450 Atlantic Avenue, Aberdeen, NJ 07747	Electricity	
100012178610	Matawan Regional High School	450 Atlantic Avenue, Aberdeen, NJ 07747	Electricity	
100068425618	Matawan Regional High School	450 Atlantic Avenue, Aberdeen, NJ 07747	Electricity	
04-2311-4325-2Y	Matawan Regional High School	450 Atlantic Avenue, Aberdeen, NJ 07747	Natural Gas Water	

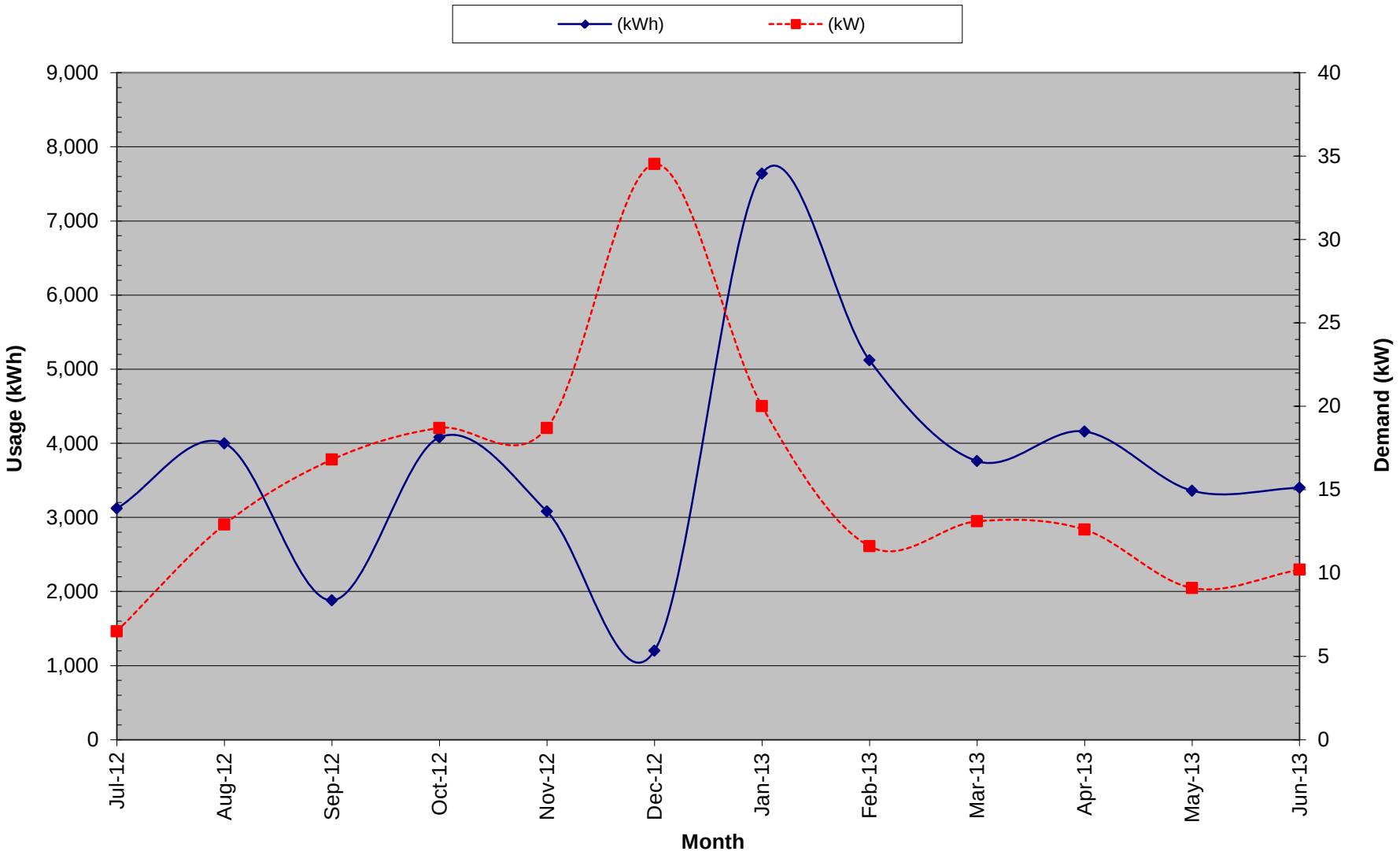
Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Matawan Regional High School**
Account No.: **100012178537** **Delivery -** JCP&L
Meter No.: **S34963607** **Supplier -**
Electric Service

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	**Consumption (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Blended Rate ($/kWh)**	**Consumption ($/kWh)**	**Demand ($/kW)**
July-12	3,120	6.50			366.27	366.27		0.12	0.12	0.00
August-12	4,000	12.90			441.17	441.17		0.11	0.11	0.00
September-12	1,880	16.80	117.68	160.85	278.53	231.34	47.19	0.15	0.12	2.81
October-12	4,080	18.70			469.74	469.74		0.12	0.12	0.00
November-12	3,080	18.70	98.12	249.58	347.70	308.30	39.40	0.11	0.10	2.11
December-12	1,200	34.52	217.57	107.64	325.21	168.64	156.57	0.27	0.14	4.54
January-13	7,640	20.00	104.66	684.98	789.64	784.84	4.80	0.10	0.10	0.24
February-13	5,120	11.60			574.29	574.29		0.11	0.11	0.00
March-13	3,760	13.10			459.78	459.78		0.12	0.12	0.00
April-13	4,160	12.60			493.47	493.47		0.12	0.12	0.00
May-13	3,360	9.10			426.11	426.11		0.13	0.13	0.00
June-13	3,400	10.20			475.65	475.65		0.14	0.14	0.00
Total (All)	**44,800**	**34.52**	**$538.03**	**$1,203.05**	**$5,447.56**	**$5,199.60**	**$247.96**	**$0.12**	**$0.12**	**$1.34**
Total (last 12-months)	**44,800**	**34.52**	**$538.03**	**$1,203.05**	**$5,447.56**	**$5,199.60**	**$247.96**	**$0.12**	**$0.12**	**$1.34**
Notes	1	2	3	4	5	6	7	8	9	10

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider G13=F13+E13
5.) Total charges (Delivery + Supplier)
6.) Charges based on the number of kWh of electric energy used
7.) Charges based on the number of kW of power measured
8.) Total Charges ($) / Consumption (kWh)
9.) Consumption Charges ($) / Consumption (kWh)
10.) Demand Charges ($) / Demand (kW)

Electric Usage - Matawan Regional High School (1)



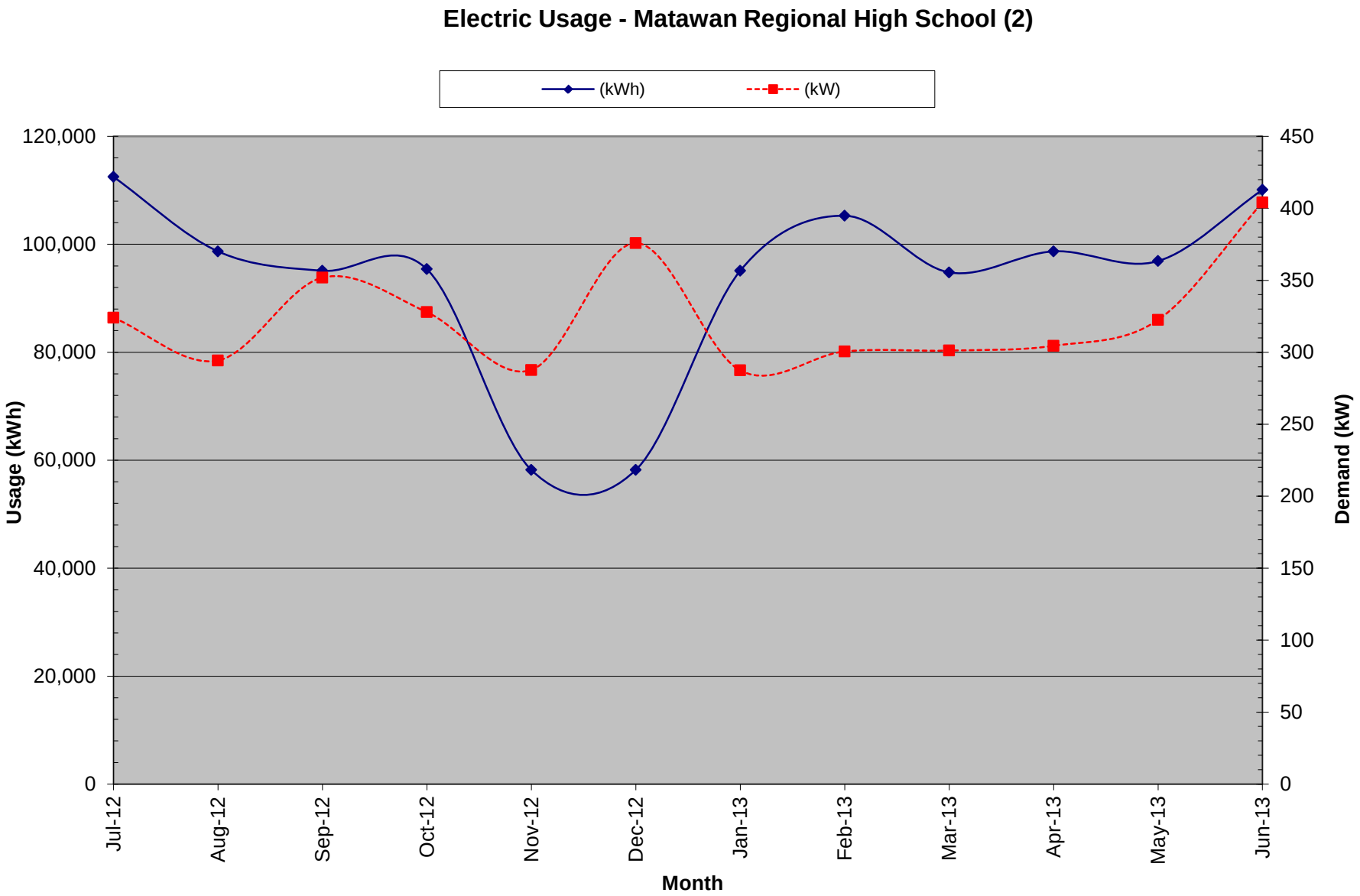
Utility Data -Matawan Regional High School
Electric Graph

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Matawan Regional High School**
Account No.: **100012178610** **Delivery -** JCP&L
Meter No.: **G21354900** **Supplier -**
Electric Service

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	**Consumption (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Blended Rate ($/kWh)**	**Consumption ($/kWh)**	**Demand ($/kW)**
July-12	112,500	324.00	3,041.16	8,784.01	11,825.17	9,646.01	2,179.16	0.11	0.09	6.73
August-12	98,700	294.30	2,736.19	7,708.37	10,444.56	8,471.52	1,973.04	0.11	0.09	6.70
September-12	95,100	351.90	3,110.18	7,427.73	10,537.91	8,165.12	2,372.79	0.11	0.09	6.74
October-12	95,400	327.90	2,791.72	7,439.43	10,231.15	8,174.34	2,056.81	0.11	0.09	6.27
November-12	58,200	287.70	1,710.76	4,536.58	6,247.34	4,989.64	1,257.70	0.11	0.09	4.37
December-12	58,200	375.90	2,110.22	4,536.58	6,646.80	4,989.64	1,657.16	0.11	0.09	4.41
January-13	95,100	287.40	2,390.66	7,518.04	9,908.70	8,206.21	1,702.49	0.10	0.09	5.92
February-13	105,300	300.60	2,608.83	8,204.12	10,812.95	8,932.77	1,880.18	0.10	0.08	6.25
March-13	94,800	301.20	2,545.28	7,387.47	9,932.75	8,048.69	1,884.06	0.10	0.08	6.26
April-13	98,700	304.50	2,591.69	7,690.80	10,282.49	8,377.07	1,905.42	0.10	0.08	6.26
May-13	96,900	322.50	2,671.54	7,575.85	10,247.39	8,159.25	2,088.14	0.11	0.08	6.47
June-13	110,100	404.10	3,499.18	9,922.85	13,422.03	10,686.98	2,735.05	0.12	0.10	6.77
Total (All)	**1,119,000**	**404.10**	**$31,807.41**	**$88,731.83**	**$120,539.24**	**$96,847.24**	**$23,692.00**	**$0.11**	**$0.09**	**$6.10**
Total (last 12-months)	**1,119,000**	**404.10**	**$31,807.41**	**$88,731.83**	**$120,539.24**	**$96,847.24**	**$23,692.00**	**$0.11**	**$0.09**	**$6.10**
Notes	1	2	3	4	5	6	7	8	9	10

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider G13=F13+E13
5.) Total charges (Delivery + Supplier)
6.) Charges based on the number of kWh of electric energy used
7.) Charges based on the number of kW of power measured =interpolated data
8.) Total Charges ($) / Consumption (kWh)
9.) Consumption Charges ($) / Consumption (kWh)
10.) Demand Charges ($) / Demand (kW)



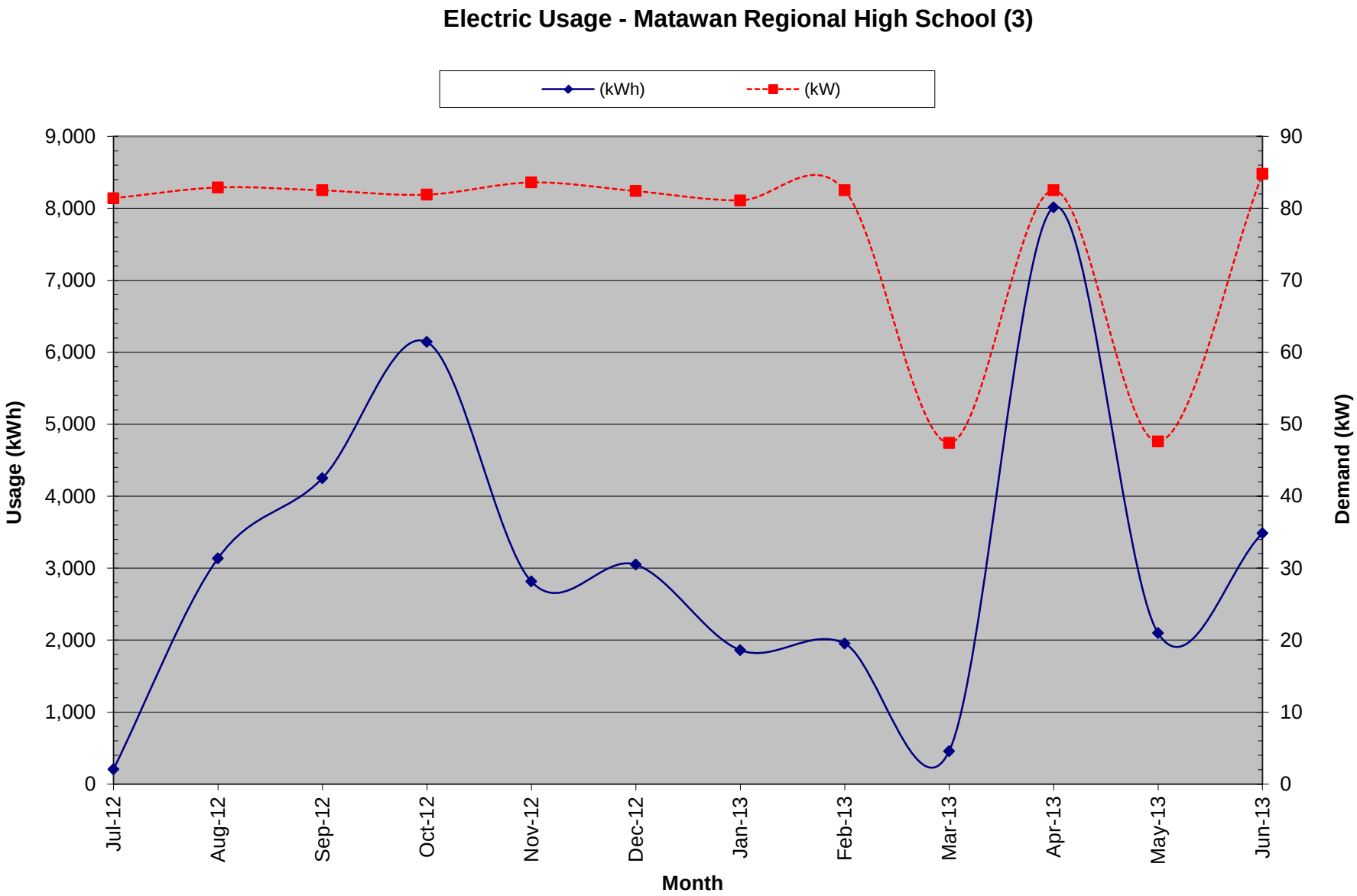
Utility Data -Matawan Regional High School
Electric Graph (2)

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Matawan Regional High School**
Account No.: **100068425618** **Delivery -** JCP&L
Meter No.: **Supplier -**
Electric Service

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	**Consumption (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Blended Rate ($/kWh)**	**Consumption ($/kWh)**	**Demand ($/kW)**
July-12	206	81.40	508.74	27.71	536.45	40.93	495.52	2.60	0.20	6.09
August-12	3,136	82.90	568.77	272.76	841.53	342.19	499.34	0.27	0.11	6.02
September-12	4,250	82.50	590.56	343.00	933.56	430.41	503.15	0.22	0.10	6.10
October-12	6,142	81.90	561.54	489.70	1,051.24	586.05	465.19	0.17	0.10	5.68
November-12	2,815	83.60	390.16	227.09	617.25	283.92	333.33	0.22	0.10	3.99
December-12	3,049	82.40	542.66	248.79	791.45	323.12	468.33	0.26	0.11	5.68
January-13	1,861	81.10	525.17	156.40	681.57	221.55	460.02	0.37	0.12	5.67
February-13	1,953	82.50	534.03	163.54	697.57	228.49	469.08	0.36	0.12	5.69
March-13	458	47.40	268.92	47.28	316.20	74.22	241.98	0.69	0.16	5.11
April-13	8,012	82.50	572.95	634.79	1,207.74	738.66	469.08	0.15	0.09	5.69
May-13	2,097	47.60	266.72	217.18	483.90	176.60	307.30	0.23	0.08	6.46
June-13	3,486	84.80	564.88	359.03	923.91	409.37	514.54	0.27	0.12	6.07
Total (All)	**37,465**	**84.80**	**$5,895.10**	**$3,187.27**	**$9,082.37**	**$3,855.51**	**$5,226.86**	**$0.24**	**$0.10**	**$5.68**
Total (last 12-months)	**37,465**	**84.80**	**$5,895.10**	**$3,187.27**	**$9,082.37**	**$3,855.51**	**$5,226.86**	**$0.24**	**$0.10**	**$5.68**
Notes	1	2	3	4	5	6	7	8	9	10

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider G13=F13+E13
5.) Total charges (Delivery + Supplier)
6.) Charges based on the number of kWh of electric energy used = interpolated data
7.) Charges based on the number of kW of power measured
8.) Total Charges ($) / Consumption (kWh)
9.) Consumption Charges ($) / Consumption (kWh)
10.) Demand Charges ($) / Demand (kW)

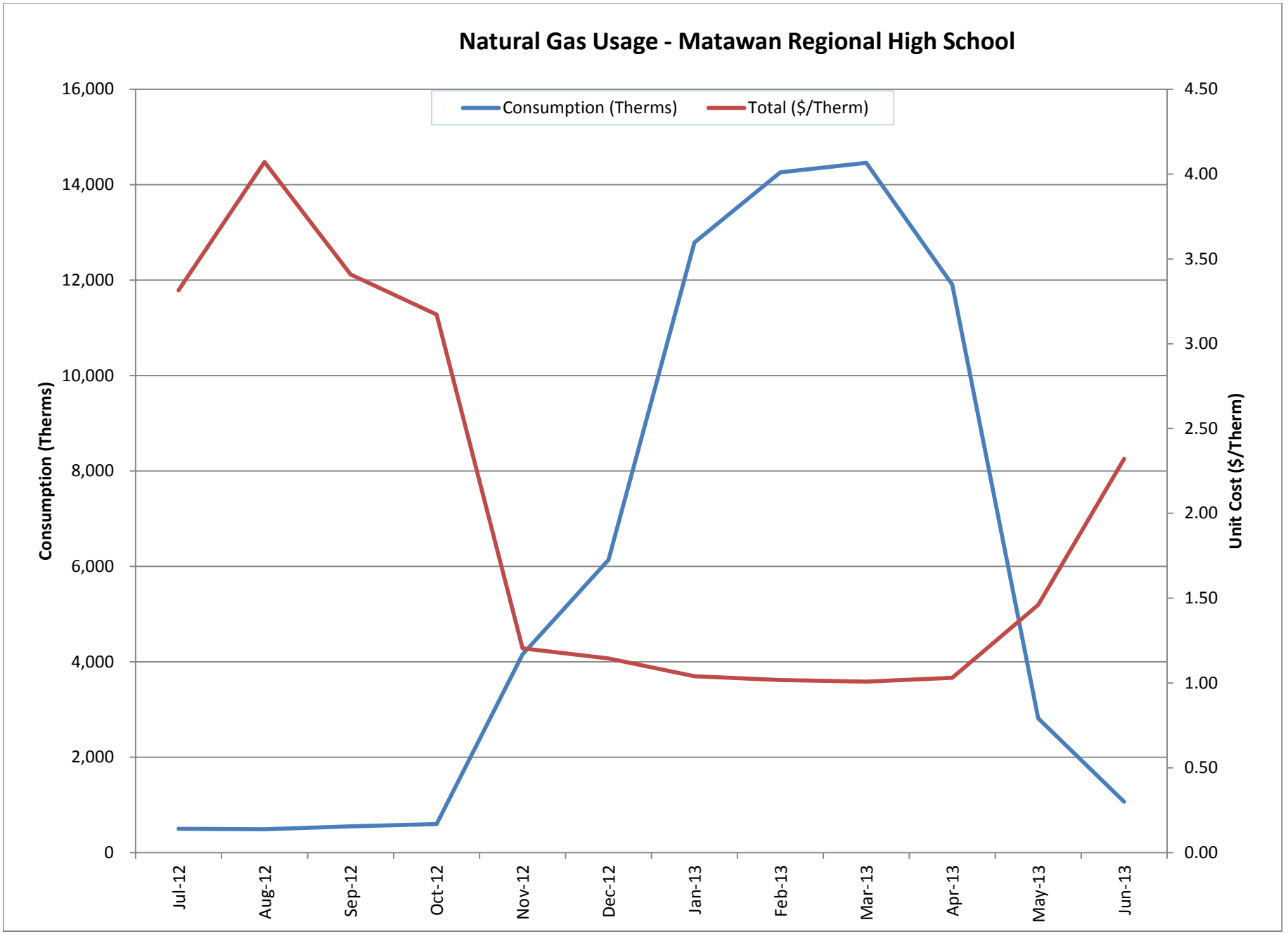


Utility Data -Matawan Regional High School
Electric Graph (3)

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Matawan Regional High School**
Account No.: **04-2311-4325-2Y**
Natural Gas Service
Delivery - **NJNG**
Supplier - **NJNG**

		Charges			Unit Costs		
Month	**Consumption (Therms)**	**Delivery ($)**	**Supply ($)**	**Total ($)**	**Delivery ($/Therm)**	**Supply ($/Therm)**	**Total ($/Therm)**
July-12	500	$ 237.96	$ 1,419.55	$ 1,657.51	$ 0.476	$ 2.839	$ 3.315
August-12	490	$ 575.22	$ 1,419.55	$ 1,994.77	$ 1.174	$ 2.897	$ 4.071
September-12	552	$ 462.10	$ 1,419.55	$ 1,881.65	$ 0.837	$ 2.572	$ 3.409
October-12	598	$ 477.30	$ 1,419.55	$ 1,896.85	$ 0.798	$ 2.374	$ 3.172
November-12	4,156	$ 3,587.76	$ 1,419.55	$ 5,007.31	$ 0.863	$ 0.342	$ 1.205
December-12	6,135	$ 5,604.15	$ 1,419.55	$ 7,023.70	$ 0.913	$ 0.231	$ 1.145
January-13	12,785	$ 11,881.78	$ 1,419.55	$ 13,301.33	$ 0.929	$ 0.111	$ 1.040
February-13	14,260	$ 13,092.51	$ 1,419.55	$ 14,512.06	$ 0.918	$ 0.100	$ 1.018
March-13	14,456	$ 13,152.55	$ 1,419.55	$ 14,572.10	$ 0.910	$ 0.098	$ 1.008
April-13	11,904	$ 10,859.09	$ 1,419.55	$ 12,278.64	$ 0.912	$ 0.119	$ 1.031
May-13	2,819	$ 2,697.49	$ 1,419.55	$ 4,117.04	$ 0.957	$ 0.504	$ 1.461
June-13	1,067	$ 1,057.72	$ 1,419.55	$ 2,477.27	$ 0.991	$ 1.330	$ 2.321
Total	**69,723**	**$ 63,685.63**	**$ 17,034.60**	**$ 80,720.23**	**$ 0.913**	**$ 0.244**	**$ 1.158**


Natural Gas Usage - Matawan Regional High School
Consumption (Therms)
Total ($/Therm)
Consumption (Therms)
Unit Cost ($/Therm)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

Utility Bills: Account Numbers

Account Number	School Building	Location	Type	Notes
100007453176	Ravine Drive Elementary School	170 Ravine Drive, Matawan, NJ 07747	Electricity	
04-2317-1222-24	Ravine Drive Elementary School	170 Ravine Drive, Matawan, NJ 07747	Natural Gas	
04-2317-9808-27	Ravine Drive Elementary School	170 Ravine Drive, Matawan, NJ 07747	Natural Gas	

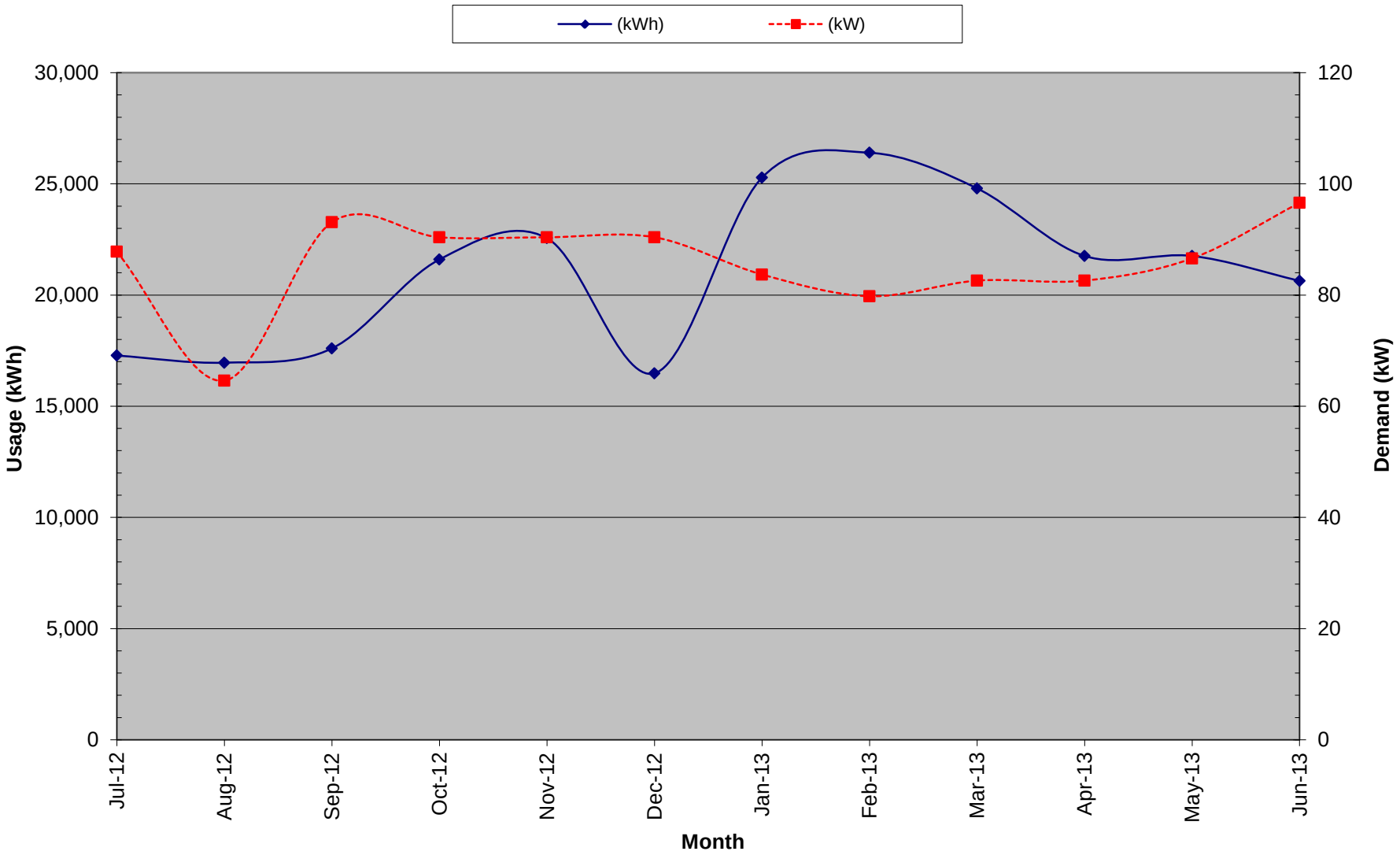
Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Ravine Drive Elementary School**
Account No.: **100007453176** **Delivery -** JCP&L
Meter No.: **Supplier -**
Electric Service

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	**Consumption (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Blended Rate ($/kWh)**	**Consumption ($/kWh)**	**Demand ($/kW)**
July-12	17,280	87.80	720.60	1,358.69	2,079.29	1,539.36	539.93	0.12	0.09	6.15
August-12	16,960	64.60	557.29	1,333.75	1,891.04	1,512.12	378.92	0.11	0.09	5.87
September-12	17,600	93.10	759.66	1,383.65	2,143.31	1,566.60	576.71	0.12	0.09	6.19
October-12	21,600	90.40	727.12	1,693.98	2,421.10	1,900.91	520.19	0.11	0.09	5.75
November-12	22,560	90.40	733.99	1,766.29	2,500.28	1,980.09	520.19	0.11	0.09	5.75
December-12	16,480	90.40	690.50	1,293.40	1,983.90	1,463.71	520.19	0.12	0.09	5.75
January-13	25,280	83.70	701.88	1,977.62	2,679.50	2,202.66	476.84	0.11	0.09	5.70
February-13	26,400	79.80	673.56	2,064.93	2,738.49	2,286.88	451.61	0.10	0.09	5.66
March-13	24,800	82.60	686.58	1,940.50	2,627.08	2,152.18	474.90	0.11	0.09	5.75
April-13	21,760	82.60	618.33	1,747.62	2,365.95	1,864.70	501.25	0.11	0.09	6.07
May-13	21,760	86.60	710.96	1,680.87	2,391.83	1,849.10	542.73	0.11	0.08	6.27
June-13	20,640	96.60	790.60	1,869.17	2,659.77	2,058.77	601.00	0.13	0.10	6.22
Total (All)	**253,120**	**96.60**	**$8,371.07**	**$20,110.47**	**$28,481.54**	**$22,377.08**	**$6,104.46**	**$0.11**	**$0.09**	**$5.93**
Total (last 12-months)	**253,120**	**96.60**	**$8,371.07**	**$20,110.47**	**$28,481.54**	**$22,377.08**	**$6,104.46**	**$0.11**	**$0.09**	**$5.93**
Notes	1	2	3	4	5	6	7	8	9	10

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider G13=F13+E13
5.) Total charges (Delivery + Supplier)
6.) Charges based on the number of kWh of electric energy used = interpolated data
7.) Charges based on the number of kW of power measured
8.) Total Charges ($) / Consumption (kWh)
9.) Consumption Charges ($) / Consumption (kWh)
10.) Demand Charges ($) / Demand (kW)

Electric Usage - Ravine Drive Elementary School

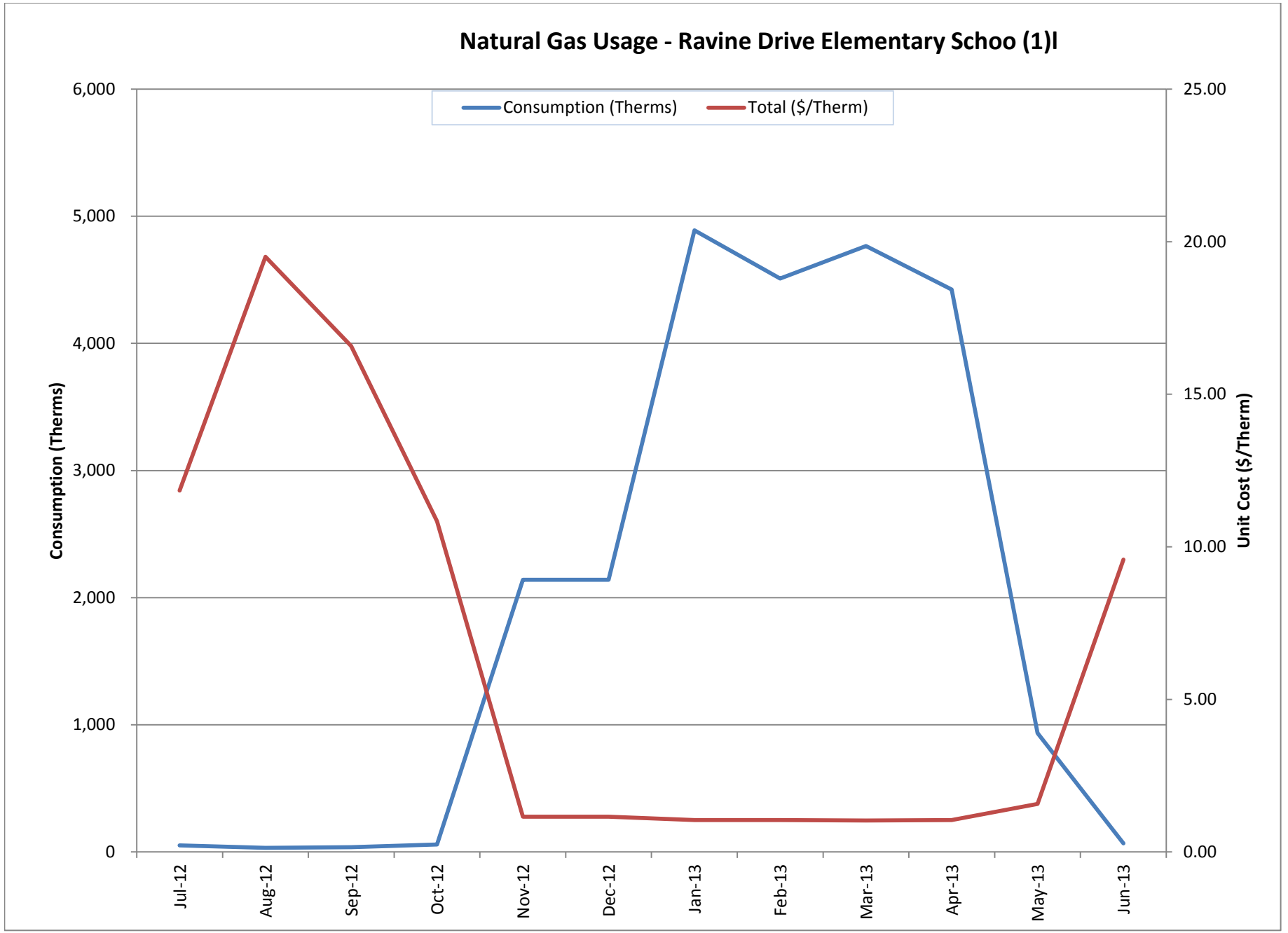


Utility Data -Ravine Drive Elementary School
Electric Graph

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Ravine Drive Elementary School**
Account No.: **04-2317-1222-24**
Natural Gas Service
Delivery - **NJNG**
Supplier - **NJNG**

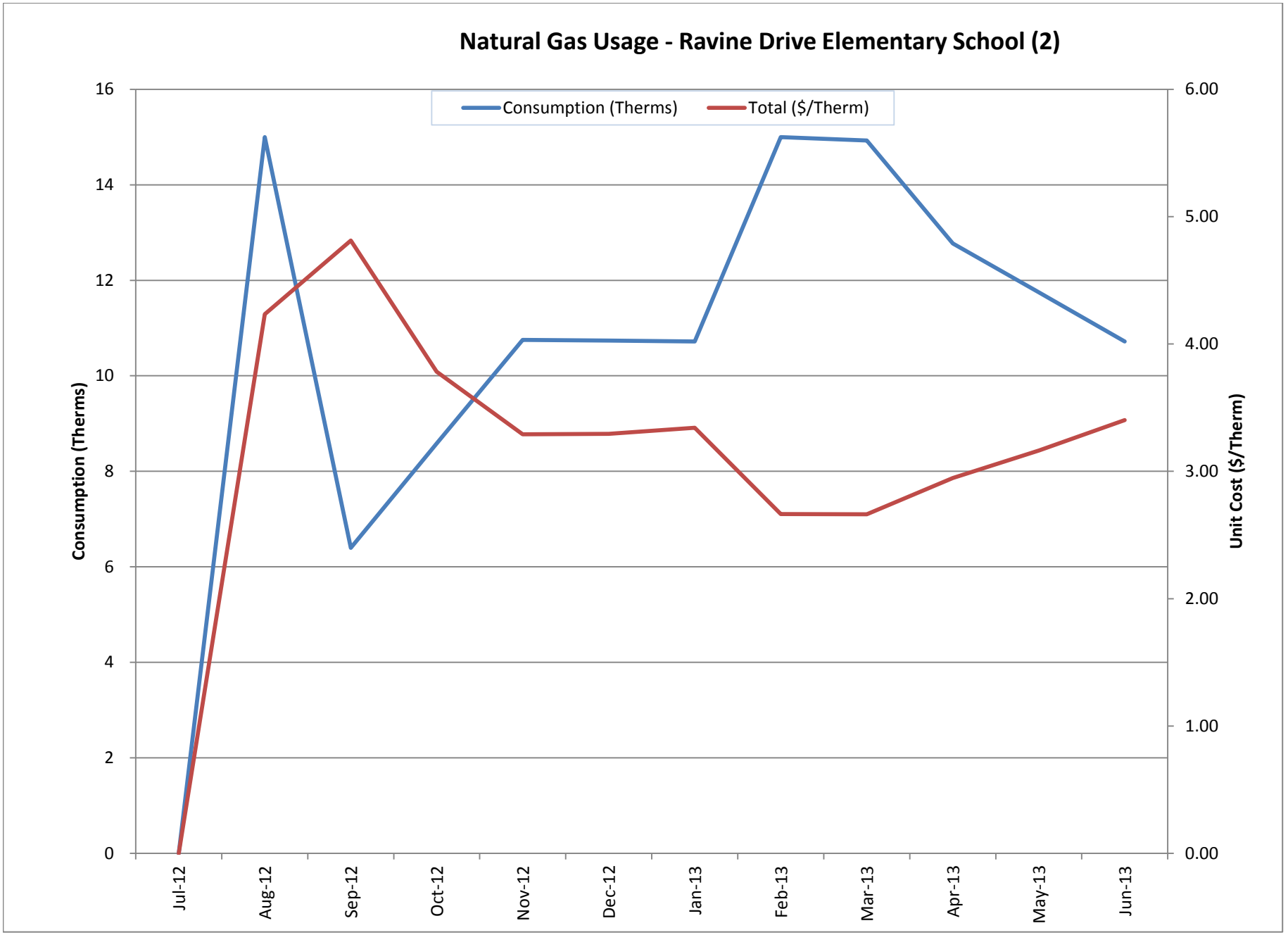
		Charges			Unit Costs		
Month	**Consumption (Therms)**	**Delivery ($)**	**Supply ($)**	**Total ($)**	**Delivery ($/Therm)**	**Supply ($/Therm)**	**Total ($/Therm)**
July-12	51	$ 24.75	$ 579.34	$ 604.09	$ 0.485	$ 11.360	$ 11.845
August-12	32	$ 44.75	$ 579.34	$ 624.09	$ 1.398	$ 18.104	$ 19.503
September-12	37	$ 30.80	$ 579.34	$ 610.14	$ 0.837	$ 15.747	$ 16.584
October-12	58	$ 46.06	$ 579.34	$ 625.40	$ 0.798	$ 10.042	$ 10.841
November-12	2,141	$ 1,899.98	$ 579.34	$ 2,479.32	$ 0.887	$ 0.271	$ 1.158
December-12	2,141	$ 1,899.98	$ 579.34	$ 2,479.32	$ 0.887	$ 0.271	$ 1.158
January-13	4,889	$ 4,543.61	$ 579.34	$ 5,122.95	$ 0.929	$ 0.118	$ 1.048
February-13	4,510	$ 4,140.74	$ 579.34	$ 4,720.08	$ 0.918	$ 0.128	$ 1.047
March-13	4,765	$ 4,334.39	$ 579.34	$ 4,913.73	$ 0.910	$ 0.122	$ 1.031
April-13	4,423	$ 4,034.77	$ 579.34	$ 4,614.11	$ 0.912	$ 0.131	$ 1.043
May-13	935	$ 894.44	$ 579.34	$ 1,473.78	$ 0.957	$ 0.620	$ 1.577
June-13	67	$ 66.85	$ 579.34	$ 646.19	$ 0.991	$ 8.588	$ 9.579
Total	**24,049**	**$ 21,961.12**	**$ 6,952.08**	**$ 28,913.20**	**$ 0.913**	**$ 0.289**	**$ 1.202**


Natural Gas Usage - Ravine Drive Elementary Schoo (1)l
Consumption (Therms)
Total ($/Therm)
6,000
5,000
4,000
3,000
2,000
1,000
0
25.00
20.00
15.00
10.00
5.00
0.00
Consumption (Therms)
Unit Cost ($/Therm)
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Ravine Drive Elementary School**
Account No.: **04-2317-9808-27**
Natural Gas Service
Delivery - **NJNG**
Supplier - **NJNG**

		Charges			Unit Costs		
Month	**Consumption (Therms)**	**Delivery ($)**	**Supply ($)**	**Total ($)**	**Delivery ($/Therm)**	**Supply ($/Therm)**	**Total ($/Therm)**
July-12	0	$ 4.42	$ 25.00	$ 29.42	#DIV/0!	#DIV/0!	#DIV/0!
August-12	15	$ 38.50	$ 25.00	$ 63.50	$ 2.567	$ 1.667	$ 4.233
September-12	6	$ 5.80	$ 25.00	$ 30.80	$ 0.906	$ 3.906	$ 4.813
October-12	8.58	$ 7.45	$ 25.00	$ 32.45	$ 0.868	$ 2.914	$ 3.782
November-12	11	$ 10.37	$ 25.00	$ 35.37	$ 0.965	$ 2.326	$ 3.290
December-12	11	$ 10.38	$ 25.00	$ 35.38	$ 0.966	$ 2.328	$ 3.294
January-13	11	$ 10.82	$ 25.00	$ 35.82	$ 1.009	$ 2.332	$ 3.341
February-13	15	$ 14.96	$ 25.00	$ 39.96	$ 0.997	$ 1.667	$ 2.664
March-13	15	$ 14.76	$ 25.00	$ 39.76	$ 0.989	$ 1.674	$ 2.663
April-13	13	$ 12.65	$ 25.00	$ 37.65	$ 0.991	$ 1.958	$ 2.948
May-13	12	$ 12.17	$ 25.00	$ 37.17	$ 1.036	$ 2.128	$ 3.163
June-13	11	$ 11.48	$ 25.00	$ 36.48	$ 1.071	$ 2.332	$ 3.403
Total	**127**	**$ 153.76**	**$ 300.00**	**$ 453.76**	**$ 1.207**	**$ 2.356**	**$ 3.563**


Natural Gas Usage - Ravine Drive Elementary School (2)
Consumption (Therms)
Total ($/Therm)
Consumption (Therms)
Unit Cost ($/Therm)
0
2
4
6
8
10
12
14
16
0.00
1.00
2.00
3.00
4.00
5.00
6.00
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

Utility Bills: Account Numbers

Account Number	School Building	Location	Type	Notes
100007649138	Strathmore Elementary School	282 Church Street, Aberdeen, NJ 07747	Electricity	
20-2394-2600-3Y	Strathmore Elementary School	282 Church Street, Aberdeen, NJ 07747	Natural Gas Water	

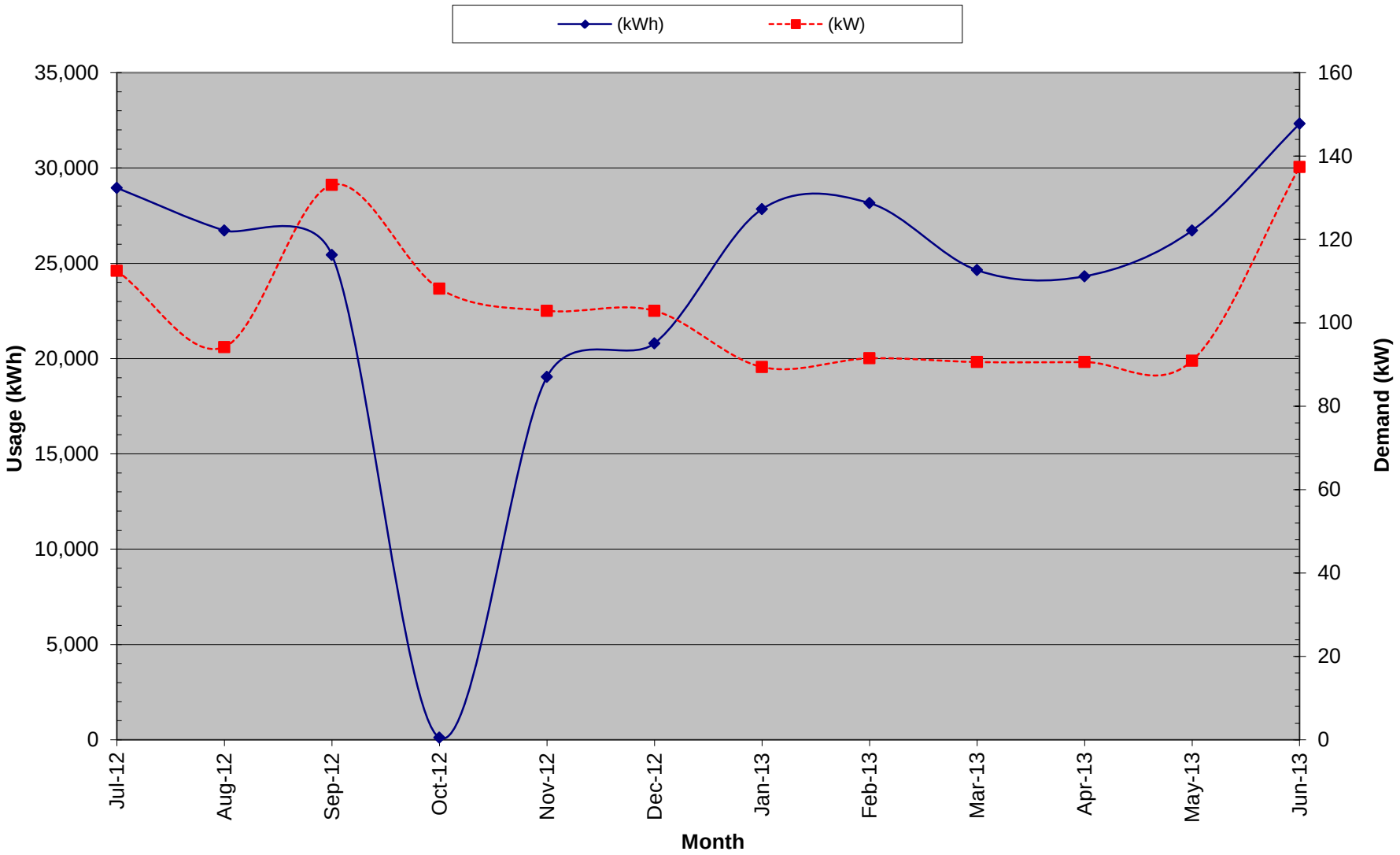
Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Strathmore Elementary School**
Account No.: **100007649138** **Delivery -** JCP&L
Meter No.: **G28083409** **Supplier -**
Electric Service

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	**Consumption (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Blended Rate ($/kWh)**	**Consumption ($/kWh)**	**Demand ($/kW)**
July-12	28,960	112.50	975.58	2,269.21	3,244.79	2,533.44	711.35	0.11	0.09	6.32
August-12	26,720	94.20	880.07	2,047.06	2,927.13	2,336.01	591.12	0.11	0.09	6.28
September-12	25,440	133.10	1,093.35	1,994.79	3,088.14	2,233.83	854.31	0.12	0.09	6.42
October-12	108	108.20	891.51	2,228.29	3,119.80	2,484.45	635.35	28.83	22.96	5.87
November-12	19,040	102.90	593.64	1,489.02	2,082.66	1,661.92	420.74	0.11	0.09	4.09
December-12	20,800	102.90	802.28	1,629.39	2,431.67	1,830.61	601.06	0.12	0.09	5.84
January-13	27,840	89.40	752.65	2,180.92	2,933.57	2,166.05	767.52	0.11	0.08	8.59
February-13	28,160	91.50	760.57	2,201.82	2,962.39	2,435.08	527.31	0.11	0.09	5.76
March-13	24,640	90.60	753.48	1,928.05	2,681.53	2,138.70	542.83	0.11	0.09	5.99
April-13	24,320	90.60	730.07	1,903.17	2,633.24	2,111.76	521.48	0.11	0.09	5.76
May-13	26,720	90.90	800.99	2,036.26	2,837.25	2,114.06	723.19	0.11	0.08	7.96
June-13	32,320	137.40	1,148.76	2,920.33	4,069.09	3,184.93	884.16	0.13	0.10	6.43
Total (All)	**285,068**	**137.40**	**$10,182.95**	**$24,828.31**	**$35,011.26**	**$27,230.84**	**$7,780.42**	**$0.12**	**$0.10**	**$6.25**
Total (last 12-months)	**285,068**	**137.40**	**$10,182.95**	**$24,828.31**	**$35,011.26**	**$27,230.84**	**$7,780.42**	**$0.12**	**$0.10**	**$6.25**
Notes	1	2	3	4	5	6	7	8	9	10

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider G13=F13+E13
5.) Total charges (Delivery + Supplier)
6.) Charges based on the number of kWh of electric energy used = interpolated data
7.) Charges based on the number of kW of power measured
8.) Total Charges ($) / Consumption (kWh)
9.) Consumption Charges ($) / Consumption (kWh)
10.) Demand Charges ($) / Demand (kW)

Electric Usage - Strathmore Elementary School

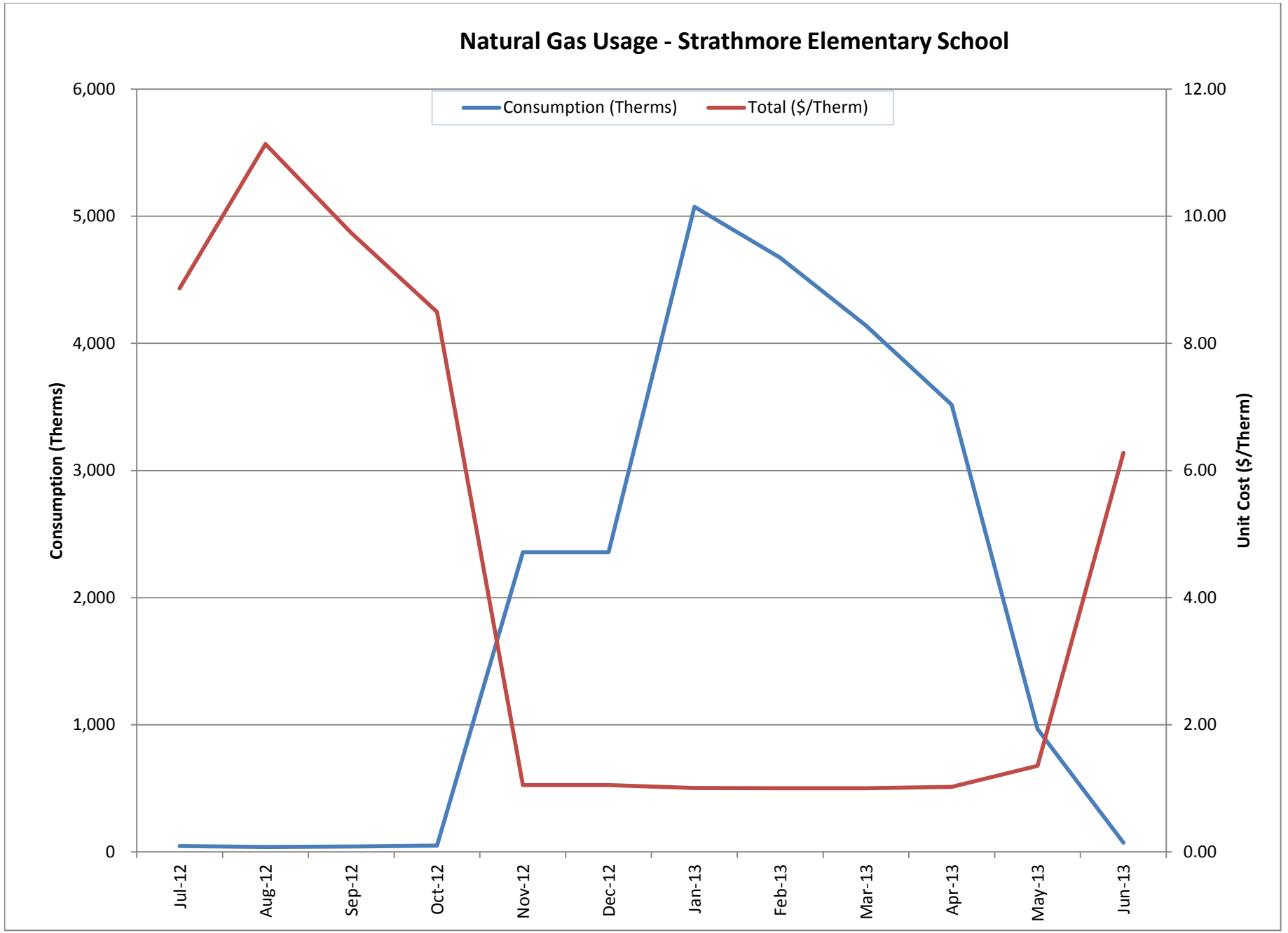


Utility Data - Strathmore Elementary School
Electric Graph

Matawan-Aberdeen Regional School District
One Crest Way, Aberdeen, NJ 07747

For Service at: **Strathmore Elementary School**
Account No.: **20-2394-2600-3Y**
Natural Gas Service
Delivery - **NJNG**
Supplier - **NJNG**

		Charges			Unit Costs		
Month	**Consumption (Therms)**	**Delivery ($)**	**Supply ($)**	**Total ($)**	**Delivery ($/Therm)**	**Supply ($/Therm)**	**Total ($/Therm)**
July-12	46	$ 22.31	$ 385.47	$ 407.78	$ 0.485	$ 8.380	$ 8.865
August-12	39	$ 48.85	$ 385.47	$ 434.32	$ 1.253	$ 9.884	$ 11.136
September-12	43	$ 36.24	$ 385.47	$ 421.71	$ 0.837	$ 8.904	$ 9.742
October-12	50.07	$ 39.97	$ 385.47	$ 425.44	$ 0.798	$ 7.699	$ 8.497
November-12	2,358	$ 2,092.39	$ 385.47	$ 2,477.86	$ 0.887	$ 0.163	$ 1.051
December-12	2,358	$ 2,092.39	$ 385.47	$ 2,477.86	$ 0.887	$ 0.163	$ 1.051
January-13	5,075	$ 4,716.50	$ 385.47	$ 5,101.97	$ 0.929	$ 0.076	$ 1.005
February-13	4,674	$ 4,291.47	$ 385.47	$ 4,676.94	$ 0.918	$ 0.082	$ 1.001
March-13	4,141	$ 3,767.38	$ 385.47	$ 4,152.85	$ 0.910	$ 0.093	$ 1.003
April-13	3,518	$ 3,209.50	$ 385.47	$ 3,594.97	$ 0.912	$ 0.110	$ 1.022
May-13	967	$ 925.57	$ 385.47	$ 1,311.04	$ 0.957	$ 0.399	$ 1.356
June-13	73	$ 72.24	$ 385.47	$ 457.71	$ 0.991	$ 5.288	$ 6.279
Total	**23,343**	**21,315**	**4,626**	**$ 25,940.45**	**$ 0.91**	**$ 0.20**	**$ 1.111**


Natural Gas Usage - Strathmore Elementary School
Consumption (Therms)
Total ($/Therm)
6,000
5,000
4,000
3,000
2,000
1,000
0
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Consumption (Therms)
Unit Cost ($/Therm)
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13

JCP&L SERVICE TERRITORY

Last Updated: 10/24/12

***CUSTOMER CLASS - R – RESIDENTIAL C – COMMERCIAL I –INDUSTRIAL**

Supplier	Telephone & Web Site	*Customer Class
AEP Energy, Inc. 309 Fellowship Road, Fl.2 Mount Laurel, NJ 08054	(866) 258-3782 www.aepenergy.com	**C/I ACTIVE**
Alpha Gas and Electric, LLC 641 5th Street Lakewood, NJ 08701	(855) 553-6374 www.alphagasandelectric.com	**R/C ACTIVE**
Ambit Northeast, LLC 103 Carnegie Center Suite 300 Princeton, NJ 08540	(877) 30-AMBIT (877) 302-6248 www.ambitenergy.com	**R/C ACTIVE**
AP Gas & Electric, LLC 10 North Park Place, Suite 420 Morristown, NJ 07960	(855) 544-4895 www.apge.com	**R/C/I ACTIVE**
Astral Energy LLC 16 Tyson Place Bergenfield, NJ 07621	(201) 384-5552 www.astralenergyllc.com	**R/C/I ACTIVE**
BBPC, LLC d/b/a Great Eastern Energy 116 Village Blvd. Suite 200 Princeton, NJ 08540	(888) 651-4121 www.greateasternenergy.com	**C/I ACTIVE**
Champion Energy Services, LLC 72 Avenue L Newark, NJ 07105	(877) 653-5090 www.championenergyservices.com	**R/C/I ACTIVE**
Choice Energy, LLC 4257 US Highway 9, Suite 6C Freehold, NJ 07728	888-565-4490 www.4choiceenergy.com	**R/C ACTIVE**
Clearview Electric, Inc. 505 Park Drive Woodbury, NJ 08096	(888) CLR-VIEW (800) 746-4702 www.clearviewenergy.com	**R/C/I ACTIVE**
Commerce Energy, Inc. 7 Cedar Terrace Ramsey, NJ 07446	1-866-587-8674 www.commerceenergy.com	**R ACTIVE**
ConEdison Solutions Cherry Tree Corporate Center 535 State Highway Suite 180 Cherry Hill, NJ 08002	(888) 665-0955 www.conedsolutions.com	**C/I ACTIVE**
Constellation NewEnergy, Inc. 900A Lake Street, Suite 2 Ramsey, NJ 07446	(866) 237-7693 www.constellation.com	**R/C/I ACTIVE**
Constellation Energy 900A Lake Street, Suite 2 Ramsey, NJ 07446	(877) 997-9995 www.constellation.com	**R ACTIVE**
Direct Energy Business, LLC 120 Wood Avenue Suite 611 Iselin, NJ 08830	(888) 925-9115 www.directenergybusiness.com	**C/I ACTIVE**

Direct Energy Services, LLC 120 Wood Avenue Suite 611 Iselin, NJ 08830	(866) 547-2722 www.directenergy.com	**C/I ACTIVE**
Discount Energy Group, LLC 811 Church Road, Suite 149 Cherry Hill, NJ 08002	(800) 282-3331 www.discountenergygroup.com	**R/C ACTIVE**
Dominion Retail, Inc. d/b/a Dominion Energy Solutions 395 Route 70 West, Suite 125 Lakewood, NJ 08701	(866) 275-4240 www.dom.com/products	**R/C ACTIVE**
DTE Energy Supply, Inc. One Gateway Center, Suite 2600 Newark, NJ 07102	(877) 332-2450 www.dtesupply.com	**C/I ACTIVE**
Energy Plus Holdings LLC 309 Fellowship Road East Gate Center, Suite 200 Mt. Laurel, NJ 08054	(877) 866-9193 www.energypluscompany.com	**R/C ACTIVE**
Energy.me Midwest LLC 90 Washington Blvd Bedminster, NJ 07921	(855) 243-7270 www.energy.me	**R/C/I ACTIVE**
Ethical Electric Benefit Co. d/b/a Ethical Electric 100 Overlook Center, 2nd Fl. Princeton, NJ 08540	(888) 444-9452 www.ethicalelectric.com	**R/C ACTIVE**
FirstEnergy Solutions Corp. 300 Madison Avenue Morristown, NJ 07962	(800) 977-0500 www.fes.com	**C/I ACTIVE**
Gateway Energy Services Corp. 44 Whispering Pines Lane Lakewood, NJ 08701	(800) 805-8586 www.gesc.com	**R/C/I ACTIVE**
GDF SUEZ Energy Resources NA, Inc. 333 Thornall Street Sixth Floor Edison, NJ 08819	(866) 999-8374 www.gdfsuezenergyresources.com	**C/I ACTIVE**
Glacial Energy of New Jersey, Inc. 75 Route 15 Building E Lafayette, NJ 07848	(888) 452-2425 www.glacialenergy.com	**C/I ACTIVE**
Green Mountain Energy Company 211 Carnegie Center Drive Princeton, NJ 08540	(866) 767-5818 www.greenmountain.com/commercial-home	**C/I ACTIVE**
Hess Corporation 1 Hess Plaza Woodbridge, NJ 07095	(800) 437-7872 www.hess.com	**C/I ACTIVE**
HIKO Energy, LLC 655 Suffern Road Teaneck, NJ 07666	(888) 264-4908 www.hikoenergy.com	**R/C ACTIVE**
HOP Energy, LLC d/b/a Metro Energy, HOP Fleet Fueling, HOP Energy Fleet Fueling 1011 Hudson Avenue Ridgefield, NJ 07657	(877) 390-7155 www.hopenergy.com	**R/C/I ACTIVE**

IDT Energy, Inc. 550 Broad Street Newark, NJ 07102	(973) 438-4380 www.idtenergy.com	**R/C** **ACTIVE**
Independence Energy Group, LLC 211 Carnegie Center Princeton, NJ 08540	(877) 235-6708 www.chooseindependence.com	**R/C ACTIVE**
Integrys Energy Services, Inc. 99 Wood Ave, South, Suite 802 Iselin, NJ 08830	(877) 763-9977 www.integrysenergy.com	**C/I** **ACTIVE**
Liberty Power Delaware, LLC 3000 Atrium Way Suite 273 Mt. Laurel, NJ 08054	(866) 769-3799 www.libertypowercorp.com	**R/C/I** **ACTIVE**
Liberty Power Holdings, LLC 3000 Atrium Way Suite 273 Mt. Laurel, NJ 08054	(866) 769-3799 www.libertypowercorp.com	**R/C/I** **ACTIVE**
Linde Energy Services 575 Mountain Avenue Murray Hill, NJ 07974	(800) 247-2644 www.linde.com	**C/I** **ACTIVE**
Marathon Power LLC 302 Main Street Paterson, NJ 07505	(888) 779-7255 www.mecny.com	**R/C/I** **ACTIVE**
NATGASCO, Inc. 532 Freeman St. Orange, NJ 07050	(973) 678-1800 x. 251 www.supremeenergyinc.com	**R/C** **ACTIVE**
NextEra Energy Services New Jersey, LLC 651 Jernee Mill Road Sayreville, NJ 08872	(877) 528-2890 Commercial (800) 882-1276 Residential www.nexteraenergyservices.com	**R/C/I** **ACTIVE**
NJ Gas & Electric 1 Bridge Plaza fl.2 Fort Lee, NJ 07024	(866) 568-0290 www.NJGandE.com	**R/C/I** **ACTIVE**
Noble Americas Energy Solutions The Mac-Cali Building 581 Main Street, 8th Floor Woodbridge, NJ 07095	(877) 273-6772 www.noblesolutions.com	**C/I** **ACTIVE**
North American Power and Gas, LLC 222 Ridgedale Ave. Cedar Knolls, NJ 07927	(888) 313-9086 www.napower.com	**R/C/I** **ACTIVE**
Palmco Power NJ, LLC One Greentree Centre 10,000 Lincoln Drive East, Suite 201 Marlton, NJ 08053	(877) 726-5862 www.PalmcoEnergy.com	**R/C/I** **ACTIVE**
Pepco Energy Services, Inc. 112 Main St. Lebanon, NJ 08833	(800) ENERGY-9 (363-7499) www.pepco-services.com	**R/C** **ACTIVE**
Plymouth Rock Energy, LLC 338 Maitland Avenue Teaneck, NJ 07666	(855) 32-POWER (76937) www.plymouthenergy.com	**R/C/I** **ACTIVE**
PPL EnergyPlus, LLC 811 Church Road Cherry Hill, NJ 08002	(800) 281-2000 www.pplenergyplus.com	**C/I ACTIVE**

Public Power & Utility of New Jersey, LLC 39 Old Ridgebury Rd. Suite 14 Danbury, CT 06810	(888) 354-4415 www.ppandu.com	**R/C/I** **ACTIVE**
Reliant Energy 211 Carnegie Center Princeton, NJ 08540	(877) 297-3795 (877) 297-3780 www.reliant.com/pjm	**R/C/I** **ACTIVE**
ResCom Energy LLC 18C Wave Crest Ave. Winfield Park, NJ 07036	(888) 238-4041 http://rescomenergy.com	**R/C/I** **ACTIVE**
Respond Power LLC 10 Regency CT Lakewood, NJ 08701	(877) 973-7763 www.respondpower.com	**R/C/I** **ACTIVE**
South Jersey Energy Company 1 South Jersey Plaza Route 54 Folsom, NJ 08037	(800) 800-266-6020 www.southjerseyenergy.com	**C/I** **ACTIVE**
Sperian Energy Corp. 1200 Route 22 East, Suite 2000 Bridgewater, NJ 08807	(888) 682-8082	**R/C/I** **ACTIVE**
Starion Energy PA Inc. 101 Warburton Avenue Hawthorne, NJ 07506	(800) 600-3040 www.starionenergy.com	**R/C/I** **ACTIVE**
Stream Energy 309 Fellowship Road Suite 200 Mt. Laurel, NJ 08054	(877) 369-8150 www.streamenergy.net	**R** **ACTIVE**
UGI Energy Services, Inc. d/b/a GASMARK 224 Strawbridge Drive Suite 107 Moorestown, NJ 08057	(856) 273-9995 www.ugienergyservices.com	**C/I** **ACTIVE**
Verde Energy USA, Inc. 50 East Palisades Avenue Englewood, NJ 07631	(800) 388-3862 www.lowcostpower.com	**R/C/I** **ACTIVE**
Viridian Energy 2001 Route 46 Waterview Plaza Suite 310 Parsippany, NJ 07054	(866) 663-2508 www.viridian.com	**R/C/I** **ACTIVE**
Xoom Energy New Jersey, LLC 744 Broad Street Newark, NJ 07102	(888)997-8979 www.xoomenergy.com	**R/C/I** **ACTIVE**
YEP Energy 89 Headquarters Plaza North #1463 Morristown, NJ 07960	(855) 363-7736 www.yepenergyNJ.com	**R/C/I** **ACTIVE**
Your Energy Holdings, LLC One International Boulevard Suite 400 Mahwah, NJ 07495-0400	(855) 732-2493 www.thisisyourenergy.com	**R/C/I** **ACTIVE**

NJ NATURAL GAS CO. SERVICE TERRITORY

Last Updated: 10/24/12

***CUSTOMER CLASS - R – RESIDENTIAL C – COMMERCIAL I – INDUSTRIAL**

Supplier	Telephone & Web Site	*Customer Class
Alpha Gas and Electric, LLC 641 5th Street Lakewood, NJ 08701	855-553-6374 www.alphagasandelectric.com	**R/C** **ACTIVE**
Astral Energy LLC 16 Tyson Place Bergenfield, NJ 07621	201-384-5552 www.astralenergyllc.com	**R/C/I** **ACTIVE**
BBPC, LLC d/b/a Great Eastern Energy 116 Village Blvd. Suite 200 Princeton, NJ 08540	888-651-4121 www.greateasternenergy.com	**C/I** **ACTIVE**
Clearview Electric Inc. d/b/a Clearview Gas 1744 Lexington Ave. Pennsauken, New Jersey 08110	800-746-4720 www.clearviewenergy.com	**R/C** **ACTIVE**
Colonial Energy, Inc. 83 Harding Road Wyckoff, NJ 07481	845-429-3229 www.colonialgroupinc.com	**C/I** **ACTIVE**
Commerce Energy, Inc. 7 Cedar Terrace Ramsey, NJ 07746	(888) 817-8572 www.commerceenergy.com	**R** **ACTIVE**
Compass Energy Services, Inc. 1085 Morris Avenue, Suite 150 Union, NJ 07083	866-867-8328 908-638-6605 www.compassenergy.net	**C/I** **ACTIVE**
ConocoPhillips Company 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	800-646-4427 www.conocophillips.com	**C/I** **ACTIVE**
Constellation NewEnergy-Gas Division, LLC 900A lake Street, Suite 2 Ramsey, NJ 07466	800-900-1982 www.constellation.com	**C/I** **ACTIVE**
Consolidated Edison Solutions, Inc. Cherry Tree Corporate Center 535 State Highway 38, Suite 140 Cherry Hill, NJ 08002	888-665-0955 www.conedsolutions.com	**C/I** **ACTIVE**
Core Energy Inc. 37 West 55th Street Suite 200 Ocean City, NJ 08226	877-329-3495 www.core-energy.net	**R/C** **ACTIVE**
Direct Energy Business, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	888-925-9115 www.directenergy.com	**C/I** **ACTIVE**
Direct Energy Services, LLP 120 Wood Avenue, Suite 611 Iselin, NJ 08830	866-547-2722 www.directenergy.com	**R/C/I** **INACTIVE**
Dominion Retail, Inc. d/b/a Dominion Energy Solutions 395 Route #70 West, Suite 125 Lakewood, NJ 08701	866-645-9802 www.dom.com/products	**R/C** **ACTIVE**
Energy Plus Natural Gas LP 309 Fellowship Road, East Gate Center, Suite 200 Mt. Laurel, NJ 08054	877-866-9193 www.energypluscompany.com	**R/I** **ACTIVE**

Gateway Energy Services Corp. 44 Whispering Pines Lane Lakewood, NJ 08701	800-805-8586 www.gesc.com	**R/C/I** **ACTIVE**
Global Energy Marketing LLC 129 Wentz Avenue Springfield, NJ 07081	800-542-0778 www.globalp.com	**C/I** **ACTIVE**
Greenlight Energy 330 Hudson Street, Suite 4 Hoboken, NJ 07030	718-204-7467 www.greenlightenergy.us	**C** **ACTIVE**
HIKO Energy, LLC 655 Suffern Road Teaneck, NJ 07666	(888) 264-4908 www.hikoenergy.com	**R/C** **ACTIVE**
UGI Energy Services, Inc. d/b/a/ GASMARK 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	856-273-9995 www.ugienergyservices.com	**C/I** **ACTIVE**
Hess Energy, Inc. One Hess Plaza Woodbridge, NJ 07095	800-437-7872 www.hess.com	**C/I** **ACTIVE**
Hess Small Business Services, LLC One Hess Plaza Woodbridge, NJ 07095	888-494-4377 www.hessenergy.com	**C/I** **ACTIVE**
IDT Energy, Inc. 550 Broad Street Newark, New Jersey 07102	973-438-4380 www.idtenergy.com	**R/C** **ACTIVE**
Integrys Energy Services- Natural Gas, LLC 99 Wood Avenue South Suite #802 Iselin, NJ 08830	(800) 536-0151 www.integrysenergy.com	**C/I ACTIVE**
Intelligent Energy 2050 Center Avenue, Suite 500 Fort Lee, NJ 07024	800-927-9794 www.intelligentenergy.org	**R/C/I** **ACTIVE**
Keil & Sons, Inc. **d/b/a Systrum Energy** 1 Bergen Blvd. Fairview, NJ 07022	1-877-797-8786 www.systrumenergy.com	**R/C/I** **ACTIVE**
Marathon Power LLC 302 Main Street Paterson, NJ 07505	888-779-7255 www.mecny.com	**R/C/I** **ACTIVE**
Metromedia Energy, Inc. 6 Industrial Way Eatontown, NJ 07724	800-828-9427 www.metromediaenergy.com	**C** **ACTIVE**
MxEnergy, Inc. 900 Lake Street Ramsey, NJ 07446	800-785-4374 www.mxenergy.com	**R/C/I** **ACTIVE**
NATGASCO (Mitchell Supreme) 532 Freeman Street Orange, NJ 07050	800-840-4GAS www.natgasco.com	**C** **ACTIVE**
New Energy Services LLC 101 Neptune Avenue Deal, NJ 07723	800-660-3643 www.newenergyservicesllc.com	**R/C/I** **ACTIVE**
New Jersey Gas & Electric 1 Bridge Plaza, Fl. 2 Fort Lee, NJ 07024	866-568-0290 www.NJGandE.com	**R/C** **ACTIVE**
North American Power & Gas, LLC d/b/a North American Power 197 Route 18 South Ste. 3000 East Brunswick, NJ 08816	(888) 313-9086 www.napower.com	**R/C/I** **ACTIVE**

Palmco Energy NJ, LLC One Greentree Centre 10,000 Lincoln Drive East Suite 201 Marlton, NJ 08053	877-726-5862 www.PalmcoEnergy.com	**R/C/I** **ACTIVE**
Pepco Energy Services, Inc. 112 Main Street Lebanon, NJ 08833	800-363-7499 www.pepco-services.com	**C/I** **ACTIVE**
PPL EnergyPlus, LLC 811 Church Road - Office 105 Cherry Hill, NJ 08002	800-281-2000 www.pplenergyplus.com	**C/I** **ACTIVE**
Respond Power LLC 10 Recency CT Lakewood, NJ 08701	877-973-7763 www.respondpower.com	**R/C/I** **ACTIVE**
South Jersey Energy Company 1 South Jersey Plaza, Route 54 Folsom, NJ 08037	800-266-6020 www.southjerseyenergy.com	**C/I** **ACTIVE**
Sprague Energy Corp. 12 Ridge Road Chatham Township, NJ 07928	855-466-2842 www.spragueenergy.com	**C/I** **ACTIVE**
Systrum Energy 1 Bergen Blvd. Fairview, NJ 07022	877-797-8786 www.systrumenergy.com	**R/C/I** **ACTIVE**
Stream Energy New Jersey, LLC 309 Fellowship Road Suite 200 Mt. Laurel, NJ 08054	(973) 494-8097 www.streamenergy.net	**R/C** **ACTIVE**
Verde Energy USA, Inc. 50 East Palisades Avenue Englewood, NJ 07631	800-388-3862 www.lowcostpower.com	**R** **ACTIVE**
Woodruff Energy 73 Water Street Bridgeton, NJ 08302	800-557-1121 www.woodruffenergy.com	**R/C/I** **ACTIVE**
Woodruff Energy US LLC 73 Water Street, P.O. Box 777 Bridgeton, NJ 08302	856-455-1111 800-557-1121 www.woodruffenergy.com	**C/I** **ACTIVE**
Xoom Energy New Jersey, LLC 744 Broad Street Newark, NJ 07102	888-997-8979 www.xoomenergy.com	**R/C/I** **ACTIVE**
Your Energy Holdings, LLC One International Boulevard Suite 400 Mahwah, NJ 07495-0400	(855) 732-2493 www.thisisyourenergy.com	**R/C/I** **ACTIVE**

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APPENDIX B

Equipment Inventory

Matawan-Aberdeen Regional School District
CHA Project# 27221
Cambridge Park Administration Building

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size /Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)
B-1	1	Cleaverbrooks	CB760-125	L-48623	Heating / Natural Gas	230,000 btu input, 80% efficiency	MER	Administration Building & Education Wing	1969	0
B-2	1	Cleaverbrooks	CB760-125	L-48624	Heating / Natural Gas	230,000 btu input, 80% efficiency	MER	Administration Building & Education Wing	1969	0
AC-1	1	Quincy	QC03008D00210	20030801-0032	Compressed Air / Electric	Dual Compressor 3 HP 86.5% motors	MER	Administration Building & Education Wing		0
HWP-1	1	B&G	-	-	Hot Water / Electric	1 HP	MER	Administration Building & Education Wing		0
HWP-2	1	B&G	-	-	Hot Water / Electric	1 HP	MER	Administration Building & Education Wing		0
HWP-3	1	B&G	-	-	Hot Water / Electric	1 HP	MER	Administration Building & Education Wing		0
HWP-4	1	B&G	-	-	Hot Water / Electric	1 HP	MER	Administration Building & Education Wing		0
ACU-1	1	Lennox	CB518-51-1P	-	Cooling / DX Cooling	4-tons	Storage Closet	Operations and Maintenance	1986	0
ACU-2	1	Lennox	CB518-51-1P	-	Cooling / DX Cooling	4-tons	Storage Closet	Accounts Payable	1986	0
ACU-3	1	Lennox	CB518-51-1P	-	Cooling / DX Cooling	4-tons	Storage Closet	Superintendent Office	1986	0
ACU-4	1	Lennox	CB518-51-1P	-	Cooling / DX Cooling	4-tons	Storage Closet	18	1986	0
ACU-5	1	Lennox	CB518-51-1P	-	Cooling / DX Cooling	4-tons	Storage Closet	19	1986	0
ACU-10	1	Trane	-	-	Cooling / DX Cooling	4-tons	Above Ceiling	Faculty Dining	2005	15
CU-1	1	Trane	TTA0036A4A4000AA	5161P5F3F	Cooling / DX Cooling	3-tons	Roof	ACU-10	2005	7
ACU-6	1	Lennox			Cooling / DX Cooling	4-tons	Storage Closet	IT Office	1986	0
ACU-7	1	Lennox			Cooling / DX Cooling	4-tons	Storage Closet	Business Office	1986	0
ACU-8	1	Lennox			Cooling / DX Cooling	4-tons	Storage Closet	Business Administration Office	1986	0
ACU-9	1	Lennox			Cooling / DX Cooling	4-tons	Storage Closet	IT Room	1986	0
DWH-1	1	Rudd	PG52-2	0483M40687	Hot Water / Electric	4500W, 52 Gallons	MER	Administration Building & Education Wing		0
ACU-9	1	Trane			Cooling / DX Cooling		Storage Closet	Restrooms		0
CU-2	1	Trane	TTA0036A4A4000AA		Cooling / DX Cooling	3-tons	Storage Closet	ACU-9		0
CU-3	1	Lennox	HS16-311V-4P	5186F12012	Cooling / DX Cooling	2.5 ton	Ground	Nurse	1986	0
CU-4	1	Lennox	HS16-411V-4P	5186F10203	Cooling / DX Cooling	3-tons	Ground	Classroom	1986	0
CU-5	1	Lennox	HS16-511V-5P	5186F18752	Cooling / DX Cooling	4-tons	Ground	Classroom	1986	0
CU-6	1	Lennox	HS16-411V-4P	5186F09598	Cooling / DX Cooling	3-tons	Ground	Classroom	1986	0
CU-7	1	Lennox	HS16-511V-5P	5186F18716	Cooling / DX Cooling	4-tons	Ground	Classroom	1986	0
CU-8	1	Lennox	HS16-411V-4P	5186F10218	Cooling / DX Cooling	3-tons	Ground	Classroom	1986	0
CU-9	1	Lennox	HS16-411V-4P	5186F10237	Cooling / DX Cooling	3-tons	Ground	Classroom	1986	0
CU-10	1	Lennox	HS16-511V-5P	5186F18753	Cooling / DX Cooling	4-tons	Ground	Classroom	1986	0
CU-11	1	Lennox	HS16-411V-4P	5186F09595	Cooling / DX Cooling	3-tons	Ground	Classroom	1986	0
CU-12	1	Lennox	HS16-511V-5P	5186F18754	Cooling / DX Cooling	4-tons	Ground	Classroom	1986	0
CU-13	1	Lennox	HS16-511V-5P	5186F18715	Cooling / DX Cooling	4-tons	Ground	Classroom	1986	0
CU-14	1	Lennox	HS16-411V-4P	5186F10236	Cooling / DX Cooling	3-tons	Ground	Classroom	1986	0
CU-15	1	Lennox	HS16-411V-4P	5186F10234	Cooling / DX Cooling	3-tons	Ground	Classroom	1986	0
Window Air Conditioners	12					2-ton	Window			0
										0
										0
										0

Matawan-Aberdeen Regional School District
CHA Project# 27221
Cliffwood Elementary School

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size /Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)
RTU	1	York	DM180N24A2AAA1D	N0B69662	Cooling / DX Cooling	12.5 ton	Roof	Cafeteria		
CU-1	1	Trane	TTA120B300BB	K481Y9JAH	Cooling / DX Cooling	10-ton	Roof	HV unit for GYM		
CU-2	1	Trane	TTA120B300BB	K483K8CAH	Cooling / DX Cooling	10-ton	Roof	Library		
RTU	1	Trane	PCCB	K95L85844	Cooling / DX Cooling		Roof			
B-1	1	Rockmills	MP100	2320	Heating / Natural Gas	3,378 MBH, 85%	MER	School	2012	24
B-2	1	Rockmills	MP100	2319	Heating / Natural Gas	3,378 MBH, 85%	MER	School	2012	24
DHW-1	1	A.O. Smith	DRE 120 510P	AF81-00207-B10P	Hot Water / Electricity	18 KW, 119 Gall, 300 Gallon remote Storage Tank	MER	School		-
AC-1	1	Quincy	QC0200BD00276	20030731-0114	Compressed Air / Electricity	Dual Compressor, 2 HP Motors	MER	School		-
LPC	1	B&G	SVLR2-20-1	QB0630-5A9073957-0011	Low Pressure Steam Condesate / Electric		MER	Boilers	2012	24
BFS	1	Sellers	RS-217-3-32AA	104579	Boiler Feed / Electric	(3) 1/3 HP pumps	MER	Boilers	2012	24
AHU-1	4	Lennox	-	-	Cooling / DX Cooling	2-tons	Above Ceiling			-
HWP-1	1	Armstrong	4380BF	434395	Hot Water / Electricity	5 HP	2nd MER	New Addition	1996	0
HWP-2	1	Armstrong	4380BF	434393	Hot Water / Electricity	5 HP	2nd MER	New Addition	1996	0
B-3	1	Smith	28A-4	N95-452	Heating / Natural Gas	783,000 Btuh in, 91%	2nd MER	New Addition	1996	0
B-4	1	Smith	28A-4	N95-456	Heating / Natural Gas	783,000 Btuh in, 91%	2nd MER	New Addition	1996	8
DHW-2	1	A.O. Smith	BT 80 300 300	0901M000129	Hot Water / Natural Gas	74 gallons, 80%, 75,100 btuh input	2nd MER	New Addition	1996	8
WAC	3				Cooling / DX Cooling	2-tons	windows			-
AH-2	1	Trane	-	-	Heating / Natural Gas	8,400 CFM, 3,000 CFM OA	Gymnasium	Gymnasium		-
AC-2	1	American Standard	2TTA0072A3000AA	7285T1K2F	DX Cooling	6-ton	Roof	Coil in RTU	2007	19
RTU	1	Trane	PCCB-AAAGCHA0AAGA0CC000000	K95L85843	Heating / Cooling		Roof	School	1998	10
RTU	1	Trane	TCD049080BBC	N31100560D	Cooling	4-ton cooling	Roof	School	1998	10

Matawan-Aberdeen Regional School District
CHA Project# 27221
Lloyd Road Elementary School

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size /Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)
B-1	1	Easco	SM4-150-W0	14633	Heating / Natural Gas	5,277 MBH in, 91% efficient	MER	School	2013	25
B-2	1	Cleaverbrook	CB810-200	L-39108	Heating / Natural Gas	8,375 MBH in, 80%	MER	School	1966	0
HWP-1	1	B&G	U4A-5518186			5 HP	MER	Zone 4		
HWP-2	1	B&G	U4A-5518186			5 HP	MER	Cafeteria		
HWP-3	1	B&G	U4A-5518186			5 HP	MER	Gym		
HWP-4	1	B&G	U4A-5518186			5 HP	MER	Auditorium		
AC-1	1	Quincy	QC02008D00276	20030731-0064	Compressed Air / Electric		MER	School		
DHW-1	1	A.O. Smith	BTR 365A-118	1143M001748	Hot Water / Natural Gas	365,000 BTU in, 85 gallon	MER	School	2011	10
AHU-2	1	Nesbitt	-	-	Heating / Natural Gas	16,300 CFM	Roof	Gym		
AHU-1	1	Nesbitt	-	-	Heating / Natural Gas	16,300 CFM	Roof	Gym		
CU-1	1	Trane	XE1000	-	Cooling / DX Cooling		Roof	Classrooms 18 & 22		
RTU-1	1	Lennox	LCC210H2B1Y	5604F00587	Cooling / DX Cooling		Roof	Library		
		York	DM090C00N2AA32	NGNM087336	Cooling / DX Cooling	7.5 ton	Roof	Main Office		
CU-2	1	-	-	-	Cooling / DX Cooling	-	Roof	Copy / Office Room		
AHU-3	1	Nesbitt	-	-	Heating / Natural Gas	12,700 CFM	Roof	Auditorium		
AHU-4	1	Nesbitt	-	-	Heating / Natural Gas	8,500 CFM	Roof	Auditorium Lobby		
DHW-2	1	O State	PR3 30 2	C705813C	Hot Water / Natural Gas	1000W, 10 gallon,	Closet	Cust Closet, Men's & Women's Faculty Room		
HP-1	1				Heating / Electric		Storage	Room 21		
HP-2	1				Heating / Electric		Storage	Room 19		
HP-3	1				Heating / Electric		Storage	Room 20		
WAC	1				Cooling / DX Cooling		Window	NetworK		

Matawan-Aberdeen Regional School District
CHA Project# 27221
Matawan Avenue Middle School

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size /Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)
B-1	1	Cleaverbrooks	CB760-150	L-48626	Heating / Natural Gas	6,275 MBH input, 80%	MER	School	1969	0
B-2	1	Cleaverbrooks	CB760-150	L-48625	Heating / Natural Gas	6,275 MBH input, 80%	MER	School	1969	0
DHW-1	1	A.O. Smith	BT 80 300 300	0901M000129	Hot Water / Natural Gas	75,100 BTUH input, 98 Gallons, 80%	MER	School	2009	9
AC-1	1	Quincy	QT55QCB	20030731-0112	Compressed Air / Electric	Dual Compressor 3 HP	MER	School		
CU-1	1	Trane	TTB024C100A2	534158R5F	Cooling / DX Cooling	2-ton	Roof	Storage		
EF-5E	1	-	-	-						
RTU-9	1	Aaon	RM-018-3-0	200502-AMGN15897	Cooling / DX Cooling	390 MBH input, 316 MBH output, 18-ton	Roof	Cafeteria		
RTU-5	1	Aaon	RM-020-3-0	200502-AMAP15890	Cooling / DX Cooling	270 MBH input, 219 MBH output, 20-ton	Roof	Cafeteria		
DHW-2	1	A.O. Smith	BT 120 110	A05M000956	Hot Water / Natural Gas	120,000 BTUH input, 71 Gallons,	MER	Aux Gym Wing		
RTU-8	1	Aaon	RM-020-3-0	200409-AMGP11308	Cooling / DX Cooling	480 MBH in, 389 MBH out, 20 ton	Roof			
HV-1	1	Nesbitt			Heating / Natural Gas		Roof	Gym		
HV-2	1	Nesbitt			Heating / Natural Gas		Roof	Gym		
RTU-6	1	Aaon	RN-031-3-0-AA02-2A4	200502-ANGU00879	Cooling / DX Cooling	540 MBH input, 437 MBH output 31-ton	Roof	New Gym		
RTU-7	1	Aaon	RN-031-3-0-AA02-2A4	200502-ANGU00880	Cooling / DX Cooling	540 MBH input, 437 MBH output 31-ton	Roof	New Gym		
CU-2	1	Trane	TTB024C100A2	44217P35F	Cooling / DX Cooling	2-ton	Roof		2004	5
CU-3	1	Trane	TTK509E5UA0	3442TDMTB	Cooling / DX Cooling		Roof		2003	4
CU-4	1	Trane	TTB024C100A2	44217PN5F	Cooling / DX Cooling	2-ton	Roof		2004	5
RTU	1	Trane	TCC024F100BD	N305LD62H	Cooling / DX Cooling	2-ton	Roof	Main Offcice	1998	0
RTU	1	Trane	TCC024F100BD	N315L552H	Cooling / DX Cooling	1.5-ton	Roof	Nurse / Classroom	1998	0
WAC	7				Cooling / DX Cooling	2-ton	window			
HWP-1	1	Armstrong	90-254U-KAA-EMI	9323149-054640	Hot Water Pump	7.5 HP	MER	School		
HWP-2	1	Armstrong	90-254U-KAA-EMI	9323148-054640	Hot Water Pump	7.5 HP	MER	School		
RTU-2	1	Carrier	38ARD012-601	2305G40119	Cooling / DX Cooling	2-ton	Roof	Auditorium		
RTU-3	1	Aaon	RN-025-3-0-EA09-3C9	201309-BNGR31820	Heating / Cooling	540 mbh input / 432 mbh output / 7,500 cfm	Roof	Auditorium		
RTU-4	1	York	D3CE036A46C	NEEM055133	Cooling / DX Cooling	3-ton	Roof	School		
RTU-5	1	Trane	TCC060F400BC	N3231LR2H	Cooling / DX Cooling	5-ton	Roof	School		
RTU-6	1	Aaon	RN-026-3-0-AA02-2A4	200502-ANGS00877	Heating / Cooling	540 mbh input / 437 mbh output / 7,500 cfm	Roof	School		
RTU-7	1	Aaon	RM-010-3-0-AA02-234	200409-AMGJ11226	Heating / Cooling	3,400 CFM	Roof	School		
RTU-1	1	Trane	TCD024C40CBC	N36101317D	Heating / Cooling	9.0 KW Heat / 17.8 Amps	Roof	School		
RTU	2	Aaon	RN-026-3-0-AA02-2A4	200502-ANGS00878	Heating / Cooling	540 mbh input / 437 mbh output / 7,500 cfm	Roof	School		
CU-1	1	Trane	TTB024C1A2	44217PEFF	Cooling / DX Cooling	2-ton	Roof	School		
CU-2	2	Trane	TTK509E5UA0	3443KXCTB	Cooling / DX Cooling	9,000 BTU/hr	Roof	School		
RTU-11	2	Aaon	RM-008-3-0-AA02-234	200502-AMGN15878	Cooling / DX Cooling	8-ton, 3,200 CFM	Roof	School		
RTU-12	1	Trane	THC048A3R0A1HF080 A200B000	504100180L	Cooling / DX Cooling	4-ton, 3,050 CFM	Roof	School		

Matawan-Aberdeen Regional School District
CHA Project# 27221
Matawan Regional High School

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size /Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)
B-1	1	Cleaverbrooks	CB655-250	L-27313	Heating / Natural gas	10500000 BTUH input, 75%	MER	School	1962	0
B-2	1	Cleaverbrooks	CB655-250	L-27314	Heating / Natural gas	10500000 BTUH input, 75%	MER	School	1962	0
DHW-1	1	A.O. Smith	BTP 740 104	1310M000317	Hot Water / Natural Gas	85 Gallon, 74,000 BTUH input, 80%	MER	School	2013	12
DHW-2	1	A.O. Smith	BTP 740 104	G04M0004450	Hot Water / Natural Gas	85 Gallon, 74,000 BTUH input, 80%	MER	School	2004	3
HWP-4	1	B&G	-	-	Heating / Electricity	7.5 HP	MER	School		-
HWP-3	1	B&G	-	-	Heating / Electricity	7.5 HP	MER	School		-
HWP-2	1	B&G	-	-	Heating / Electricity	7.5 HP	MER	School		-
HWP-1	1	B&G	-	-	Heating / Electricity	7.5 HP	MER	School		-
KEF-1	1	Cook	165VCRX165VX5B	2145909358-0010000701	Exhaust / Electricity	0.5 HP, 900 CFM	Roof	Kitchen Hood	2006	18
RTU-1	1	Aaon	RN-040-3-0TA09-3E9	201309-BNGV31833	Cooling / DX Cooling	1,080 MBH input, 864 MBH output, 40 Ton	Roof	Cafeteria		-
CU-1	1	Luxaire	HABA-W0365B	WGJM022524	Cooling / DX Cooling	3-ton	Roof	Office		-
RTU-2	1	York	DH120N15N4AA3A	NAMM001347	Cooling / DX Cooling	10-ton	Roof	Auditorium		-
RTU-3	1	Lennox	CHA16-120-2G	5699G03299	Cooling / DX Cooling		Roof	Main Office		-
CU-2	1	York	H1RA030S25B	WGNM036556	Cooling / DX Cooling	2.5-ton	Roof			-
CU-3	1	McQuay	ALP070C	5XA0185000	Cooling / DX Cooling			Stage		-
CU-4	1	Fujitsu	AOU9RQ	BNN00258	Heat Pump / Electric	9,700 cooling, 9,500 heating	Roof	Office		-
RTU-2	1	Aaon	-	-	Cooling / DX Cooling	15-ton	Roof	600 wing Classrooms		-
RTU-1	1	Aaon	AA02--491	200406-AMQP10178	Cooling / DX Cooling	input 270 mbh, 219 mbh output, 20-ton	Roof	Special Needs Classroom		-
RTU	1	York	D3CE036A46C	-	Cooling / DX Cooling	3-ton	Roof	Art Room		-
RTU-3	1	Aaon	RM-013-3-0	-	Cooling / DX Cooling	13-ton	Roof	500 Classroom Wing		-
RTU	1	Lennox	LGA1025H1G	5698H04966	Cooling / DX Cooling	8.5-ton	Roof	Coaches & Trainers Offices		-
CU-5	1	Carrier	-	2534E44136	Cooling / DX Cooling	2-ton	Roof	Copy Room		-
HV-1	1	Nesbitt	-	-	Heating / Natural Gas	10,000 CFM	Roof	Main Gymnasium		-
HV-2	1	Nesbitt	-	-	Heating / Natural gas	10,000 CFM	Roof	Main Gymnasium		-
CU-6	1	York	BRC50241BD	613482	Cooling / DX Cooling	2-ton	Roof	410, 412		-
RTU	1	Trane	TCA03652DN	5608F12711	Cooling / DX Cooling		Roof	Computer Lab		-
CU-7	1	Mitsubishi	PUG18AKB	178239	Cooling / DX Cooling	12.0 SEER	Roof	Network Room		-
RTU	1	Trane	TSC060A4R0A2F	630103371L	Cooling / DX Cooling	5-ton	Roof	Network Room		-
RTU-7	1	Aaon	-	-	Cooling / DX Cooling		Roof	Classroom		-
CU	1	York	H1PBQ36506A	EGCM388441	Cooling / DX Cooling		Roof	Office		-
RTU-5	1	Aaon	RM-031-3C	200407-ANGU00416	Cooling / DX Cooling	31-ton	Roof	Library		-
RTU-6	1	Aaon	-	-	Cooling / DX Cooling		Roof	Library		-
RTU-4	1	Aaon	RM-020-3-0	200406-ANGP10170	Cooling / DX Cooling	20-ton	Roof	Classroom		-
WAC	12				Cooling / DX Cooling	2-ton	Window			-
COMP-1	1	Quincy	Q107520000165	20030813-0186	Compressor	3 HP	MER	Controls		-
HV-3	1	Nesbitt			Heating / Natural Gas	4,500 CFM	Girls Locker Room	Aux Gymnasium		-
HV-4	1	Nesbitt			Heating / Natural Gas	4,500 CFM	Girls Locker Room	Aux Gymnasium		-
										-
										-

Matawan-Aberdeen Regional School District
CHA Project# 27221
Ravine Drive Elementary School

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size /Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)
B-1	1	Cleaverbrooks	CB810-100	L-37052	Heating / Natural Gas	3,450,000 BTUH in, 80%	MER	School	1965	
B-2	1	Cleaverbrooks	CB810-100	L-37053	Heating / Natural Gas	3,450,000 BTUH in, 80%	MER	School	1965	
HWP-3	1	B&G			Heating / Electricity	1 HP	MER	School		
HWP-4	1	B&G			Heating / Electricity	1 HP	MER	School		
HWP-6	1	B&G			Heating / Electricity	1-1/2 HP	MER	School		
HWP-5	1	B&G			Heating / Electricity	1-1/2 HP	MER	School		
HWP-7	1	B&G			Heating / Electricity	3/4 HP	MER	School		
HWP-8	1	B&G			Heating / Electricity	3/4 HP	MER	School		
HWP-1	1	B&G			Heating / Electricity	3/4 HP	MER	School		
HWP-2	1	B&G			Heating / Electricity	3/4 HP	MER	School		
AC-1	1	Quincy	QC02008D00276	20030731-0031	Compressed Air / Electricity	Dual Compressor 2 HP Motors	MER	School		
DHW-1	1	A.O. Smith	BT 65 200	0850A018987	Hot Water / Natural Gas	65,000 btuh input, 65 gallon, 80%	MER	School	2008	
CU-1	1	Trane	TTA120B300BC	M161XP2AH	Cooling / DX Cooling	10-ton	Roof	AH-1		
RTU-1	1	Trane	TCD075C30CBC	M23101815D	Cooling / DX Cooling					
AH-1	1	Trane	MCCA008AAF0C0	K97E52048	Cooling / DX Cooling		Above Ceiling			
WAC	5				Cooling / DX Cooling	2-ton	Window			
RTU-2	1	Trane	TCD049030BBC	N31100560D	Cooling / DX Cooling	4-ton	Roof	Library		
RTU-3	1	Trane	TCD049030BBC	N3110561D	Cooling / DX Cooling	4-ton	Roof	Library		

Matawan-Aberdeen Regional School District
CHA Project# 27221
Strathmore Elementary School

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size /Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)
B-1	1	Smith	28HE-5/W-10	-	Heating / Natural Gas	2185 MBH input, 91% efficent	MER	School	2013	25
B-2	1	HB Smith	450 Mills	-	Heating / Natural Gas	2939 MBH input, 80%	MER	School	1963	-
AC-1	1	Quincy	QC01503500168	20030806-0090	Compressed Air / Electric	Single Compressor	MER	School		-
AC-2	1	Quincy	QC01503500157	20030808-0098	Compressed Air / Electric	Single Compressor	MER	School		-
DHW-1	1	A.O. Smith	BT 100 112	MC040001014	Hot Water / Natural Gas	98 Gal, 75,100 BTUH	MER	School		-
DHW-2	1	Bradford White	100T88B3N	HH15332105	Hot Water / Natural Gas	100 gals, 88,000 btuh input	MER	School		-
HV-2	1	Nesbitt					MER	Kitchen		-
HWP-1	1	-	-	-		3 HP, 89.5%	MER	School		-
HWP-2	1	-	-	-		3 HP, 89.5%	MER	School		-
HV-1	1	Trane	MCCA021GAJOBBC000 F0CAA	K95C18549		10,000 CFM	Mezzaine	Gym		-
RTU-1	1	York	D2CE180A25C	NAKM011107			Roof	Cafetorium		-
RTU-2	1	Trane	TCD036C300BB	J291433640		3-ton	Roof		1994	6
CU-1	1	Evcon	GCCD3652152B	W1D1919966			Roof	Network Room		-
RTU-3	1	York	D3CE036A25C	NFEM075749			Roof	CST Offices		-
RTU-4	1	Trane	TCD049030BBC	N31100560D		4-ton	Roof			-
RTU-5	1	Trane	TCD049030BBC	N3110561D		4-ton	Roof			-
										-
										-

APPENDIX C

ECM Calculations

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221

Rate of Discount (used for NPV) 3.0%

Utility Costs		Yearly Usage	Building Area	Annual Utility Cost	
$ 0.114	$/kWh blended		46,525	Electric	Natural Gas
$ 0.087	$/kWh supply	305,400		34,799	30,146
$ 6.23	$/kW	159.1			
$ 1.11	$/Therm	27,084			
$ 18.00	$/kgals	570			

Cambridge Park Administration Building

	Item	Savings					Cost	Simple Payback	Life Expectancy	NJ Smart Start Incentives	Direct Install Eligible (Y/N)*	Direct Install Incentives**	Max Incentives	Payback w/ Incentives***	Simple Projected Lifetime Savings					ROI	NPV	IRR
		kW	kWh	therms	Water kgal	$									kW	kWh	therms	kgal/yr	$			
ECM-1	Window Replacements and Reduced Glazing	0.0	1,913	4,912	0	$ 5,685	$ 409,900	72.1	25	$ -	N	$ -	$ -	72.1	0.0	47,814	122,808	0	$ 142,137	(0.7)	($310,906)	-6.9%
ECM-2	Replace Boilers with Condensing HW Boilers	0.0	0	2,897	0	$ 3,224	$ 222,773	69.1	25	$ 4,000	Y	$ 75,000	$ 4,000	67.9	0.0	0	72,421	0	$ 80,607	(0.6)	($162,633)	-6.6%
ECM-3	Replace Window A/C Units w/ Ductless Splits	0.0	2,647	0	0	$ 302	$ 234,800	777.5	15	$ 2,208	Y	$ 75,000	$ 2,208	770.2	0.0	39,699	0	0	$ 4,524	(1.0)	($228,987)	#NUM!
ECM-4	Replace Motors with Premium Efficiency Motors	0.3	1,374	0	0	$ 180	$ 2,065	11.5	15.0	$ -	Y	$ 1,400	$ -	11.5	4.7	20,611	0	0	$ 2,696	0.3	$84	3.6%
ECM-7A	Replace Existing Condensing Units (Standard Efficiency Model)	0.0	5,484	0	0	$ 625	$ 81,100	129.8	15.0	$ 2,697	N	$ -	$ 2,697	125.4	0.0	82,266	0	0	$ 9,374	(0.9)	($70,942)	-19.4%
ECM-7B	Replace Existing Condensing Units (Higher Efficiency Model)	0.0	7,440	0	0	$ 848	$ 94,800	111.8	15.0	$ 2,697	Y	$ 66,400	$ 2,697	108.6	0.0	111,601	0	0	$ 12,716	(0.9)	($81,980)	-18.4%
ECM-8	Replace Existing Electric PTAC	0.0	85	0	0	$ 10	$ 5,400	540.0	15.0	$ -	Y	$ 3,800	$ -	540.0	0.0	1,275	0	0	$ 145	(1.0)	($5,281)	-28.6%
ECM-10	Install Vending Machine Controllers	0.0	4,818	0	0	$ 549	$ 600	1.1	15.0	$ -	N	$ -	$ -	1.1	0.0	72,270	0	0	$ 8,235	12.7	$5,954	91.5%
ECM-12A	Replace Existing DHW Heater with a Condensing Natural Gas DHW	4.5	1,910	(74)	0	$ 472	$ 20,931	44.3	12.0	$ 300	Y	$ 14,700	$ 300	43.7	54.0	22,916	(886)	0	$ 5,659	(0.7)	($15,932)	-15.8%
ECM-L1	Lighting Replacements / Upgrades	17.0	48,021	0	0	$ 6,744	$ 122,450	18.2	15.0	$ 11,830	Y	$ 75,000	$ 11,830	16.4	255.5	720,322	0	0	$ 101,165	(0.2)	($30,111)	-1.1%
	Total	**21.8**	**73,692**	**7,735**	**0**	**$ 18,639**	**$ 1,194,819**	64.1	16.7	$ 23,732		$ 311,300	$ 23,732	62.8	314.2	1,118,773	194,343	0	$ 367,259	(0.7)	($936,961)	-12.9%
	Total Measures with Payback <15	**0.3**	**6,192**	**0**	**0**	**$ 729**	**$ 2,665**	3.7	15.0	$ -		$ 1,400	$ -	3.7	4.7	92,881	0	0	$ 10,931	3.1	$6,037	26.6%
	% of Existing	**14%**	**24%**	**29%**	**0%**																	

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

ECM-2: Replace Boilers with Condensing HW Boilers

Existing Fuel Nat.Gas
Proposed Fuel Nat.Gas

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.11	/ Therm	
Proposed Fuel Cost	$ 1.11	/ Therm	
Baseline Fuel Use	22,209	Therms	Based on historical utility data
Existing Boiler Plant Efficiency	80%		Estimated Eff
Baseline Boiler Load	1,776,740	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 100 Mbtu/Therms
Baseline Fuel Cost	$ 24,720		
Proposed Boiler Plant Efficiency	92%		New Boiler Efficiency
Proposed Fuel Use	19,312	Therms	Baseline Boiler Load / Proposed Efficiency / 100 Mbtu/Therms
Proposed Fuel Cost	$ 21,495		
Estimated Annual Savings	2,897	Therms	

*Note to engineer: Link savings back to summary sheet in appropriate column.

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-2: Replace Boilers with Condensing HW Boilers - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
2,000 MBH NG Condensing Boiler	2	EA	$ 33,000	$ 2,000		$ 72,600	$ 5,400	$ -	$ 78,000	Vendor Quote
Flue Installation	2	EA	$2,500.0	$2,500.00		$ 5,500	$ 6,750	$ -	$ 12,250	RS Means 2012
Controls	1	EA	$ 500.0	$1,500.00		$ 550	$ 2,025	$ -	$ 2,575	Engineering Estimate
Miscellaneous Electrical	2	LS	$ 1,500	$ 1,500		$ 3,300	$ 4,050	$ -	$ 7,350	RS Means 2012
Miscellaneous HW Piping	2	LS	$ 5,000	$ 2,500		$ 11,000	$ 6,750	$ -	$ 17,750	RS Means 2012
Boiler room/space construction	1	LS	$ 20,000	$ 10,000		$ 22,000	$ 13,500	$ -	$ 35,500	Engineering Estimate
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 153,425	Subtotal
$ 15,342.50	10% Contingency
$ 33,753.50	20% Contractor O&P
$ 20,252	10% Engineering Fees
$ 222,773	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

ECM-4: Replace Old Motors with Premium Efficiency Motors

Demand Cost $/kW-month
$ 6.23

Energy Cost $/kWh
$ 0.11

Multipliers		
Material	Labor	Equipment
1.10	1.35	1.10

Savings Analysis

#	Description	Location	Existing HP	Load Factor	Existing Efficiency[a]	Existing kW	New HP[b]	New Load Factor	New Efficiency[a]	New kW	Demand Savings	Demand Savings $	Annual Hours	kWh Savings	$ kWh Savings	Total $ Savings	Estimated Cost	Payback Years
1	HWP-1	MER	1	0.8	0.767	0.8	1	0.8	0.852	0.7	0.078	$ 6	4,427	344	$ 39	$ 45	$ 515	11.5
2	HWP-2	MER	1	0.8	0.767	0.8	1	0.8	0.852	0.7	0.078	$ 6	4,427	344	$ 39	$ 45	$ 516	11.5
3	HWP-3	MER	1	0.8	0.767	0.8	1	0.8	0.852	0.7	0.078	$ 6	4,427	344	$ 39	$ 45	$ 517	11.5
4	HWP-4	MER	1	0.8	0.767	0.8	1	0.8	0.852	0.7	0.078	$ 6	4,427	344	$ 39	$ 45	$ 518	11.5
		Total	**4**			**3.1**	**4**			**2.8**	**0.31**	**$ 23**		**1,374**	**$ 157**	**$ 180**	**$ 2,065**	

Cost Estimates

#	Description	Location	Unit Costs Materials	Unit Costs Labor	Unit Costs Equipment	Subtotal Costs Materials	Subtotal Costs Labor	Subtotal Costs Equipment	Total Cost	Remarks
1	HWP-1	MER	$ 284	$ 150	$ -	$ 312	$ 203	$ -	$ 515	
2	HWP-2	MER	$ 284	$ 150	$ 1	$ 312	$ 203	$ 1	$ 516	
3	HWP-3	MER	$ 284	$ 150	$ 2	$ 312	$ 203	$ 2	$ 517	
4	HWP-4	MER	$ 284	$ 150	$ 3	$ 312	$ 203	$ 3	$ 518	

Notes

a Existing and new efficiencies should be entered if known. If not known, use provided curve fit based on "DOE Survey Installed Average" and NEMA Premium values, respectively.

b Same as existing HP unless resized to better match load

Costs from RSM Electrical Costs 2006, p202
Motors - Totally enclosed, premium efficiency
Table used for cost estimates

HP	Mat'l	Labor	Total
0	0	0	$ -
1	$ 284	$ 150	$ 434
2	$ 342	$ 200	$ 542
3	$ 550	$ 250	$ 800
5	$ 550	$ 250	$ 800
7.5	$ 621	$ 270	$ 891
10	$ 749	$ 270	$ 1,019
15	$ 999	$ 400	$ 1,399
20	$ 1,218	$ 400	$ 1,618
25	$ 1,492	$ 500	$ 1,992
30	$ 1,736	$ 500	$ 2,236
40	$ 2,253	$ 600	$ 2,853
50	$ 2,771	$ 600	$ 3,371
60	$ 4,141	$ 900	$ 5,041
75	$ 5,298	$ 1,000	$ 6,298
100	$ 6,303	$ 1,200	$ 7,503
125	$ 9,135	$ 1,500	$ 10,635
150	$ 10,353	$ 1,600	$ 11,953
200	$ 12,424	$ 2,000	$ 14,424

costs updated 12/09

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

EQUIPMENT	AREA/EQUIPMENT SERVED	COOLING CAPACITY (Tons)	EER
CU-3	Nurse	2.5	9.2
CU-4	Classsroom	3	9.2
CU-5	Classsroom	4	9.2
CU-6	Classsroom	3	9.2
CU-7	Classsroom	4	9.2
CU-8	Classsroom	3	9.2
CU-9	Classsroom	3	9.2
CU-10	Classsroom	4	9.2
CU-11	Classsroom	3	9.2
CU-12	Classsroom	4	9.2
CU-13	Classsroom	4	9.2
CU-14	Classsroom	3	9.2
CU-15	Classsroom	3	9.2
	Total Electric DX Cooling:	*44*	*Tons*

ECM-7A: Replace Existing Condensing Units (Standard Efficiency Model)

ECM Description Summary
This ECM replaces the DX Condensing units on the ground around the building that serves the classrooms and nurses office

ASSUMPTIONS			Comments
Electric Cost	$0.11	/ kWh	
Average run hours per Week	50	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	72	deg F	Setpoint.
BTU/Hr Rating of existing DX equipment	522,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	9.2		Value from Manufacturer literature
Existing Annual Electric Usage	15,996	kWh	

Item	Value	Units	Comments
Proposed EER	14.0		Value from Manufacturer literature
Proposed Annual Electric Usage	10,512	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	5,484	kWh
Annual Cost Savings	$625	

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	2	89%	2
92.5	31	9	79%	7
87.5	131	39	68%	27
82.5	500	149	58%	86
77.5	620	185	47%	87
72.5	664	198	37%	73
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0

Total	8,760	581	49%	282

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-7A: Replace Existing Condensing Units (Standard Efficiency Model) - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Existing (13) CUs demolition	13	EA		$ 545		$ -	$ 9,565	$ -	$ 9,565	RS Means 2012
(2) ACs, 3.0 ton air conditioner condensing units	7	EA	$ 1,225	$ 520		$ 9,433	$ 4,914	$ -	$ 14,347	RS Means 2012
(1) AC, 2.5 ton air conditioner condensing unit	1	EA	$ 1,200	$ 400		$ 1,320	$ 540	$ -	$ 1,860	RS Means 2012
(1) AC, 4.0 ton air conditioner condensing unit	5	EA	$ 1,600	$ 755		$ 8,800	$ 5,096	$ -	$ 13,896	RS Means 2012
- Reprogram DDC system for (1) CUs	13	EA	$ 75	$ 300		$ 1,073	$ 5,265	$ -	$ 6,338	Engineering Estimate
Electrical - misc.	1	LS	$ 1,000	$ 8,000		$ 1,100	$ 10,800	$ -	$ 11,900	Engineering Estimate
						$ -	$ -	$ -	$ -	

$ 57,905	Subtotal
$ 5,791	10% Contingency
$ 11,581	20% Contractor O&P
$ 5,791	10% Engineering
$ 81,100	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

EQUIPMENT	AREA/EQUIPMENT SERVED	COOLING CAPACITY (Tons)	EER
CU-3	Nurse	2.5	9.2
CU-4	Classsroom	3	9.2
CU-5	Classsroom	4	9.2
CU-6	Classsroom	3	9.2
CU-7	Classsroom	4	9.2
CU-8	Classsroom	3	9.2
CU-9	Classsroom	3	9.2
CU-10	Classsroom	4	9.2
CU-11	Classsroom	3	9.2
CU-12	Classsroom	4	9.2
CU-13	Classsroom	4	9.2
CU-14	Classsroom	3	9.2
CU-15	Classsroom	3	9.2
	Total Electric DX Cooling:	*44*	*Tons*

ECM-X: Replace Existing Condensing Units (Higher Efficiency Model)

ECM Description Summary
This ECM replaces the DX Condensing units on the ground around the building that serves the classrooms and nurses office

ASSUMPTIONS			Comments
Electric Cost	$0.11	/ kWh	
Average run hours per Week	50	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	72	deg F	Setpoint.
BTU/Hr Rating of existing DX equipment	522,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	9.2		Value from Manufacturer literature
Existing Annual Electric Usage	15,996	kWh	

Item	Value	Units	Comments
Proposed EER	17.2		Value from Manufacturer literature
Proposed Annual Electric Usage	8,556	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	7,440	kWh
Annual Cost Savings	$848	

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	2	89%	2
92.5	31	9	79%	7
87.5	131	39	68%	27
82.5	500	149	58%	86
77.5	620	185	47%	87
72.5	664	198	37%	73
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0

Total	8,760	581	49%	282

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-X: Replace Existing Condensing Units (Higher Efficiency Model) - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Existing (1) CUs demolition	13	EA		$ 545		$ -	$ 9,565	$ -	$ 9,565	RS Means 2012
(2) ACs, 3.0 ton air conditioner condensing units	7	EA	$ 1,838	$ 520		$ 14,149	$ 4,914	$ -	$ 19,063	RS Means 2012
(1) AC, 2.5 ton air conditioner condensing unit	1	EA	$ 1,800	$ 400		$ 1,980	$ 540	$ -	$ 2,520	RS Means 2012
(1) AC, 4.0 ton air conditioner condensing unit	5	EA	$ 2,400	$ 755		$ 13,200	$ 5,096	$ -	$ 18,296	RS Means 2012
- Reprogram DDC system for (13) CUs	13	EA	$ 75	$ 300		$ 1,073	$ 5,265	$ -	$ 6,338	Engineering Estimate
Electrical - misc.	1	LS	$ 1,000	$ 8,000		$ 1,100	$ 10,800	$ -	$ 11,900	Engineering Estimate
						$ -	$ -	$ -	$ -	

$ 67,681	Subtotal
$ 6,768	10% Contingency
$ 13,536	20% Contractor O&P
$ 6,768	10% Engineering
$ 94,800	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

EQUIPMENT	AREA/EQUIPMENT SERVED	COOLING CAPACITY (Tons)	EER
PTAC	Office	1	9.4
	Total Electric DX Cooling:	*1*	*Tons*

ECM-X: Replace Existing Electric PTAC

ECM Description Summary
This ECM replaces the electric PTAC units in the maintenance supervisor office

ASSUMPTIONS			Comments
Electric Cost	$0.11	/ kWh	
Average run hours per Week	50	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	72	deg F	Setpoint.
BTU/Hr Rating of existing DX equipment	12,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	9.8		Value from Manufacturer literature
Existing Annual Electric Usage	345	kWh	

Item	Value	Units	Comments
Proposed EER	13.0		Value from Manufacturer literature
Proposed Annual Electric Usage	260	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	85	kWh
Annual Cost Savings	$10	

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	2	89%	2
92.5	31	9	79%	7
87.5	131	39	68%	27
82.5	500	149	58%	86
77.5	620	185	47%	87
72.5	664	198	37%	73
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	581	49%	282

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-X: Replace Existing Electric PTAC - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Existing (1) PTAC demolition	1	EA		$ 450		$ -	$ 608	$ -	$ 608	RS Means 2012
(1) 1.0 ton PTAC unit	1	EA	$ 1,500	$ 500		$ 1,650	$ 675	$ -	$ 2,325	RS Means 2012
Electrical - misc.	1	LS	$ 250	$ 500		$ 275	$ 675	$ -	$ 950	Engineering Estimate
						$ -	$ -	$ -	$ -	

$ 3,883	Subtotal
$ 388	10% Contingency
$ 777	20% Contractor O&P
$ 388	10% Engineering
$ 5,400	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

ECM-9: Install Vending Machine Controls

Summary: Vending machines generally operate 24/7 regardless of the actual usage. This meas vending machine controls to reduce the total run time of these units. The result is a r energy usage.

Unit Cost: $0.114 $/kWh blended

Energy Savings Calculations:

Ex. Cold Beverage Vending Machine Electric usage	7,008	kWh[1,4,7]
Ex. Snack Vending Machine Electric usage	1,752	kWh[2,5,7]
Ex. Dual Vending Machine Electric Usage	-	kWh[3,6,7]
Total Vending Machine Electric Usage	8,760	kWh
Proposed Vending Machine Electric usage	3,942	kWh[8]
Vending Machine Controls Usage Savings	**4,818**	**kWh**
Total cost savings	**$ 549**	
Estimated Total Project Cost	**$ 600**	[9]
Simple Payback	**1**	**years**

Assumptions

1	2	Number of cold beverage vending machines
2	1	Number of snack vending machines
3	0	Number of dual snack/beverage vending machines
4	400	Average wattage, typical of cold beverage machines based on prior pro
5	200	Average wattage, typical of snack machines based on prior project exp
6	300	Average wattage, typical of dual snack/beverage machines based on pr
7	8760	Hours per year vending machine plugged in
8	55%	Typical savings for cold vending machines based on historical data for r
9	$200	Estimated installed cost per vending machine

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

ECM-12: Replace Electric DHW Heater with a Condensing Natural Gas DHW Heater

Summary

* Replace Electric DHW Heater w/ high efficiency, Condensing, Gas-Fired DHW Heater

Item	Value	Units	Formula/Comments
Occupied days per week	5	days/wk	
Occupied weeks per year	23	week/yr	
Water supply Temperature	60	˚F	Termperature of water coming into building
Hot Water Temperature	120	˚F	
Hot Water Usage per day	32	gal/day	Calculated from usage below
Annual Hot Water Energy Demand	1,832	MBTU/yr	Energy required to heat annual quantity of hot water to setpoint
Existing Tank Size	52	Gallons	Per manufacturer nameplate
Hot Water Temperature	120	˚F	observed
Average Room Temperature	72	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	0.5	MBH	
Annual Standby Hot Water Load	4,555	MBTU/yr	
Total Annual Hot Water Demand (w/ standby losses)	6,387	Mbtu/yr	Building demand plus standby losses
Existing Water Heater Efficiency	98%		Per Manufacturer
Total Annual Energy Required	6,518	Mbtu/yr	
Total Annual Electric Required	**1,910**	**kWh/yr**	**Electrical Savings**
Average Annual Electric Demand	0.22	kW	
Peak Electric Demand	**4.50**	**kW**	**Per Manufacturer's Nameplate (Demand Savings)**
New Tank Size	60	Gallons	
Hot Water Temperature	120	˚F	
Average Room Temperature	72	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	0.6	MBH	
Annual Standby Hot Water Load	5,256	MBTU/yr	
Prop Annual Hot Water Demand (w/ standby losses)	7,088	MBTU/yr	
Proposed Avg. Hot water heater efficiency	96%		Based on Bradford White EF SERIES®, DHW Heater
Proposed Total Annual Energy Required	7,383	MBTU/yr	
Proposed Fuel Use	74	Therms/yr	Standby Losses and inefficient DHW heater eliminated
Elec Utility Demand Unit Cost	$6.23	$/kW	
Elec Utility Blended Unit Cost	$0.11	$/kWh	
NG Utility Unit Cost	$1.11	$/Therm	
Existing Operating Cost of DHW	$554	$/yr	
Proposed Operating Cost of DHW	$82	$/yr	
Annual Utility Cost Savings	**$472**	**$/yr**	

65.1763

Daily Hot Water Demand

			#USES PER DAY		FULL TIME OCCUPANTS**				
FIXTURE	*BASE WATER USE GPM	DURATION OF USE (MIN)	MALE	FEMALE	MALE	FEMALE	TOTAL GAL/DAY	% HOT WATER	TOTAL HW GAL/DAY
LAVATORY (Low-Flow Lavs use 0.5 GPM)	0.5	0.25	3	3	25	25	19	50%	9
SHOWER	2.5	5	1	1	0	0	0	75%	0
KITCHEN SINK	2.5	0.5	1	1	0	0	0	75%	0
MOP SINK	2.5	2	1	1	3	3	30	75%	23
Dishwasher (gal per use)	10	1	1	0	0	0	0	100%	0
						TOTAL	49		**32**

*GPM is per standard fixtures, adjust as necessary if actual GPM is known.
**These are the occupanct that use the fixtures. If fixture does not exist change to (0).

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cambridge Park Administration Building

New Jersey Pay For Performance Incentive Program

Note: The following calculation is based on the New Jersey Pay For Performance Incentive Program per April, 2012.
Building must have a minimum average electric demand of 100 kW. This minimum is waived for buildings owned by local governements or non-profit organizations.
Values used in this calculation are for measures with a payback of 15 years or less only.

Total Building Area (Square Feet)	46,525
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilites (BPU)

Incentive #1		
Audit is funded by NJ BPU	$0.10	$/sqft

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	$34,799	$30,146
Existing Usage (from utility)	305,400	27,084
Proposed Savings	73,692	7,735
Existing Total MMBtus	3,751	
Proposed Savings MMBtus	1,025	
% Energy Reduction	**27.3%**	
Proposed Annual Savings	$18,639	

	Min (Savings = 15%)		Increase (Savings > 15%)		Max Incentive		Achieved Incentive	
	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm
Incentive #2	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.11	$1.25
Incentive #3	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.11	$1.25

	Incentives $		
	Elec	Gas	Total
Incentive #1	$0	$0	$5,000
Incentive #2	$8,106	$9,669	$17,775
Incentive #3	$8,106	$9,669	$17,775
Total All Incentives	**$16,212**	**$19,338**	**$40,551**

Total Project Cost	$1,194,819

		Allowable Incentive
% Incentives #1 of Utility Cost*	7.7%	$5,000
% Incentives #2 of Project Cost**	1.5%	$17,775
% Incentives #3 of Project Cost**	1.5%	$17,775
Total Eligible Incentives***	**$40,551**	
Project Cost w/ Incentives	$1,154,268	

Project Payback (years)	
w/o Incentives	w/ Incentives
64.1	61.9

* Maximum allowable incentive is 50% of annual utility cost if not funded by NJ BPU, and %25 if it is.

** Maximum allowable amount of Incentive #2 is 25% of total project cost.
Maximum allowable amount of Incentive #3 is 25% of total project cost.

*** Maximum allowable amount of Incentive #1 is $50,000 if not funded by NJ BPU, and $25,000 if it is.
Maximum allowable amount of Incentive #2 & #3 is $1 million per gas account and $1 million per electric account; maximum 2 million per project

Energy Audit of Cambridge Park Administration Building
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.107** **$/kWh**
$6.74 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
13	Board of Education Hallway	Hallways	17	S 32 P F 2 (ELE)	F42LL	60	1.02	SW	3192	NONE	3,256	
71	Closet	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Operations & Maintenance Office	Offices w/ OCC	14	S 32 P F 2 (ELE)	F42LL	60	0.84	SW	2400	NONE	2,016	
13	Accounts Payable Office	Offices w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	2400	NONE	2,592	
13	Director's Office	Offices w/ OCC	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	2400	NONE	576	
101	Bathroom	Bathroom	1	I 40	I40/1	40	0.04	SW	1820	NONE	73	
101	Closet	Storage Areas	1	I 40	I40/1	40	0.04	SW	1000	NONE	40	
13	O&M Conference Room	Conference	6	S 32 P F 2 (ELE)	F42LL	60	0.36	SW	1200	NONE	432	
101	O&M Closet	Storage Areas	1	I 40	I40/1	40	0.04	SW	1000	NONE	40	
13	Transportation Office	Offices w/ OCC	14	S 32 P F 2 (ELE)	F42LL	60	0.84	SW	2400	NONE	2,016	
101	Transportation Office Closet	Storage Areas	1	I 40	I40/1	40	0.04	SW	1000	NONE	40	
13	Superintendent's Office	Offices w/ OCC	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	2400	NONE	432	
35LED	Superintendent's Office	Offices w/ OCC	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	2400	NONE	432	
13	Superintendent's Office	Offices w/ OCC	16	S 32 P F 2 (ELE)	F42LL	60	0.96	SW	2400	NONE	2,304	
45	Closet	Storage Areas	1	SP 26 R CF 1	CFQ26/1-L	27	0.03	SW	1000	NONE	27	
13	Men's Bathroom	Restroom	5	S 32 P F 2 (ELE)	F42LL	60	0.30	SW	1000	NONE	300	
220	Men's Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Professional Development Office	Offices w/ OCC	16	S 32 P F 2 (ELE)	F42LL	60	0.96	SW	2400	NONE	2,304	
35LED	Curriculum Office	Offices w/ OCC	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	2400	NONE	3,456	
45	Curriculum Office Closet	Storage Areas	1	SP 26 R CF 1	CFQ26/1-L	27	0.03	SW	1000	NONE	27	
35LED	Curriculum Office-Private Office	Offices w/ OCC	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2400	NONE	864	
109	Curriculum Office-Storage	Storage Areas	1	SP I 150	I150/1	150	0.15	SW	1000	NONE	150	
35LED	Curriculum Office-Private Office	Offices w/ OCC	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	2400	NONE	432	
35LED	Curriculum Office-Private Office	Offices w/ OCC	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2400	NONE	864	
71	Curriculum Office-Storage	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
71	Curriculum Office-Storage	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Copy Room	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	2125	NONE	510	
35LED	Human Resources	Offices w/ OCC	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	2400	NONE	3,456	
13	Technology Office	Offices w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2400	NONE	1,728	
35LED	Technology Office-Private Office	Offices w/ OCC	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.63	SW	2400	NONE	1,512	
13	School Business Office	Offices w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	2400	NONE	2,592	
71	School Business Office-Closet	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Women's Bathroom	Restroom	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	1000	NONE	240	
220	Women's Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	School Business Administrator	Offices w/ OCC	14	S 32 P F 2 (ELE)	F42LL	60	0.84	SW	2400	NONE	2,016	
71	School Business Administrator-Closet	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Server Room	Storage Areas	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
35LED	Private Office	Offices w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	2400	NONE	2,376	
13	Entrance	Hallways	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	3192	NONE	383	
35LED	Storage	Storage Areas	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	1000	NONE	90	
13	Gymnasium	Gymnasium	77	S 32 P F 2 (ELE)	F42LL	60	4.62	SW	2000	NONE	9,240	
78	Gymnasium	Gymnasium	6	EP I 100	I100/1	100	0.60	SW	2000	NONE	1,200	
13	Special Services Office	Offices w/ OCC	8	S 32 P F 2 (ELE)	F42LL	60	0.48	SW	2400	NONE	1,152	
13	Special Services Office-Closet	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Main Office	Offices w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	2400	NONE	2,592	
35LED	Assistant Director's Office	Offices w/ OCC	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2400	NONE	864	
13	Mail Room	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	2125	NONE	510	
71	Bathroom	Restroom	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
105	Storage	Storage Areas	2	W 32 F 1	F41LL	32	0.06	SW	1000	NONE	64	
13	Principal's Office	Offices w/ OCC	8	S 32 P F 2 (ELE)	F42LL	60	0.48	SW	2400	NONE	1,152	
35LED	Hallway	Hallways	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	3192	NONE	3,447	
13	Maintenance	Maintenance Shop	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	3000	NONE	3,240	
13	Office	Offices w/ OCC	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	2400	NONE	576	
13	Maintenance Hallway	Hallways	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	3192	NONE	192	
35LED	Maintenance Hallway	Hallways	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	3192	NONE	575	
35LED	Conference	Conference	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.63	SW	1200	NONE	756	
71	Conference	Conference	4	I 60	I60/1	60	0.24	SW	1200	NONE	288	
35LED	Nurse Storage	Storage Areas	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	1000	NONE	90	
13	Board Conference Room	Conference	44	S 32 P F 2 (ELE)	F42LL	60	2.64	SW	1200	NONE	3,168	
13	Staff Lounge	Staff Lounge	10	S 32 P F 2 (ELE)	F42LL	60	0.60	SW	3600	NONE	2,160	
220	Custoidal Closet	Storage Areas	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
93	Mechanical Penthouse	Mechanical Room	5	I 75	I75/1	75	0.38	SW	1000	NONE	375	
231LED	Exterior Lighting	Outdoor Lighting	14	WP400MH1	MH400/1	458	6.41	Breaker	4368	NONE	28,008	
13	Pod Hallway	Hallways	20	S 32 P F 2 (ELE)	F42LL	60	1.20	SW	3192	NONE	3,830	
13	Room 11	Classrooms w/ OCC	27	S 32 P F 2 (ELE)	F42LL	60	1.62	SW	1800	NONE	2,916	
93	Room 11-Bathroom	Restroom	1	I 75	I75/1	75	0.08	SW	1000	NONE	75	
13	Media Center-Room 10	Media Center	27	S 32 P F 2 (ELE)	F42LL	60	1.62	SW	2200	NONE	3,564	
93	Media Center-Bathroom	Restroom	1	I 75	I75/1	75	0.08	SW	1000	NONE	75	
71	Custoidal Closet	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Room 9	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
93	Room 9-Bathroom	Restroom	1	I 75	I75/1	75	0.08	SW	1000	NONE	75	

Energy Audit of Cambridge Park Administration Building
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.107** **$/kWh**
$6.74 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
13	Room 7	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
71	Room 7-Bathroom	Restroom	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
71	Room 7-Storage	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Room 8	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
71	Room 8-Bathroom	Restroom	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
71	Room 8-Storage	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Room 6	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
71	Room 6-Bathroom	Restroom	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
71	Room 6-Storage	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Room 4	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
71	Room 4-Bathroom	Restroom	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
71	Room 4-Storage	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Room 3	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
71	Room 3-Bathroom	Restroom	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
71	Room 3-Storage	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Room 5	Classrooms w/ OCC	17	S 32 P F 2 (ELE)	F42LL	60	1.02	SW	1800	NONE	1,836	
71	Room 5-Bathroom	Restroom	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
71	Room 5-Storage	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Men's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Women's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
45	Storage	Storage Areas	1	SP 26 R CF 1	CFQ26/1-L	27	0.03	SW	1000	NONE	27	
13	Server Closet	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
141LED	Exterior Lighting	Outdoor Lighting	3	HPS 200	HPS200/1	250	0.75	Breaker	4368	NONE	3,276	

Energy Audit of Cambridge Park Administration Building
CHA Project No.27221
Existing Lighting

Cost of Electricity: $0.107 $/kWh
$6.74 $/kW

			EXISTING CONDITIONS									
	Area Description	**Usage**	**No. of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**Exist Control**	**Annual Hours**	**Retrofit Control**	**Annual kWh**	
Field Code	**Unique description of the location - Room number/Room name: Floor number (if applicable)**	**Describe Usage Type using Operating Hours**	**No. of fixtures before the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Fixt No.)**	**Pre-inst. control device**	**Estimated annual hours for the usage group**	**Retrofit control device**	**(kW/space) * (Annual Hours)**	**Notes**
	Total		**724**				**52.35**				**126,362**	

Energy Audit of Cambridge Park Administration Building
CHA Project No.27221
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS							RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of Fixtures No. of fixtures before the retrofit	Standard Fixture Code "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Fixture Code Code from Table of Standard Fixture Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated daily hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Number of Fixtures No. of fixtures after the retrofit	Standard Fixture Code "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Fixture Code Code from Table of Standard Fixture Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Number of Fixtures)	Retrofit Control Retrofit control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Annual kWh Saved (Original Annual kWh) - (Retrofit Annual kWh)	Annual kW Saved (Original Annual kW) - (Retrofit Annual kW)	Annual $ Saved (kWh Saved) * ($/kWh)	Retrofit Cost Cost for renovations to lighting system	NJ Smart Start Lighting Incentive Prescriptive Lighting Measures	Simple Payback With Out Incentive Length of time for renovations cost to be recovered	Simple Payback Length of time for renovations cost to be recovered
13	Board of Education Hallway	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,256	17	T 28 R F 2	F42SSILL	48	0.8	SW	3,192	2,605	651	0.2	$ 86.17	$ 1,950.75	$170	22.6	20.7
71	Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Operations & Maintenance Office	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	2,016	14	T 28 R F 2	F42SSILL	48	0.7	SW	2,400	1,613	403	0.2	$ 56.73	$ 1,606.50	$140	28.3	25.9
13	Accounts Payable Office	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,592	18	T 28 R F 2	F42SSILL	48	0.9	SW	2,400	2,074	518	0.2	$ 72.94	$ 2,065.50	$180	28.3	25.9
13	Director's Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	T 28 R F 2	F42SSILL	48	0.2	SW	2,400	461	115	0.0	$ 16.21	$ 459.00	$40	28.3	25.9
101	Bathroom	1	I 40	I40/1	40	0.0	SW	1820	73	1	CF 13	CFQ13/1-L	15	0.0	SW	1,820	27	46	0.0	$ 6.89	$ 6.75	$0	1.0	1.0
101	Closet	1	I 40	I40/1	40	0.0	SW	1000	40	1	CF 13	CFQ13/1-L	15	0.0	SW	1,000	15	25	0.0	$ 4.70	$ 6.75	$0	1.4	1.4
13	O&M Conference Room	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1200	432	6	T 28 R F 2	F42SSILL	48	0.3	SW	1,200	346	86	0.1	$ 15.07	$ 688.50	$60	45.7	41.7
101	O&M Closet	1	I 40	I40/1	40	0.0	SW	1000	40	1	CF 13	CFQ13/1-L	15	0.0	SW	1,000	15	25	0.0	$ 4.70	$ 6.75	$0	1.4	1.4
13	Transportation Office	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	2,016	14	T 28 R F 2	F42SSILL	48	0.7	SW	2,400	1,613	403	0.2	$ 56.73	$ 1,606.50	$140	28.3	25.9
101	Transportation Office Closet	1	I 40	I40/1	40	0.0	SW	1000	40	1	CF 13	CFQ13/1-L	15	0.0	SW	1,000	15	25	0.0	$ 4.70	$ 6.75	$0	1.4	1.4
13	Superintendent's Office	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	432	3	T 28 R F 2	F42SSILL	48	0.1	SW	2,400	346	86	0.0	$ 12.16	$ 344.25	$30	28.3	25.9
35LED	Superintendent's Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2400	432	2	T 59 R LED	TLED59	59	0.1	SW	2,400	283	149	0.1	$ 20.94	$ 864.00	$100	41.3	36.5
13	Superintendent's Office	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2400	2,304	16	T 28 R F 2	F42SSILL	48	0.8	SW	2,400	1,843	461	0.2	$ 64.83	$ 1,836.00	$160	28.3	25.9
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1,000	27	-	0.0	$ -	$ -	$0		#DIV/0!
13	Men's Bathroom	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1000	300	5	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	240	60	0.1	$ 11.27	$ 573.75	$50	50.9	46.5
220	Men's Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Professional Development Office	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2400	2,304	16	T 28 R F 2	F42SSILL	48	0.8	SW	2,400	1,843	461	0.2	$ 64.83	$ 1,836.00	$160	28.3	25.9
35LED	Curriculum Office	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2400	3,456	16	T 59 R LED	TLED59	59	0.9	SW	2,400	2,266	1,190	0.5	$ 167.49	$ 6,912.00	$800	41.3	36.5
45	Curriculum Office-Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1,000	27	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	Curriculum Office-Private Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864	4	T 59 R LED	TLED59	59	0.2	SW	2,400	566	298	0.1	$ 41.87	$ 1,728.00	$200	41.3	36.5
109	Curriculum Office-Storage	1	SP I 150	I150/1	150	0.2	SW	1000	150	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	123	0.1	$ 23.11	$ 20.25	$0	0.9	0.9
35LED	Curriculum Office-Private Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2400	432	2	T 59 R LED	TLED59	59	0.1	SW	2,400	283	149	0.1	$ 20.94	$ 864.00	$100	41.3	36.5
35LED	Curriculum Office-Private Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864	4	T 59 R LED	TLED59	59	0.2	SW	2,400	566	298	0.1	$ 41.87	$ 1,728.00	$200	41.3	36.5
71	Curriculum Office-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
71	Curriculum Office-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510	4	T 28 R F 2	F42SSILL	48	0.2	SW	2,125	408	102	0.0	$ 14.80	$ 459.00	$40	31.0	28.3
35LED	Human Resources	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2400	3,456	16	T 59 R LED	TLED59	59	0.9	SW	2,400	2,266	1,190	0.5	$ 167.49	$ 6,912.00	$800	41.3	36.5
13	Technology Office	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2400	1,728	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,400	1,382	346	0.1	$ 48.63	$ 1,377.00	$120	28.3	25.9
35LED	Technology Office-Private Office	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	2400	1,512	7	T 59 R LED	TLED59	59	0.4	SW	2,400	991	521	0.2	$ 73.28	$ 3,024.00	$350	41.3	36.5
13	School Business Office	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,592	18	T 28 R F 2	F42SSILL	48	0.9	SW	2,400	2,074	518	0.2	$ 72.94	$ 2,065.50	$180	28.3	25.9
71	School Business Office-Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Women's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	192	48	0.0	$ 9.02	$ 459.00	$40	50.9	46.5
220	Women's Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	School Business Administrator	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	2,016	14	T 28 R F 2	F42SSILL	48	0.7	SW	2,400	1,613	403	0.2	$ 56.73	$ 1,606.50	$140	28.3	25.9
71	School Business Administrator-Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Server Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.76	$ 344.25	$30	50.9	46.5
35LED	Private Office	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	2400	2,376	11	T 59 R LED	TLED59	59	0.6	SW	2,400	1,558	818	0.3	$ 115.15	$ 4,752.00	$550	41.3	36.5
13	Entrance	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383	2	T 28 R F 2	F42SSILL	48	0.1	SW	3,192	306	77	0.0	$ 10.14	$ 229.50	$20	22.6	20.7
35LED	Storage	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	1000	90	1	T 59 R LED	TLED59	59	0.1	SW	1,000	59	31	0.0	$ 5.82	$ 432.00	$50	74.2	65.6
13	Gymnasium	77	S 32 P F 2 (ELE)	F42LL	60	4.6	SW	2000	9,240	77	T 28 R F 2	F42SSILL	48	3.7	SW	2,000	7,392	1,848	0.9	$ 272.47	$ 8,835.75	$770	32.4	29.6
78	Gymnasium	6	EP I 100	I100/1	100	0.6	SW	2000	1,200	6	CF 26	CFQ26/1-L	27	0.2	SW	2,000	324	876	0.4	$ 129.16	$ 121.50	$0	0.9	0.9
13	Special Services Office	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	T 28 R F 2	F42SSILL	48	0.4	SW	2,400	922	230	0.1	$ 32.42	$ 918.00	$80	28.3	25.9
13	Special Services Office-Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.25	$ 114.75	$10	50.9	46.5
13	Main Office	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,592	18	T 28 R F 2	F42SSILL	48	0.9	SW	2,400	2,074	518	0.2	$ 72.94	$ 2,065.50	$180	28.3	25.9
35LED	Assistant Director's Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864	4	T 59 R LED	TLED59	59	0.2	SW	2,400	566	298	0.1	$ 41.87	$ 1,728.00	$200	41.3	36.5
13	Mail Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510	4	T 28 R F 2	F42SSILL	48	0.2	SW	2,125	408	102	0.0	$ 14.80	$ 459.00	$40	31.0	28.3
71	Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
105	Storage	2	W 32 F 1	F41LL	32	0.1	SW	1000	64	2	W 32 F 1	F41LL	32	0.1	SW	1,000	64	-	0.0	$ -	$ -	$0		#DIV/0!
13	Principal's Office	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	T 28 R F 2	F42SSILL	48	0.4	SW	2,400	922	230	0.1	$ 32.42	$ 918.00	$80	28.3	25.9
35LED	Hallway	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	3192	3,447	12	T 59 R LED	TLED59	59	0.7	SW	3,192	2,260	1,187	0.4	$ 157.14	$ 5,184.00	$600	33.0	29.2
13	Maintenance	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	3000	3,240	18	T 28 R F 2	F42SSILL	48	0.9	SW	3,000	2,592	648	0.2	$ 86.81	$ 2,065.50	$180	23.8	21.7
13	Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	T 28 R F 2	F42SSILL	48	0.2	SW	2,400	461	115	0.0	$ 16.21	$ 459.00	$40	28.3	25.9
13	Maintenance Hallway	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	192	1	T 28 R F 2	F42SSILL	48	0.0	SW	3,192	153	38	0.0	$ 5.07	$ 114.75	$10	22.6	20.7
35LED	Maintenance Hallway	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3192	575	2	T 59 R LED	TLED59	59	0.1	SW	3,192	377	198	0.1	$ 26.19	$ 864.00	$100	33.0	29.2
35LED	Conference	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1200	756	7	T 59 R LED	TLED59	59	0.4	SW	1,200	496	260	0.2	$ 45.41	$ 3,024.00	$350	66.6	58.9
71	Conference	4	I 60	I60/1	60	0.2	SW	1200	288	4	CF 26	CFQ26/1-L	27	0.1	SW	1,200	130	158	0.1	$ 27.62	$ 27.00	$0	1.0	1.0
35LED	Nurse Storage	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	1000	90	1	T 59 R LED	TLED59	59	0.1	SW	1,000	59	31	0.0	$ 5.82	$ 432.00	$50	74.2	65.6
13	Board Conference Room	44	S 32 P F 2 (ELE)	F42LL	60	2.6	SW	1200	3,168	44	T 28 R F 2	F42SSILL	48	2.1	SW	1,200	2,534	634	0.5	$ 110.50	$ 5,049.00	$440	45.7	41.7
13	Staff Lounge	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	3600	2,160	10	T 28 R F 2	F42SSILL	48	0.5	SW	3,600	1,728	432	0.1	$ 55.93	$ 1,147.50	$100	20.5	18.7
220	Custoidal Closet	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
93	Mechanical Penthouse	5	I 75	I75/1	75	0.4	SW	1000	375	5	CF 26	CFQ26/1-L	27	0.1	SW	1,000	135	240	0.2	$ 45.09	$ 27.00	$0	0.6	0.6
231LED	Exterior Lighting	14	WP400MH1	MH400/1	458	6.4	Breaker	4368	28,008	14	WPLED2T78	WPLED2T78	91	1.3	Breaker	4,368	5,565	22,443	5.1	$ 2,816.94	$ 15,599.49	$1,400	5.5	5.0
13	Pod Hallway	20	S 32 P F 2 (ELE)	F42LL	60	1.2	SW	3192	3,830	20	T 28 R F 2	F42SSILL	48	1.0	SW	3,192	3,064	766	0.2	$ 101.38	$ 2,295.00	$200	22.6	20.7
13	Room 11	27	S 32 P F 2 (ELE)	F42LL	60	1.6	SW	1800	2,916	27	T 28 R F 2	F42SSILL	48	1.3	SW	1,800	2,333	583	0.3	$ 88.61	$ 3,098.25	$270	35.0	31.9
93	Room 11-Bathroom	1	I 75	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	48	0.0	$ 9.02	$ 5.40	$0	0.6	0.6
13	Media Center-Room 10	27	S 32 P F 2 (ELE)	F42LL	60	1.6	SW	2200	3,564	27	T 28 R F 2	F42SSILL	48	1.3	SW	2,200	2,851	713	0.3	$ 102.47	$ 3,098.25	$270	30.2	27.6
93	Media Center-Bathroom	1	I 75	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	48	0.0	$ 9.02	$ 5.40	$0	0.6	0.6
71	Custoidal Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Room 9	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$180	35.0	31.9
93	Room 9-Bathroom	1	I 75	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	48	0.0	$ 9.02	$ 5.40	$0	0.6	0.6
13	Room 7	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$180	35.0	31.9
71	Room 7-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
71	Room 7-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Room 8	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$180	35.0	31.9
71	Room 8-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
71	Room 8-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Room 6	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$180	35.0	31.9
71	Room 6-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
71	Room 6-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Room 4	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$180	35.0	31.9
71	Room 4-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
71	Room 4-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Room 3	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$180	35.0	31.9
71	Room 3-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
71	Room 3-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Room 5	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1800	1,836	17	T 28 R F 2	F42SSILL	48	0.8	SW	1,800	1,469	367	0.2	$ 55.79	$ 1,950.75	$170	35.0	31.9
71	Room 5-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
71	Room 5-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 6.20	$ 6.75	$0	1.1	1.1
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
45	Storage	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1,000	27	-	0.0	$ -	$ -	$0		#DIV/0!
13	Server Closet	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
141LED	Exterior Lighting	3	HPS 200	HPS200/1	250	0.8	Breaker	4368	3,276	3	FXLED78	FXLED78/1	78	0.2	Breaker	4,368	1,022	2,254	0.5	$ 282.90	$ 2,857.28	$300	10.1	9.0

Energy Audit of Cambridge Park Administration Building
CHA Project No.27221
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS							COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
	Total	724				52.3			126,362	724				3,898	35.3			78,341	48,021	17.0	$6,516	$122,450	$11,830		
																		Demand Savings			17.0	$1,378			
																		kWh Savings			48,021	$5,138			
																		Total savings				$6,516		18.8	17.0

Energy Audit of Cambridge Park Administration Building
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Board of Education Hallway	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,255.8	17	S 32 P F 2 (ELE)	F42LL	60	1.0	NONE	3192	3,255.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Closet	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Operations & Maintenance Office	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	2,016.0	14	S 32 P F 2 (ELE)	F42LL	60	0.8	NONE	2400	2,016.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Accounts Payable Office	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,592.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	2400	2,592.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Director's Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	2400	576.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
101	Bathroom	1	I 40	I40/1	40	0.0	SW	1820	72.8	1	I 40	I40/1	40	0.0	NONE	1820	72.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
101	Closet	1	I 40	I40/1	40	0.0	SW	1000	40.0	1	I 40	I40/1	40	0.0	NONE	1000	40.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	O&M Conference Room	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1200	432.0	6	S 32 P F 2 (ELE)	F42LL	60	0.4	NONE	1200	432.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
101	O&M Closet	1	I 40	I40/1	40	0.0	SW	1000	40.0	1	I 40	I40/1	40	0.0	NONE	1000	40.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Transportation Office	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	2,016.0	14	S 32 P F 2 (ELE)	F42LL	60	0.8	NONE	2400	2,016.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
101	Transportation Office Closet	1	I 40	I40/1	40	0.0	SW	1000	40.0	1	I 40	I40/1	40	0.0	NONE	1000	40.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Superintendent's Office	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	432.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	2400	432.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Superintendent's Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2400	432.0	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	NONE	2400	432.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Superintendent's Office	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2400	2,304.0	16	S 32 P F 2 (ELE)	F42LL	60	1.0	NONE	2400	2,304.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27.0	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	NONE	1000	27.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1000	300.0	5	S 32 P F 2 (ELE)	F42LL	60	0.3	NONE	1000	300.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Men's Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Professional Development Office	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2400	2,304.0	16	S 32 P F 2 (ELE)	F42LL	60	1.0	NONE	2400	2,304.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Curriculum Office	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2400	3,456.0	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	NONE	2400	3,456.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Curriculum Office Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27.0	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	NONE	1000	27.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Curriculum Office-Private Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	NONE	2400	864.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
109	Curriculum Office-Storage	1	SP I 150	I150/1	150	0.2	SW	1000	150.0	1	SP I 150	I150/1	150	0.2	NONE	1000	150.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Curriculum Office-Private Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2400	432.0	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	NONE	2400	432.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Curriculum Office-Private Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	NONE	2400	864.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Curriculum Office-Storage	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Curriculum Office-Storage	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	2125	510.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Human Resources	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2400	3,456.0	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	NONE	2400	3,456.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Technology Office	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2400	1,728.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2400	1,728.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Technology Office-Private Office	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	2400	1,512.0	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	NONE	2400	1,512.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	School Business Office	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,592.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	2400	2,592.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	School Business Office-Closet	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Women's Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	School Business Administrator	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	2,016.0	14	S 32 P F 2 (ELE)	F42LL	60	0.8	NONE	2400	2,016.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	School Business Administrator-Closet	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Server Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Private Office	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	2400	2,376.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	2400	2,376.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Entrance	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	3192	383.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Storage	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	1000	90.0	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	NONE	1000	90.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Gymnasium	77	S 32 P F 2 (ELE)	F42LL	60	4.6	SW	2000	9,240.0	77	S 32 P F 2 (ELE)	F42LL	60	4.6	NONE	2000	9,240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
78	Gymnasium	6	EP I 100	I100/1	100	0.6	SW	2000	1,200.0	6	EP I 100	I100/1	100	0.6	NONE	2000	1,200.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Special Services Office	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152.0	8	S 32 P F 2 (ELE)	F42LL	60	0.5	NONE	2400	1,152.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Special Services Office-Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Main Office	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,592.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	2400	2,592.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Assistant Director's Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	NONE	2400	864.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Mail Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	2125	510.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Storage	2	W 32 F 1	F41LL	32	0.1	SW	1000	64.0	2	W 32 F 1	F41LL	32	0.1	NONE	1000	64.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Principal's Office	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152.0	8	S 32 P F 2 (ELE)	F42LL	60	0.5	NONE	2400	1,152.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Hallway	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	3192	3,447.4	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	NONE	3192	3,447.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Maintenance	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	3000	3,240.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	3000	3,240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	2400	576.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Maintenance Hallway	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	191.5	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	3192	191.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Maintenance Hallway	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3192	574.6	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	NONE	3192	574.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Conference	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1200	756.0	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	NONE	1200	756.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Conference	4	I 60	I60/1	60	0.2	SW	1200	288.0	4	I 60	I60/1	60	0.2	NONE	1200	288.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Nurse Storage	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	1000	90.0	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	NONE	1000	90.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Board Conference Room	44	S 32 P F 2 (ELE)	F42LL	60	2.6	SW	1200	3,168.0	44	S 32 P F 2 (ELE)	F42LL	60	2.6	NONE	1200	3,168.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Staff Lounge	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	3600	2,160.0	10	S 32 P F 2 (ELE)	F42LL	60	0.6	NONE	3600	2,160.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Custoidal Closet	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
93	Mechanical Penthouse	5	I 75	I75/1	75	0.4	SW	1000	375.0	5	I 75	I75/1	75	0.4	NONE	1000	375.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
231LED	Exterior Lighting	14	WP400MH1	MH400/1	458	6.4	Breaker	4368	28,007.6	14	WP400MH1	MH400/1	458	6.4	NONE	4368	28,007.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Pod Hallway	20	S 32 P F 2 (ELE)	F42LL	60	1.2	SW	3192	3,830.4	20	S 32 P F 2 (ELE)	F42LL	60	1.2	NONE	3192	3,830.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 11	27	S 32 P F 2 (ELE)	F42LL	60	1.6	SW	1800	2,916.0	27	S 32 P F 2 (ELE)	F42LL	60	1.6	NONE	1800	2,916.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
93	Room 11-Bathroom	1	I 75	I75/1	75	0.1	SW	1000	75.0	1	I 75	I75/1	75	0.1	NONE	1000	75.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Media Center-Room 10	27	S 32 P F 2 (ELE)	F42LL	60	1.6	SW	2200	3,564.0	27	S 32 P F 2 (ELE)	F42LL	60	1.6	NONE	2200	3,564.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
93	Media Center-Bathroom	1	I 75	I75/1	75	0.1	SW	1000	75.0	1	I 75	I75/1	75	0.1	NONE	1000	75.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Custoidal Closet	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 9	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
93	Room 9-Bathroom	1	I 75	I75/1	75	0.1	SW	1000	75.0	1	I 75	I75/1	75	0.1	NONE	1000	75.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 7	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 7-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 7-Storage	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 8	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 8-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 8-Storage	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 6	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 6-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 6-Storage	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 4	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 4-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 4-Storage	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 3	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 3-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 3-Storage	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 5	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1800	1,836.0	17	S 32 P F 2 (ELE)	F42LL	60	1.0	NONE	1800	1,836.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 5-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 5-Storage	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Storage	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27.0	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	NONE	1000	27.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Server Closet	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
141LED	Exterior Lighting	3	HPS 200	HPS200/1	250	0.8	Breaker	4368	3,276.0	3	HPS 200	HPS200/1	250	0.8	NONE	4368	3,276.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
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Energy Audit of Cambridge Park Administration Building
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
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	Total	724				52.3			126362.1	724.0				52.3			126362.1	0.0	0.0	0.0	0.0	0.0		
																	Demand Savings			0.0	$0			
																	kWh Savings			0	$0			
																	Total Savings				$0		#DIV/0!	#DIV/0!

Energy Audit of Cambridge Park Administration Building
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Board of Education Hallway	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,256	17	T 28 R F 2	F42SSILL	48	0.8	NONE	3,192	2,605	651	0.2	$ 86.17	$ 1,950.75	$ 170	22.6	20.7
71	Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Operations & Maintenance Office	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	2,016	14	T 28 R F 2	F42SSILL	48	0.7	NONE	2,400	1,613	403	0.2	$ 56.73	$ 1,606.50	$ 140	28.3	25.9
13	Accounts Payable Office	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,592	18	T 28 R F 2	F42SSILL	48	0.9	NONE	2,400	2,074	518	0.2	$ 72.94	$ 2,065.50	$ 180	28.3	25.9
13	Director's Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	T 28 R F 2	F42SSILL	48	0.2	NONE	2,400	461	115	0.0	$ 16.21	$ 459.00	$ 40	28.3	25.9
101	Bathroom	1	I 40	I40/1	40	0.0	SW	1820	73	1	CF 13	CFQ13/1-L	15	0.0	NONE	1,820	27	46	0.0	$ 6.89	$ 6.75	$ -	1.0	1.0
101	Closet	1	I 40	I40/1	40	0.0	SW	1000	40	1	CF 13	CFQ13/1-L	15	0.0	NONE	1,000	15	25	0.0	$ 4.70	$ 6.75	$ -	1.4	1.4
13	O&M Conference Room	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1200	432	6	T 28 R F 2	F42SSILL	48	0.3	NONE	1,200	346	86	0.1	$ 15.07	$ 688.50	$ 60	45.7	41.7
101	O&M Closet	1	I 40	I40/1	40	0.0	SW	1000	40	1	CF 13	CFQ13/1-L	15	0.0	NONE	1,000	15	25	0.0	$ 4.70	$ 6.75	$ -	1.4	1.4
13	Transportation Office	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	2,016	14	T 28 R F 2	F42SSILL	48	0.7	NONE	2,400	1,613	403	0.2	$ 56.73	$ 1,606.50	$ 140	28.3	25.9
101	Transportation Office Closet	1	I 40	I40/1	40	0.0	SW	1000	40	1	CF 13	CFQ13/1-L	15	0.0	NONE	1,000	15	25	0.0	$ 4.70	$ 6.75	$ -	1.4	1.4
13	Superintendent's Office	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	432	3	T 28 R F 2	F42SSILL	48	0.1	NONE	2,400	346	86	0.0	$ 12.16	$ 344.25	$ 30	28.3	25.9
35LED	Superintendent's Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2400	432	2	T 59 R LED	TLED59	59	0.1	NONE	2,400	283	149	0.1	$ 20.94	$ 864.00	$ 100	41.3	36.5
13	Superintendent's Office	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2400	2,304	16	T 28 R F 2	F42SSILL	48	0.8	NONE	2,400	1,843	461	0.2	$ 64.83	$ 1,836.00	$ 160	28.3	25.9
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	NONE	1,000	27	-	0.0	$ -	$ -	$ -		
13	Men's Bathroom	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1000	300	5	T 28 R F 2	F42SSILL	48	0.2	NONE	1,000	240	60	0.1	$ 11.27	$ 573.75	$ 50	50.9	46.5
220	Men's Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Professional Development Office	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2400	2,304	16	T 28 R F 2	F42SSILL	48	0.8	NONE	2,400	1,843	461	0.2	$ 64.83	$ 1,836.00	$ 160	28.3	25.9
35LED	Curriculum Office	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2400	3,456	16	T 59 R LED	TLED59	59	0.9	NONE	2,400	2,266	1,190	0.5	$ 167.49	$ 6,912.00	$ 800	41.3	36.5
45	Curriculum Office Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	NONE	1,000	27	-	0.0	$ -	$ -	$ -		
35LED	Curriculum Office-Private Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864	4	T 59 R LED	TLED59	59	0.2	NONE	2,400	566	298	0.1	$ 41.87	$ 1,728.00	$ 200	41.3	36.5
109	Curriculum Office-Storage	1	SP I 150	I150/1	150	0.2	SW	1000	150	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	123	0.1	$ 23.11	$ 20.25	$ -	0.9	0.9
35LED	Curriculum Office-Private Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2400	432	2	T 59 R LED	TLED59	59	0.1	NONE	2,400	283	149	0.1	$ 20.94	$ 864.00	$ 100	41.3	36.5
35LED	Curriculum Office-Private Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864	4	T 59 R LED	TLED59	59	0.2	NONE	2,400	566	298	0.1	$ 41.87	$ 1,728.00	$ 200	41.3	36.5
71	Curriculum Office-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
71	Curriculum Office-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510	4	T 28 R F 2	F42SSILL	48	0.2	NONE	2,125	408	102	0.0	$ 14.80	$ 459.00	$ 40	31.0	28.3
35LED	Human Resources	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2400	3,456	16	T 59 R LED	TLED59	59	0.9	NONE	2,400	2,266	1,190	0.5	$ 167.49	$ 6,912.00	$ 800	41.3	36.5
13	Technology Office	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2400	1,728	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,400	1,382	346	0.1	$ 48.63	$ 1,377.00	$ 120	28.3	25.9
35LED	Technology Office-Private Office	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	2400	1,512	7	T 59 R LED	TLED59	59	0.4	NONE	2,400	991	521	0.2	$ 73.28	$ 3,024.00	$ 350	41.3	36.5
13	School Business Office	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,592	18	T 28 R F 2	F42SSILL	48	0.9	NONE	2,400	2,074	518	0.2	$ 72.94	$ 2,065.50	$ 180	28.3	25.9
71	School Business Office-Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Women's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	NONE	1,000	192	48	0.0	$ 9.02	$ 459.00	$ 40	50.9	46.5
220	Women's Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	School Business Administrator	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	2,016	14	T 28 R F 2	F42SSILL	48	0.7	NONE	2,400	1,613	403	0.2	$ 56.73	$ 1,606.50	$ 140	28.3	25.9
71	School Business Administrator-Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Server Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.76	$ 344.25	$ 30	50.9	46.5
35LED	Private Office	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	2400	2,376	11	T 59 R LED	TLED59	59	0.6	NONE	2,400	1,558	818	0.3	$ 115.15	$ 4,752.00	$ 550	41.3	36.5
13	Entrance	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383	2	T 28 R F 2	F42SSILL	48	0.1	NONE	3,192	306	77	0.0	$ 10.14	$ 229.50	$ 20	22.6	20.7
35LED	Storage	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	1000	90	1	T 59 R LED	TLED59	59	0.1	NONE	1,000	59	31	0.0	$ 5.82	$ 432.00	$ 50	74.2	65.6
13	Gymnasium	77	S 32 P F 2 (ELE)	F42LL	60	4.6	SW	2000	9,240	77	T 28 R F 2	F42SSILL	48	3.7	NONE	2,000	7,392	1,848	0.9	$ 272.47	$ 8,835.75	$ 770	32.4	29.6
78	Gymnasium	6	EP I 100	I100/1	100	0.6	SW	2000	1,200	6	CF 26	CFQ26/1-L	27	0.2	NONE	2,000	324	876	0.4	$ 129.16	$ 121.50	$ -	0.9	0.9
13	Special Services Office	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	T 28 R F 2	F42SSILL	48	0.4	NONE	2,400	922	230	0.1	$ 32.42	$ 918.00	$ 80	28.3	25.9
13	Special Services Office-Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.25	$ 114.75	$ 10	50.9	46.5
13	Main Office	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,592	18	T 28 R F 2	F42SSILL	48	0.9	NONE	2,400	2,074	518	0.2	$ 72.94	$ 2,065.50	$ 180	28.3	25.9
35LED	Assistant Director's Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864	4	T 59 R LED	TLED59	59	0.2	NONE	2,400	566	298	0.1	$ 41.87	$ 1,728.00	$ 200	41.3	36.5
13	Mail Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510	4	T 28 R F 2	F42SSILL	48	0.2	NONE	2,125	408	102	0.0	$ 14.80	$ 459.00	$ 40	31.0	28.3
71	Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
105	Storage	2	W 32 F 1	F41LL	32	0.1	SW	1000	64	2	W 32 F 1	F41LL	32	0.1	NONE	1,000	64	-	0.0	$ -	$ -	$ -		
13	Principal's Office	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	T 28 R F 2	F42SSILL	48	0.4	NONE	2,400	922	230	0.1	$ 32.42	$ 918.00	$ 80	28.3	25.9
35LED	Hallway	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	3192	3,447	12	T 59 R LED	TLED59	59	0.7	NONE	3,192	2,260	1,187	0.4	$ 157.14	$ 5,184.00	$ 600	33.0	29.2
13	Maintenance	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	3000	3,240	18	T 28 R F 2	F42SSILL	48	0.9	NONE	3,000	2,592	648	0.2	$ 86.81	$ 2,065.50	$ 180	23.8	21.7
13	Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	T 28 R F 2	F42SSILL	48	0.2	NONE	2,400	461	115	0.0	$ 16.21	$ 459.00	$ 40	28.3	25.9
13	Maintenance Hallway	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	192	1	T 28 R F 2	F42SSILL	48	0.0	NONE	3,192	153	38	0.0	$ 5.07	$ 114.75	$ 10	22.6	20.7
35LED	Maintenance Hallway	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3192	575	2	T 59 R LED	TLED59	59	0.1	NONE	3,192	377	198	0.1	$ 26.19	$ 864.00	$ 100	33.0	29.2
35LED	Conference	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1200	756	7	T 59 R LED	TLED59	59	0.4	NONE	1,200	496	260	0.2	$ 45.41	$ 3,024.00	$ 350	66.6	58.9
71	Conference	4	I 60	I60/1	60	0.2	SW	1200	288	4	CF 26	CFQ26/1-L	27	0.1	NONE	1,200	130	158	0.1	$ 27.62	$ 27.00	$ -	1.0	1.0
35LED	Nurse Storage	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	1000	90	1	T 59 R LED	TLED59	59	0.1	NONE	1,000	59	31	0.0	$ 5.82	$ 432.00	$ 50	74.2	65.6
13	Board Conference Room	44	S 32 P F 2 (ELE)	F42LL	60	2.6	SW	1200	3,168	44	T 28 R F 2	F42SSILL	48	2.1	NONE	1,200	2,534	634	0.5	$ 110.50	$ 5,049.00	$ 440	45.7	41.7
13	Staff Lounge	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	3600	2,160	10	T 28 R F 2	F42SSILL	48	0.5	NONE	3,600	1,728	432	0.1	$ 55.93	$ 1,147.50	$ 100	20.5	18.7
220	Custoidal Closet	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
93	Mechanical Penthouse	5	I 75	I75/1	75	0.4	SW	1000	375	5	CF 26	CFQ26/1-L	27	0.1	NONE	1,000	135	240	0.2	$ 45.09	$ 27.00	$ -	0.6	0.6
231LED	Exterior Lighting	14	WP400MH1	MH400/1	458	6.4	Breaker	4368	28,008	14	WPLED2T78	WPLED2T78	91	1.3	NONE	4,368	5,565	22,443	5.1	$ 2,816.94	$ 15,599.49	$ 1,400	5.5	5.0
13	Pod Hallway	20	S 32 P F 2 (ELE)	F42LL	60	1.2	SW	3192	3,830	20	T 28 R F 2	F42SSILL	48	1.0	NONE	3,192	3,064	766	0.2	$ 101.38	$ 2,295.00	$ 200	22.6	20.7
13	Room 11	27	S 32 P F 2 (ELE)	F42LL	60	1.6	SW	1800	2,916	27	T 28 R F 2	F42SSILL	48	1.3	NONE	1,800	2,333	583	0.3	$ 88.61	$ 3,098.25	$ 270	35.0	31.9
93	Room 11-Bathroom	1	I 75	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	48	0.0	$ 9.02	$ 5.40	$ -	0.6	0.6
13	Media Center-Room 10	27	S 32 P F 2 (ELE)	F42LL	60	1.6	SW	2200	3,564	27	T 28 R F 2	F42SSILL	48	1.3	NONE	2,200	2,851	713	0.3	$ 102.47	$ 3,098.25	$ 270	30.2	27.6
93	Media Center-Bathroom	1	I 75	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	48	0.0	$ 9.02	$ 5.40	$ -	0.6	0.6
71	Custoidal Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Room 9	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$ 180	35.0	31.9
93	Room 9-Bathroom	1	I 75	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	48	0.0	$ 9.02	$ 5.40	$ -	0.6	0.6
13	Room 7	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$ 180	35.0	31.9
71	Room 7-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
71	Room 7-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Room 8	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$ 180	35.0	31.9
71	Room 8-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
71	Room 8-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Room 6	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$ 180	35.0	31.9
71	Room 6-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
71	Room 6-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Room 4	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$ 180	35.0	31.9
71	Room 4-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
71	Room 4-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Room 3	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 59.07	$ 2,065.50	$ 180	35.0	31.9
71	Room 3-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
71	Room 3-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Room 5	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1800	1,836	17	T 28 R F 2	F42SSILL	48	0.8	NONE	1,800	1,469	367	0.2	$ 55.79	$ 1,950.75	$ 170	35.0	31.9
71	Room 5-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
71	Room 5-Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 6.20	$ 6.75	$ -	1.1	1.1
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
45	Storage	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	NONE	1,000	27	-	0.0	$ -	$ -	$ -		
13	Server Closet	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
141LED	Exterior Lighting	3	HPS 200	HPS200/1	250	0.8	Breaker	4368	3,276	3	FXLED78	FXLED78/1	78	0.2	NONE	4,368	1,022	2,254	0.5	$ 282.90	$ 2,857.28	$ 300	10.1	9.0
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Energy Audit of Cambridge Park Administration Building
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
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S	Total	724				52.3			126,362	724				35.3			78,341		17.0	6,516	122,450	$11,830		
S																	Demand Savings			17.0	$1,378			
S																	kWh Savings			48,021	$5,138			
S																	Total Savings				$6,516		18.8	17.0

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221

Rate of Discount (used for NPV) 3.0%

Utility Costs		Yearly Usage	Building Area	Annual Utility Cost	
$ 0.114	$/kWh blended		67,450	Electric	Natural Gas
$ 0.082	$/kWh supply	345,760		39,286	27,695
$ 7.60	$/kW	142.6			
$ 1.32	$/Therm	21,048			
$ 18.00	$/kgals	570			

Cliffwood Elementary School

	Item	Savings					Cost	Simple Payback	Life Expectancy	NJ Smart Start Incentives	Direct Install Eligible (Y/N)*	Direct Install Incentives**	Max Incentives	Payback w/ Incentives***	Simple Projected Lifetime Savings					ROI	NPV	IRR
		kW	kWh	therms	Water kgal	$									kW	kWh	therms	kgal/vr	$			
ECM-3	Replace Window A/C Units w/ Ductless Splits	0.0	2,071	0	0	235	$ 48,000	204.3	15	$ 552	Y	$ 33,600	$ 552	201.9	0.0	31,069	0	0	$ 3,530	(0.9)	($44,643)	-22.6%
ECM-5	Install VFDs & Premium Pumps on Hot water Pumps	0.2	12,574	0	0	1,048	$ 12,816	12.2	15	$ 600	Y	$ 9,000	$ 600	11.7	3.7	188,609	0	0	$ 21,770	0.7	$295	3.3%
ECM-9	Demand Control Ventilation	0.0	12,608	1,569	0	3,497	$ 5,000	1.4	15.0	$ -	N	$ -	$ -	1.4	0.0	189,117	23,532	0	$ 52,452	9.5	$36,747	69.9%
ECM-12A	Replace Existing DHW Heater with a Condensing Natural Gas	18.0	3,890	(27)	0	1,924	$ 19,410	10.1	12.0	$ 300	Y	$ 13,600	$ 300	9.9	216.0	46,679	(323)	0	$ 24,581	0.3	$41	3.0%
ECM-12B	Replace Gas-Fired DHW Heater w/ Condensing Gas-Fired DHW	0.0	0	116	0	152	$ 10,997	72.3	12.0	$ 300	Y	$ 7,700	$ 300	70.4	0.0	0	1,387	0	$ 1,825	(0.8)	($9,184)	-20.3%
ECM-L1	Lighting Replacements / Upgrades	19.2	47,191	0	0	5,599	$ 162,852	29.1	15.0	$ 19,590	Y	$ 75,000	$ 19,590	25.6	287.7	707,858	0	0	########	(0.3)	($76,421)	-6.0%
	Total	**37.4**	**78,333**	**1,657**	**0**	**12,455**	**$ 259,075**	20.8	14.0	$ 21,342		$ 138,900	$ 21,342	19.1	507.4	1,163,332	24,596	0	########	(0.2)	($97,041)	-3.9%
	Total Measures with Payback <15	**18.2**	**29,072**	**1,542**	**0**	**6,469**	**$ 37,226**	5.8	14.0	$ 900		$ 22,600	$ 900	5.6	219.7	424,406	23,209	0	$ 98,802	1.7	$36,748	15.4%
	% of Existing	**26%**	**23%**	**8%**	**0%**																	

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cliffwood Elementary School

ECM-3: Replace Window A/C Units w/ Ductless Splits

ECM Description Summary
Replace window A/C units with ductless split systems. These systesm have higher energy efficiency and are permananet thereby reducing the winter infiltration that occurs with window A/C units

ASSUMPTIONS			Comments
Electric Cost	$0.114	/ kWh	
Average run hours per Week	50	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	72	deg F	Setpoint.
Avg BTU/Hr Rating of existing equipment	24000	Btu / Hr	
Number of Units	3		
BTU/Hr Rating of existing equipment	72,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	9.8		Units average than 3 years old, EERs were 9.8 when new
Existing Annual Electric Usage	2,071	kWh	

Item	Value	Units	Comments
Proposed EER	14.4		New ductless mini-splits (per manufacturer)
Proposed Annual Electric Usage	1,410	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	662	kWh
Annual Cost Savings	$75	

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	2	89%	2
92.5	31	9	79%	7
87.5	131	39	68%	27
82.5	500	149	58%	86
77.5	620	185	47%	87
72.5	664	198	37%	73
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	581	49%	282

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cliffwood Elementary School

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-3: Replace Window A/C Units w/ Ductless Splits - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
24,000 MBH Split System	3	EA	$ 2,500	$ 2,500		$ 8,250	$ 10,125	$ -	$ 18,375	RS Means 2012
Piping	3	EA	$ 500	$ 500		$ 1,650	$ 2,025	$ -	$ 3,675	RS Means 2012
Miscellaneous Electric	3	EA	$ 1,500	$ 1,500		$ 4,950	$ 6,075	$ -	$ 11,025	RS Means 2012
						$ -	$ -	$ -	$ -	

Note: costs are used for energy savings calculations only. Do not use for procurement

$ 33,075	Subtotal
$ 3,308	10% Contingency
$ 7,277	20% Contractor O&P
$ 4,366	10% Engineering
$ 48,000	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cliffwood Elementary School

ECM-5: Install VFDs & Premium Motors on Heating Hot Water Pumps

Variable Inputs

Blended Electric Rate	$0.11
Heating System "On" Point	60
VFD Efficiency	98.5%

PUMP SCHEDULE

Pump ID	Qty	HP	Total HP	Existing Motor Motor Eff.	New Motor Motor Eff.	Exist. Motor kW Note 1	New Motor kW Note 2
HWP-1, HWP-2	1	5.0	5.0	83.3%	89.5%	3.58	3.33
					Total:	3.58	3.33

SAVINGS ANALYSIS

OAT - DB Avg Temp F	Annual Hours in Bin	Heating Hours Bin	Pump Load %	Existing Pump kWh	Proposed Pump kW	Speed efficiency %	Proposed Pump kWh	Proposed Savings kWh
(A) See Note 3	(B) See Note 3	(C) =IF(A>TP,0,C)	(D) =0.5+0.5* (50-A)/(50-10)) See Note 4	(E) =D*AA	(F) =BB*E^2.5/CC See Note 5	(G)	(H) =C*F/G	(I) =E-H
102.5	0	0	0%	0	0.0	0.0%	0	0
97.5	6	0	0%	0	0.0	0.0%	0	0
92.5	31	0	0%	0	0.0	0.0%	0	0
87.5	131	0	0%	0	0.0	0.0%	0	0
82.5	500	0	0%	0	0.0	0.0%	0	0
77.5	620	0	0%	0	0.0	0.0%	0	0
72.5	664	0	0%	0	0.0	0.0%	0	0
67.5	854	0	0%	0	0.0	0.0%	0	0
62.5	927	0	0%	0	0.0	0.0%	0	0
57.5	600	600	43%	2,149	0.4	73.4%	326	1,823
52.5	730	730	48%	2,615	0.5	78.9%	487	2,128
47.5	491	491	53%	1,759	0.7	83.9%	396	1,363
42.5	656	656	58%	2,350	0.8	88.2%	631	1,719
37.5	1,023	1,023	63%	3,665	1.0	91.8%	1,164	2,500
32.5	734	734	68%	2,629	1.3	94.9%	980	1,649
27.5	334	334	73%	1,196	1.5	97.2%	520	676
22.5	252	252	78%	903	1.8	99.0%	456	447
17.5	125	125	83%	448	2.1	100.0%	262	186
12.5	47	47	88%	168	2.4	100.0%	114	54
7.5	34	34	93%	122	2.8	100.0%	95	27
2.5	1	1	98%	4	3.2	99.7%	3	0
-2.5	0	0	0%	0	0.0	0.0%	0	0
-7.5	0	0	0%	0	0.0	0.0%	0	0
	8,760	**5,027**		**18,008**			**5,434**	**12,574**

Notes:

1) Existing motor power was determined using motor nameplate data. Formula: Motor HP x 0.746 x 0.8 / Exist. Motor Eff.
2) New motor power is the same as existing motor power adjusted for the new efficiency, if a new motor is proposed.
3) Weather data from NOAA for Newark, NJ
4) The pump load is estimated at 100% at X deg. OAT and 50% at X deg. OAT and varies linearly in between.
5) The required VFD motor draw is based on a 2.5 power relationship to load.
6) The pumps are lead lag so the quantity is shown as (1) because one pump operates at a time

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cliffwood Elementary School

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.00

ECM-5: Install VFDs & Premium Motors on Heating Hot Water Pumps - Cost

Description	QTY	UNIT	UNIT COSTS MAT.	UNIT COSTS LABOR	UNIT COSTS EQUIP.	SUBTOTAL COSTS MAT.	SUBTOTAL COSTS LABOR	SUBTOTAL COSTS EQUIP.	TOTAL COST	REMARKS
5.0 VFD	2	ea	$ 1,706	$ 431		$ 3,754	$ 1,162	$ -	$ 4,916	RS Means 2012
5.0 Motor	2	ea	$ 373	$ 79		$ 820	$ 213	$ -	$ 1,033	RS Means 2012
Electrical - misc.	2	ea	$ 200	$ 150		$ 440	$ 405	$ -	$ 845	RS Means 2012
Pipe pressure sensor/transmitter	1	ea	$ 850	$ 500		$ 935	$ 675	$ -	$ 1,610	RS Means 2012
Misc. piping modification	1	ea	$ 200	$ 150		$ 220	$ 203	$ -	$ 423	RS Means 2012
						$ -	$ -	$ -	$ -	

Note: costs are used for energy savings calculations only. Do not use for procurement

$ 8,826	Subtotal
$ 883	10% Contingency
$ 1,942	20% Contractor O&P
$ 1,165	10% Engineering Fees
$ 12,816	**Total**

VFDs - 460 volt

HP	Mat'l	Labor
0	$ -	$ -
1	$ 1,575	$ 431
2	$ 1,575	$ 431
3	$ 1,575	$ 431
5	$ 1,706	$ 431
7.5	$ 2,021	$ 509
10	$ 2,021	$ 509
15	$ 2,336	$ 772
20	$ 3,465	$ 772
25	$ 4,016	$ 1,024
30	$ 4,909	$ 1,024
40	$ 7,219	$ 1,024
50	$ 7,849	$ 1,286
60	$ 8,584	$ 1,496
75	$ 11,760	$ 1,496
100	$ 11,970	$ 1,680
125	$ 13,335	$ 1,680
150	$ 17,010	$ 1,680
200	$ 21,000	$ 1,995

Motors - Totally enclosed, premium efficiency

HP	Mat'l	Labor	Total
0	0	0	$ -
1	$ 245	$ 79	$ 323
2	$ 295	$ 79	$ 374
3	$ 326	$ 79	$ 404
5	$ 373	$ 79	$ 452
7.5	$ 536	$ 84	$ 620
10	$ 646	$ 88	$ 734
15	$ 861	$ 110	$ 971
20	$ 1,050	$ 135	$ 1,185
25	$ 1,286	$ 141	$ 1,427
30	$ 1,496	$ 147	$ 1,643
40	$ 1,943	$ 176	$ 2,119
50	$ 2,389	$ 221	$ 2,609
60	$ 3,570	$ 252	$ 3,822
75	$ 4,568	$ 294	$ 4,862
100	$ 5,434	$ 394	$ 5,828
125	$ 7,875	$ 504	$ 8,379
150	$ 8,925	$ 588	$ 9,513
200	$ 10,710	$ 704	$ 11,414

VAV Cool w/HW coils, damper, actuator, T-stat

CFM	Mat'l	Labor	Total
200	$ 590	$ 53	$ 643
400	$ 595	$ 58	$ 653
600	$ 595	$ 58	$ 653
800	$ 610	$ 73	$ 683
1000	$ 610	$ 73	$ 683
1250	$ 670	$ 97	$ 767
1500	$ 670	$ 97	$ 767
2000	$ 725	$ 145	$ 870
3000	$ 790	$ 152	$ 942

VAV Fan Pwrd, cool W/HW coil, damper,actuator, T-stat
*if you need fan powered, account for energy use above!!!!

CFM	Mat'l	Labor	Total
200	$ 970	$ 58	$ 1,028
400	$ 1,000	$ 65	$ 1,065
600	$ 1,000	$ 65	$ 1,065
800	$ 1,050	$ 83	$ 1,133
1000	$ 1,050	$ 83	$ 1,133
1250	$ 1,200	$ 116	$ 1,316
1500	$ 1,200	$ 116	$ 1,316
2000	$ 1,300	$ 165	$ 1,465

Matawan-Aberdeen Regional School District - NJBPU
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AIR HANDLER	AREA SERVED	CFM	OA CFM	% OA
AH-2	Gymnasium	8,400	3,000	36%
			3,000	*CFM*

ECM 9: Demand Controlled Ventilation

*Full DDC Control is needed to implement this ECM

ECM Description Summary

It is assumed the original system controls provide the full design ventilation outside air flow. Reducing outside air during occupied time periods will reduce heating and cooling energy used during the occupied period. A limit of 1000 PPM of CO2 is recommended in ASHRAE Standard 62-1982, Ventilation for Acceptable Indoor Air Quality. During unoccupied periods the outside air dampers should be closed.

Electric Cost	$ 0.11	/kWh
Natural Gas Cost	$ 1.32	/therm
Facility Ventilation Heating Load	113,400	BTU/Hour[1,2,3]
Facility Ventilation Cooling Load	32,400	BTU/Hour[1,2,3]
Existing Ventilation Heating Usage	6,275	Therms[2]
Existing Ventilation Cooling Usage	50,431	kWh[3]
Proposed Ventilation Heating Usage	4,706	Therms[7]
Proposed Ventilation Cooling Usage	37,823	kWh[7]
Total heating savings	1,569	**Therms**
Total cooling savings	12,608	**kWh**
Total cost savings	1,611	
Estimated Total Project Cost	$5,000	[8]
Simple Payback	3.1	**years**

Note: costs are used for energy savings calculations only. Do not use for procurement

Assumptions

1	3,000	OA AHU airflow based existing equipment model numbers
2	35	°F, Assumed average heating Δt (mixed air and supply)
3	10	°F, Assumed average cooling Δt (mixed air and supply)
4	80%	Heating Efficiency - %
5	1.2	Cooling Efficiency - kW/Ton
6	4,427	AHU run time per heating/cooling season bin data
7	25%	Estimated savings for DCV based on observed occupancy
8	$ 5,000	estimated measure cost for installation of sensors and associated controls

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cliffwood Elementary School

ECM-12a: Replace Electric DHW Heater w/ Condensing Gas-Fired DHW Heater

Summary
* Replace Electric DHW Heater w/ Instantaneous, Condensing, Gas-Fired DHW Heater

Item	Value	Units	Formula/Comments
Occupied days per week	5	days/wk	
Occupied weeks per year	23	week/yr	
Water supply Temperature	60	˚F	Termperature of water coming into building
Hot Water Temperature	120	˚F	observed
Hot Water Usage per day	45	gal/day	Calculated from usage below
Annual Hot Water Energy Demand	2,586	MBTU/yr	Energy required to heat annual quantity of hot water to setpoint
Existing Tank Size	119	Gallons	Per manufacturer nameplate
Hot Water Temperature	120	˚F	Per building personnel
Average Room Temperature	72	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	1.2	MBH	
Annual Standby Hot Water Load	10,424	MBTU/yr	
Total Annual Hot Water Demand (w/ standby losses)	13,011	Mbtu/yr	Building demand plus standby losses
Existing Water Heater Efficiency	98%		Per Manufacturer
Total Annual Energy Required	13,276	Mbtu/yr	
Total Annual Electric Required	**3,890**	**kWh/yr**	**Electrical Savings**
Average Annual Electric Demand	0.44	kW	
Peak Electric Demand	**18.00**	**kW**	**Per Manufacturer's Nameplate (Demand Savings)**
New Tank Size	0	Gallons	
Hot Water Temperature	120	˚F	
Average Room Temperature	72	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	0.0	MBH	
Annual Standby Hot Water Load	0	MBTU/yr	
Prop Annual Hot Water Demand (w/ standby losses)	2,586	MBTU/yr	
Proposed Avg. Hot water heater efficiency	96%		Based on Bradford White EF SERIES®, DHW Heater
Proposed Total Annual Energy Required	2,694	MBTU/yr	
Proposed Fuel Use	27	Therms/yr	Standby Losses and inefficient DHW heater eliminated
Elec Utility Demand Unit Cost	$7.60	$/kW	
Elec Utility Blended Unit Cost	$0.11	$/kWh	
NG Utility Unit Cost	$1.32	$/Therm	
Existing Operating Cost of DHW	$2,084	$/yr	
Proposed Operating Cost of DHW	$35	$/yr	
Annual Utility Cost Savings	**$2,048**	**$/yr**	

132.764

Daily Hot Water Demand

			#USES PER DAY		FULL TIME OCCUPANTS**				
FIXTURE	*BASE WATER USE GPM	DURATION OF USE (MIN)	MALE	FEMALE	MALE	FEMALE	TOTAL GAL/DAY	% HOT WATER	TOTAL HW GAL/DAY
LAVATORY (Low-Flow Lavs use 0.5 GPM)	0.5	0.25	3	3	100	100	75	50%	38
SHOWER	2.5	5	1	1	0	0	0	75%	0
KITCHEN SINK	2.5	0.5	1	1	0	0	0	75%	0
MOP SINK	2.5	2	1	1	1	1	10	75%	8
Dishwasher (gal per use)	10	1	1	0	0	0	0	100%	0
						TOTAL	85		**45**

*GPM is per standard fixtures, adjust as necessary if actual GPM is known.
**These are the occupanct that use the fixtures. If fixture does not exist change to (0).

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cliffwood Elementary School

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-12a: Replace Electric DHW Heater w/ Condensing Gas-Fired DHW Heater - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Electric DHW Heater Removal	1	LS		$ 50		$ -	$ 68	$ -	$ 68	RS Means 2012
120 Gallon High Efficiency Gas-Fired DHW Heater	1	LS	$ 10,000	$ 280		$ 11,000	$ 378	$ -	$ 11,378	Vendor Quote
Miscellaneous Electrical	1	LS	$ 300			$ 330	$ -	$ -	$ 330	RS Means 2012
Venting Kit	1	EA	$ 450	$ 650		$ 495	$ 878	$ -	$ 1,373	RS Means 2012
Miscellaneous Piping and Valves	1	LS	$ 200			$ 220	$ -	$ -	$ 220	RS Means 2012
						$ -	$ -	$ -	$ -	

Note: costs are used for energy savings calculations only. Do not use for procurement

$ 13,368	Subtotal	
$ 1,337	10%	Contingency
$ 2,941	20%	Contractor O&P
$ 1,765	10%	Engineering Fees
$ 19,410	**Total**	

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cliffwood Elementary School

ECM-12b: Replace Gas-Fired DHW Heater w/ Condensing Gas-Fired DHW Heater

Summary:

Item	Value	Units	Formula/Comments
Avg. Monthly Utility Demand by Water Heater	**70**	Therms/month	Calculated from utility bill
Total Annual Utility Demand by Water Heater	84,190	MBTU/yr	1therm = 100 MBTU
Existing DHW Heater Efficiency	80%		Per manufacturer nameplate
Total Annual Hot Water Demand (w/ standby losses)	67,352	MBTU/yr	
Existing Tank Size	74	Gallons	Per manufacturer nameplate
Hot Water Piping System Capacity	20	Gallons	Estimated Per existing system (includes HWR piping)
Hot Water Temperature	120	˚F	Per building personnel
Room Temperature	70	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	1.0	MBH	
Annual Standby Hot Water Load	8,578	MBTU/yr	
New Tank Size	100	Gallons	Based on Takagi Flash T-H1 instantaneous, condensing DHW Heater
Hot Water Piping System Capacity	20	Gallons	Estimated Per existing system (includes HWR piping)
Hot Water Temperature	120	˚F	
Room Temperature	70	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	1.3	MBH	
Annual Standby Hot Water Load	10,950	MBTU/yr	
Total Annual Hot Water Demand	69,725	MBTU/yr	
Proposed Avg. Hot water heater efficiency	96%		Based on A.O. Smith Cyclone, condensing DHW Heater
Proposed Fuel Use	726		Standby Losses and inefficient DHW heater eliminated
Utility Cost	$1.32	$/Therm	
Existing Operating Cost of DHW	$1,108	$/yr	
Proposed Operating Cost of DHW	$956	$/yr	

Savings Summary:

Utility	Energy Savings	Cost Savings
Therms/yr	116	$152

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cliffwood Elementary School

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-12b: Replace Gas-Fired DHW Heater w/ Condensing Gas-Fired DHW Heater - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Gas-Fired DHW Heater Removal	1	LS		$ 50		$ -	$ 68	$ -	$ 68	RS Means 2012
100 Gallon High Efficiency Gas-Fired DHW Heater	1	LS	$ 5,033	$ 280		$ 5,536	$ 378	$ -	$ 5,914	Vendor Quote
Venting Kit	1	EA	$ 450	$ 650		$ 495	$ 878	$ -	$ 1,373	RS Means 2012
Miscellaneous Piping and Valves	1	LS	$ 200			$ 220	$ -	$ -	$ 220	RS Means 2012
						$ -	$ -	$ -	$ -	

Note: costs are used for energy savings calculations only. Do not use for procurement

$ 7,574	Subtotal
$ 757	10% Contingency
$ 1,666	20% Contractor O&P
$ 1,000	10% Engineering Fees
$ 10,997	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Cliffwood Elementary School

New Jersey Pay For Performance Incentive Program

Note: The following calculation is based on the New Jersey Pay For Performance Incentive Program per April, 2012. Building must have a minimum average electric demand of 100 kW. This minimum is waived for buildings owned by local governements or non-profit organizations.

Total Building Area (Square Feet)	67,450
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilites (BPU)

Incentive #1		
Audit is funded by NJ BPU	$0.10	$/sqft

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	$39,286	$27,695
Existing Usage (from utility)	345,760	21,048
Proposed Savings	78,333	1,657
Existing Total MMBtus	3,285	
Proposed Savings MMBtus	433	
% Energy Reduction	**13.2%**	
Proposed Annual Savings	$12,455	

	Min (Savings = 15%)		Increase (Savings > 15%)		Max Incentive		Achieved Incentive	
	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm
Incentive #2	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.00	$0.00
Incentive #3	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.00	$0.00

	Incentives $		
	Elec	Gas	Total
Incentive #1	$0	$0	$0
Incentive #2	$0	$0	$0
Incentive #3	$0	$0	$0
Total All Incentives	**$0**	**$0**	**$0**

Total Project Cost	$259,075

		Allowable Incentive
% Incentives #1 of Utility Cost*	0.0%	$0
% Incentives #2 of Project Cost**	0.0%	$0
% Incentives #3 of Project Cost**	0.0%	$0
Total Eligible Incentives***	**$0**	
Project Cost w/ Incentives	$259,075	

Project Payback (years)	
w/o Incentives	w/ Incentives
20.8	20.8

* Maximum allowable incentive is 50% of annual utility cost if not funded by NJ BPU, and %25 if it is.

** Maximum allowable amount of Incentive #2 is 25% of total project cost.

Maximum allowable amount of Incentive #3 is 25% of total project cost.

*** Maximum allowable amount of Incentive #1 is $50,000 if not funded by NJ BPU, and $25,000 if it is.

Maximum allowable amount of Incentive #2 & #3 is $1 million per gas account and $1 million per electric account; maximum 2 million per project

Energy Audit of Cliffwood Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.082** **$/kWh**
$7.60 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
13	Room 1	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 2	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
105	Nurse	Offices	6	W 32 F 1	F41LL	32	0.19	SW	2400	C-OCC	461	
71	Storage	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
96	Bathroom	Restroom	1	W 17 C F 2	F22ILL	33	0.03	SW	1000	NONE	33	
13	Hallways	Hallways	17	S 32 P F 2 (ELE)	F42LL	60	1.02	SW	3192	NONE	3,256	
41	Men's Bathroom	Restroom	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.18	SW	1000	NONE	177	
71	Custodian's Closet	Storage Areas	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
35LED	Room 3	Classrooms w/ OCC	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	1800	NONE	1,458	
41	Women's Bathroom	Restroom w/ OCC	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.18	SW	1000	NONE	177	
13	Staff Lounge	Staff Lounge	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	3600	NONE	432	
96	Staff Lounge Restroom	Restroom	1	W 17 C F 2	F22ILL	33	0.03	SW	1000	NONE	33	
13	Room 4	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 5	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 6	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 7	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
2	Copier/Storage	Copy Room	2	T 34 W F 2 (MAG) RL/RB	F42ES	80	0.16	SW	2125	NONE	340	
1	Elevator Machine Room	Mechanical Room	12	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.37	SW	1000	NONE	372	
13	Mechanical Equipment Room	Mechanical Room	7	S 32 P F 2 (ELE)	F42LL	60	0.42	SW	1000	NONE	420	
13	Hallways	Hallways	10	S 32 P F 2 (ELE)	F42LL	60	0.60	SW	3192	NONE	1,915	
41	Vestibule	Hallways	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.12	SW	3192	NONE	377	
18LED	Art Room	Classrooms w/ OCC	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	1800	NONE	2,419	
105	Art Room	Classrooms w/ OCC	8	W 32 F 1	F41LL	32	0.26	SW	1800	NONE	461	
13	Art Room Storage	Classrooms w/ OCC	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1800	NONE	216	
35LED	Computer Lab	Classrooms w/ OCC	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	1800	NONE	2,592	
35LED	Room 9	Classrooms w/ OCC	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	1800	NONE	2,592	
13	Room 9 Storage	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Room 9 Bathroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
35LED	Media Center	Library	38	T 32 R F 3 (ELE)	F43ILL/2	90	3.42	SW	4368	NONE	14,939	
35LED	Media Center Office	Offices	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2400	C-OCC	864	
18LED	Media Center Office	Offices	4	T 32 R F 4 (ELE)	F44ILL	112	0.45	SW	2400	C-OCC	1,075	
35LED	Room 10	Classrooms w/ OCC	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.80	SW	1800	NONE	3,240	
13	Room 10 Storage	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Room 10 Bathroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Boy's Bathroom	Restroom	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	1000	NONE	240	
13	Girl's Bathroom	Restroom	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	1000	NONE	240	
169LED	Gymnasium	Gymnasium	24	SP 250 MH ROOF	MH250/1	295	7.08	SW	2000	NONE	14,160	
13	Custodian's Closet	Storage/Janitor	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	500	NONE	30	
13	Hallways	Hallways	35	S 32 P F 2 (ELE)	F42LL	60	2.10	SW	3192	NONE	6,703	
13	Faculty Women's Restroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Faculty Men's Restroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
35LED	Room 11	Classrooms w/ OCC	22	T 32 R F 3 (ELE)	F43ILL/2	90	1.98	SW	1800	NONE	3,564	
13	Room 11 Storage	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Room 11 Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Stairs	Stairway	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	3200	NONE	576	
13	Stairs	Stairway	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	3200	NONE	576	
13	Room 28	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 27	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 26	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 24	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 23	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 22	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 21	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 20	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
41	Men's Bathroom	Restroom w/ OCC	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.18	SW	1000	NONE	177	
13	Child Study Team	Offices	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
220	Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Room 29	Classrooms w/ OCC	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1800	NONE	216	
13	Elevator Lobby	Hallways	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	3192	NONE	192	
13	Hallways	Hallways	16	S 32 P F 2 (ELE)	F42LL	60	0.96	SW	3192	NONE	3,064	
13	Book Room	Conference	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1200	C-OCC	144	
13	Room 17	Classrooms w/ OCC	19	S 32 P F 2 (ELE)	F42LL	60	1.14	SW	1800	NONE	2,052	
220	Room 17-Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Room 16	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
220	Room 16-Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Room 18	Classrooms w/ OCC	17	S 32 P F 2 (ELE)	F42LL	60	1.02	SW	1800	NONE	1,836	
220	Room 18-Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Room 19	Classrooms w/ OCC	17	S 32 P F 2 (ELE)	F42LL	60	1.02	SW	1800	NONE	1,836	
220	Room 19-Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
105	Women's Bathroom	Restroom	3	W 32 F 1	F41LL	32	0.10	SW	1000	NONE	96	
105	Men's Bathroom	Restroom	1	W 32 F 1	F41LL	32	0.03	SW	1000	NONE	32	

Energy Audit of Cliffwood Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.082** **$/kWh**
$7.60 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
250	Cafeteria	Cafeteria	14	T 54 W F 4 (ELE) (T-5)	F44GHL	234	3.28	SW	1600	NONE	5,242	
18LED	Servery	Cafeteria	6	T 32 R F 4 (ELE)	F44ILL	112	0.67	SW	1600	NONE	1,075	
105	Kitchen Closet	Storage Areas	1	W 32 F 1	F41LL	32	0.03	SW	1000	NONE	32	
220	Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Office	Office	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	3000	NONE	180	
13	Kitchen	Kitchen	9	S 32 P F 2 (ELE)	F42LL	60	0.54	SW	1600	NONE	864	
13	Storage Room	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	C-OCC	120	
96	Back of House	Kitchen	1	W 17 C F 2	F22ILL	33	0.03	SW	1600	NONE	53	
71	Back of House	Kitchen	1	I 60	I60/1	60	0.06	SW	1600	NONE	96	
45	Custodial Room	Offices	1	SP 26 R CF 1	CFQ26/1-L	27	0.03	SW	2400	OCC	65	
13	Room 14	Classrooms w/ OCC	14	S 32 P F 2 (ELE)	F42LL	60	0.84	SW	1800	NONE	1,512	
13	Room 15	Classrooms w/ OCC	14	S 32 P F 2 (ELE)	F42LL	60	0.84	SW	1800	NONE	1,512	
41	Stage	Cafeteria	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.12	SW	1600	NONE	189	
18LED	Room 12	Classrooms w/ OCC	6	T 32 R F 4 (ELE)	F44ILL	112	0.67	SW	1800	NONE	1,210	
105	Closet	Storage Areas	3	W 32 F 1	F41LL	32	0.10	SW	1000	NONE	96	
18LED	Room 13	Classrooms w/ OCC	24	T 32 R F 4 (ELE)	F44ILL	112	2.69	SW	1800	NONE	4,838	
13	Hallways	Hallways	32	S 32 P F 2 (ELE)	F42LL	60	1.92	SW	3192	NONE	6,129	
7	Lobby	Hallways	6	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.36	SW	3192	NONE	1,149	
105	Lobby	Hallways	3	W 32 F 1	F41LL	32	0.10	SW	3192	NONE	306	
13	Main Office	Offices	13	S 32 P F 2 (ELE)	F42LL	60	0.78	SW	2400	OCC	1,872	
142LED	Exterior	Outdoor Lighting	4	MH 100	MH100/1	128	0.51	Breaker	4368	NONE	2,236	
169LED	Exterior	Outdoor Lighting	10	SP 250 MH ROOF	MH250/1	295	2.95	Breaker	4368	NONE	12,886	
105	Basement	Storage Areas	18	W 32 F 1	F41LL	32	0.58	SW	1000	NONE	576	
105	Mechanical Equipment Room	Mechanical Room	6	W 32 F 1	F41LL	32	0.19	SW	1000	NONE	192	
105	Mechanical Equipment Room	Mechanical Room	6	W 32 F 1	F41LL	32	0.19	SW	1000	NONE	192	

Energy Audit of Cliffwood Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity:	$0.082	$/kWh
	$7.60	$/kW

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
	Total		769				61.08				136,772	

Energy Audit of Cliffwood Elementary School
CHA Project No.27221
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS							RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	($/kWh) * (kWh Saved)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Room 1	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 2	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
105	Nurse	6	W 32 F 1	F41LL	32	0.2	SW	2400	461	6	W 32 F 1	F41LL	32	0.2	SW	2,400	461	-	0.0	$ -	$ -	$0		#DIV/0!
71	Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 5.70	$ 6.75	$0	1.2	1.2
96	Bathroom	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33	1	W 17 C F 2	F22ILL	33	0.0	SW	1,000	33	-	0.0	$ -	$ -	$0		#DIV/0!
13	Hallways	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,256	17	T 28 R F 2	F42SSILL	48	0.8	SW	3,192	2,605	651	0.2	$ 71.73	$ 1,950.75	$170	27.2	24.8
41	Men's Bathroom	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1000	177	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1,000	177	-	0.0	$ -	$ -	$0		#DIV/0!
71	Custodian's Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 5.70	$ 6.75	$0	1.2	1.2
35LED	Room 3	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	1800	1,458	9	T 59 R LED	TLED59	59	0.5	SW	1,800	956	502	0.3	$ 66.42	$ 3,888.00	$450	58.5	51.8
41	Women's Bathroom	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1000	177	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1,000	177	-	0.0	$ -	$ -	$0		#DIV/0!
13	Staff Lounge	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3600	432	2	T 28 R F 2	F42SSILL	48	0.1	SW	3,600	346	86	0.0	$ 9.24	$ 229.50	$20	24.8	22.7
96	Staff Lounge Restroom	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33	1	W 17 C F 2	F22ILL	33	0.0	SW	1,000	33	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 4	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 5	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 6	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 7	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
2	Copier/Storage	2	T 34 W F 2 (MAG) RU/RB	F42ES	80	0.2	SW	2125	340	2	W 28 W F 2	F42SSILL	48	0.1	SW	2,125	204	136	0.1	$ 16.93	$ 540.00	$0	31.9	31.9
1	Elevator Machine Room	12	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.4	SW	1000	372	12	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.4	SW	1,000	372	-	0.0	$ -	$ -	$0		#DIV/0!
13	Mechanical Equipment Room	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1000	420	7	T 28 R F 2	F42SSILL	48	0.3	SW	1,000	336	84	0.1	$ 14.51	$ 803.25	$70	55.3	50.5
13	Hallways	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	3192	1,915	10	T 28 R F 2	F42SSILL	48	0.5	SW	3,192	1,532	383	0.1	$ 42.19	$ 1,147.50	$100	27.2	24.8
41	Vestibule	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	3192	377	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	3,192	377	-	0.0	$ -	$ -	$0		#DIV/0!
18LED	Art Room	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	1800	2,419	12	T 74 R LED	TLED74	74	0.9	SW	1,800	1,598	821	0.5	$ 108.55	$ 5,184.00	$600	47.8	42.2
105	Art Room	8	W 32 F 1	F41LL	32	0.3	SW	1800	461	8	W 32 F 1	F41LL	32	0.3	SW	1,800	461	-	0.0	$ -	$ -	$0		#DIV/0!
13	Art Room Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1800	216	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,800	173	43	0.0	$ 5.71	$ 229.50	$20	40.2	36.7
35LED	Computer Lab	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592	16	T 59 R LED	TLED59	59	0.9	SW	1,800	1,699	893	0.5	$ 118.07	$ 6,912.00	$800	58.5	51.8
35LED	Room 9	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592	16	T 59 R LED	TLED59	59	0.9	SW	1,800	1,699	893	0.5	$ 118.07	$ 6,912.00	$800	58.5	51.8
13	Room 9 Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.15	$ 229.50	$20	55.3	50.5
13	Room 9 Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.07	$ 114.75	$10	55.3	50.5
35LED	Media Center	38	T 32 R F 3 (ELE)	F43ILL/2	90	3.4	SW	4368	14,939	38	T 59 R LED	TLED59	59	2.2	SW	4,368	9,793	5,146	1.2	$ 527.21	$ 16,416.00	$1,900	31.1	27.5
35LED	Media Center Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864	4	T 59 R LED	TLED59	59	0.2	SW	2,400	566	298	0.1	$ 35.59	$ 1,728.00	$200	48.6	42.9
18LED	Media Center Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075	4	T 74 R LED	TLED74	74	0.3	SW	2,400	710	365	0.2	$ 43.62	$ 1,728.00	$200	39.6	35.0
35LED	Room 10	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	1800	3,240	20	T 59 R LED	TLED59	59	1.2	SW	1,800	2,124	1,116	0.6	$ 147.59	$ 8,640.00	$1,000	58.5	51.8
13	Room 10 Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.07	$ 114.75	$10	55.3	50.5
13	Room 10 Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.07	$ 114.75	$10	55.3	50.5
13	Boy's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	192	48	0.0	$ 8.29	$ 459.00	$40	55.3	50.5
13	Girl's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	192	48	0.0	$ 8.29	$ 459.00	$40	55.3	50.5
169LED	Gymnasium	24	SP 250 MH ROOF	MH250/1	295	7.1	SW	2000	14,160	24	FXLED78	FXLED78/1	78	1.9	SW	2,000	3,744	10,416	5.2	$ 1,324.73	$ 22,958.20	$4,200	17.3	14.1
13	Custodian's Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	500	30	1	T 28 R F 2	F42SSILL	48	0.0	SW	500	24	6	0.0	$ 1.58	$ 114.75	$10	72.4	66.1
13	Hallways	35	S 32 P F 2 (ELE)	F42LL	60	2.1	SW	3192	6,703	35	T 28 R F 2	F42SSILL	48	1.7	SW	3,192	5,363	1,341	0.4	$ 147.68	$ 4,016.25	$350	27.2	24.8
13	Faculty Women's Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.07	$ 114.75	$10	55.3	50.5
13	Faculty Men's Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.07	$ 114.75	$10	55.3	50.5
35LED	Room 11	22	T 32 R F 3 (ELE)	F43ILL/2	90	2.0	SW	1800	3,564	22	T 59 R LED	TLED59	59	1.3	SW	1,800	2,336	1,228	0.7	$ 162.35	$ 9,504.00	$1,100	58.5	51.8
13	Room 11 Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.07	$ 114.75	$10	55.3	50.5
13	Room 11 Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.15	$ 229.50	$20	55.3	50.5
13	Stairs	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	576	3	T 28 R F 2	F42SSILL	48	0.1	SW	3,200	461	115	0.0	$ 12.68	$ 344.25	$30	27.1	24.8
13	Stairs	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	576	3	T 28 R F 2	F42SSILL	48	0.1	SW	3,200	461	115	0.0	$ 12.68	$ 344.25	$30	27.1	24.8
13	Room 28	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 27	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 26	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 24	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 23	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 22	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 21	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
13	Room 20	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
41	Men's Bathroom	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1000	177	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1,000	177	-	0.0	$ -	$ -	$0		#DIV/0!
13	Child Study Team	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	T 28 R F 2	F42SSILL	48	0.1	SW	2,400	230	58	0.0	$ 6.89	$ 229.50	$20	33.3	30.4
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 29	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1800	216	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,800	173	43	0.0	$ 5.71	$ 229.50	$20	40.2	36.7
13	Elevator Lobby	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	192	1	T 28 R F 2	F42SSILL	48	0.0	SW	3,192	153	38	0.0	$ 4.22	$ 114.75	$10	27.2	24.8
13	Hallways	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,064	16	T 28 R F 2	F42SSILL	48	0.8	SW	3,192	2,451	613	0.2	$ 67.51	$ 1,836.00	$160	27.2	24.8
13	Book Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1200	144	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,200	115	29	0.0	$ 4.54	$ 229.50	$20	50.6	46.2
13	Room 17	19	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	2,052	19	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,642	410	0.2	$ 54.27	$ 2,180.25	$190	40.2	36.7
220	Room 17-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 16	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$120	40.2	36.7
220	Room 16-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 18	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1800	1,836	17	T 28 R F 2	F42SSILL	48	0.8	SW	1,800	1,469	367	0.2	$ 48.56	$ 1,950.75	$170	40.2	36.7
220	Room 18-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 19	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1800	1,836	17	T 28 R F 2	F42SSILL	48	0.8	SW	1,800	1,469	367	0.2	$ 48.56	$ 1,950.75	$170	40.2	36.7
220	Room 19-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
105	Women's Bathroom	3	W 32 F 1	F41LL	32	0.1	SW	1000	96	3	W 32 F 1	F41LL	32	0.1	SW	1,000	96	-	0.0	$ -	$ -	$0		#DIV/0!
105	Men's Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	SW	1,000	32	-	0.0	$ -	$ -	$0		#DIV/0!
250	Cafeteria	14	T 54 W F 4 (ELE) (T-5)	F44GHL	234	3.3	SW	1600	5,242	14	T 54 W F 4 (ELE) (T-5)	F44GHL	234	3.3	SW	1,600	5,242	-	0.0	$ -	$ -	$0		#DIV/0!
18LED	Servery	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	1600	1,075	6	T 74 R LED	TLED74	74	0.4	SW	1,600	710	365	0.2	$ 50.55	$ 2,592.00	$300	51.3	45.3
105	Kitchen Closet	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	SW	1,000	32	-	0.0	$ -	$ -	$0		#DIV/0!
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3000	180	1	T 28 R F 2	F42SSILL	48	0.0	SW	3,000	144	36	0.0	$ 4.03	$ 114.75	$10	28.5	26.0
13	Kitchen	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1600	864	9	T 28 R F 2	F42SSILL	48	0.4	SW	1,600	691	173	0.1	$ 23.95	$ 1,032.75	$90	43.1	39.4
13	Storage Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.15	$ 229.50	$20	55.3	50.5
96	Back of House	1	W 17 C F 2	F22ILL	33	0.0	SW	1600	53	1	W 17 C F 2	F22ILL	33	0.0	SW	1,600	53	-	0.0	$ -	$ -	$0		#DIV/0!
71	Back of House	1	I 60	I60/1	60	0.1	SW	1600	96	1	CF 26	CFQ26/1-L	27	0.0	SW	1,600	43	53	0.0	$ 7.32	$ 6.75	$0	0.9	0.9
45	Custodial Room	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	2400	65	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	2,400	65	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 14	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1800	1,512	14	T 28 R F 2	F42SSILL	48	0.7	SW	1,800	1,210	302	0.2	$ 39.99	$ 1,606.50	$140	40.2	36.7
13	Room 15	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1800	1,512	14	T 28 R F 2	F42SSILL	48	0.7	SW	1,800	1,210	302	0.2	$ 39.99	$ 1,606.50	$140	40.2	36.7
41	Stage	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	1600	189	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	1,600	189	-	0.0	$ -	$ -	$0		#DIV/0!
18LED	Room 12	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	1800	1,210	6	T 74 R LED	TLED74	74	0.4	SW	1,800	799	410	0.2	$ 54.27	$ 2,592.00	$300	47.8	42.2
105	Closet	3	W 32 F 1	F41LL	32	0.1	SW	1000	96	3	W 32 F 1	F41LL	32	0.1	SW	1,000	96	-	0.0	$ -	$ -	$0		#DIV/0!
18LED	Room 13	24	T 32 R F 4 (ELE)	F44ILL	112	2.7	SW	1800	4,838	24	T 74 R LED	TLED74	74	1.8	SW	1,800	3,197	1,642	0.9	$ 217.10	$ 10,368.00	$1,200	47.8	42.2
13	Hallways	32	S 32 P F 2 (ELE)	F42LL	60	1.9	SW	3192	6,129	32	T 28 R F 2	F42SSILL	48	1.5	SW	3,192	4,903	1,226	0.4	$ 135.02	$ 3,672.00	$320	27.2	24.8
7	Lobby	6	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.4	SW	3192	1,149	6	2T 17 R F 2 (ELE)	F22ILL	33	0.2	SW	3,192	632	517	0.2	$ 56.96	$ 648.00	$0	11.4	11.4
105	Lobby	3	W 32 F 1	F41LL	32	0.1	SW	3192	306	3	W 32 F 1	F41LL	32	0.1	SW	3,192	306	-	0.0	$ -	$ -	$0		#DIV/0!
13	Main Office	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	1,872	13	T 28 R F 2	F42SSILL	48	0.6	SW	2,400	1,498	374	0.2	$ 44.77	$ 1,491.75	$130	33.3	30.4
142LED	Exterior	4	MH 100	MH100/1	128	0.5	Breaker	4368	2,236	4	FXLED39	FXLED39/1	39	0.2	Breaker	4,368	681	1,555	0.4	$ 159.33	$ 2,421.90	$400	15.2	12.7
169LED	Exterior	10	SP 250 MH ROOF	MH250/1	295	3.0	Breaker	4368	12,886	10	FXLED78	FXLED78/1	78	0.8	Breaker	4,368	3,407	9,479	2.2	$ 971.18	$ 9,524.25	$1,750	9.8	8.0
105	Basement	18	W 32 F 1	F41LL	32	0.6	SW	1000	576	18	W 32 F 1	F41LL	32	0.6	SW	1,000	576	-	0.0	$ -	$ -	$0		#DIV/0!
105	Mechanical Equipment Room	6	W 32 F 1	F41LL	32	0.2	SW	1000	192	6	W 32 F 1	F41LL	32	0.2	SW	1,000	192	-	0.0	$ -	$ -	$0		#DIV/0!
105	Mechanical Equipment Room	6	W 32 F 1	F41LL	32	0.2	SW	1000	192	6	W 32 F 1	F41LL	32	0.2	SW	1,000	192	-	0.0	$ -	$ -	$0		#DIV/0!

Energy Audit of Cliffwood Elementary School
CHA Project No.27221
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS							COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
	Total	769				61.1			136,772	769			4,618	41.9				89,581	47,191	19.2	$5,599	$162,852	$19,590		
																		Demand Savings			19.2	$1,749			
																		kWh Savings			47,191	$3,850			
																		Total savings				$5,599		29.1	25.6

Energy Audit of Cliffwood Elementary School
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Room 1	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 2	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Nurse	6	W 32 F 1	F41LL	32	0.2	SW	2400	460.8	6	W 32 F 1	F41LL	32	0.2	C-OCC	1200	230.4	230.4	0.0	$18.80	$270.00	$35.00	14.4	12.5
71	Storage	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
96	Bathroom	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33.0	1	W 17 C F 2	F22ILL	33	0.0	NONE	1000	33.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Hallways	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,255.8	17	S 32 P F 2 (ELE)	F42LL	60	1.0	NONE	3192	3,255.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Men's Bathroom	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1000	177.0	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	NONE	1000	177.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Custodian's Closet	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 3	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	1800	1,458.0	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	NONE	1800	1,458.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Women's Bathroom	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1000	177.0	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	NONE	1000	177.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Staff Lounge	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3600	432.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	3600	432.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
96	Staff Lounge Restroom	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33.0	1	W 17 C F 2	F22ILL	33	0.0	NONE	1000	33.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 4	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 5	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 6	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 7	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
2	Copier/Storage	2	T 34 W F 2 (MAG) RL/RB	F42ES	80	0.2	SW	2125	340.0	2	T 34 W F 2 (MAG) RL/RB	F42ES	80	0.2	NONE	2125	340.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
1	Elevator Machine Room	12	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.4	SW	1000	372.0	12	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.4	NONE	1000	372.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Mechanical Equipment Room	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1000	420.0	7	S 32 P F 2 (ELE)	F42LL	60	0.4	NONE	1000	420.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Hallways	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	3192	1,915.2	10	S 32 P F 2 (ELE)	F42LL	60	0.6	NONE	3192	1,915.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Vestibule	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	3192	376.7	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	NONE	3192	376.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Art Room	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	1800	2,419.2	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	NONE	1800	2,419.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Art Room	8	W 32 F 1	F41LL	32	0.3	SW	1800	460.8	8	W 32 F 1	F41LL	32	0.3	NONE	1800	460.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Art Room Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1800	216.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1800	216.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Computer Lab	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592.0	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	NONE	1800	2,592.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 9	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592.0	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	NONE	1800	2,592.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 9 Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 9 Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Media Center	38	T 32 R F 3 (ELE)	F43ILL/2	90	3.4	SW	4368	14,938.6	38	T 32 R F 3 (ELE)	F43ILL/2	90	3.4	NONE	4368	14,938.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Media Center Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	C-OCC	1200	432.0	432.0	0.0	$35.24	$270.00	$35.00	7.7	6.7
18LED	Media Center Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075.2	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	C-OCC	1200	537.6	537.6	0.0	$43.86	$270.00	$35.00	6.2	5.4
35LED	Room 10	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	1800	3,240.0	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	NONE	1800	3,240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 10 Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 10 Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Boy's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Girl's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
169LED	Gymnasium	24	SP 250 MH ROOF	MH250/1	295	7.1	SW	2000	14,160.0	24	SP 250 MH ROOF	MH250/1	295	7.1	NONE	2000	14,160.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Custodian's Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	500	30.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	500	30.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Hallways	35	S 32 P F 2 (ELE)	F42LL	60	2.1	SW	3192	6,703.2	35	S 32 P F 2 (ELE)	F42LL	60	2.1	NONE	3192	6,703.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Faculty Women's Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Faculty Men's Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 11	22	T 32 R F 3 (ELE)	F43ILL/2	90	2.0	SW	1800	3,564.0	22	T 32 R F 3 (ELE)	F43ILL/2	90	2.0	NONE	1800	3,564.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 11 Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 11 Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Stairs	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	576.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	3200	576.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Stairs	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	576.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	3200	576.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 28	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 27	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 26	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 24	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 23	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 22	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 21	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 20	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Men's Bathroom	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1000	177.0	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	NONE	1000	177.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Child Study Team	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	C-OCC	1200	144.0	144.0	0.0	$11.75	$270.00	$35.00	23.0	20.0
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 29	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1800	216.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1800	216.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Elevator Lobby	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	191.5	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	3192	191.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Hallways	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,064.3	16	S 32 P F 2 (ELE)	F42LL	60	1.0	NONE	3192	3,064.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Book Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1200	144.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	C-OCC	1000	120.0	24.0	0.0	$1.96	$270.00	$35.00	137.9	120.0
13	Room 17	19	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	2,052.0	19	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	2,052.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 17-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 16	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 16-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 18	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1800	1,836.0	17	S 32 P F 2 (ELE)	F42LL	60	1.0	NONE	1800	1,836.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 18-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 19	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1800	1,836.0	17	S 32 P F 2 (ELE)	F42LL	60	1.0	NONE	1800	1,836.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 19-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Women's Bathroom	3	W 32 F 1	F41LL	32	0.1	SW	1000	96.0	3	W 32 F 1	F41LL	32	0.1	NONE	1000	96.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Men's Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32.0	1	W 32 F 1	F41LL	32	0.0	NONE	1000	32.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
250	Cafeteria	14	T 54 W F 4 (ELE) (T-5)	F44GHL	234	3.3	SW	1600	5,241.6	14	T 54 W F 4 (ELE) (T-5)	F44GHL	234	3.3	NONE	1600	5,241.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Servery	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	1600	1,075.2	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	NONE	1600	1,075.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Kitchen Closet	1	W 32 F 1	F41LL	32	0.0	SW	1000	32.0	1	W 32 F 1	F41LL	32	0.0	NONE	1000	32.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3000	180.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	3000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Kitchen	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1600	864.0	9	S 32 P F 2 (ELE)	F42LL	60	0.5	NONE	1600	864.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	C-OCC	250	30.0	90.0	0.0	$7.34	$270.00	$35.00	36.8	32.0
96	Back of House	1	W 17 C F 2	F22ILL	33	0.0	SW	1600	52.8	1	W 17 C F 2	F22ILL	33	0.0	NONE	1600	52.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Back of House	1	I 60	I60/1	60	0.1	SW	1600	96.0	1	I 60	I60/1	60	0.1	NONE	1600	96.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Custodial Room	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	2400	64.8	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	OCC	1200	32.4	32.4	0.0	$2.64	$128.25	$20.00	48.5	41.0
13	Room 14	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1800	1,512.0	14	S 32 P F 2 (ELE)	F42LL	60	0.8	NONE	1800	1,512.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 15	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1800	1,512.0	14	S 32 P F 2 (ELE)	F42LL	60	0.8	NONE	1800	1,512.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Stage	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	1600	188.8	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	NONE	1600	188.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 12	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	1800	1,209.6	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	NONE	1800	1,209.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Closet	3	W 32 F 1	F41LL	32	0.1	SW	1000	96.0	3	W 32 F 1	F41LL	32	0.1	NONE	1000	96.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 13	24	T 32 R F 4 (ELE)	F44ILL	112	2.7	SW	1800	4,838.4	24	T 32 R F 4 (ELE)	F44ILL	112	2.7	NONE	1800	4,838.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Hallways	32	S 32 P F 2 (ELE)	F42LL	60	1.9	SW	3192	6,128.6	32	S 32 P F 2 (ELE)	F42LL	60	1.9	NONE	3192	6,128.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
7	Lobby	6	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.4	SW	3192	1,149.1	6	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.4	NONE	3192	1,149.1	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Lobby	3	W 32 F 1	F41LL	32	0.1	SW	3192	306.4	3	W 32 F 1	F41LL	32	0.1	NONE	3192	306.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Main Office	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	1,872.0	13	S 32 P F 2 (ELE)	F42LL	60	0.8	OCC	1200	936.0	936.0	0.0	$76.36	$128.25	$20.00	1.7	1.4
142LED	Exterior	4	MH 100	MH100/1	128	0.5	Breaker	4368	2,236.4	4	MH 100	MH100/1	128	0.5	NONE	4368	2,236.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
169LED	Exterior	10	SP 250 MH ROOF	MH250/1	295	3.0	Breaker	4368	12,885.6	10	SP 250 MH ROOF	MH250/1	295	3.0	NONE	4368	12,885.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Basement	18	W 32 F 1	F41LL	32	0.6	SW	1000	576.0	18	W 32 F 1	F41LL	32	0.6	NONE	1000	576.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Mechanical Equipment Room	6	W 32 F 1	F41LL	32	0.2	SW	1000	192.0	6	W 32 F 1	F41LL	32	0.2	NONE	1000	192.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Mechanical Equipment Room	6	W 32 F 1	F41LL	32	0.2	SW	1000	192.0	6	W 32 F 1	F41LL	32	0.2	NONE	1000	192.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
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Energy Audit of Cliffwood Elementary School
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
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	Total	769				61.1			136771.7	769.0				61.1			134345.3	2426.4	0.0	198.0	1876.5	250.0		
																	Demand Savings			0.0	$0			
																	kWh Savings			2,426	$198			
																	Total Savings				$198		9.5	8.2

Energy Audit of Cliffwood Elementary School
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Room 1	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 2	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
105	Nurse	6	W 32 F 1	F41LL	32	0.2	SW	2400	461	6	W 32 F 1	F41LL	32	0.2	C-OCC	1,200	230	230	0.0	$ 18.80	$ 270.00	$ 35	14.4	12.5
71	Storage	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 5.70	$ 6.75	$ -	1.2	1.2
96	Bathroom	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33	1	W 17 C F 2	F22ILL	33	0.0	NONE	1,000	33	-	0.0	$ -	$ -	$ -		
13	Hallways	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,256	17	T 28 R F 2	F42SSILL	48	0.8	NONE	3,192	2,605	651	0.2	$ 71.73	$ 1,950.75	$ 170	27.2	24.8
41	Men's Bathroom	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1000	177	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	NONE	1,000	177	-	0.0	$ -	$ -	$ -		
71	Custodian's Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 5.70	$ 6.75	$ -	1.2	1.2
35LED	Room 3	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	1800	1,458	9	T 59 R LED	TLED59	59	0.5	NONE	1,800	956	502	0.3	$ 66.42	$ 3,888.00	$ 450	58.5	51.8
41	Women's Bathroom	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1000	177	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	NONE	1,000	177	-	0.0	$ -	$ -	$ -		
13	Staff Lounge	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3600	432	2	T 28 R F 2	F42SSILL	48	0.1	NONE	3,600	346	86	0.0	$ 9.24	$ 229.50	$ 20	24.8	22.7
96	Staff Lounge Restroom	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33	1	W 17 C F 2	F22ILL	33	0.0	NONE	1,000	33	-	0.0	$ -	$ -	$ -		
13	Room 4	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 5	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 6	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 7	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
2	Copier/Storage	2	T 34 W F 2 (MAG) RL/RB	F42ES	80	0.2	SW	2125	340	2	W 28 W F 2	F42SSILL	48	0.1	NONE	2,125	204	136	0.1	$ 16.93	$ 540.00	$ -	31.9	31.9
1	Elevator Machine Room	12	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.4	SW	1000	372	12	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.4	NONE	1,000	372	-	0.0	$ -	$ -	$ -		
13	Mechanical Equipment Room	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1000	420	7	T 28 R F 2	F42SSILL	48	0.3	NONE	1,000	336	84	0.1	$ 14.51	$ 803.25	$ 70	55.3	50.5
13	Hallways	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	3192	1,915	10	T 28 R F 2	F42SSILL	48	0.5	NONE	3,192	1,532	383	0.1	$ 42.19	$ 1,147.50	$ 100	27.2	24.8
41	Vestibule	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	3192	377	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	NONE	3,192	377	-	0.0	$ -	$ -	$ -		
18LED	Art Room	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	1800	2,419	12	T 74 R LED	TLED74	74	0.9	NONE	1,800	1,598	821	0.5	$ 108.55	$ 5,184.00	$ 600	47.8	42.2
105	Art Room	8	W 32 F 1	F41LL	32	0.3	SW	1800	461	8	W 32 F 1	F41LL	32	0.3	NONE	1,800	461	-	0.0	$ -	$ -	$ -		
13	Art Room Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1800	216	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,800	173	43	0.0	$ 5.71	$ 229.50	$ 20	40.2	36.7
35LED	Computer Lab	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592	16	T 59 R LED	TLED59	59	0.9	NONE	1,800	1,699	893	0.5	$ 118.07	$ 6,912.00	$ 800	58.5	51.8
35LED	Room 9	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592	16	T 59 R LED	TLED59	59	0.9	NONE	1,800	1,699	893	0.5	$ 118.07	$ 6,912.00	$ 800	58.5	51.8
13	Room 9 Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.15	$ 229.50	$ 20	55.3	50.5
13	Room 9 Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.07	$ 114.75	$ 10	55.3	50.5
35LED	Media Center	38	T 32 R F 3 (ELE)	F43ILL/2	90	3.4	SW	4368	14,939	38	T 59 R LED	TLED59	59	2.2	NONE	4,368	9,793	5,146	1.2	$ 527.21	$ 16,416.00	$ 1,900	31.1	27.5
35LED	Media Center Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2400	864	4	T 59 R LED	TLED59	59	0.2	C-OCC	1,200	283	581	0.1	$ 58.69	$ 1,998.00	$ 235	34.0	30.0
18LED	Media Center Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075	4	T 74 R LED	TLED74	74	0.3	C-OCC	1,200	355	720	0.2	$ 72.60	$ 1,998.00	$ 235	27.5	24.3
35LED	Room 10	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	1800	3,240	20	T 59 R LED	TLED59	59	1.2	NONE	1,800	2,124	1,116	0.6	$ 147.59	$ 8,640.00	$ 1,000	58.5	51.8
13	Room 10 Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.07	$ 114.75	$ 10	55.3	50.5
13	Room 10 Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.07	$ 114.75	$ 10	55.3	50.5
13	Boy's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	NONE	1,000	192	48	0.0	$ 8.29	$ 459.00	$ 40	55.3	50.5
13	Girl's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	NONE	1,000	192	48	0.0	$ 8.29	$ 459.00	$ 40	55.3	50.5
169LED	Gymnasium	24	SP 250 MH ROOF	MH250/1	295	7.1	SW	2000	14,160	24	FXLED78	FXLED78/1	78	1.9	NONE	2,000	3,744	10,416	5.2	$ 1,324.73	$ 22,858.20	$ 4,200	17.3	14.1
13	Custodian's Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	500	30	1	T 28 R F 2	F42SSILL	48	0.0	NONE	500	24	6	0.0	$ 1.58	$ 114.75	$ 10	72.4	66.1
13	Hallways	35	S 32 P F 2 (ELE)	F42LL	60	2.1	SW	3192	6,703	35	T 28 R F 2	F42SSILL	48	1.7	NONE	3,192	5,363	1,341	0.4	$ 147.68	$ 4,016.25	$ 350	27.2	24.8
13	Faculty Women's Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.07	$ 114.75	$ 10	55.3	50.5
13	Faculty Men's Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.07	$ 114.75	$ 10	55.3	50.5
35LED	Room 11	22	T 32 R F 3 (ELE)	F43ILL/2	90	2.0	SW	1800	3,564	22	T 59 R LED	TLED59	59	1.3	NONE	1,800	2,336	1,228	0.7	$ 162.35	$ 9,504.00	$ 1,100	58.5	51.8
13	Room 11 Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.07	$ 114.75	$ 10	55.3	50.5
13	Room 11 Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.15	$ 229.50	$ 20	55.3	50.5
13	Stairs	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	576	3	T 28 R F 2	F42SSILL	48	0.1	NONE	3,200	461	115	0.0	$ 12.68	$ 344.25	$ 30	27.1	24.8
13	Stairs	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	576	3	T 28 R F 2	F42SSILL	48	0.1	NONE	3,200	461	115	0.0	$ 12.68	$ 344.25	$ 30	27.1	24.8
13	Room 28	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 27	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 26	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 24	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 23	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 22	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 21	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
13	Room 20	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
41	Men's Bathroom	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	1000	177	3	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	NONE	1,000	177	-	0.0	$ -	$ -	$ -		
13	Child Study Team	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	T 28 R F 2	F42SSILL	48	0.1	C-OCC	1,200	115	173	0.0	$ 16.29	$ 499.50	$ 55	30.7	27.3
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Room 29	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1800	216	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,800	173	43	0.0	$ 5.71	$ 229.50	$ 20	40.2	36.7
13	Elevator Lobby	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	192	1	T 28 R F 2	F42SSILL	48	0.0	NONE	3,192	153	38	0.0	$ 4.22	$ 114.75	$ 10	27.2	24.8
13	Hallways	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,064	16	T 28 R F 2	F42SSILL	48	0.8	NONE	3,192	2,451	613	0.2	$ 67.51	$ 1,836.00	$ 160	27.2	24.8
13	Book Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1200	144	2	T 28 R F 2	F42SSILL	48	0.1	C-OCC	1,000	96	48	0.0	$ 6.10	$ 499.50	$ 55	81.8	72.8
13	Room 17	19	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	2,052	19	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,642	410	0.2	$ 54.27	$ 2,180.25	$ 190	40.2	36.7
220	Room 17-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Room 16	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 34.28	$ 1,377.00	$ 120	40.2	36.7
220	Room 16-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Room 18	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1800	1,836	17	T 28 R F 2	F42SSILL	48	0.8	NONE	1,800	1,469	367	0.2	$ 48.56	$ 1,950.75	$ 170	40.2	36.7
220	Room 18-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Room 19	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1800	1,836	17	T 28 R F 2	F42SSILL	48	0.8	NONE	1,800	1,469	367	0.2	$ 48.56	$ 1,950.75	$ 170	40.2	36.7
220	Room 19-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
105	Women's Bathroom	3	W 32 F 1	F41LL	32	0.1	SW	1000	96	3	W 32 F 1	F41LL	32	0.1	NONE	1,000	96	-	0.0	$ -	$ -	$ -		
105	Men's Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	NONE	1,000	32	-	0.0	$ -	$ -	$ -		
250	Cafeteria	14	T 54 W F 4 (ELE) (T-5)	F44GHL	234	3.3	SW	1600	5,242	14	T 54 W F 4 (ELE) (T-5)	F44GHL	234	3.3	NONE	1,600	5,242	-	0.0	$ -	$ -	$ -		
18LED	Servery	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	1600	1,075	6	T 74 R LED	TLED74	74	0.4	NONE	1,600	710	365	0.2	$ 50.55	$ 2,592.00	$ 300	51.3	45.3
105	Kitchen Closet	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	NONE	1,000	32	-	0.0	$ -	$ -	$ -		
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3000	180	1	T 28 R F 2	F42SSILL	48	0.0	NONE	3,000	144	36	0.0	$ 4.03	$ 114.75	$ 10	28.5	26.0
13	Kitchen	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1600	864	9	T 28 R F 2	F42SSILL	48	0.4	NONE	1,600	691	173	0.1	$ 23.95	$ 1,032.75	$ 90	43.1	39.4
13	Storage Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	C-OCC	250	24	96	0.0	$ 10.02	$ 499.50	$ 55	49.8	44.4
96	Back of House	1	W 17 C F 2	F22ILL	33	0.0	SW	1600	53	1	W 17 C F 2	F22ILL	33	0.0	NONE	1,600	53	-	0.0	$ -	$ -	$ -		
71	Back of House	1	I 60	I60/1	60	0.1	SW	1600	96	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,600	43	53	0.0	$ 7.32	$ 6.75	$ -	0.9	0.9
45	Custodial Room	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	2400	65	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	OCC	1,200	32	32	0.0	$ 2.64	$ 128.25	$ 20	48.5	41.0
13	Room 14	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1800	1,512	14	T 28 R F 2	F42SSILL	48	0.7	NONE	1,800	1,210	302	0.2	$ 39.99	$ 1,606.50	$ 140	40.2	36.7
13	Room 15	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1800	1,512	14	T 28 R F 2	F42SSILL	48	0.7	NONE	1,800	1,210	302	0.2	$ 39.99	$ 1,606.50	$ 140	40.2	36.7
41	Stage	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	1600	189	2	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	NONE	1,600	189	-	0.0	$ -	$ -	$ -		
18LED	Room 12	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	1800	1,210	6	T 74 R LED	TLED74	74	0.4	NONE	1,800	799	410	0.2	$ 54.27	$ 2,592.00	$ 300	47.8	42.2
105	Closet	3	W 32 F 1	F41LL	32	0.1	SW	1000	96	3	W 32 F 1	F41LL	32	0.1	NONE	1,000	96	-	0.0	$ -	$ -	$ -		
18LED	Room 13	24	T 32 R F 4 (ELE)	F44ILL	112	2.7	SW	1800	4,838	24	T 74 R LED	TLED74	74	1.8	NONE	1,800	3,197	1,642	0.9	$ 217.10	$ 10,368.00	$ 1,200	47.8	42.2
13	Hallways	32	S 32 P F 2 (ELE)	F42LL	60	1.9	SW	3192	6,129	32	T 28 R F 2	F42SSILL	48	1.5	NONE	3,192	4,903	1,226	0.4	$ 135.02	$ 3,672.00	$ 320	27.2	24.8
7	Lobby	6	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.4	SW	3192	1,149	6	2T 17 R F 2 (ELE)	F22ILL	33	0.2	NONE	3,192	632	517	0.2	$ 56.96	$ 648.00	$ -	11.4	11.4
105	Lobby	3	W 32 F 1	F41LL	32	0.1	SW	3192	306	3	W 32 F 1	F41LL	32	0.1	NONE	3,192	306	-	0.0	$ -	$ -	$ -		
13	Main Office	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2400	1,872	13	T 28 R F 2	F42SSILL	48	0.6	OCC	1,200	749	1,123	0.2	$ 105.86	$ 1,620.00	$ 150	15.3	13.9
142LED	Exterior	4	MH 100	MH100/1	128	0.5	Breaker	4368	2,236	4	FXLED39	FXLED39/1	39	0.2	NONE	4,368	681	1,555	0.4	$ 159.33	$ 2,421.90	$ 400	15.2	12.7
169LED	Exterior	10	SP 250 MH ROOF	MH250/1	295	3.0	Breaker	4368	12,886	10	FXLED78	FXLED78/1	78	0.8	NONE	4,368	3,407	9,479	2.2	$ 971.18	$ 9,524.25	$ 1,750	9.8	8.0
105	Basement	18	W 32 F 1	F41LL	32	0.6	SW	1000	576	18	W 32 F 1	F41LL	32	0.6	NONE	1,000	576	-	0.0	$ -	$ -	$ -		
105	Mechanical Equipment Room	6	W 32 F 1	F41LL	32	0.2	SW	1000	192	6	W 32 F 1	F41LL	32	0.2	NONE	1,000	192	-	0.0	$ -	$ -	$ -		
105	Mechanical Equipment Room	6	W 32 F 1	F41LL	32	0.2	SW	1000	192	6	W 32 F 1	F41LL	32	0.2	NONE	1,000	192	-	0.0	$ -	$ -	$ -		
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Energy Audit of Cliffwood Elementary School
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
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S	Total	769				61.1			136,772	769				41.9			87,725		19.2	5,750	164,728	$19,840		
S																	Demand Savings			19.2	$1,749			
S																	kWh Savings			49,047	$4,001			
S																	Total Savings				$5,750		28.6	25.2

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221

Rate of Discount (used for NPV) 3.0%

Utility Costs		Yearly Usage	Building Area	Annual Utility Cost	
$ 0.111	$/kWh blended		102,364	Electric	Natural Gas
$ 0.089	$/kWh supply	358,640		39,788	46,595
$ 6.21	$/kW	122.7			
$ 1.26	$/Therm	36,919			
$ 18.00	$/kgals	570			

Lloyd Road Elementary School

	Item	Savings					Cost	Simple Payback	Life Expectancy	NJ Smart Start Incentives	Direct Install Eligible (Y/N)*	Direct Install Incentives**	Max Incentives	Payback w/ Incentives***	Simple Projected Lifetime Savings					ROI	NPV	IRR
		kW	kWh	therms	Water kgal	$									kW	kWh	therms	kgal/vr	$			
ECM-2	Replace Boilers with Condensing HW Boilers	0.0	0	3,949	0	4,984	$ 185,856	37.3	25	$ 3,000	Y	$ 75,000	$ 3,000	36.7	0.0	0	98,719	0	########	(0.3)	($96,074)	-2.8%
ECM-3	Replace Window A/C Units w/ Ductless Splits	0.0	221	0	0	24	$ 18,000	735.6	15	$ 92	Y	$ 12,600	$ 92	731.9	0.0	3,308	0	0	$ 367	(1.0)	($17,616)	#NUM!
ECM-5	Install VFDs & Premium Pumps on Hot water Pumps	0.6	48,442	0	0	4,358	$ 29,693	6.8	15	$ 1,200	Y	$ 20,800	$ 1,200	6.5	9.4	726,635	0	0	$ 81,311	1.7	$23,533	12.8%
ECM-7A	Replace Existing Condensing Units (Standard Efficiency Model)	0.0	630	0	0	70	$ 15,800	225.9	15.0	$ 248	Y	$ 11,100	$ 248	222.4	0.0	9,456	0	0	$ 1,049	(0.9)	($14,717)	-23.2%
ECM-7B	Replace Existing Condensing Units (Higher Efficiency Model)	0.0	855	0	0	95	$ 21,900	230.8	15.0	$ 248	Y	$ 15,300	$ 248	228.2	0.0	12,828	0	0	$ 1,423	(0.9)	($20,519)	-23.4%
ECM-9	Demand Control Ventilation	0.0	0	3,738	0	4,717	$ 16,000	3.4	15.0	$ -	N	$ -	$ -	3.4	0.0	0	56,067	0	$ 70,762	3.4	$40,317	28.8%
ECM-14	Install Walk-in Cooler / Freezer Controls	0.0	3,873	0	0	430	$ 15,000	34.9	15.0	$ -	N	$ -	$ -	34.9	0.0	58,100	0	0	$ 6,446	(0.6)	($9,870)	-9.1%
ECM-L1	Lighting Replacements / Upgrades	7.7	18,341	0	0	2,205	$ 63,315	28.7	15.0	$ 5,660	Y	$ 44,300	$ 5,660	26.2	115.2	275,117	0	0	$ 39,103	(0.4)	($31,337)	-6.3%
	Total	**8.3**	**72,363**	**7,687**	**0**	**16,883**	**$ 365,564**	21.7	16.3	$ 10,448		$ 179,100	$ 10,448	21.0	124.6	1,085,443	154,786	0	########	(0.1)	($143,050)	-3.1%
	Total Measures with Payback <15	**0.6**	**48,442**	**3,738**	**0**	**$ 9,076**	**$ 45,693**	5.0	15.0	$ 1,200		$ 20,800	$ 1,200	4.9	9.4	0	0	0	$ 697	(1.0)	$63,850	18.9%
	% of Existing	**7%**	**20%**	**21%**	**0%**																	

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Lloyd Road Elementary School

ECM-2: Boiler Replacement

* Replace the Cleaverbrooks boiler with a gas fired condensing boiler.

Existing Fuel Nat.Gas
Proposed Fuel Nat.Gas

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.26	/ Therm	
Proposed Fuel Cost	$ 1.26	/ Therm	
Baseline Fuel Use	30,274	Therms	Based on historical utility data
Existing Boiler Plant Efficiency	80%		Estimated boiler eff
Baseline Boiler Load	2,421,898	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 100 Mbtu/Therms
Baseline Fuel Cost	$ 38,208		
Proposed Boiler Plant Efficiency	92%		New Boiler Efficiency
Proposed Fuel Use	26,325	Therms	Baseline Boiler Load / Proposed Efficiency / 100 Mbtu/Therms
Proposed Fuel Cost	$ 33,225		
Estimated Annual Savings	3,949	Therms	

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Lloyd Road Elementary School

ECM-2: Boiler Replacement - Cost

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
3,000 MBH NG Condensing Boiler	1	EA	$ 50,000	$ 10,000		$ 55,000	$ 13,500	$ -	$ 68,500	Vendor Quote
Flue Installation	1	EA	$4,000.0	$2,500.00		$ 4,400	$ 3,375	$ -	$ 7,775	RS Means 2012
controls	1	EA	$1,500.0	$1,500.00		$ 1,650	$ 2,025	$ -	$ 3,675	Engineering Estimate
Miscellaneous Electrical	1	LS	$ 1,500	$ 1,500		$ 1,650	$ 2,025	$ -	$ 3,675	RS Means 2012
Miscellaneous HW Piping	1	LS	$ 5,000	$ 2,500		$ 5,500	$ 3,375	$ -	$ 8,875	RS Means 2012
Boiler room/space construction	1	LS	$ 20,000	$ 10,000		$ 22,000	$ 13,500	$ -	$ 35,500	RS Means 2012
						$ -	$ -	$ -	$ -	Engineering Estimate
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 128,000	Subtotal
$ 12,800.00	10% Contingency
$ 28,160.00	20% Contractor O&P
$ 16,896	10% Engineering Fees
$ 185,856	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Lloyd Road Elementary School

ECM-5: Install Variable Speed Drives - HW Pump - Cost

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.00

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
5.0 VFD	4	ea	$ 1,706	$ 431		$ 7,508	$ 2,325	$ -	$ 9,832	RS Means 2012
5.0 Motor	4	ea	$ 373	$ 79		$ 1,640	$ 425	$ -	$ 2,065	RS Means 2012
Electrical - misc.	4	ls	$ 200	$ 150		$ 880	$ 810	$ -	$ 1,690	RS Means 2012
Pipe pressure sensor/transmitter	4	ea	$ 850	$ 500		$ 3,740	$ 2,700	$ -	$ 6,440	RS Means 2012
Misc. piping modification	1	ea	$ 200	$ 150		$ 220	$ 203	$ -	$ 423	RS Means 2012
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 20,450	Subtotal
$ 2,045	10% Contingency
$ 4,499	20% Contractor O&P
$ 2,699	10% Engineering Fees
$ 29,693	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Lloyd Road Elementary School

EQUIPMENT	AREA/EQUIPMENT SERVED	COOLING CAPACITY (Tons)	EER
CU-1	Classrooms 18 & 22	2.5	9.2
CU-2	Classsroom	2.5	9.2
	Total Electric DX Cooling:	*5*	*Tons*

ECM-7A: Replace Existing Condensing Units (Standard Efficiency Model)

ECM Description Summary
This ECM replaces the DX Condensing units on the ground around the building that serves the classrooms and nurses office

ASSUMPTIONS			Comments
Electric Cost	$0.11	/ kWh	
Average run hours per Week	50	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	72	deg F	Setpoint.
BTU/Hr Rating of existing DX equipment	60,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	9.2		Value from Manufacturer literature
Existing Annual Electric Usage	1,839	kWh	

Item	Value	Units	Comments
Proposed EER	14.0		Value from Manufacturer literature
Proposed Annual Electric Usage	1,208	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	630	kWh
Annual Cost Savings	$70	

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	2	89%	2
92.5	31	9	79%	7
87.5	131	39	68%	27
82.5	500	149	58%	86
77.5	620	185	47%	87
72.5	664	198	37%	73
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	581	49%	282

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Lloyd Road Elementary School

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-7A: Replace Existing Condensing Units (Standard Efficiency Model) - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Existing CUs demolition	2	EA		$ 545		$ -	$ 1,472	$ -	$ 1,472	RS Means 2012
(1) AC, 2.5 ton air conditioner condensing unit	2	EA	$ 1,200	$ 400		$ 2,640	$ 1,080	$ -	$ 3,720	RS Means 2012
- Reprogram DDC system for (1) CUs	2	EA	$ 75	$ 300		$ 165	$ 810	$ -	$ 975	Engineering Estimate
Electrical - misc.	1	LS	$ 1,000	$ 3,000		$ 1,100	$ 4,050	$ -	$ 5,150	Engineering Estimate
						$ -	$ -	$ -	$ -	

$ 11,317	Subtotal
$ 1,132	10% Contingency
$ 2,263	20% Contractor O&P
$ 1,132	10% Engineering
$ 15,800	**Total**

Matawan-Aberdeen Regional School District - NJBPU
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EQUIPMENT	AREA/EQUIPMENT SERVED	COOLING CAPACITY (Tons)	EER
CU-1	Classrooms 18 & 22	2.5	9.2
CU-2	Classsroom	2.5	9.2
	Total Electric DX Cooling:	*5*	*Tons*

ECM-7B: Replace Existing Condensing Units (Higher Efficiency Model)

ECM Description Summary
This ECM replaces the DX Condensing units on the ground around the building that serves the classrooms and nurses office

ASSUMPTIONS			Comments
Electric Cost	$0.11	/ kWh	
Average run hours per Week	50	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	72	deg F	Setpoint.
BTU/Hr Rating of existing DX equipment	60,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	9.2		Value from Manufacturer literature
Existing Annual Electric Usage	1,839	kWh	

Item	Value	Units	Comments
Proposed EER	17.2		Value from Manufacturer literature
Proposed Annual Electric Usage	983	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	855	kWh
Annual Cost Savings	$95	

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	2	89%	2
92.5	31	9	79%	7
87.5	131	39	68%	27
82.5	500	149	58%	86
77.5	620	185	47%	87
72.5	664	198	37%	73
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0

Total	8,760	581	49%	282

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Lloyd Road Elementary School

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-7B: Replace Existing Condensing Units (Higher Efficiency Model) - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Existing CUs demolition	2	EA		$ 545		$ -	$ 1,472	$ -	$ 1,472	RS Means 2012
(1) AC, 2.5 ton air conditioner condensing unit	2	EA	$ 1,838	$ 520		$ 4,043	$ 1,404	$ -	$ 5,447	RS Means 2012
- Reprogram DDC system for (1) CUs	2	EA	$ 1,800	$ 400		$ 3,960	$ 1,080	$ -	$ 5,040	RS Means 2012
Electrical - misc.	1	EA	$ 2,400	$ 755		$ 2,640	$ 1,019	$ -	$ 3,659	RS Means 2012
						$ -	$ -	$ -	$ -	

$ 15,617	Subtotal
$ 1,562	10% Contingency
$ 3,123	20% Contractor O&P
$ 1,562	10% Engineering
$ 21,900	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Lloyd Road Elementary School

AIR HANDLER	AREA SERVED	CFM	OA CFM	% OA
AHU-1	Gym	16,300	4,157	26%
AHU-2	Gym	16,300	4,157	26%
AHU-3	Auditorium	12,700	6,350	50%
AHU-4	Auditorium	8,550	3,206	38%
			17,869	*CFM*

ECM-9: Demand Controlled Ventilation
*Full DDC Control is needed to implement this ECM

ECM Description Summary
It is assumed the original system controls provide the full design ventilation outside air flow. Reducing outside air during occupied time periods will reduce heating and cooling energy used during the occupied period. A limit of 1000 PPM of CO2 is recommended in ASHRAE Standard 62-1982, Ventilation for Acceptable Indoor Air Quality. During unoccupied periods the outside air dampers should be closed.

Electric Cost	$ 0.11	/kWh
Natural Gas Cost	$ 1.26	/therm
Facility Ventilation Heating Load	675,458	BTU/Hour[1,2,3]
Facility Ventilation Cooling Load	192,988	BTU/Hour[1,2,3]
Existing Ventilation Heating Usage	37,378	Therms[2]
Existing Ventilation Cooling Usage	0	kWh[3]
Proposed Ventilation Heating Usage	33,640	Therms[7]
Proposed Ventilation Cooling Usage	0	kWh[7]
Total heating savings	3,738	**Therms**
Total cooling savings	0	**kWh**
Total cost savings	4,717	
Estimated Total Project Cost	$16,000	[8]
Simple Payback	3.4	**years**

Note: costs are used for enrgy savings calulations only. Do not use for procurment

Assumptions

1	17,869	OA AHU airflow based exsiting equipment model numbers
2	35	°F, Assumed average heating Δt (mixed air and supply)
3	10	°F, Assumed average cooling Δt (mixed air and supply)
4	80%	Heating Efficiency - %
5	0.0	Cooling Efficiency - kW/Ton
6	4,427	AHU run time per heating/cooling season bin data
7	10%	Estimated savings for DCV based on observed occupancy
8	$ 16,000	estimated measure cost for installation of sensors and associated controls

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Lloyd Road Elementary School

ECM-14: Walk-in Cooler & Freezer Controls

ECM Description Summary

For kitchens that contain walk-in coolers and freezers, CoolTrol is a controller that reduces energy consumption by controlling off of dewpoint temperature. Compressor cycling is reduced and the evaporator fans run 25% to 80% less. Door and frame heaters are also installed and controlled by store dew point temperature; this can reduce run time by up to 95% in coolers and 60% in freezers. The evaporator fan motors are also replaced with hi-efficiency fan motors saving 40% to 70% in energy. The proposed system comprises of an anti-sweat door controller, evaporator fan motor replacement and CoolTrol Cooler Control System.

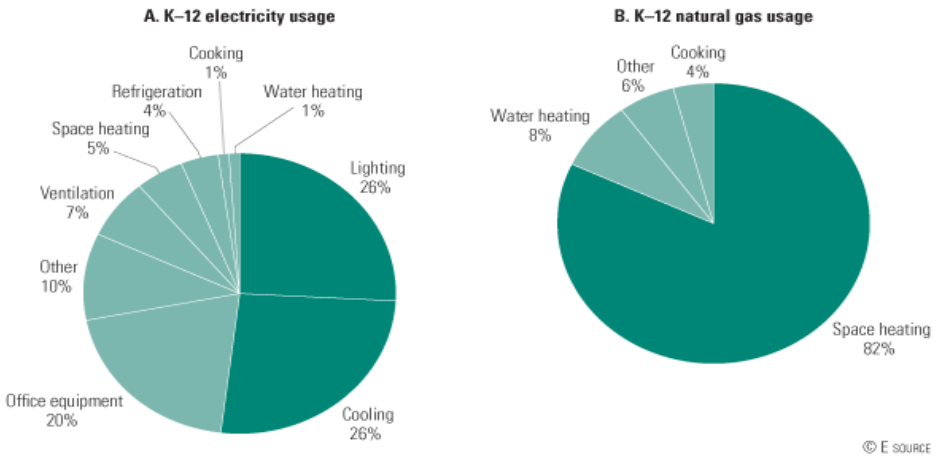
Utility Cost

$0.11 $/kWh Blended

EXISTING CONDITIONS		
Existing Facility Total Electric usage	358,640	kWh
Existing Facility Refrigeration Electric usage	21,518	kWh[1]
Existing Facility Walk-In Electric usage	12,911	kWh[2]
Walk-In Controls System Annual Electric savings	3,873	kWh[3]
SAVINGS		
Walk-In Controls Electric Usage Savings	3,873	**kWh**
Total cost savings	$ 429.71	
Estimated Total Project Cost	$ 15,000	[4]
Simple Payback	34.9	**years**

Assumptions

1	6%	of facility total electricity; Source: E source, data from U.S. Energy Information Administration
2	60%	of refrigeration attributable to walk-in based on site observations
3	30%	Electric load reduction typical for walk-in controllers
4		Based on (2) "Cooltrol" walk-in controls systems



Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Lloyd Road Elementary School

New Jersey Pay For Performance Incentive Program

Note: The following calculation is based on the New Jersey Pay For Performance Incentive Program per April, 2012. Building must have a minimum average electric demand of 100 kW. This minimum is waived for buildings owned by local governements or non-profit organizations.

Total Building Area (Square Feet)	102,364
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilites (BPU)

Incentive #1		
Audit is funded by NJ BPU	$0.10	$/sqft

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	$39,788	$46,595
Existing Usage (from utility)	358,640	36,919
Proposed Savings	72,363	7,687
Existing Total MMBtus	4,916	
Proposed Savings MMBtus	1,016	
% Energy Reduction	**20.7%**	
Proposed Annual Savings	$16,883	

	Min (Savings = 15%)		Increase (Savings > 15%)		Max Incentive		Achieved Incentive	
	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm
Incentive #2	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.11	$1.18
Incentive #3	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.11	$1.18

	Incentives $		
	Elec	Gas	Total
Incentive #1	$0	$0	$10,236
Incentive #2	$7,960	$9,093	$17,053
Incentive #3	$7,960	$9,093	$17,053
Total All Incentives	**$15,920**	**$18,186**	**$44,343**

Total Project Cost	$365,564

		Allowable Incentive
% Incentives #1 of Utility Cost*	11.8%	$10,236
% Incentives #2 of Project Cost**	4.7%	$17,053
% Incentives #3 of Project Cost**	4.7%	$17,053
Total Eligible Incentives***	**$44,343**	
Project Cost w/ Incentives	$321,222	

Project Payback (years)	
w/o Incentives	w/ Incentives
21.7	19.0

* Maximum allowable incentive is 50% of annual utility cost if not funded by NJ BPU, and %25 if it is.

** Maximum allowable amount of Incentive #2 is 25% of total project cost.

Maximum allowable amount of Incentive #3 is 25% of total project cost.

*** Maximum allowable amount of Incentive #1 is $50,000 if not funded by NJ BPU, and $25,000 if it is.

Maximum allowable amount of Incentive #2 & #3 is $1 million per gas account and $1 million per electric account; maximum 2 million per project

Energy Audit of Lloyd Road Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.089** **$/kWh**
$6.21 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
13	Boiler Room	Mechanical Room	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1000	NONE	720	
13	Custodial Office	Office w/ OCC	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1500	NONE	90	
13	Cafeteria Hallway	Hallways	5	S 32 P F 2 (ELE)	F42LL	60	0.30	SW	3192	NONE	958	
220	Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Servery	Cafeteria	25	S 32 P F 2 (ELE)	F42LL	60	1.50	SW	1600	NONE	2,400	
13	Storage	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Locker	Locker Room	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	2800	NONE	336	
13	Cafeteria	Cafeteria	23	S 32 P F 2 (ELE)	F42LL	60	1.38	SW	1600	NONE	2,208	
13	Stage	Cafeteria	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1600	NONE	1,152	
45	Auditorium	Auditorium	25	SP 26 R CF 1	CFQ26/1-L	27	0.68	SW	1820	NONE	1,229	
105	Library	Library	53	W 32 F 1	F41LL	32	1.70	SW	2200	NONE	3,731	
13	Libarary Storage/Server Closet	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
105	Art Room	Classrooms w/ OCC	30	W 32 F 1	F41LL	32	0.96	SW	1800	NONE	1,728	
74	Art Room-Closet	Storage Areas	1	I 50	I50/1	50	0.05	SW	1000	NONE	50	
237	Gymnasium	Gymnasium	16	MV 250	mv250/1	290	4.64	SW	2000	NONE	9,280	
13	Main Office	Office w/ OCC	13	S 32 P F 2 (ELE)	F42LL	60	0.78	SW	1500	NONE	1,170	
105	Main Office	Office w/ OCC	1	W 32 F 1	F41LL	32	0.03	SW	1500	NONE	48	
13	Principal's Office	Office w/ OCC	10	S 32 P F 2 (ELE)	F42LL	60	0.60	SW	1500	NONE	900	
13	Conference	Conference	6	S 32 P F 2 (ELE)	F42LL	60	0.36	SW	1200	C-OCC	432	
13	Conference	Conference	7	S 32 P F 2 (ELE)	F42LL	60	0.42	SW	1200	C-OCC	504	
220	Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
105	Room 100-Computer Lab	Classrooms w/ OCC	6	W 32 F 1	F41LL	32	0.19	SW	1800	NONE	346	
13	Room 101	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
13	Room 102	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 103	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 104	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
13	Room 105	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
13	Room 106	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
220	Room 106	Classrooms w/ OCC	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1800	NONE	36	
13	Room 110	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
220	Room 110	Classrooms w/ OCC	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1800	NONE	36	
13	Room 110	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
220	Room 110	Classrooms w/ OCC	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1800	NONE	36	
13	Room 109	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
220	Room 109	Classrooms w/ OCC	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1800	NONE	36	
13	Room 111	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
220	Room 111	Classrooms w/ OCC	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1800	NONE	36	
13	Room 113	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
220	Room 113	Classrooms w/ OCC	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1800	NONE	36	
13	Room 115	Classrooms w/ OCC	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	1800	NONE	1,944	
220	Room 115	Classrooms w/ OCC	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1800	NONE	36	
13	Boy's Bathroom	Restroom	11	S 32 P F 2 (ELE)	F42LL	60	0.66	SW	1000	NONE	660	
13	Girl's Bathroom	Restroom	11	S 32 P F 2 (ELE)	F42LL	60	0.66	SW	1000	NONE	660	
13	Storage	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Storage	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Room 112	Classrooms w/ OCC	21	S 32 P F 2 (ELE)	F42LL	60	1.26	SW	1800	NONE	2,268	
13	Room 116	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
13	Room 118	Classrooms w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1800	NONE	1,296	
220	Room 118-Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Room 117	Classrooms w/ OCC	24	S 32 P F 2 (ELE)	F42LL	60	1.44	SW	1800	NONE	2,592	
7	Room 117-Bathroom	Restroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.06	SW	1000	NONE	60	
13	Room 119	Classrooms w/ OCC	24	S 32 P F 2 (ELE)	F42LL	60	1.44	SW	1800	NONE	2,592	
7	Room 119-Bathroom	Restroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.06	SW	1000	NONE	60	
13	Stairway	Stairways	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	3200	NONE	768	
13	Stairway	Stairways	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	3200	NONE	768	
13	Stairway	Stairways	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	3200	NONE	768	
41	Room 219	Classrooms w/ OCC	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.42	SW	1800	NONE	2,549	
41	Room 218	Classrooms w/ OCC	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.42	SW	1800	NONE	2,549	
13	Copy Room	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	2125	C-OCC	510	
41	Room 215	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 216	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 213	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 214	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 211	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 212	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 209	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 210	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 205	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 206	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
13	Girl's Bathroom	Restroom	11	S 32 P F 2 (ELE)	F42LL	60	0.66	SW	1000	NONE	660	
13	Boy's Bathroom	Restroom	11	S 32 P F 2 (ELE)	F42LL	60	0.66	SW	1000	NONE	660	
13	Women's Bathroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Closet	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	

Energy Audit of Lloyd Road Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.089** **$/kWh**
$6.21 **$/kW**

			EXISTING CONDITIONS										
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
41	Room 208	Classrooms w/ OCC	9	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.53	SW	1800	NONE	956	
41	Room 204	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 203	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 202	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
41	Room 201	Classrooms w/ OCC	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.06	SW	1800	NONE	1,912	
13	Elevator Lobby	Hallways	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	3192	NONE	383	
41	Second Floor Hallway	Hallways	16	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.94	SW	3192	NONE	3,013	
41	First Floor Hallway	Hallways	34	T 54 W F 1 (ELE) (T-5)	F41GHL	59	2.01	SW	3192	NONE	6,403	
45	Entrance	Hallways	3	SP 26 R CF 1	CFQ26/1-L	27	0.08	SW	3192	NONE	259	
79	Exterior	Outdoor Lighting	4	SP I 100	I100/1	100	0.40	SW	4368	NONE	1,747	
141LED	Exterior	Outdoor Lighting	10	HPS 200	HPS200/1	250	2.50	SW	4368	NONE	10,920	

Energy Audit of Lloyd Road Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity:		
	$0.089	$/kWh
	$6.21	$/kW

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
	Total		985				60.67				119,344	

Energy Audit of Lloyd Road Elementary School

CHA Project No.27221

ECM-L1 Lighting Replacements

		EXISTING CONDITIONS							RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of Fixtures No. of fixtures before the retrofit	Standard Fixture Code "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Fixture Code Code from Table of Standard Fixture Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated daily hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Number of Fixtures No. of fixtures after the retrofit	Standard Fixture Code "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Fixture Code Code from Table of Standard Fixture Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Number of Fixtures)	Retrofit Control Retrofit control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Annual kWh Saved (Original Annual kWh) - (Retrofit Annual kWh)	Annual kW Saved (Original Annual kW) - (Retrofit Annual kW)	Annual $ Saved (kWh Saved) * ($/kWh)	Retrofit Cost Cost for renovations to lighting system	NJ Smart Start Lighting Incentive Prescriptive Lighting Measures	Simple Payback With Out Incentive Length of time for renovations cost to be recovered	Simple Payback Length of time for renovations cost to be recovered
13	Boiler Room	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	720	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,000	576	144	0.1	$ 23.54	$ 1,377.00	$120	58.5	53.4
13	Custodial Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1500	90	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,500	72	18	0.0	$ 2.50	$ 114.75	$10	46.0	42.0
13	Cafeteria Hallway	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	3192	958	5	T 28 R F 2	F42SSILL	48	0.2	SW	3,192	766	192	0.1	$ 21.52	$ 573.75	$50	26.7	24.3
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Servery	25	S 32 P F 2 (ELE)	F42LL	60	1.5	SW	1600	2,400	25	T 28 R F 2	F42SSILL	48	1.2	SW	1,600	1,920	480	0.3	$ 65.07	$ 2,868.75	$250	44.1	40.2
13	Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 3.92	$ 229.50	$20	58.5	53.4
13	Locker	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2800	336	2	T 28 R F 2	F42SSILL	48	0.1	SW	2,800	269	67	0.0	$ 7.77	$ 229.50	$20	29.5	27.0
13	Cafeteria	23	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	1600	2,208	23	T 28 R F 2	F42SSILL	48	1.1	SW	1,600	1,766	442	0.3	$ 59.86	$ 2,639.25	$230	44.1	40.2
13	Stage	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1600	1,152	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,600	922	230	0.1	$ 31.23	$ 1,377.00	$120	44.1	40.2
45	Auditorium	25	SP 26 R CF 1	CFQ26/1-L	27	0.7	SW	1820	1,229	25	SP 26 R CF 1	CFQ26/1-L	27	0.7	SW	1,820	1,229	-	0.0	$ -	$ -	$0		#DIV/0!
105	Library	53	W 32 F 1	F41LL	32	1.7	SW	2200	3,731	53	W 32 F 1	F41LL	32	1.7	SW	2,200	3,731	-	0.0	$ -	$ -	$0		#DIV/0!
13	Libarary Storage/Server Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 1.96	$ 114.75	$10	58.5	53.4
105	Art Room	30	W 32 F 1	F41LL	32	1.0	SW	1800	1,728	30	W 32 F 1	F41LL	32	1.0	SW	1,800	1,728	-	0.0	$ -	$ -	$0		#DIV/0!
74	Art Room-Closet	1	I 50	I50/1	50	0.1	SW	1000	50	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	23	0.0	$ 3.76	$ 20.25	$0	5.4	5.4
237	Gymnasium	16	MV 250	mv250/1	290	4.6	SW	2000	9,280	16	MV 250	mv250/1	290	4.6	SW	2,000	9,280	-	0.0	$ -	$ -	$0		#DIV/0!
13	Main Office	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1500	1,170	13	T 28 R F 2	F42SSILL	48	0.6	SW	1,500	936	234	0.2	$ 32.45	$ 1,491.75	$130	46.0	42.0
105	Main Office	1	W 32 F 1	F41LL	32	0.0	SW	1500	48	1	W 32 F 1	F41LL	32	0.0	SW	1,500	48	-	0.0	$ -	$ -	$0		#DIV/0!
13	Principal's Office	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	1500	900	10	T 28 R F 2	F42SSILL	48	0.5	SW	1,500	720	180	0.1	$ 24.96	$ 1,147.50	$100	46.0	42.0
13	Conference	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1200	432	6	T 28 R F 2	F42SSILL	48	0.3	SW	1,200	346	86	0.1	$ 13.05	$ 688.50	$60	52.7	48.2
13	Conference	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1200	504	7	T 28 R F 2	F42SSILL	48	0.3	SW	1,200	403	101	0.1	$ 15.23	$ 803.25	$70	52.7	48.2
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 100-Computer Lab	6	W 32 F 1	F41LL	32	0.2	SW	1800	346	6	W 32 F 1	F41LL	32	0.2	SW	1,800	346	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 101	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$180	40.7	37.2
13	Room 102	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 33.80	$ 1,377.00	$120	40.7	37.2
13	Room 103	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 33.80	$ 1,377.00	$120	40.7	37.2
13	Room 104	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$180	40.7	37.2
13	Room 105	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$180	40.7	37.2
13	Room 106	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$180	40.7	37.2
220	Room 106	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,800	36	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 110	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$180	40.7	37.2
220	Room 110	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,800	36	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 109	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$180	40.7	37.2
220	Room 109	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,800	36	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 111	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$180	40.7	37.2
220	Room 111	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,800	36	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 113	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$180	40.7	37.2
220	Room 113	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,800	36	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 115	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	SW	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$180	40.7	37.2
220	Room 115	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,800	36	-	0.0	$ -	$ -	$0		#DIV/0!
13	Boy's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660	11	T 28 R F 2	F42SSILL	48	0.5	SW	1,000	528	132	0.1	$ 21.58	$ 1,262.25	$110	58.5	53.4
13	Girl's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660	11	T 28 R F 2	F42SSILL	48	0.5	SW	1,000	528	132	0.1	$ 21.58	$ 1,262.25	$110	58.5	53.4
13	Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 3.92	$ 229.50	$20	58.5	53.4
13	Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 3.92	$ 229.50	$20	58.5	53.4
13	Room 112	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	1800	2,268	21	T 28 R F 2	F42SSILL	48	1.0	SW	1,800	1,814	454	0.3	$ 59.14	$ 2,409.75	$210	40.7	37.2
13	Room 116	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 33.80	$ 1,377.00	$120	40.7	37.2
13	Room 118	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,800	1,037	259	0.1	$ 33.80	$ 1,377.00	$120	40.7	37.2
220	Room 118-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 117	24	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	1800	2,592	24	T 28 R F 2	F42SSILL	48	1.2	SW	1,800	2,074	518	0.3	$ 67.59	$ 2,754.00	$240	40.7	37.2
7	Room 117-Bathroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	1000	60	1	2T 17 R F 2 (ELE)	F22ILL	33	0.0	SW	1,000	33	27	0.0	$ 4.41	$ 108.00	$0	24.5	24.5
13	Room 119	24	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	1800	2,592	24	T 28 R F 2	F42SSILL	48	1.2	SW	1,800	2,074	518	0.3	$ 67.59	$ 2,754.00	$240	40.7	37.2
7	Room 119-Bathroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	1000	60	1	2T 17 R F 2 (ELE)	F22ILL	33	0.0	SW	1,000	33	27	0.0	$ 4.41	$ 108.00	$0	24.5	24.5
13	Stairway	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	768	4	T 28 R F 2	F42SSILL	48	0.2	SW	3,200	614	154	0.0	$ 17.25	$ 459.00	$40	26.6	24.3
13	Stairway	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	768	4	T 28 R F 2	F42SSILL	48	0.2	SW	3,200	614	154	0.0	$ 17.25	$ 459.00	$40	26.6	24.3
13	Stairway	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	768	4	T 28 R F 2	F42SSILL	48	0.2	SW	3,200	614	154	0.0	$ 17.25	$ 459.00	$40	26.6	24.3
41	Room 219	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	SW	1800	2,549	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	SW	1,800	2,549	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 218	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	SW	1800	2,549	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	SW	1,800	2,549	-	0.0	$ -	$ -	$0		#DIV/0!
13	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510	4	T 28 R F 2	F42SSILL	48	0.2	SW	2,125	408	102	0.0	$ 12.65	$ 459.00	$40	36.3	33.1
41	Room 215	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 216	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 213	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 214	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 211	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 212	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 209	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 210	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 205	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 206	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
13	Girl's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660	11	T 28 R F 2	F42SSILL	48	0.5	SW	1,000	528	132	0.1	$ 21.58	$ 1,262.25	$110	58.5	53.4
13	Boy's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660	11	T 28 R F 2	F42SSILL	48	0.5	SW	1,000	528	132	0.1	$ 21.58	$ 1,262.25	$110	58.5	53.4
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 1.96	$ 114.75	$10	58.5	53.4
13	Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 1.96	$ 114.75	$10	58.5	53.4
41	Room 208	9	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.5	SW	1800	956	9	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.5	SW	1,800	956	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 204	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 203	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 202	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 201	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1,800	1,912	-	0.0	$ -	$ -	$0		#DIV/0!
13	Elevator Lobby	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383	2	T 28 R F 2	F42SSILL	48	0.1	SW	3,192	306	77	0.0	$ 8.61	$ 229.50	$20	26.7	24.3
41	Second Floor Hallway	16	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.9	SW	3192	3,013	16	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.9	SW	3,192	3,013	-	0.0	$ -	$ -	$0		#DIV/0!
41	First Floor Hallway	34	T 54 W F 1 (ELE) (T-5)	F41GHL	59	2.0	SW	3192	6,403	34	T 54 W F 1 (ELE) (T-5)	F41GHL	59	2.0	SW	3,192	6,403	-	0.0	$ -	$ -	$0		#DIV/0!
45	Entrance	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	3192	259	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	3,192	259	-	0.0	$ -	$ -	$0		#DIV/0!
79	Exterior	4	SP I 100	I100/1	100	0.4	SW	4368	1,747	4	CF 26	CFQ26/1-L	27	0.1	SW	4,368	472	1,275	0.3	$ 135.27	$ 81.00	$0	0.6	0.6
141LED	Exterior	10	HPS 200	HPS200/1	250	2.5	SW	4368	10,920	10	FXLED78	FXLED78/1	78	0.8	SW	4,368	3,407	7,513	1.7	$ 796.80	$ 9,524.25	$1,000	12.0	10.7

Energy Audit of Lloyd Road Elementary School
CHA Project No.27221
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS							COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
	Total	985				60.7			119,344	985				3,987	53.0			101,003	18,341	7.7	$2,205	$63,315	$5,660		
																		Demand Savings			7.7	$572			
																		kWh Savings			18,341	$1,632			
																		Total savings				$2,205		28.7	26.2

Energy Audit of Lloyd Road Elementary School
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Boiler Room	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	720.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1000	720.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Custodial Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1500	90.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1500	90.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Cafeteria Hallway	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	3192	957.6	5	S 32 P F 2 (ELE)	F42LL	60	0.3	NONE	3192	957.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Servery	25	S 32 P F 2 (ELE)	F42LL	60	1.5	SW	1600	2,400.0	25	S 32 P F 2 (ELE)	F42LL	60	1.5	NONE	1600	2,400.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Locker	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2800	336.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	2800	336.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Cafeteria	23	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	1600	2,208.0	23	S 32 P F 2 (ELE)	F42LL	60	1.4	NONE	1600	2,208.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Stage	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1600	1,152.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1600	1,152.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Auditorium	25	SP 26 R CF 1	CFQ26/1-L	27	0.7	SW	1820	1,228.5	25	SP 26 R CF 1	CFQ26/1-L	27	0.7	NONE	1820	1,228.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Library	53	W 32 F 1	F41LL	32	1.7	SW	2200	3,731.2	53	W 32 F 1	F41LL	32	1.7	NONE	2200	3,731.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Libarary Storage/Server Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Art Room	30	W 32 F 1	F41LL	32	1.0	SW	1800	1,728.0	30	W 32 F 1	F41LL	32	1.0	NONE	1800	1,728.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
74	Art Room-Closet	1	I 50	I50/1	50	0.1	SW	1000	50.0	1	I 50	I50/1	50	0.1	NONE	1000	50.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
237	Gymnasium	16	MV 250	mv250/1	290	4.6	SW	2000	9,280.0	16	MV 250	mv250/1	290	4.6	NONE	2000	9,280.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Main Office	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1500	1,170.0	13	S 32 P F 2 (ELE)	F42LL	60	0.8	NONE	1500	1,170.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Main Office	1	W 32 F 1	F41LL	32	0.0	SW	1500	48.0	1	W 32 F 1	F41LL	32	0.0	NONE	1500	48.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Principal's Office	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	1500	900.0	10	S 32 P F 2 (ELE)	F42LL	60	0.6	NONE	1500	900.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Conference	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1200	432.0	6	S 32 P F 2 (ELE)	F42LL	60	0.4	C-OCC	1000	360.0	72.0	0.0	$6.41	$270.00	$35.00	42.1	36.7
13	Conference	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1200	504.0	7	S 32 P F 2 (ELE)	F42LL	60	0.4	C-OCC	1000	420.0	84.0	0.0	$7.48	$270.00	$35.00	36.1	31.4
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 100-Computer Lab	6	W 32 F 1	F41LL	32	0.2	SW	1800	345.6	6	W 32 F 1	F41LL	32	0.2	NONE	1800	345.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 101	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 102	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 103	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 104	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 105	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 106	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 106	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1800	36.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 110	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 110	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1800	36.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 109	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 109	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1800	36.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 111	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 111	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1800	36.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 113	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 113	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1800	36.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 115	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944.0	18	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 115	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1800	36.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Boy's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660.0	11	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1000	660.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Girl's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660.0	11	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1000	660.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 112	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	1800	2,268.0	21	S 32 P F 2 (ELE)	F42LL	60	1.3	NONE	1800	2,268.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 116	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 118	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Room 118-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 117	24	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	1800	2,592.0	24	S 32 P F 2 (ELE)	F42LL	60	1.4	NONE	1800	2,592.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
7	Room 117-Bathroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	1000	60.0	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 119	24	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	1800	2,592.0	24	S 32 P F 2 (ELE)	F42LL	60	1.4	NONE	1800	2,592.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
7	Room 119-Bathroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	1000	60.0	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Stairway	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	768.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	3200	768.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Stairway	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	768.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	3200	768.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Stairway	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	768.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	3200	768.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 219	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	SW	1800	2,548.8	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	NONE	1800	2,548.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 218	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	SW	1800	2,548.8	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	NONE	1800	2,548.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	C-OCC	1000	240.0	270.0	0.0	$24.03	$270.00	$35.00	11.2	9.8
41	Room 215	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 216	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 213	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 214	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 211	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 212	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 209	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 210	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 205	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 206	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Girl's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660.0	11	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1000	660.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Boy's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660.0	11	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	1000	660.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 208	9	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.5	SW	1800	955.8	9	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.5	NONE	1800	955.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 204	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 203	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 202	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 201	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,911.6	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1800	1,911.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Elevator Lobby	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	3192	383.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Second Floor Hallway	16	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.9	SW	3192	3,013.2	16	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.9	NONE	3192	3,013.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	First Floor Hallway	34	T 54 W F 1 (ELE) (T-5)	F41GHL	59	2.0	SW	3192	6,403.2	34	T 54 W F 1 (ELE) (T-5)	F41GHL	59	2.0	NONE	3192	6,403.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Entrance	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	3192	258.6	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	NONE	3192	258.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
79	Exterior	4	SP I 100	I100/1	100	0.4	SW	4368	1,747.2	4	SP I 100	I100/1	100	0.4	NONE	4368	1,747.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
141LED	Exterior	10	HPS 200	HPS200/1	250	2.5	SW	4368	10,920.0	10	HPS 200	HPS200/1	250	2.5	NONE	4368	10,920.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
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Energy Audit of Lloyd Road Elementary School
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
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																	Demand Savings			0.0	$0			
																	kWh Savings			426	$38			
																	Total Savings				$38		21.4	18.6

Energy Audit of Lloyd Road Elementary School
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	**No. of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**Exist Control**	**Annual Hours**	**Annual kWh**	**Number of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**Retrofit Control**	**Annual Hours**	**Annual kWh**	**Annual kWh Saved**	**Annual kW Saved**	**Annual $ Saved**	**Retrofit Cost**	**NJ Smart Start Lighting Incentive**	**Simple Payback With Out Incentive**	**Simple Payback**
Field Code	**Unique description of the location - Room number/Room name: Floor number (if applicable)**	**No. of fixtures before the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Fixt No.)**	**Pre-inst. control device**	**Estimated daily hours for the usage group**	**(kW/space) * (Annual Hours)**	**No. of fixtures after the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Number of Fixtures)**	**Retrofit control device**	**Estimated annual hours for the usage group**	**(kW/space) * (Annual Hours)**	**(Original Annual kWh) - (Retrofit Annual kWh)**	**(Original Annual kW) - (Retrofit Annual kW)**	**(kWh Saved) * ($/kWh)**	**Cost for renovations to lighting system**	**Prescriptive Lighting Measures**	**Length of time for renovations cost to be recovered**	**Length of time for renovations cost to be recovered**
13	Boiler Room	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	720	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,000	576	144	0.1	$ 23.54	$ 1,377.00	$ 120	58.5	53.4
13	Custodial Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1500	90	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,500	72	18	0.0	$ 2.50	$ 114.75	$ 10	46.0	42.0
13	Cafeteria Hallway	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	3192	958	5	T 28 R F 2	F42SSILL	48	0.2	NONE	3,192	766	192	0.1	$ 21.52	$ 573.75	$ 50	26.7	24.3
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Servery	25	S 32 P F 2 (ELE)	F42LL	60	1.5	SW	1600	2,400	25	T 28 R F 2	F42SSILL	48	1.2	NONE	1,600	1,920	480	0.3	$ 65.07	$ 2,868.75	$ 250	44.1	40.2
13	Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 3.92	$ 229.50	$ 20	58.5	53.4
13	Locker	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2800	336	2	T 28 R F 2	F42SSILL	48	0.1	NONE	2,800	269	67	0.0	$ 7.77	$ 229.50	$ 20	29.5	27.0
13	Cafeteria	23	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	1600	2,208	23	T 28 R F 2	F42SSILL	48	1.1	NONE	1,600	1,766	442	0.3	$ 59.86	$ 2,639.25	$ 230	44.1	40.2
13	Stage	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1600	1,152	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,600	922	230	0.1	$ 31.23	$ 1,377.00	$ 120	44.1	40.2
45	Auditorium	25	SP 26 R CF 1	CFQ26/1-L	27	0.7	SW	1820	1,229	25	SP 26 R CF 1	CFQ26/1-L	27	0.7	NONE	1,820	1,229	-	0.0	$ -	$ -	$ -		
105	Library	53	W 32 F 1	F41LL	32	1.7	SW	2200	3,731	53	W 32 F 1	F41LL	32	1.7	NONE	2,200	3,731	-	0.0	$ -	$ -	$ -		
13	Libarary Storage/Server Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 1.96	$ 114.75	$ 10	58.5	53.4
105	Art Room	30	W 32 F 1	F41LL	32	1.0	SW	1800	1,728	30	W 32 F 1	F41LL	32	1.0	NONE	1,800	1,728	-	0.0	$ -	$ -	$ -		
74	Art Room-Closet	1	I 50	I50/1	50	0.1	SW	1000	50	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	23	0.0	$ 3.76	$ 20.25	$ -	5.4	5.4
237	Gymnasium	16	MV 250	mv250/1	290	4.6	SW	2000	9,280	16	MV 250	mv250/1	290	4.6	NONE	2,000	9,280	-	0.0	$ -	$ -	$ -		
13	Main Office	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1500	1,170	13	T 28 R F 2	F42SSILL	48	0.6	NONE	1,500	936	234	0.2	$ 32.45	$ 1,491.75	$ 130	46.0	42.0
105	Main Office	1	W 32 F 1	F41LL	32	0.0	SW	1500	48	1	W 32 F 1	F41LL	32	0.0	NONE	1,500	48	-	0.0	$ -	$ -	$ -		
13	Principal's Office	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	1500	900	10	T 28 R F 2	F42SSILL	48	0.5	NONE	1,500	720	180	0.1	$ 24.96	$ 1,147.50	$ 100	46.0	42.0
13	Conference	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1200	432	6	T 28 R F 2	F42SSILL	48	0.3	C-OCC	1,000	288	144	0.1	$ 18.18	$ 958.50	$ 95	52.7	47.5
13	Conference	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1200	504	7	T 28 R F 2	F42SSILL	48	0.3	C-OCC	1,000	336	168	0.1	$ 21.21	$ 1,073.25	$ 105	50.6	45.7
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
105	Room 100-Computer Lab	6	W 32 F 1	F41LL	32	0.2	SW	1800	346	6	W 32 F 1	F41LL	32	0.2	NONE	1,800	346	-	0.0	$ -	$ -	$ -		
13	Room 101	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$ 180	40.7	37.2
13	Room 102	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 33.80	$ 1,377.00	$ 120	40.7	37.2
13	Room 103	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 33.80	$ 1,377.00	$ 120	40.7	37.2
13	Room 104	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$ 180	40.7	37.2
13	Room 105	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$ 180	40.7	37.2
13	Room 106	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$ 180	40.7	37.2
220	Room 106	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,800	36	-	0.0	$ -	$ -	$ -		
13	Room 110	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$ 180	40.7	37.2
220	Room 110	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,800	36	-	0.0	$ -	$ -	$ -		
13	Room 109	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$ 180	40.7	37.2
220	Room 109	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,800	36	-	0.0	$ -	$ -	$ -		
13	Room 111	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$ 180	40.7	37.2
220	Room 111	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,800	36	-	0.0	$ -	$ -	$ -		
13	Room 113	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$ 180	40.7	37.2
220	Room 113	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,800	36	-	0.0	$ -	$ -	$ -		
13	Room 115	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1800	1,944	18	T 28 R F 2	F42SSILL	48	0.9	NONE	1,800	1,555	389	0.2	$ 50.69	$ 2,065.50	$ 180	40.7	37.2
220	Room 115	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1800	36	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,800	36	-	0.0	$ -	$ -	$ -		
13	Boy's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660	11	T 28 R F 2	F42SSILL	48	0.5	NONE	1,000	528	132	0.1	$ 21.58	$ 1,262.25	$ 110	58.5	53.4
13	Girl's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660	11	T 28 R F 2	F42SSILL	48	0.5	NONE	1,000	528	132	0.1	$ 21.58	$ 1,262.25	$ 110	58.5	53.4
13	Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 3.92	$ 229.50	$ 20	58.5	53.4
13	Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 3.92	$ 229.50	$ 20	58.5	53.4
13	Room 112	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	1800	2,268	21	T 28 R F 2	F42SSILL	48	1.0	NONE	1,800	1,814	454	0.3	$ 59.14	$ 2,409.75	$ 210	40.7	37.2
13	Room 116	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 33.80	$ 1,377.00	$ 120	40.7	37.2
13	Room 118	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1800	1,296	12	T 28 R F 2	F42SSILL	48	0.6	NONE	1,800	1,037	259	0.1	$ 33.80	$ 1,377.00	$ 120	40.7	37.2
220	Room 118-Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Room 117	24	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	1800	2,592	24	T 28 R F 2	F42SSILL	48	1.2	NONE	1,800	2,074	518	0.3	$ 67.59	$ 2,754.00	$ 240	40.7	37.2
7	Room 117-Bathroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	1000	60	1	2T 17 R F 2 (ELE)	F22ILL	33	0.0	NONE	1,000	33	27	0.0	$ 4.41	$ 108.00	$ -	24.5	24.5
13	Room 119	24	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	1800	2,592	24	T 28 R F 2	F42SSILL	48	1.2	NONE	1,800	2,074	518	0.3	$ 67.59	$ 2,754.00	$ 240	40.7	37.2
7	Room 119-Bathroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	1000	60	1	2T 17 R F 2 (ELE)	F22ILL	33	0.0	NONE	1,000	33	27	0.0	$ 4.41	$ 108.00	$ -	24.5	24.5
13	Stairway	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	768	4	T 28 R F 2	F42SSILL	48	0.2	NONE	3,200	614	154	0.0	$ 17.25	$ 459.00	$ 40	26.6	24.3
13	Stairway	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	768	4	T 28 R F 2	F42SSILL	48	0.2	NONE	3,200	614	154	0.0	$ 17.25	$ 459.00	$ 40	26.6	24.3
13	Stairway	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3200	768	4	T 28 R F 2	F42SSILL	48	0.2	NONE	3,200	614	154	0.0	$ 17.25	$ 459.00	$ 40	26.6	24.3
41	Room 219	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	SW	1800	2,549	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	NONE	1,800	2,549	-	0.0	$ -	$ -	$ -		
41	Room 218	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	SW	1800	2,549	24	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.4	NONE	1,800	2,549	-	0.0	$ -	$ -	$ -		
13	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510	4	T 28 R F 2	F42SSILL	48	0.2	C-OCC	1,000	192	318	0.0	$ 31.88	$ 729.00	$ 75	22.9	20.5
41	Room 215	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 216	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 213	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 214	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 211	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 212	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 209	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 210	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 205	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 206	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
13	Girl's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660	11	T 28 R F 2	F42SSILL	48	0.5	NONE	1,000	528	132	0.1	$ 21.58	$ 1,262.25	$ 110	58.5	53.4
13	Boy's Bathroom	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	660	11	T 28 R F 2	F42SSILL	48	0.5	NONE	1,000	528	132	0.1	$ 21.58	$ 1,262.25	$ 110	58.5	53.4
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 1.96	$ 114.75	$ 10	58.5	53.4
13	Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 1.96	$ 114.75	$ 10	58.5	53.4
41	Room 208	9	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.5	SW	1800	956	9	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.5	NONE	1,800	956	-	0.0	$ -	$ -	$ -		
41	Room 204	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 203	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 202	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
41	Room 201	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	SW	1800	1,912	18	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.1	NONE	1,800	1,912	-	0.0	$ -	$ -	$ -		
13	Elevator Lobby	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383	2	T 28 R F 2	F42SSILL	48	0.1	NONE	3,192	306	77	0.0	$ 8.61	$ 229.50	$ 20	26.7	24.3
41	Second Floor Hallway	16	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.9	SW	3192	3,013	16	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.9	NONE	3,192	3,013	-	0.0	$ -	$ -	$ -		
41	First Floor Hallway	34	T 54 W F 1 (ELE) (T-5)	F41GHL	59	2.0	SW	3192	6,403	34	T 54 W F 1 (ELE) (T-5)	F41GHL	59	2.0	NONE	3,192	6,403	-	0.0	$ -	$ -	$ -		
45	Entrance	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	3192	259	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	NONE	3,192	259	-	0.0	$ -	$ -	$ -		
79	Exterior	4	SP I 100	I100/1	100	0.4	SW	4368	1,747	4	CF 26	CFQ26/1-L	27	0.1	NONE	4,368	472	1,275	0.3	$ 135.27	$ 81.00	$ -	0.6	0.6
141LED	Exterior	10	HPS 200	HPS200/1	250	2.5	SW	4368	10,920	10	FXLED78	FXLED78/1	78	0.8	NONE	4,368	3,407	7,513	1.7	$ 796.80	$ 9,524.25	$ 1,000	12.0	10.7
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Energy Audit of Lloyd Road Elementary School
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
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S	Total	985				60.7			119,344	985				53.0			100,662		7.7	2,235	64,125	$5,765		
S																	Demand Savings			7.7	$572			
S																	kWh Savings			18,682	$1,663			
S																	Total Savings				$2,235		28.7	26.1

Matawan-Aberdeen Regional School District - NJBPU
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Rate of Discount (used for NPV) 3.0%

Utility Costs		Yearly Usage	Building Area	Annual Utility Cost	
$ 0.127	$/kWh blended		89,864	Electric	Natural Gas
$ 0.094	$/kWh supply	805,840		102,268	49,274
$ 6.88	$/kW	391.7			
$ 1.16	$/Therm	42,386			
$ 18.00	$/kgals	570			

Matawan Avenue Middle School

	Item	Savings					Cost	Simple Payback	Life Expectancy	NJ Smart Start Incentives	Direct Install Eligible (Y/N)*	Direct Install Incentives**	Max Incentives	Payback w/ Incentives***	Simple Projected Lifetime Savings					ROI	NPV	IRR
		kW	kWh	therms	Water kgal	$									kW	kWh	therms	kgal/yr	$			
ECM-2	Replace Boilers with Condensing HW Boilers	0.0	0	4,533	0	5,270	$ 263,284	50.0	25	$ 6,000	N	$ -	$ 6,000	48.8	0.0	0	113,337	0	$ 131,753	(0.5)	($165,514)	-4.6%
ECM-3	Replace Window A/C Units w/ Ductless Splits	0.0	1,544	0	0	196	$ 112,100	572.1	15	$ 1,288	N	$ -	$ 1,288	565.6	0.0	23,158	0	0	$ 2,939	(1.0)	($108,473)	#NUM!
ECM-5	Install VFDs & Premium Pumps on Hot water Pumps	0.4	15,697	0	0	1,511	$ 14,671	9.7	15.0	$ 900	N	$ -	$ 900	9.1	5.3	235,462	0	0	$ 30,321	1.1	$4,263	7.0%
ECM-6	HVAC Replacement	0.0	329	0	0	42	$ 32,400	776.7	25.0	$ 260	N	$ -	$ 260	770.4	0.0	8,218	0	0	$ 1,043	(1.0)	($31,414)	-17.9%
ECM-9	Demand Control Ventilation	0.0	2,311	5,517	0	6,707	$ 16,000	2.4	15.0	$ -	N	$ -	$ -	2.4	0.0	34,671	82,755	0	$ 100,602	5.3	$64,066	41.7%
ECM-10	Install Vending Machine Controls	0.0	5,782	0	0	734	$ 800	1.1	15.0	$ -	N	$ -	$ -	1.1	0.0	86,724	0	0	$ 11,006	12.8	$7,959	91.7%
ECM-11	Install Network Controller	0.0	18,000	0	0	2,284	$ 5,000	2.2	15.0	$ -	N	$ -	$ -	2.2	0.0	270,000	0	0	$ 34,265	5.9	$22,271	45.5%
ECM-13	Install Kitchen Hood Controls	0.0	1,164	0	0	148	$ 38,409	259.9	15.0	$ -	N	$ -	$ -	259.9	0.0	17,465	0	0	$ 2,216	(0.9)	($36,645)	-24.2%
ECM-14	Install Walk-in Cooler / Freezer Controls	0.0	8,703	0	0	1,104	$ 15,000	13.6	15.0	$ -	N	$ -	$ -	13.6	0.0	130,546	0	0	$ 16,567	0.1	($1,815)	1.3%
ECM-L1	Lighting Replacements / Upgrades	24.4	51,990	0	0	6,918	$ 303,830	43.9	15.0	$ 33,600	N	$ -	$ 33,600	39.1	365.3	779,844	0	0	$ 129,137	(0.6)	($187,648)	-10.1%
	Total	**24.7**	**105,520**	**10,050**	**0**	**$ 24,913**	**$ 801,493**	32.2	17.0	$ 42,048		$ -	$ 42,048	30.5	370.6	1,586,089	196,092	0	$ 459,850	(0.4)	($431,435)	-5.8%
	Total Measures with Payback <15	**0.4**	**50,494**	**5,517**	**0**	**$ 12,340**	**$ 51,471**	4.2	15.0	$ 900		$ -	$ 900	4.1	5.3	757,404	82,755	0	$ 192,762	2.7	$96,744	23.4%
	% of Existing	**6%**	**13%**	**24%**	**0%**																	

Matawan-Aberdeen Regional School District - NJBPU
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ECM-2: Boiler Replacement

* Replace (2) existing Cleaverbrooks boilers with gas fired condensing boilers

Existing Fuel Nat.Gas
Proposed Fuel Nat.Gas

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.16	/ Therm	
Proposed Fuel Cost	$ 1.16	/ Therm	
Baseline Fuel Use	34,757	Therms	Based on historical utility data
Existing Boiler Plant Efficiency	80%		Estimated Eff
Baseline Boiler Load	2,780,532	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 100 Mbtu/Therms
Baseline Fuel Cost	$ 40,404		
Proposed Boiler Plant Efficiency	92%		New Boiler Efficiency
Proposed Fuel Use	30,223	Therms	Baseline Boiler Load / Proposed Efficiency / 100 Mbtu/Therms
Proposed Fuel Cost	$ 35,134		
Estimated Annual Savings	4,533	Therms	

Matawan-Aberdeen Regional School District - NJBPU
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ECM-2: Boiler Replacement - Cost

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
3,000 MBH NG Condensing Boiler	2	EA	$ 50,000	$ 10,000		$ 110,000	$ 27,000	$ -	$ 137,000	Vendor Quote
Flue Installation	2	EA	$ 4,000.0	$ 2,500.00		$ 8,800	$ 6,750	$ -	$ 15,550	RS Means 2012
Controls	1	EA	$ 1,500.0	$ 1,500.00		$ 1,650	$ 2,025	$ -	$ 3,675	Engineering Estimate
Miscellaneous Electrical	2	LS	$ 1,500	$ 1,500		$ 3,300	$ 4,050	$ -	$ 7,350	RS Means 2012
Miscellaneous HW Piping	2	LS	$ 5,000	$ 2,500		$ 11,000	$ 6,750	$ -	$ 17,750	RS Means 2012
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 181,325	Subtotal
$ 18,132.50	10% Contingency
$ 39,891.50	20% Contractor O&P
$ 23,935	10% Engineering Fees
$ 263,284	**Total**

Matawan-Aberdeen Regional School District - NJBPU
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Matawan Avenue Middle School

ECM-3: Replace Window A/C Units w/ Ductless Splits

ECM Description Summary
Replace window A/C units with ductless split systems. These systesm have higher energy efficiency and are permananet thereby reducing the winter infiltration that occurs with window A/C units

ASSUMPTIONS			Comments
Electric Cost	$0.127	/ kWh	
Average run hours per Week	50	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	72	deg F	Setpoint.
Avg BTU/Hr Rating of existing equipment	24000	Btu / Hr	
Number of Units	7		
BTU/Hr Rating of existing equipment	168,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	9.8		Units average than 3 years old, EERs were 9.8 when new
Existing Annual Electric Usage	4,833	kWh	

Item	Value	Units	Comments
Proposed EER	14.4		New ductless mini-splits (per manufacturer)
Proposed Annual Electric Usage	3,289	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	1,544	kWh
Annual Cost Savings	$196	

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	2	89%	2
92.5	31	9	79%	7
87.5	131	39	68%	27
82.5	500	149	58%	86
77.5	620	185	47%	87
72.5	664	198	37%	73
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	581	49%	282

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Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-3: Replace Window A/C Units w/ Ductless Splits - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
24,000 MBH Split System	7	EA	$ 2,500	$ 2,500		$ 19,250	$ 23,625	$ -	$ 42,875	RS Means 2012
Piping	7	EA	$ 500	$ 500		$ 3,850	$ 4,725	$ -	$ 8,575	RS Means 2012
Miscellaneous Electric	7	EA	$ 1,500	$ 1,500		$ 11,550	$ 14,175	$ -	$ 25,725	RS Means 2012
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 77,175	Subtotal
$ 7,718	10% Contingency
$ 16,979	20% Contractor O&P
$ 10,187	10% Engineering
$ 112,100	**Total**

Matawan-Aberdeen Regional School District - NJBPU
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ECM-5: Install Variable Speed Drives - HW Pump

Variable Inputs

Blended Electric Rate	$0.13
Heating System "On" Point	55
VFD Efficiency	98.5%

ECM Description Summary

PUMP SCHEDULE							
Pump ID	Qty	HP	Total HP	Existing Motor Motor Eff.	New Motor Motor Eff.	Exist. Motor kW Note 1	New Motor kW Note 2
	1	7.5	7.5 0.0	85.5%	91.7%	5.24	4.88
					Total:	5.24	4.88

SAVINGS ANALYSIS								
OAT - DB Avg Temp F	Annual Hours in Bin	Heating Hours Bin	Pump Load %	Existing Pump kWh	Proposed Pump kW	Speed efficiency %	Proposed Pump kWh	Proposed Savings kWh
(A) See Note 3	(B) See Note 3	(C) =IF(A>TP,0,C)	(D) =0.5+0.5*(50-A)/(50-10)) See Note 4	(E) =D*AA	(F) =BB*E^2.5/CC See Note 5	(G)	(H) =C*F/G	(I) =E-H
102.5	0	0	0%	0	0.0	0.0%	0	0
97.5	6	0	0%	0	0.0	0.0%	0	0
92.5	31	0	0%	0	0.0	0.0%	0	0
87.5	131	0	0%	0	0.0	0.0%	0	0
82.5	500	0	0%	0	0.0	0.0%	0	0
77.5	620	0	0%	0	0.0	0.0%	0	0
72.5	664	0	0%	0	0.0	0.0%	0	0
67.5	854	0	0%	0	0.0	0.0%	0	0
62.5	927	0	0%	0	0.0	0.0%	0	0
57.5	600	0	0%	0	0.0	0.0%	0	0
52.5	730	730	48%	3,822	0.8	78.9%	713	3,109
47.5	491	491	53%	2,570	1.0	83.9%	579	1,991
42.5	656	656	58%	3,434	1.2	88.2%	924	2,510
37.5	1,023	1,023	63%	5,355	1.5	91.8%	1,705	3,651
32.5	734	734	68%	3,843	1.9	94.9%	1,435	2,407
27.5	334	334	73%	1,749	2.2	97.2%	762	987
22.5	252	252	78%	1,319	2.6	99.0%	667	652
17.5	125	125	83%	654	3.1	100.0%	383	271
12.5	47	47	88%	246	3.5	100.0%	167	79
7.5	34	34	93%	178	4.1	100.0%	139	39
2.5	1	1	98%	5	4.7	99.7%	5	1
-2.5	0	0	0%	0	0.0	0.0%	0	0
-7.5	0	0	0%	0	0.0	0.0%	0	0
	8,760	4,427		23,176			7,478	15,697

Notes:

1) Existing motor power was determined using motor nameplate data. Formula: Motor HP x 0.746 x 0.8 / Exist. Motor Eff.
2) New motor power is the same as existing motor power adjusted for the new efficiency, if a new motor is proposed.
3) Weather data from NOAA for Newark, NJ
4) The pump load is estimated at 100% at X deg. OAT and 50% at X deg. OAT and varies linearly in between.
5) The required VFD motor draw is based on a 2.5 power relationship to load.
6) The pumps are lead lag so the quantity is shown as (1) because one pump operates at a time

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.00

ECM-5: Install Variable Speed Drives - HW Pump - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
7.5 VFD	2	ea	$ 2,021	$ 509		$ 4,447	$ 1,375	$ -	$ 5,822	RS Means 2012
7.5 Motor	2	ea	$ 536	$ 84		$ 1,178	$ 227	$ -	$ 1,405	RS Means 2012
Electrical - misc.	2	ls	$ 200	$ 150		$ 440	$ 405	$ -	$ 845	RS Means 2012
Pipe pressure sensor/transmitter	1	ea	$ 850	$ 500		$ 935	$ 675	$ -	$ 1,610	RS Means 2012
Misc. piping modification	1	ea	$ 200	$ 150		$ 220	$ 203	$ -	$ 423	RS Means 2012
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 10,104	Subtotal
$ 1,010	10% Contingency
$ 2,223	20% Contractor O&P
$ 1,334	10% Engineering Fees
$ 14,671	**Total**

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EQUIPMENT	AREA/EQUIPMENT SERVED	COOLING CAPACITY (MBH)
RTU-12	School	48
	Total Electric DX Cooling:	*48* *MBH*

ECM-6: HVAC Replacement

ECM Description Summary
Replace existing RTU that is past it's useful life.

ASSUMPTIONS			Comments
Electric Cost	$0.127	/ kWh	
Average run hours per Week	50	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	72	deg F	Setpoint.
BTU/Hr Rating of existing DX equipment	48,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	13.0		Unit is past its useful life and needs to be replaced
Existing Annual Electric Usage	1,041	kWh	

Item	Value	Units	Comments
Proposed EER	19.0		New Rooftop (per manufacturer)
Proposed Annual Electric Usage	712	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	329	kWh
Annual Cost Savings	$42	
Total Project Cost	$40,500	
Simple Payback	971	years

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	2	89%	2
92.5	31	9	79%	7
87.5	131	39	68%	27
82.5	500	149	58%	86
77.5	620	185	47%	87
72.5	664	198	37%	73
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	581	49%	282

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ECM-6: HVAC Replacement - Cost

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Existing (1) RTUs demolition	1	EA	$ 100	$ 1,500		$ 110	$ 2,025	$ -	$ 2,135	RS Means 2012
(1) RTU, 4.0 tons with DX cooling and HW heating	1	EA	$ 6,500	$ 3,500		$ 7,150	$ 4,725	$ -	$ 11,875	Vendor Quote
- Reprogram DDC system for (1) RTU	1	EA	$ 75	$ 300		$ 83	$ 405	$ -	$ 488	Engineering Estimate
Electrical - misc.	1	LS	$ 1,000	$ 5,000		$ 1,100	$ 6,750	$ -	$ 7,850	RS Means 2012
						$ -	$ -	$ -	$ -	

$ 22,348	Subtotal
$ 2,235	10% Contingency
$ 4,916	20% Contractor O&P
$ 2,950	10% Engineering
$ 32,400	**Total**

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AIR HANDLER	AREA SERVED	CFM	OA CFM	% OA
HV-1	Gym	10,000	5,000	50%
HV-2	Gym	10,000	5,000	50%
RTU-9	Cafeteria	5,500	550	10%
			10,550	*CFM*

ECM-9: Demand Controlled Ventilation

*Full DDC Control is needed to implement this ECM

ECM Description Summary

It is assumed the original system controls provide the full design ventilation outside air flow. Reducing outside air during occupied time periods will reduce heating and cooling energy used during the occupied period. A limit of 1000 PPM of CO2 is recommended in ASHRAE Standard 62-1982, Ventilation for Acceptable Indoor Air Quality. During unoccupied periods the outside air dampers should be closed.

Electric Cost	$ 0.13	/kWh
Natural Gas Cost	$ 1.16	/therm
Facility Ventilation Heating Load	398,790	BTU/Hour[1,2,3]
Facility Ventilation Cooling Load	5,940	BTU/Hour[1,2,3]
Existing Ventilation Heating Usage	22,068	Therms[2]
Existing Ventilation Cooling Usage	9,246	kWh[3]
Proposed Ventilation Heating Usage	16,551	Therms[7]
Proposed Ventilation Cooling Usage	6,934	kWh[7]
Total heating savings	5,517	**Therms**
Total cooling savings	2,311	**kWh**
Total cost savings	6,707	
Estimated Total Project Cost	$16,000	[8]
Simple Payback	2.4	**years**

Note: costs are used for enrgy savings calulations only. Do not use for procurment

Assumptions

1	10,550	OA AHU airflow based exsiting equipment model numbers
2	35	°F, Assumed average heating Δt (mixed air and supply)
3	10	°F, Assumed average cooling Δt (mixed air and supply)
4	80%	Heating Efficiency - %
5	1.2	Cooling Efficiency - kW/Ton
6	4,427	AHU run time per heating/cooling season bin data
7	25%	Estimated savings for DCV based on observed occupancy
8	$ 16,000	estimated measure cost for installation of sensors and associated controls

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ECM-10: Install Vending Machine Controls

Summary: Vending machines generally operate 24/7 regardless of the actual usage. This meas vending machine controls to reduce the total run time of these units. The result is a r energy usage.

Unit Cost: $0.127 $/kWh blended

Energy Savings Calculations:

Ex. Cold Beverage Vending Machine Electric usage	7,008	kWh[1,4,7]
Ex. Snack Vending Machine Electric usage	3,504	kWh[2,5,7]
Ex. Dual Vending Machine Electric Usage	-	kWh[3,6,7]
Total Vending Machine Electric Usage	10,512	kWh
Proposed Vending Machine Electric usage	4,730	kWh[8]
Vending Machine Controls Usage Savings	**5,782**	**kWh**
Total cost savings	**$ 734**	
Estimated Total Project Cost	**$ 800**	[9]
Simple Payback	**1**	**years**

Assumptions

1	2	Number of cold beverage vending machines
2	2	Number of snack vending machines
3	0	Number of dual snack/beverage vending machines
4	400	Average wattage, typical of cold beverage machines based on prior pro
5	200	Average wattage, typical of snack machines based on prior project exp
6	300	Average wattage, typical of dual snack/beverage machines based on pr
7	8760	Hours per year vending machine plugged in
8	55%	Typical savings for cold vending machines based on historical data for r
9	$200	Estimated installed cost per vending machine

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ECM-11: Install Network Controller

Background Data Average Consumption and Savings Figures	kWh
Average Total Consumption per PC per Year	500-700
Average Energy and Cost Waste per PC per Year	350-450
Average savings transparently available via Surveyor	90

Number of PCs	200
Return on Investment Analysis	
	kWh
Annual Energy Savings	18,000

Notes:

1. Savings are for the installation of a centralized computer management system installed on the client server that will centralize the power management functions that are native to the Windows environment.
2. Energy savings per computer are based on historical information from previous installations encompassing tens of thousands of computers.
3. School did not give exact number of computers. Estimated 200 are desktop computers

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Matawan Avenue Middle School

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-11: Install Network Controller - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Network Controller Software	1	ea	$ 2,900	$ 500		$ 3,190	$ 675	$ -	$ 3,865	Engineering Estimate
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

Cost Estimates are for Energy Calculations Only - Do Not Use for Procurement

$ 3,865	Subtotal
$ 387	10% Contingency
$ 748	18% Contractor O&P
$ -	0% Engineering Fees
$ 5,000	**Total**

Matawan-Aberdeen Regional School District - NJBPU
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ECM-13: Kitchen Hood Control

Motor Operating Savings

Hours of Operation (per day)	4		A
Days/Year	190		B
Weeks/Year	38		C
Motor HP	5		D
Equivalent KW	3.11	KW	E
Cost of Electricity	$0.13	KWh	F
Total Time/Year	760	hrs/year	G
Total KWH/YR	2362	KWh	H

% Rated RPM I	% Run Time J	Time K J * G	Output L I * E ^ 2.5	KWH/YR M L *K	
100%	25%	190	3.108	591	
90%	5%	38	2.389	91	
80%	10%	76	1.779	135	
70%	15%	114	1.274	145	
60%	20%	152	0.867	132	
50%	25%	190	0.549	104	
40%	0%	0	0.315	0	
30%	0%	0	0.153	0	
20%	0%	0	0.056	0	
10%	0%	0	0.010	0	
				1,198	N

Total Savings = H - N 1,164 KWh

Conditioned Make Up Air: Heating

Previous Net Exhaust Volume	0	CFM	
New Net Exhaust Volume	0	CFM	Note 1
Previous net heat load	0	BTU/hr	
new net heat load	0	BTU/hr	
Design Indoor Conditions	68	F	
Average Outdoor Air Temp (during Heating)	37.5	F	
Heating Hours	4,589	hrs/yr	
Total Therms Savings	0	Therms	

% Rated RPM I	% Run Time J	H * J
100%	25%	25.00%
90%	5%	4.50%
80%	10%	8.00%
70%	15%	10.50%
60%	20%	12.00%
50%	25%	12.50%
40%	0%	0.00%
30%	0%	0.00%
20%	0%	0.00%
10%	0%	0.00%
Avg RPM		72.50%

Cost of Fuel = $1.16 / therm

Reduced Electricity Savings =	**1,164**	**kWh**
Reduced Fuel Savings =	**0**	**therms**
Reduced Financial Savings =	**$148**	

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Matawan Avenue Middle School

ECM-13: Kitchen Hood Control - Cost

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Me-Link Kitchen Hood Control System	1	ea	$ 15,000	$ 2,000		$ 16,500	$ 2,700	$ -	$ 19,200	Vendor Quote
5.0 HP VFDs (1-exhaust fan)	1	ea	$ 1,485	$ 490		$ 1,634	$ 662	$ -	$ 2,295	RS Means 2012
5.0 HP Motor	1	ea	$ 525	$ 85		$ 578	$ 115	$ -	$ 692	RS Means 2012
controls	1	ea	$ 100	$ 1,200		$ 110	$ 1,620	$ -	$ 1,730	Engineering Estimate
Electrical - misc.	1	ls	$ 200	$ 500		$ 220	$ 675	$ -	$ 895	RS Means 2012
Remote bulb thermostat	2	ea	$ 500	$ 200		$ 1,100	$ 540	$ -	$ 1,640	RS Means 2012
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 26,452	Subtotal
$ 2,645	10% Contingency
$ 5,819	20% Contractor O&P
$ 3,492	10% Engineering Fees
$ 38,409	**Total**

Matawan-Aberdeen Regional School District - NJBPU
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Matawan Avenue Middle School

ECM-14: Walk-in Cooler & Freezer Controls

ECM Description Summary

For kitchens that contain walk-in coolers and freezers, CoolTrol is a controller that reduces energy consumption by controlling off of dewpoint temperature. Compressor cycling is reduced and the evaporator fans run 25% to 80% less. Door and frame heaters are also installed and controlled by store dew point temperature; this can reduce run time by up to 95% in coolers and 60% in freezers. The evaporator fan motors are also replaced with hi-efficiency fan motors saving 40% to 70% in energy. The proposed system comprises of an anti-sweat door controller, evaporator fan motor replacement and CoolTrol Cooler Control System.

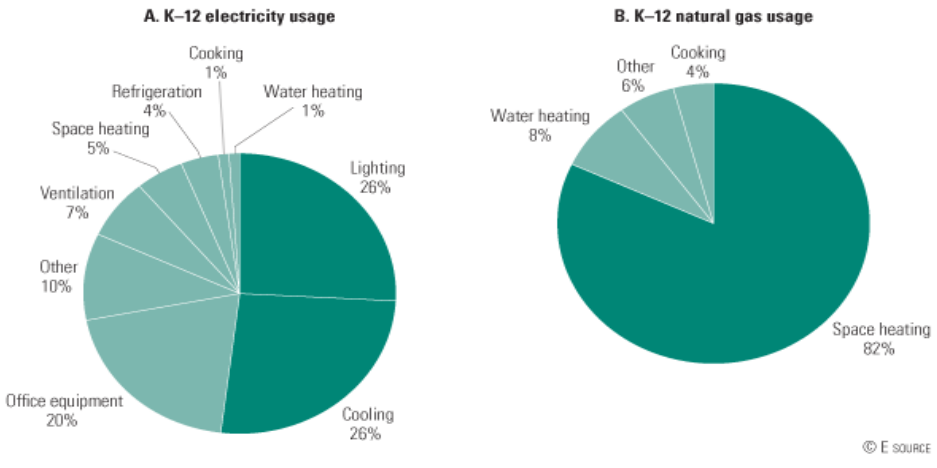
Utility Cost

$0.13 $/kWh Blended

EXISTING CONDITIONS		
Existing Facility Total Electric usage	805,840	kWh
Existing Facility Refrigeration Electric usage	48,350	kWh[1]
Existing Facility Walk-In Electric usage	29,010	kWh[2]
Walk-In Controls System Annual Electric savings	8,703	kWh[3]
SAVINGS		
Walk-In Controls Electric Usage Savings	8,703	**kWh**
Total cost savings	$ 1,104.50	
Estimated Total Project Cost	$ 15,000	[4]
Simple Payback	13.6	**years**

Assumptions

1	6%	of facility total electricity; Source: E source, data from U.S. Energy Information Administration
2	60%	of refrigeration attributable to walk-in based on site observations
3	30%	Electric load reduction typical for walk-in controllers
4		Based on (2) "Cooltrol" walk-in controls systems



Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Matawan Avenue Middle School

New Jersey Pay For Performance Incentive Program

Note: The following calculation is based on the New Jersey Pay For Performance Incentive Program per April, 2012.
Building must have a minimum average electric demand of 100 kW. This minimum is waived for buildings owned by local governements or non-profit organizations.
Values used in this calculation are for measures with a payback of 15 years or less only.

Total Building Area (Square Feet)	89,864
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilites (BPU)

Incentive #1		
Audit is funded by NJ BPU	$0.10	$/sqft

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	$102,268	$49,274
Existing Usage (from utility)	805,840	42,386
Proposed Savings	105,520	10,050
Existing Total MMBtus	6,989	
Proposed Savings MMBtus	1,365	
% Energy Reduction	**19.5%**	
Proposed Annual Savings	$24,913	

	Min (Savings = 15%)		Increase (Savings > 15%)		Max Incentive		Achieved Incentive	
	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm
Incentive #2	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.11	$1.13
Incentive #3	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.11	$1.13

	Incentives $		
	Elec	Gas	Total
Incentive #1	$0	$0	$8,986
Incentive #2	$11,607	$11,324	$22,931
Incentive #3	$11,607	$11,324	$22,931
Total All Incentives	**$23,214**	**$22,647**	**$54,848**

Total Project Cost	$801,493

		Allowable Incentive
% Incentives #1 of Utility Cost*	5.9%	$8,986
% Incentives #2 of Project Cost**	2.9%	$22,931
% Incentives #3 of Project Cost**	2.9%	$22,931
Total Eligible Incentives***	**$54,848**	
Project Cost w/ Incentives	$746,645	

Project Payback (years)	
w/o Incentives	w/ Incentives
32.2	30.0

* Maximum allowable incentive is 50% of annual utility cost if not funded by NJ BPU, and %25 if it is.

** Maximum allowable amount of Incentive #2 is 25% of total project cost.
Maximum allowable amount of Incentive #3 is 25% of total project cost.

*** Maximum allowable amount of Incentive #1 is $50,000 if not funded by NJ BPU, and $25,000 if it is.
Maximum allowable amount of Incentive #2 & #3 is $1 million per gas account and $1 million per electric account; maximum 2 million per project

Energy Audit of Matawan Avenue Middle School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.094** **$/kWh**
$6.88 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
35LED	Room 108	Classrooms w/ OCC	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.63	SW	1800	NONE	1,134	
35LED	Room 107	Classrooms w/ OCC	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.63	SW	1800	NONE	1,134	
35LED	Women's Bathroom	Restroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	1000	NONE	360	
35LED	Men's Bathroom	Restroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	1000	NONE	360	
41	Room 119	Classrooms w/ OCC	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.00	SW	1800	NONE	1,805	
35LED	Room 105	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	Room 101	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
41	Room 115	Classrooms w/ OCC	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.00	SW	1800	NONE	1,805	
41	Room 114	Classrooms w/ OCC	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.00	SW	1800	NONE	1,805	
41	Room 113	Classrooms w/ OCC	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.00	SW	1800	NONE	1,805	
41	Room 112	Classrooms w/ OCC	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.00	SW	1800	NONE	1,805	
41	Faculty Bathroom	Restroom	1	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.06	SW	1000	NONE	59	
13	100 Wing Hallway	Hallways	17	S 32 P F 2 (ELE)	F42LL	60	1.02	SW	3192	NONE	3,256	
4LED	Prep Room 106	Classrooms w/ OCC	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.29	SW	1800	NONE	518	
35LED	Room 104	Classrooms w/ OCC	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	1800	NONE	2,268	
35LED	Room 103	Classrooms w/ OCC	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	1800	NONE	2,268	
35LED	Room 102	Classrooms w/ OCC	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	1800	NONE	2,268	
35LED	Computer Lab 109	Classrooms w/ OCC	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1800	NONE	1,944	
35LED	Room 100	Classrooms w/ OCC	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1800	NONE	1,944	
35LED	Room 406	Classrooms w/ OCC	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	1800	NONE	486	
35LED	Room 502	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	Room 503	Classrooms w/ OCC	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	1800	NONE	1,296	
35LED	Room 504	Classrooms w/ OCC	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	1800	NONE	1,458	
13	Art Hallway	Hallways	13	S 32 P F 2 (ELE)	F42LL	60	0.78	SW	3192	NONE	2,490	
35LED	Room 509 Art Room	Classrooms w/ OCC	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1800	NONE	1,944	
35LED	Room 505	Classrooms w/ OCC	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	1800	NONE	1,944	
13	Room 510 Kiln Mechanical Room	Mechanical Room	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
35LED	Room 511	Classrooms w/ OCC	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.45	SW	1800	NONE	810	
4LED	Room 511	Classrooms w/ OCC	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.07	SW	1800	NONE	130	
35LED	Room 512	Classrooms w/ OCC	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	1800	NONE	972	
35LED	Room 513	Classrooms w/ OCC	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	1800	NONE	972	
35LED	Nurse's Office	Offices	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	2400	C-OCC	1,944	
44	Media Center	Media Center	12	DC 26 W CF 2	CFQ26/2-L	50	0.60	SW	2200	NONE	1,320	
236	Media Center	Media Center	11	R 75 C Q 1	h75/1	75	0.83	SW	2200	NONE	1,815	
13	Media Center	Media Center	36	S 32 P F 2 (ELE)	F42LL	60	2.16	SW	2200	NONE	4,752	
7LED	Media Center	Media Center	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.12	SW	2200	NONE	264	
7LED	Hallway	Hallways	42	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	2.52	SW	3192	NONE	8,044	
13	Main Office	Offices	19	S 32 P F 2 (ELE)	F42LL	60	1.14	SW	2400	C-OCC	2,736	
13	Men's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Room 411-CST	Office w/ OCC	10	S 32 P F 2 (ELE)	F42LL	60	0.60	SW	1500	NONE	900	
13	Room 405-Conference	Conference	9	S 32 P F 2 (ELE)	F42LL	60	0.54	SW	1200	C-OCC	648	
13	Room 406	Classrooms w/ OCC	9	S 32 P F 2 (ELE)	F42LL	60	0.54	SW	1800	NONE	972	
35LED	Room 404	Classrooms w/ OCC	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	1800	NONE	486	
35LED	Room 403	Classrooms w/ OCC	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	1800	NONE	486	
35LED	Room 201	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	Room 200	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	Room 202	Classrooms w/ OCC	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	1800	NONE	2,268	
35LED	Room 203	Classrooms w/ OCC	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	1800	NONE	2,268	
35LED	Room 204	Classrooms w/ OCC	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	1800	NONE	2,268	
35LED	Room 206	Classrooms w/ OCC	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	1800	NONE	648	
13	200 Hallway	Hallways	42	S 32 P F 2 (ELE)	F42LL	60	2.52	SW	3192	NONE	8,044	
35LED	Room 207	Classrooms w/ OCC	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.63	SW	1800	NONE	1,134	
35LED	Room 208	Classrooms w/ OCC	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.63	SW	1800	NONE	1,134	
35LED	Women's Bathroom	Restroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	1000	NONE	360	
35LED	Room 216	Classrooms w/ OCC	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	1800	NONE	648	
35LED	Room 205	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	Room 217	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	Room 218	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
41	Room 215	Classrooms w/ OCC	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.00	SW	1800	NONE	1,805	
41	Room 214	Classrooms w/ OCC	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.00	SW	1800	NONE	1,805	
41	Room 212	Classrooms w/ OCC	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.00	SW	1800	NONE	1,805	
41	Room 213	Classrooms w/ OCC	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.00	SW	1800	NONE	1,805	
13	Storage	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Storage	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Storage	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Storage	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
105	Faculty Bathroom	Restroom	1	W 32 F 1	F41LL	32	0.03	SW	1000	NONE	32	
35LED	Men's Bathroom	Restroom	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	1000	NONE	270	
41	Room 210	Classrooms w/ OCC	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.24	SW	1800	NONE	2,230	
41	Room 211	Classrooms w/ OCC	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.24	SW	1800	NONE	2,230	
13	100 Hallway	Hallways	13	S 32 P F 2 (ELE)	F42LL	60	0.78	SW	3192	NONE	2,490	

Energy Audit of Matawan Avenue Middle School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.094** **$/kWh**
$6.88 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
35LED	Room 118	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	Room 117	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	Room 116	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	110 Hallway	Hallways	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.17	SW	3192	NONE	3,735	
13	Room 111	Classrooms w/ OCC	21	S 32 P F 2 (ELE)	F42LL	60	1.26	SW	1800	NONE	2,268	
13	Room 110	Classrooms w/ OCC	21	S 32 P F 2 (ELE)	F42LL	60	1.26	SW	1800	NONE	2,268	
237	Gymnasium	Gymnasium	36	MV 250	mv250/1	290	10.44	SW	2000	NONE	20,880	
237	Auxilary Gym	Gymnasium	36	MV 250	mv250/1	290	10.44	SW	2000	NONE	20,880	
13	Mechanical Equipment Room	Mechanical Room	9	S 32 P F 2 (ELE)	F42LL	60	0.54	SW	1000	NONE	540	
105	Back Hallway	Hallways	9	W 32 F 1	F41LL	32	0.29	SW	3192	NONE	919	
169LED	Exterior	Outdoor Lighting	2	SP 250 MH ROOF	MH250/1	295	0.59	Breaker	4368	NONE	2,577	
141LED	Exterior	Outdoor Lighting	6	HPS 200	HPS200/1	250	1.50	Breaker	4368	NONE	6,552	
45	Exterior	Outdoor Lighting	1	SP 26 R CF 1	CFQ26/1-L	27	0.03	Breaker	4368	NONE	118	
13	Corridor	Hallways	22	S 32 P F 2 (ELE)	F42LL	60	1.32	SW	3192	NONE	4,213	
7LED	Corridor	Hallways	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.06	SW	3192	NONE	192	
35LED	Room 506-Music	Classrooms w/ OCC	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	1800	NONE	1,458	
13	Instrument Storage	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
35LED	Room 507-Choral	Classrooms w/ OCC	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	1800	NONE	2,592	
35LED	Room 508-Band	Classrooms w/ OCC	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	1800	NONE	2,592	
13	Women's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
41	Room 521-Women's Locker Room	Locker	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.18	SW	2800	NONE	3,304	
13	Room 521-Women's Locker Room	Locker	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	2800	NONE	336	
41	Room 522-Men's Locker Room	Locker	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.18	SW	2800	NONE	3,304	
13	Room 522-Men's Locker Room	Locker	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	2800	NONE	336	
13	Gym Storage	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Room 516-Office	Offices	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	2400	NONE	288	
13	Bathroom	Restroom	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
105	Receiving Area	Hallways	9	W 32 F 1	F41LL	32	0.29	SW	3192	NONE	919	
13	Custodial Office	Offices	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	2400	NONE	144	
220	Custodial Office Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Room 530-Custodial Closet	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Room 527-Kitchen	Cafeteria	17	S 32 P F 2 (ELE)	F42LL	60	1.02	SW	1600	NONE	1,632	
13	Room 529-Storage	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
220	Men's Bathroom	Restroom	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Room 602-VP Office	Offices	6	S 32 P F 2 (ELE)	F42LL	60	0.36	SW	2400	NONE	864	
13	Room 602-Storage	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Room 601-Principal's Office	Offices	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	2400	NONE	576	
71	Room 601-Bathroom	Restroom	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Network Room	Storage Areas	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
13	Corridor	Hallways	33	S 32 P F 2 (ELE)	F42LL	60	1.98	SW	3192	NONE	6,320	
13	Room 500-Storage	Storage Areas	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
13	Room 500-Stage	Auditorium	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1820	NONE	328	
55	Auditorium	Auditorium	30	2T 17 R F 3 (ELE)	F23ILL	47	1.41	SW	1820	NONE	2,566	
35LED	Auditorium	Auditorium	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.45	SW	1820	NONE	819	
13	Hallway	Hallways	6	S 32 P F 2 (ELE)	F42LL	60	0.36	SW	3192	NONE	1,149	
35LED	Lobby	Hallways	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.45	SW	3192	NONE	1,436	
13	Room 514	Offices	8	S 32 P F 2 (ELE)	F42LL	60	0.48	SW	2400	NONE	1,152	
96	Room 514-Bathroom	Restroom	1	W 17 C F 2	F22ILL	33	0.03	SW	1000	NONE	33	
13	Room 528-Office	Office	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	3000	NONE	180	
13	Room 526-Cafeteria	Cafeteria	63	S 32 P F 2 (ELE)	F42LL	60	3.78	SW	1600	NONE	6,048	
13	Room 526-Storage	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Men's Bathroom	Restroom	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
13	Corridor	Hallways	14	S 32 P F 2 (ELE)	F42LL	60	0.84	SW	3192	NONE	2,681	
35LED	Room 310	Classrooms w/ OCC	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.35	SW	1800	NONE	2,430	
35LED	Room 311	Classrooms w/ OCC	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.35	SW	1800	NONE	2,430	
35LED	Room 312	Classrooms w/ OCC	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.35	SW	1800	NONE	2,430	
35LED	Room 308	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	Room 309	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
35LED	Room 307-Prep	Offices	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2400	NONE	1,296	
13	Mechanical Room 313	Mechanical Room	6	S 32 P F 2 (ELE)	F42LL	60	0.36	SW	1000	NONE	360	
35LED	Room 306	Classrooms w/ OCC	11	T 32 R F 3 (ELE)	F43ILL/2	90	0.99	SW	1800	NONE	1,782	
13	Women's Bathroom	Restroom	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
13	Men's Bathroom	Restroom	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
105	Room 305	Classrooms w/ OCC	17	W 32 F 1	F41LL	32	0.54	SW	1800	NONE	979	
13	Room 314-Storage	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Room 315-Guidance	Offices	6	S 32 P F 2 (ELE)	F42LL	60	0.36	SW	2400	NONE	864	
13	Men's Bathroom	Restroom	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
13	Faculty Bathroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
105	Room 304	Classrooms w/ OCC	17	W 32 F 1	F41LL	32	0.54	SW	1800	NONE	979	
105	Room 303	Classrooms w/ OCC	17	W 32 F 1	F41LL	32	0.54	SW	1800	NONE	979	
105	Room 302	Classrooms w/ OCC	17	W 32 F 1	F41LL	32	0.54	SW	1800	NONE	979	

Energy Audit of Matawan Avenue Middle School
CHA Project No.27221
Existing Lighting

Cost of Electricity:	
$0.094	$/kWh
$6.88	$/kW

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
105	Room 301	Classrooms w/ OCC	17	W 32 F 1	F41LL	32	0.54	SW	1800	NONE	979	
105	Room 300	Classrooms w/ OCC	17	W 32 F 1	F41LL	32	0.54	SW	1800	NONE	979	
13	Custodial Closet	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Storage	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Corridor	Hallways	11	S 32 P F 2 (ELE)	F42LL	60	0.66	SW	3192	NONE	2,107	
13	Room 316-Faculty Room	Staff Lounge	9	S 32 P F 2 (ELE)	F42LL	60	0.54	SW	3600	NONE	1,944	
13	Faculty Bathroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Faculty Bathroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Mechanical Room	Mechanical Room	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
13	Room 408	Classrooms w/ OCC	7	S 32 P F 2 (ELE)	F42LL	60	0.42	SW	1800	NONE	756	
	Total		**1,544**				**121.88**				**251,574**	

Energy Audit of Matawan Avenue Middle School
CHA Project No.27221
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
35LED	Room 108	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134	7	T 59 R LED	TLED59	59	0.4	SW	1,800	743	391	0.2	$ 54.78	$ 3,024.00	$350	55.2	48.8
35LED	Room 107	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134	7	T 59 R LED	TLED59	59	0.4	SW	1,800	743	391	0.2	$ 54.78	$ 3,024.00	$350	55.2	48.8
35LED	Women's Bathroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1000	360	4	T 59 R LED	TLED59	59	0.2	SW	1,000	236	124	0.1	$ 21.94	$ 1,728.00	$200	78.7	69.6
35LED	Men's Bathroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1000	360	4	T 59 R LED	TLED59	59	0.2	SW	1,000	236	124	0.1	$ 21.94	$ 1,728.00	$200	78.7	69.6
41	Room 119	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1,800	1,805	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	Room 105	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	Room 101	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
41	Room 115	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1,800	1,805	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 114	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1,800	1,805	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 113	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1,800	1,805	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 112	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1,800	1,805	-	0.0	$ -	$ -	$0		#DIV/0!
41	Faculty Bathroom	1	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	1000	59	1	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	1,000	59	-	0.0	$ -	$ -	$0		#DIV/0!
13	100 Wing Hallway	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,256	17	T 28 R F 2	F42SSILL	48	0.8	SW	3,192	2,605	651	0.2	$ 78.30	$ 1,950.75	$170	24.9	22.7
4LED	Prep Room 106	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	1800	518	4	2T XX R LED	2TLED	46	0.2	SW	1,800	331	187	0.1	$ 26.26	$ 1,728.00	$200	65.8	58.2
35LED	Room 104	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	SW	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$700	55.2	48.8
35LED	Room 103	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	SW	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$700	55.2	48.8
35LED	Room 102	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	SW	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$700	55.2	48.8
35LED	Computer Lab 109	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944	12	T 59 R LED	TLED59	59	0.7	SW	1,800	1,274	670	0.4	$ 93.92	$ 5,184.00	$600	55.2	48.8
35LED	Room 100	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944	12	T 59 R LED	TLED59	59	0.7	SW	1,800	1,274	670	0.4	$ 93.92	$ 5,184.00	$600	55.2	48.8
35LED	Room 406	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1800	486	3	T 59 R LED	TLED59	59	0.2	SW	1,800	319	167	0.1	$ 23.48	$ 1,296.00	$150	55.2	48.8
35LED	Room 502	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	Room 503	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	1800	1,296	8	T 59 R LED	TLED59	59	0.5	SW	1,800	850	446	0.2	$ 62.61	$ 3,456.00	$400	55.2	48.8
35LED	Room 504	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	1800	1,458	9	T 59 R LED	TLED59	59	0.5	SW	1,800	956	502	0.3	$ 70.44	$ 3,888.00	$450	55.2	48.8
13	Art Hallway	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,490	13	T 28 R F 2	F42SSILL	48	0.6	SW	3,192	1,992	498	0.2	$ 59.88	$ 1,491.75	$130	24.9	22.7
35LED	Room 509 Art Room	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944	12	T 59 R LED	TLED59	59	0.7	SW	1,800	1,274	670	0.4	$ 93.92	$ 5,184.00	$600	55.2	48.8
35LED	Room 505	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944	12	T 59 R LED	TLED59	59	0.7	SW	1,800	1,274	670	0.4	$ 93.92	$ 5,184.00	$600	55.2	48.8
13	Room 510 Kiln Mechanical Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.37	$ 344.25	$30	54.0	49.3
35LED	Room 511	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1800	810	5	T 59 R LED	TLED59	59	0.3	SW	1,800	531	279	0.2	$ 39.13	$ 2,160.00	$250	55.2	48.8
4LED	Room 511	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	1800	130	1	2T XX R LED	2TLED	46	0.0	SW	1,800	83	47	0.0	$ 6.56	$ 432.00	$50	65.8	58.2
35LED	Room 512	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1800	972	6	T 59 R LED	TLED59	59	0.4	SW	1,800	637	335	0.2	$ 46.96	$ 2,592.00	$300	55.2	48.8
35LED	Room 513	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1800	972	6	T 59 R LED	TLED59	59	0.4	SW	1,800	637	335	0.2	$ 46.96	$ 2,592.00	$300	55.2	48.8
35LED	Nurse's Office	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2400	1,944	9	T 59 R LED	TLED59	59	0.5	SW	2,400	1,274	670	0.3	$ 86.24	$ 3,888.00	$450	45.1	39.9
44	Media Center	12	DC 26 W CF 2	CFQ26/2-L	50	0.6	SW	2200	1,320	12	DC 26 W CF 2	CFQ26/2-L	50	0.6	SW	2,200	1,320	-	0.0	$ -	$ -	$0		#DIV/0!
236	Media Center	11	R 75 C Q 1	h75/1	75	0.8	SW	2200	1,815	11	CF 26	CFQ26/1-L	27	0.3	SW	2,200	653	1,162	0.5	$ 153.23	$ 74.25	$0	0.5	0.5
13	Media Center	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2200	4,752	36	T 28 R F 2	F42SSILL	48	1.7	SW	2,200	3,802	950	0.4	$ 125.37	$ 4,131.00	$360	33.0	30.1
7LED	Media Center	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2200	264	2	2T 46 R LED	2TLED	46	0.1	SW	2,200	202	62	0.0	$ 8.13	$ 864.00	$100	106.3	94.0
7LED	Hallway	42	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	2.5	SW	3192	8,044	42	2T 46 R LED	2TLED	46	1.9	SW	3,192	6,167	1,877	0.6	$ 225.69	$ 18,144.00	$2,100	80.4	71.1
13	Main Office	19	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,736	19	T 28 R F 2	F42SSILL	48	0.9	SW	2,400	2,189	547	0.2	$ 70.47	$ 2,180.25	$190	30.9	28.2
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.25	$ 229.50	$20	54.0	49.3
13	Room 411-CST	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	1500	900	10	T 28 R F 2	F42SSILL	48	0.5	SW	1,500	720	180	0.1	$ 26.90	$ 1,147.50	$100	42.7	38.9
13	Room 405-Conference	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1200	648	9	T 28 R F 2	F42SSILL	48	0.4	SW	1,200	518	130	0.1	$ 21.15	$ 1,032.75	$90	48.8	44.6
13	Room 406	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1800	972	9	T 28 R F 2	F42SSILL	48	0.4	SW	1,800	778	194	0.1	$ 27.27	$ 1,032.75	$90	37.9	34.6
35LED	Room 404	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1800	486	3	T 59 R LED	TLED59	59	0.2	SW	1,800	319	167	0.1	$ 23.48	$ 1,296.00	$150	55.2	48.8
35LED	Room 403	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1800	486	3	T 59 R LED	TLED59	59	0.2	SW	1,800	319	167	0.1	$ 23.48	$ 1,296.00	$150	55.2	48.8
35LED	Room 201	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	Room 200	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	Room 202	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	SW	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$700	55.2	48.8
35LED	Room 203	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	SW	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$700	55.2	48.8
35LED	Room 204	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	SW	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$700	55.2	48.8
35LED	Room 206	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1800	648	4	T 59 R LED	TLED59	59	0.2	SW	1,800	425	223	0.1	$ 31.31	$ 1,728.00	$200	55.2	48.8
13	200 Hallway	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	3192	8,044	42	T 28 R F 2	F42SSILL	48	2.0	SW	3,192	6,435	1,609	0.5	$ 193.45	$ 4,819.50	$420	24.9	22.7
35LED	Room 207	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134	7	T 59 R LED	TLED59	59	0.4	SW	1,800	743	391	0.2	$ 54.78	$ 3,024.00	$350	55.2	48.8
35LED	Room 208	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134	7	T 59 R LED	TLED59	59	0.4	SW	1,800	743	391	0.2	$ 54.78	$ 3,024.00	$350	55.2	48.8
35LED	Women's Bathroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1000	360	4	T 59 R LED	TLED59	59	0.2	SW	1,000	236	124	0.1	$ 21.94	$ 1,728.00	$200	78.7	69.6
35LED	Room 216	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1800	648	4	T 59 R LED	TLED59	59	0.2	SW	1,800	425	223	0.1	$ 31.31	$ 1,728.00	$200	55.2	48.8
35LED	Room 205	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	Room 217	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	Room 218	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
41	Room 215	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1,800	1,805	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 214	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1,800	1,805	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 212	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1,800	1,805	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 213	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1,800	1,805	-	0.0	$ -	$ -	$0		#DIV/0!
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.12	$ 114.75	$10	54.0	49.3
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.12	$ 114.75	$10	54.0	49.3
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.12	$ 114.75	$10	54.0	49.3
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.12	$ 114.75	$10	54.0	49.3
105	Faculty Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	SW	1,000	32	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	Men's Bathroom	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1000	270	3	T 59 R LED	TLED59	59	0.2	SW	1,000	177	93	0.1	$ 16.46	$ 1,296.00	$150	78.7	69.6
41	Room 210	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	1800	2,230	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	1,800	2,230	-	0.0	$ -	$ -	$0		#DIV/0!
41	Room 211	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	1800	2,230	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	1,800	2,230	-	0.0	$ -	$ -	$0		#DIV/0!
13	100 Hallway	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,490	13	T 28 R F 2	F42SSILL	48	0.6	SW	3,192	1,992	498	0.2	$ 59.88	$ 1,491.75	$130	24.9	22.7
35LED	Room 118	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	Room 117	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	Room 116	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	110 Hallway	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	3192	3,735	13	T 59 R LED	TLED59	59	0.8	SW	3,192	2,448	1,286	0.4	$ 154.68	$ 5,616.00	$650	36.3	32.1
13	Room 111	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	1800	2,268	21	T 28 R F 2	F42SSILL	48	1.0	SW	1,800	1,814	454	0.3	$ 63.62	$ 2,409.75	$210	37.9	34.6
13	Room 110	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	1800	2,268	21	T 28 R F 2	F42SSILL	48	1.0	SW	1,800	1,814	454	0.3	$ 63.62	$ 2,409.75	$210	37.9	34.6
237	Gymnasium	36	MV 250	mv250/1	290	10.4	SW	2000	20,880	36	MV 250	mv250/1	290	10.4	SW	2,000	20,880	-	0.0	$ -	$ -	$0		#DIV/0!
237	Auxilary Gym	36	MV 250	mv250/1	290	10.4	SW	2000	20,880	36	MV 250	mv250/1	290	10.4	SW	2,000	20,880	-	0.0	$ -	$ -	$0		#DIV/0!
13	Mechanical Equipment Room	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1000	540	9	T 28 R F 2	F42SSILL	48	0.4	SW	1,000	432	108	0.1	$ 19.11	$ 1,032.75	$90	54.0	49.3
105	Back Hallway	9	W 32 F 1	F41LL	32	0.3	SW	3192	919	9	W 32 F 1	F41LL	32	0.3	SW	3,192	919	-	0.0	$ -	$ -	$0		#DIV/0!
169LED	Exterior	2	SP 250 MH ROOF	MH250/1	295	0.6	Breaker	4368	2,577	2	FXLED78	FXLED78/1	78	0.2	Breaker	4,368	681	1,896	0.4	$ 214.75	$ 1,904.85	$350	8.9	7.2
141LED	Exterior	6	HPS 200	HPS200/1	250	1.5	Breaker	4368	6,552	6	FXLED78	FXLED78/1	78	0.5	Breaker	4,368	2,044	4,508	1.0	$ 510.65	$ 5,714.55	$600	11.2	10.0
45	Exterior	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	Breaker	4368	118	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	Breaker	4,368	118	-	0.0	$ -	$ -	$0		#DIV/0!
13	Corridor	22	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	3192	4,213	22	T 28 R F 2	F42SSILL	48	1.1	SW	3,192	3,371	843	0.3	$ 101.33	$ 2,524.50	$220	24.9	22.7
7LED	Corridor	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	3192	192	1	2T 46 R LED	2TLED	46	0.0	SW	3,192	147	45	0.0	$ 5.37	$ 432.00	$50	80.4	71.1
35LED	Room 506-Music	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	1800	1,458	9	T 59 R LED	TLED59	59	0.5	SW	1,800	956	502	0.3	$ 70.44	$ 3,888.00	$450	55.2	48.8
13	Instrument Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.25	$ 229.50	$20	54.0	49.3
35LED	Room 507-Choral	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592	16	T 59 R LED	TLED59	59	0.9	SW	1,800	1,699	893	0.5	$ 125.22	$ 6,912.00	$800	55.2	48.8
35LED	Room 508-Band	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592	16	T 59 R LED	TLED59	59	0.9	SW	1,800	1,699	893	0.5	$ 125.22	$ 6,912.00	$800	55.2	48.8
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.25	$ 229.50	$20	54.0	49.3
41	Room 521-Women's Locker Room	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	2800	3,304	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	2,800	3,304	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 521-Women's Locker Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2800	336	2	T 28 R F 2	F42SSILL	48	0.1	SW	2,800	269	67	0.0	$ 8.32	$ 229.50	$20	27.6	25.2
41	Room 522-Men's Locker Room	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	2800	3,304	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	2,800	3,304	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 522-Men's Locker Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2800	336	2	T 28 R F 2	F42SSILL	48	0.1	SW	2,800	269	67	0.0	$ 8.32	$ 229.50	$20	27.6	25.2
13	Gym Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.25	$ 229.50	$20	54.0	49.3
13	Room 516-Office	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	T 28 R F 2	F42SSILL	48	0.1	SW	2,400	230	58	0.0	$ 7.42	$ 229.50	$20	30.9	28.2
13	Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.37	$ 344.25	$30	54.0	49.3
105	Receiving Area	9	W 32 F 1	F41LL	32	0.3	SW	3192	919	9	W 32 F 1	F41LL	32	0.3	SW	3,192	919	-	0.0	$ -	$ -	$0		#DIV/0!
13	Custodial Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	T 28 R F 2	F42SSILL	48	0.0	SW	2,400	115	29	0.0	$ 3.71	$ 114.75	$10	30.9	28.2
220	Custodial Office Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 530-Custodial Closet	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.25	$ 229.50	$20	54.0	49.3
13	Room 527-Kitchen	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1600	1,632	17	T 28 R F 2	F42SSILL	48	0.8	SW	1,600	1,306	326	0.2	$ 47.65	$ 1,950.75	$170	40.9	37.4
13	Room 529-Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.25	$ 229.50	$20	54.0	49.3
220	Men's Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 602-VP Office	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	T 28 R F 2	F42SSILL	48	0.3	SW	2,400	691	173	0.1	$ 22.25	$ 688.50	$60	30.9	28.2
13	Room 602-Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.12	$ 114.75	$10	54.0	49.3
13	Room 601-Principal's Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	T 28 R F 2	F42SSILL	48	0.2	SW	2,400	461	115	0.0	$ 14.84	$ 459.00	$40	30.9	28.2
71	Room 601-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 5.84	$ 6.75	$0	1.2	1.2
13	Network Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.37	$ 344.25	$30	54.0	49.3
13	Corridor	33	S 32 P F 2 (ELE)	F42LL	60	2.0	SW	3192	6,320	33	T 28 R F 2	F42SSILL	48	1.6	SW	3,192	5,056	1,264	0.4	$ 152.00	$ 3,786.75	$330	24.9	22.7
13	Room 500-Storage	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.37	$ 344.25	$30	54.0	49.3
13	Room 500-Stage	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1820	328	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,820	262	66	0.0	$ 9.16	$ 344.25	$30	37.6	34.3
55	Auditorium	30	2T 17 R F 3 (ELE)	F23ILL	47	1.4	SW	1820	2,566	30	2T 17 R F 3 (ELE)	F23ILL	47	1.4	SW	1,820	2,566	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	Auditorium	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1820	819	5	T 59 R LED	TLED59	59	0.3	SW	1,820	537	282	0.2	$ 39.42	$ 2,160.00	$250	54.8	48.4
13	Hallway	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	3192	1,149	6	T 28 R F 2	F42SSILL	48	0.3	SW	3,192	919	230	0.1	$ 27.64	$ 688.50	$60	24.9	22.7
35LED	Lobby	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3192	1,436	5	T 59 R LED	TLED59	59	0.3	SW	3,192	942	495	0.2	$ 59.49	$ 2,160.00	$250	36.3	32.1
13	Room 514	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	T 28 R F 2	F42SSILL	48	0.4	SW	2,400	922	230	0.1	$ 29.67	$ 918.00	$80	30.9	28.2
96	Room 514-Bathroom	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33	1	W 17 C F 2	F22ILL	33	0.0	SW	1,000	33	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 528-Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3000	180	1	T 28 R F 2	F42SSILL	48	0.0	SW	3,000	144	36	0.0	$ 4.39	$ 114.75	$10	26.1	23.9
13	Room 526-Cafeteria	63	S 32 P F 2 (ELE)	F42LL	60	3.8	SW	1600	6,048	63	T 28 R F 2	F42SSILL	48	3.0	SW	1,600	4,838	1,210	0.8	$ 176.59	$ 7,229.25	$630	40.9	37.4
13	Room 526-Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.25	$ 229.50	$20	54.0	49.3

Energy Audit of Matawan Avenue Middle School
CHA Project No.27221
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Men's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.37	$ 344.25	$30	54.0	49.3
13	Corridor	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,681	14	T 28 R F 2	F42SSILL	48	0.7	SW	3,192	2,145	536	0.2	$ 64.48	$ 1,606.50	$140	24.9	22.7
35LED	Room 310	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,430	15	T 59 R LED	TLED59	59	0.9	SW	1,800	1,593	837	0.5	$ 117.40	$ 6,480.00	$750	55.2	48.8
35LED	Room 311	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,430	15	T 59 R LED	TLED59	59	0.9	SW	1,800	1,593	837	0.5	$ 117.40	$ 6,480.00	$750	55.2	48.8
35LED	Room 312	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,430	15	T 59 R LED	TLED59	59	0.9	SW	1,800	1,593	837	0.5	$ 117.40	$ 6,480.00	$750	55.2	48.8
35LED	Room 308	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	Room 309	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
35LED	Room 307-Prep	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2400	1,296	6	T 59 R LED	TLED59	59	0.4	SW	2,400	850	446	0.2	$ 57.49	$ 2,592.00	$300	45.1	39.9
13	Mechanical Room 313	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1000	360	6	T 28 R F 2	F42SSILL	48	0.3	SW	1,000	288	72	0.1	$ 12.74	$ 688.50	$60	54.0	49.3
35LED	Room 306	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	SW	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$550	55.2	48.8
13	Women's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.37	$ 344.25	$30	54.0	49.3
13	Men's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.37	$ 344.25	$30	54.0	49.3
105	Room 305	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	SW	1,800	979	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 314-Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.25	$ 229.50	$20	54.0	49.3
13	Room 315-Guidance	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	T 28 R F 2	F42SSILL	48	0.3	SW	2,400	691	173	0.1	$ 22.25	$ 688.50	$60	30.9	28.2
13	Men's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.37	$ 344.25	$30	54.0	49.3
13	Faculty Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.12	$ 114.75	$10	54.0	49.3
105	Room 304	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	SW	1,800	979	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 303	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	SW	1,800	979	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 302	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	SW	1,800	979	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 301	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	SW	1,800	979	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 300	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	SW	1,800	979	-	0.0	$ -	$ -	$0		#DIV/0!
13	Custodial Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.12	$ 114.75	$10	54.0	49.3
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.12	$ 114.75	$10	54.0	49.3
13	Corridor	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	3192	2,107	11	T 28 R F 2	F42SSILL	48	0.5	SW	3,192	1,685	421	0.1	$ 50.67	$ 1,262.25	$110	24.9	22.7
13	Room 316-Faculty Room	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	3600	1,944	9	T 28 R F 2	F42SSILL	48	0.4	SW	3,600	1,555	389	0.1	$ 45.61	$ 1,032.75	$90	22.6	20.7
13	Faculty Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.12	$ 114.75	$10	54.0	49.3
13	Faculty Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.12	$ 114.75	$10	54.0	49.3
13	Mechanical Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.37	$ 344.25	$30	54.0	49.3
13	Room 408	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1800	756	7	T 28 R F 2	F42SSILL	48	0.3	SW	1,800	605	151	0.1	$ 21.21	$ 803.25	$70	37.9	34.6
	Total	1,544				121.9			251,574	1,544			8,290	97.5			199,584	51,990	24.4	$6,918	$303,830	$33,600		
																	Demand Savings			24.4	$2,011			
																	kWh Savings			51,990	$4,906			
																	Total savings				$6,918		43.9	39.1

Energy Audit of Matawan Avenue Middle School

CHA Project No.27221

ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
35LED	Room 108	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134.0	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	NONE	1800	1,134.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 107	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134.0	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	NONE	1800	1,134.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Women's Bathroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1000	360.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	NONE	1000	360.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Men's Bathroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1000	360.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	NONE	1000	360.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 119	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805.4	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1800	1,805.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 105	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 101	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 115	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805.4	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1800	1,805.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 114	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805.4	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1800	1,805.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 113	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805.4	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1800	1,805.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 112	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805.4	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1800	1,805.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Faculty Bathroom	1	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	1000	59.0	1	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	NONE	1000	59.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	100 Wing Hallway	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,255.8	17	S 32 P F 2 (ELE)	F42LL	60	1.0	NONE	3192	3,255.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
4LED	Prep Room 106	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	1800	518.4	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	NONE	1800	518.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 104	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268.0	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	NONE	1800	2,268.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 103	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268.0	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	NONE	1800	2,268.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 102	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268.0	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	NONE	1800	2,268.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Computer Lab 109	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944.0	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 100	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944.0	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 406	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1800	486.0	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	NONE	1800	486.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 502	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 503	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	1800	1,296.0	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	NONE	1800	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 504	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	1800	1,458.0	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	NONE	1800	1,458.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Art Hallway	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,489.8	13	S 32 P F 2 (ELE)	F42LL	60	0.8	NONE	3192	2,489.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 509 Art Room	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944.0	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 505	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944.0	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	NONE	1800	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 510 Kiln Mechanical Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 511	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1800	810.0	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	NONE	1800	810.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
4LED	Room 511	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	1800	129.6	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	NONE	1800	129.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 512	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1800	972.0	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	NONE	1800	972.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 513	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1800	972.0	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	NONE	1800	972.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Nurse's Office	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2400	1,944.0	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	C-OCC	1200	972.0	972.0	0.0	$91.73	$270.00	$35.00	2.9	2.6
44	Media Center	12	DC 26 W CF 2	CFQ26/2-L	50	0.6	SW	2200	1,320.0	12	DC 26 W CF 2	CFQ26/2-L	50	0.6	NONE	2200	1,320.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
236	Media Center	11	R 75 C Q 1	h75/1	75	0.8	SW	2200	1,815.0	11	R 75 C Q 1	h75/1	75	0.8	NONE	2200	1,815.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Media Center	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2200	4,752.0	36	S 32 P F 2 (ELE)	F42LL	60	2.2	NONE	2200	4,752.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
7LED	Media Center	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2200	264.0	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	NONE	2200	264.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
7LED	Hallway	42	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	2.5	SW	3192	8,043.8	42	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	2.5	NONE	3192	8,043.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Main Office	19	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,736.0	19	S 32 P F 2 (ELE)	F42LL	60	1.1	C-OCC	1200	1,368.0	1,368.0	0.0	$129.10	$270.00	$35.00	2.1	1.8
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 411-CST	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	1500	900.0	10	S 32 P F 2 (ELE)	F42LL	60	0.6	NONE	1500	900.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 405-Conference	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1200	648.0	9	S 32 P F 2 (ELE)	F42LL	60	0.5	C-OCC	1000	540.0	108.0	0.0	$10.19	$270.00	$35.00	26.5	23.1
13	Room 406	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1800	972.0	9	S 32 P F 2 (ELE)	F42LL	60	0.5	NONE	1800	972.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 404	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1800	486.0	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	NONE	1800	486.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 403	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1800	486.0	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	NONE	1800	486.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 201	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 200	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 202	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268.0	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	NONE	1800	2,268.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 203	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268.0	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	NONE	1800	2,268.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 204	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268.0	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	NONE	1800	2,268.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 206	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1800	648.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	NONE	1800	648.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	200 Hallway	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	3192	8,043.8	42	S 32 P F 2 (ELE)	F42LL	60	2.5	NONE	3192	8,043.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 207	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134.0	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	NONE	1800	1,134.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 208	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134.0	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	NONE	1800	1,134.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Women's Bathroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1000	360.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	NONE	1000	360.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 216	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1800	648.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	NONE	1800	648.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 205	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 217	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 218	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 215	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805.4	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1800	1,805.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 214	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805.4	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1800	1,805.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 212	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805.4	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1800	1,805.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 213	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805.4	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1800	1,805.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Faculty Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32.0	1	W 32 F 1	F41LL	32	0.0	NONE	1000	32.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Men's Bathroom	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1000	270.0	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	NONE	1000	270.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 210	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	1800	2,230.2	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	NONE	1800	2,230.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 211	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	1800	2,230.2	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	NONE	1800	2,230.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	100 Hallway	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,489.8	13	S 32 P F 2 (ELE)	F42LL	60	0.8	NONE	3192	2,489.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 118	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 117	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 116	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	110 Hallway	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	3192	3,734.6	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	NONE	3192	3,734.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 111	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	1800	2,268.0	21	S 32 P F 2 (ELE)	F42LL	60	1.3	NONE	1800	2,268.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 110	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	1800	2,268.0	21	S 32 P F 2 (ELE)	F42LL	60	1.3	NONE	1800	2,268.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
237	Gymnasium	36	MV 250	mv250/1	290	10.4	SW	2000	20,880.0	36	MV 250	mv250/1	290	10.4	NONE	2000	20,880.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
237	Auxilary Gym	36	MV 250	mv250/1	290	10.4	SW	2000	20,880.0	36	MV 250	mv250/1	290	10.4	NONE	2000	20,880.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Mechanical Equipment Room	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1000	540.0	9	S 32 P F 2 (ELE)	F42LL	60	0.5	NONE	1000	540.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Back Hallway	9	W 32 F 1	F41LL	32	0.3	SW	3192	919.3	9	W 32 F 1	F41LL	32	0.3	NONE	3192	919.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
169LED	Exterior	2	SP 250 MH ROOF	MH250/1	295	0.6	Breaker	4368	2,577.1	2	SP 250 MH ROOF	MH250/1	295	0.6	NONE	4368	2,577.1	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
141LED	Exterior	6	HPS 200	HPS200/1	250	1.5	Breaker	4368	6,552.0	6	HPS 200	HPS200/1	250	1.5	NONE	4368	6,552.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Exterior	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	Breaker	4368	117.9	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	NONE	4368	117.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Corridor	22	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	3192	4,213.4	22	S 32 P F 2 (ELE)	F42LL	60	1.3	NONE	3192	4,213.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
7LED	Corridor	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	3192	191.5	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	NONE	3192	191.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 506-Music	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	1800	1,458.0	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	NONE	1800	1,458.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Instrument Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 507-Choral	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592.0	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	NONE	1800	2,592.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 508-Band	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592.0	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	NONE	1800	2,592.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 521-Women's Locker Room	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	2800	3,304.0	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	NONE	2800	3,304.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 521-Women's Locker Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2800	336.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	2800	336.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Room 522-Men's Locker Room	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	2800	3,304.0	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	NONE	2800	3,304.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 522-Men's Locker Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2800	336.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	2800	336.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Gym Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 516-Office	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	2400	288.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Receiving Area	9	W 32 F 1	F41LL	32	0.3	SW	3192	919.3	9	W 32 F 1	F41LL	32	0.3	NONE	3192	919.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Custodial Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	144.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	2400	144.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Custodial Office Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 530-Custodial Closet	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 527-Kitchen	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1600	1,632.0	17	S 32 P F 2 (ELE)	F42LL	60	1.0	NONE	1600	1,632.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 529-Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Men's Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 602-VP Office	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2400	864.0	6	S 32 P F 2 (ELE)	F42LL	60	0.4	NONE	2400	864.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 602-Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 601-Principal's Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	2400	576.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Room 601-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Network Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Corridor	33	S 32 P F 2 (ELE)	F42LL	60	2.0	SW	3192	6,320.2	33	S 32 P F 2 (ELE)	F42LL	60	2.0	NONE	3192	6,320.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 500-Storage	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 500-Stage	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1820	327.6	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1820	327.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
55	Auditorium	30	2T 17 R F 3 (ELE)	F23ILL	47	1.4	SW	1820	2,566.2	30	2T 17 R F 3 (ELE)	F23ILL	47	1.4	NONE	1820	2,566.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Auditorium	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1820	819.0	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	NONE	1820	819.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Hallway	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	3192	1,149.1	6	S 32 P F 2 (ELE)	F42LL	60	0.4	NONE	3192	1,149.1	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Lobby	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3192	1,436.4	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	NONE	3192	1,436.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 514	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152.0	8	S 32 P F 2 (ELE)	F42LL	60	0.5	NONE	2400	1,152.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
96	Room 514-Bathroom	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33.0	1	W 17 C F 2	F22ILL	33	0.0	NONE	1000	33.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 528-Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3000	180.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	3000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 526-Cafeteria	63	S 32 P F 2 (ELE)	F42LL	60	3.8	SW	1600	6,048.0	63	S 32 P F 2 (ELE)	F42LL	60	3.8	NONE	1600	6,048.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 526-Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!

Energy Audit of Matawan Avenue Middle School

CHA Project No.27221

ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS							RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	($/kWh) * (kW Saved)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Men's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Corridor	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,681.3	14	S 32 P F 2 (ELE)	F42LL	60	0.8	NONE	3192	2,681.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 310	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,430.0	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	NONE	1800	2,430.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 311	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,430.0	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	NONE	1800	2,430.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 312	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,430.0	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	NONE	1800	2,430.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 308	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 309	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 307-Prep	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2400	1,296.0	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	NONE	2400	1,296.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Mechanical Room 313	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1000	360.0	6	S 32 P F 2 (ELE)	F42LL	60	0.4	NONE	1000	360.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 306	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782.0	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	NONE	1800	1,782.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 305	17	W 32 F 1	F41LL	32	0.5	SW	1800	979.2	17	W 32 F 1	F41LL	32	0.5	NONE	1800	979.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 314-Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 315-Guidance	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2400	864.0	6	S 32 P F 2 (ELE)	F42LL	60	0.4	NONE	2400	864.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Faculty Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 304	17	W 32 F 1	F41LL	32	0.5	SW	1800	979.2	17	W 32 F 1	F41LL	32	0.5	NONE	1800	979.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 303	17	W 32 F 1	F41LL	32	0.5	SW	1800	979.2	17	W 32 F 1	F41LL	32	0.5	NONE	1800	979.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 302	17	W 32 F 1	F41LL	32	0.5	SW	1800	979.2	17	W 32 F 1	F41LL	32	0.5	NONE	1800	979.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 301	17	W 32 F 1	F41LL	32	0.5	SW	1800	979.2	17	W 32 F 1	F41LL	32	0.5	NONE	1800	979.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 300	17	W 32 F 1	F41LL	32	0.5	SW	1800	979.2	17	W 32 F 1	F41LL	32	0.5	NONE	1800	979.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Custodial Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Corridor	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	3192	2,106.7	11	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	3192	2,106.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 316-Faculty Room	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	3600	1,944.0	9	S 32 P F 2 (ELE)	F42LL	60	0.5	NONE	3600	1,944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Faculty Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Faculty Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Mechanical Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 408	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1800	756.0	7	S 32 P F 2 (ELE)	F42LL	60	0.4	NONE	1800	756.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
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	Total	**1,544**				**121.9**			**251574.0**	**1544.0**				**121.9**				**249126.0**	**2448.0**	**0.0**	**231.0**	**810.0**	**105.0**		
																		Demand Savings			**0.0**	**$0**			
																		kWh Savings			**2,448**	**$231**			
																		Total Savings				**$231**		**3.5**	**3.1**

Energy Audit of Matawan Avenue Middle School
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	**No. of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**Exist Control**	**Annual Hours**	**Annual kWh**	**Number of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**Retrofit Control**	**Annual Hours**	**Annual kWh**	**Annual kWh Saved**	**Annual kW Saved**	**Annual $ Saved**	**Retrofit Cost**	**NJ Smart Start Lighting Incentive**	**Simple Payback With Out Incentive**	**Simple Payback**
Field Code	**Unique description of the location - Room number/Room name: Floor number (if applicable)**	**No. of fixtures before the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Fixt No.)**	**Pre-inst. control device**	**Estimated daily hours for the usage group**	**(kW/space) * (Annual Hours)**	**No. of fixtures after the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Number of Fixtures)**	**Retrofit control device**	**Estimated annual hours for the usage group**	**(kW/space) * (Annual Hours)**	**(Original Annual kWh) - (Retrofit Annual kWh)**	**(Original Annual kW) - (Retrofit Annual kW)**	**(kWh Saved) * ($/kWh)**	**Cost for renovations to lighting system**	**Prescriptive Lighting Measures**	**Length of time for renovations cost to be recovered**	**Length of time for renovations cost to be recovered**
35LED	Room 108	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134	7	T 59 R LED	TLED59	59	0.4	NONE	1,800	743	391	0.2	$ 54.78	$ 3,024.00	$ 350	55.2	48.8
35LED	Room 107	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134	7	T 59 R LED	TLED59	59	0.4	NONE	1,800	743	391	0.2	$ 54.78	$ 3,024.00	$ 350	55.2	48.8
35LED	Women's Bathroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1000	360	4	T 59 R LED	TLED59	59	0.2	NONE	1,000	236	124	0.1	$ 21.94	$ 1,728.00	$ 200	78.7	69.6
35LED	Men's Bathroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1000	360	4	T 59 R LED	TLED59	59	0.2	NONE	1,000	236	124	0.1	$ 21.94	$ 1,728.00	$ 200	78.7	69.6
41	Room 119	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1,800	1,805	-	0.0	$ -	$ -	$ -		
35LED	Room 105	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	Room 101	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
41	Room 115	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1,800	1,805	-	0.0	$ -	$ -	$ -		
41	Room 114	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1,800	1,805	-	0.0	$ -	$ -	$ -		
41	Room 113	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1,800	1,805	-	0.0	$ -	$ -	$ -		
41	Room 112	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1,800	1,805	-	0.0	$ -	$ -	$ -		
41	Faculty Bathroom	1	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	SW	1000	59	1	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.1	NONE	1,000	59	-	0.0	$ -	$ -	$ -		
13	100 Wing Hallway	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	3192	3,256	17	T 28 R F 2	F42SSILL	48	0.8	NONE	3,192	2,605	651	0.2	$ 78.30	$ 1,950.75	$ 170	24.9	22.7
4LED	Prep Room 106	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	1800	518	4	2T XX R LED	2TLED	46	0.2	NONE	1,800	331	187	0.1	$ 26.26	$ 1,728.00	$ 200	65.8	58.2
35LED	Room 104	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	NONE	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$ 700	55.2	48.8
35LED	Room 103	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	NONE	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$ 700	55.2	48.8
35LED	Room 102	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	NONE	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$ 700	55.2	48.8
35LED	Computer Lab 109	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944	12	T 59 R LED	TLED59	59	0.7	NONE	1,800	1,274	670	0.4	$ 93.92	$ 5,184.00	$ 600	55.2	48.8
35LED	Room 100	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944	12	T 59 R LED	TLED59	59	0.7	NONE	1,800	1,274	670	0.4	$ 93.92	$ 5,184.00	$ 600	55.2	48.8
35LED	Room 406	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1800	486	3	T 59 R LED	TLED59	59	0.2	NONE	1,800	319	167	0.1	$ 23.48	$ 1,296.00	$ 150	55.2	48.8
35LED	Room 502	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	Room 503	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	1800	1,296	8	T 59 R LED	TLED59	59	0.5	NONE	1,800	850	446	0.2	$ 62.61	$ 3,456.00	$ 400	55.2	48.8
35LED	Room 504	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	1800	1,458	9	T 59 R LED	TLED59	59	0.5	NONE	1,800	956	502	0.3	$ 70.44	$ 3,888.00	$ 450	55.2	48.8
13	Art Hallway	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,490	13	T 28 R F 2	F42SSILL	48	0.6	NONE	3,192	1,992	498	0.2	$ 59.88	$ 1,491.75	$ 130	24.9	22.7
35LED	Room 509 Art Room	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944	12	T 59 R LED	TLED59	59	0.7	NONE	1,800	1,274	670	0.4	$ 93.92	$ 5,184.00	$ 600	55.2	48.8
35LED	Room 505	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	1800	1,944	12	T 59 R LED	TLED59	59	0.7	NONE	1,800	1,274	670	0.4	$ 93.92	$ 5,184.00	$ 600	55.2	48.8
13	Room 510 Kiln Mechanical Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.37	$ 344.25	$ 30	54.0	49.3
35LED	Room 511	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1800	810	5	T 59 R LED	TLED59	59	0.3	NONE	1,800	531	279	0.2	$ 39.13	$ 2,160.00	$ 250	55.2	48.8
4LED	Room 511	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	1800	130	1	2T XX R LED	2TLED	46	0.0	NONE	1,800	83	47	0.0	$ 6.56	$ 432.00	$ 50	65.8	58.2
35LED	Room 512	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1800	972	6	T 59 R LED	TLED59	59	0.4	NONE	1,800	637	335	0.2	$ 46.96	$ 2,592.00	$ 300	55.2	48.8
35LED	Room 513	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1800	972	6	T 59 R LED	TLED59	59	0.4	NONE	1,800	637	335	0.2	$ 46.96	$ 2,592.00	$ 300	55.2	48.8
35LED	Nurse's Office	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2400	1,944	9	T 59 R LED	TLED59	59	0.5	C-OCC	1,200	637	1,307	0.3	$ 146.37	$ 4,158.00	$ 485	28.4	25.1
44	Media Center	12	DC 26 W CF 2	CFQ26/2-L	50	0.6	SW	2200	1,320	12	DC 26 W CF 2	CFQ26/2-L	50	0.6	NONE	2,200	1,320	-	0.0	$ -	$ -	$ -		
236	Media Center	11	R 75 C Q 1	h75/1	75	0.8	SW	2200	1,815	11	CF 26	CFQ26/1-L	27	0.3	NONE	2,200	653	1,162	0.5	$ 153.23	$ 74.25	$ -	0.5	0.5
13	Media Center	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2200	4,752	36	T 28 R F 2	F42SSILL	48	1.7	NONE	2,200	3,802	950	0.4	$ 125.37	$ 4,131.00	$ 360	33.0	30.1
7LED	Media Center	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2200	264	2	2T 46 R LED	2TLED	46	0.1	NONE	2,200	202	62	0.0	$ 8.13	$ 864.00	$ 100	106.3	94.0
7LED	Hallway	42	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	2.5	SW	3192	8,044	42	2T 46 R LED	2TLED	46	1.9	NONE	3,192	6,167	1,877	0.6	$ 225.69	$ 18,144.00	$ 2,100	80.4	71.1
13	Main Office	19	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	2400	2,736	19	T 28 R F 2	F42SSILL	48	0.9	C-OCC	1,200	1,094	1,642	0.2	$ 173.75	$ 2,450.25	$ 225	14.1	12.8
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.25	$ 229.50	$ 20	54.0	49.3
13	Room 411-CST	10	S 32 P F 2 (ELE)	F42LL	60	0.6	SW	1500	900	10	T 28 R F 2	F42SSILL	48	0.5	NONE	1,500	720	180	0.1	$ 26.90	$ 1,147.50	$ 100	42.7	38.9
13	Room 405-Conference	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1200	648	9	T 28 R F 2	F42SSILL	48	0.4	C-OCC	1,000	432	216	0.1	$ 29.30	$ 1,302.75	$ 125	44.5	40.2
13	Room 406	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1800	972	9	T 28 R F 2	F42SSILL	48	0.4	NONE	1,800	778	194	0.1	$ 27.27	$ 1,032.75	$ 90	37.9	34.6
35LED	Room 404	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1800	486	3	T 59 R LED	TLED59	59	0.2	NONE	1,800	319	167	0.1	$ 23.48	$ 1,296.00	$ 150	55.2	48.8
35LED	Room 403	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1800	486	3	T 59 R LED	TLED59	59	0.2	NONE	1,800	319	167	0.1	$ 23.48	$ 1,296.00	$ 150	55.2	48.8
35LED	Room 201	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	Room 200	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	Room 202	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	NONE	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$ 700	55.2	48.8
35LED	Room 203	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	NONE	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$ 700	55.2	48.8
35LED	Room 204	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	1800	2,268	14	T 59 R LED	TLED59	59	0.8	NONE	1,800	1,487	781	0.4	$ 109.57	$ 6,048.00	$ 700	55.2	48.8
35LED	Room 206	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1800	648	4	T 59 R LED	TLED59	59	0.2	NONE	1,800	425	223	0.1	$ 31.31	$ 1,728.00	$ 200	55.2	48.8
13	200 Hallway	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	3192	8,044	42	T 28 R F 2	F42SSILL	48	2.0	NONE	3,192	6,435	1,609	0.5	$ 193.45	$ 4,819.50	$ 420	24.9	22.7
35LED	Room 207	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134	7	T 59 R LED	TLED59	59	0.4	NONE	1,800	743	391	0.2	$ 54.78	$ 3,024.00	$ 350	55.2	48.8
35LED	Room 208	7	T 32 R F 3 (ELE)	F43ILL/2	90	0.6	SW	1800	1,134	7	T 59 R LED	TLED59	59	0.4	NONE	1,800	743	391	0.2	$ 54.78	$ 3,024.00	$ 350	55.2	48.8
35LED	Women's Bathroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1000	360	4	T 59 R LED	TLED59	59	0.2	NONE	1,000	236	124	0.1	$ 21.94	$ 1,728.00	$ 200	78.7	69.6
35LED	Room 216	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1800	648	4	T 59 R LED	TLED59	59	0.2	NONE	1,800	425	223	0.1	$ 31.31	$ 1,728.00	$ 200	55.2	48.8
35LED	Room 205	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	Room 217	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	Room 218	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
41	Room 215	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1,800	1,805	-	0.0	$ -	$ -	$ -		
41	Room 214	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1,800	1,805	-	0.0	$ -	$ -	$ -		
41	Room 212	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1,800	1,805	-	0.0	$ -	$ -	$ -		
41	Room 213	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	SW	1800	1,805	17	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.0	NONE	1,800	1,805	-	0.0	$ -	$ -	$ -		
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.12	$ 114.75	$ 10	54.0	49.3
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.12	$ 114.75	$ 10	54.0	49.3
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.12	$ 114.75	$ 10	54.0	49.3
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.12	$ 114.75	$ 10	54.0	49.3
105	Faculty Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	NONE	1,000	32	-	0.0	$ -	$ -	$ -		
35LED	Men's Bathroom	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	1000	270	3	T 59 R LED	TLED59	59	0.2	NONE	1,000	177	93	0.1	$ 16.46	$ 1,296.00	$ 150	78.7	69.6
41	Room 210	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	1800	2,230	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	NONE	1,800	2,230	-	0.0	$ -	$ -	$ -		
41	Room 211	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	1800	2,230	21	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	NONE	1,800	2,230	-	0.0	$ -	$ -	$ -		
13	100 Hallway	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,490	13	T 28 R F 2	F42SSILL	48	0.6	NONE	3,192	1,992	498	0.2	$ 59.88	$ 1,491.75	$ 130	24.9	22.7
35LED	Room 118	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	Room 117	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	Room 116	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	110 Hallway	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	3192	3,735	13	T 59 R LED	TLED59	59	0.8	NONE	3,192	2,448	1,286	0.4	$ 154.68	$ 5,616.00	$ 650	36.3	32.1
13	Room 111	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	1800	2,268	21	T 28 R F 2	F42SSILL	48	1.0	NONE	1,800	1,814	454	0.3	$ 63.62	$ 2,409.75	$ 210	37.9	34.6
13	Room 110	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	1800	2,268	21	T 28 R F 2	F42SSILL	48	1.0	NONE	1,800	1,814	454	0.3	$ 63.62	$ 2,409.75	$ 210	37.9	34.6
237	Gymnasium	36	MV 250	mv250/1	290	10.4	SW	2000	20,880	36	MV 250	mv250/1	290	10.4	NONE	2,000	20,880	-	0.0	$ -	$ -	$ -		
237	Auxilary Gym	36	MV 250	mv250/1	290	10.4	SW	2000	20,880	36	MV 250	mv250/1	290	10.4	NONE	2,000	20,880	-	0.0	$ -	$ -	$ -		
13	Mechanical Equipment Room	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1000	540	9	T 28 R F 2	F42SSILL	48	0.4	NONE	1,000	432	108	0.1	$ 19.11	$ 1,032.75	$ 90	54.0	49.3
105	Back Hallway	9	W 32 F 1	F41LL	32	0.3	SW	3192	919	9	W 32 F 1	F41LL	32	0.3	NONE	3,192	919	-	0.0	$ -	$ -	$ -		
169LED	Exterior	2	SP 250 MH ROOF	MH250/1	295	0.6	Breaker	4368	2,577	2	FXLED78	FXLED78/1	78	0.2	NONE	4,368	681	1,896	0.4	$ 214.75	$ 1,904.85	$ 350	8.9	7.2
141LED	Exterior	6	HPS 200	HPS200/1	250	1.5	Breaker	4368	6,552	6	FXLED78	FXLED78/1	78	0.5	NONE	4,368	2,044	4,508	1.0	$ 510.65	$ 5,714.55	$ 600	11.2	10.0
45	Exterior	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	Breaker	4368	118	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	NONE	4,368	118	-	0.0	$ -	$ -	$ -		
13	Corridor	22	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	3192	4,213	22	T 28 R F 2	F42SSILL	48	1.1	NONE	3,192	3,371	843	0.3	$ 101.33	$ 2,524.50	$ 220	24.9	22.7
7LED	Corridor	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	3192	192	1	2T 46 R LED	2TLED	46	0.0	NONE	3,192	147	45	0.0	$ 5.37	$ 432.00	$ 50	80.4	71.1
35LED	Room 506-Music	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	1800	1,458	9	T 59 R LED	TLED59	59	0.5	NONE	1,800	956	502	0.3	$ 70.44	$ 3,888.00	$ 450	55.2	48.8
13	Instrument Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.25	$ 229.50	$ 20	54.0	49.3
35LED	Room 507-Choral	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592	16	T 59 R LED	TLED59	59	0.9	NONE	1,800	1,699	893	0.5	$ 125.22	$ 6,912.00	$ 800	55.2	48.8
35LED	Room 508-Band	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,592	16	T 59 R LED	TLED59	59	0.9	NONE	1,800	1,699	893	0.5	$ 125.22	$ 6,912.00	$ 800	55.2	48.8
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.25	$ 229.50	$ 20	54.0	49.3
41	Room 521-Women's Locker Room	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	2800	3,304	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	NONE	2,800	3,304	-	0.0	$ -	$ -	$ -		
13	Room 521-Women's Locker Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2800	336	2	T 28 R F 2	F42SSILL	48	0.1	NONE	2,800	269	67	0.0	$ 8.32	$ 229.50	$ 20	27.6	25.2
41	Room 522-Men's Locker Room	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	SW	2800	3,304	20	T 54 W F 1 (ELE) (T-5)	F41GHL	59	1.2	NONE	2,800	3,304	-	0.0	$ -	$ -	$ -		
13	Room 522-Men's Locker Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2800	336	2	T 28 R F 2	F42SSILL	48	0.1	NONE	2,800	269	67	0.0	$ 8.32	$ 229.50	$ 20	27.6	25.2
13	Gym Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.25	$ 229.50	$ 20	54.0	49.3
13	Room 516-Office	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	T 28 R F 2	F42SSILL	48	0.1	NONE	2,400	230	58	0.0	$ 7.42	$ 229.50	$ 20	30.9	28.2
13	Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.37	$ 344.25	$ 30	54.0	49.3
105	Receiving Area	9	W 32 F 1	F41LL	32	0.3	SW	3192	919	9	W 32 F 1	F41LL	32	0.3	NONE	3,192	919	-	0.0	$ -	$ -	$ -		
13	Custodial Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	T 28 R F 2	F42SSILL	48	0.0	NONE	2,400	115	29	0.0	$ 3.71	$ 114.75	$ 10	30.9	28.2
220	Custodial Office Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Room 530-Custodial Closet	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.25	$ 229.50	$ 20	54.0	49.3
13	Room 527-Kitchen	17	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	1600	1,632	17	T 28 R F 2	F42SSILL	48	0.8	NONE	1,600	1,306	326	0.2	$ 47.65	$ 1,950.75	$ 170	40.9	37.4
13	Room 529-Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.25	$ 229.50	$ 20	54.0	49.3
220	Men's Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Room 602-VP Office	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	T 28 R F 2	F42SSILL	48	0.3	NONE	2,400	691	173	0.1	$ 22.25	$ 688.50	$ 60	30.9	28.2
13	Room 602-Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.12	$ 114.75	$ 10	54.0	49.3
13	Room 601-Principal's Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	T 28 R F 2	F42SSILL	48	0.2	NONE	2,400	461	115	0.0	$ 14.84	$ 459.00	$ 40	30.9	28.2
71	Room 601-Bathroom	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 5.84	$ 6.75	$ -	1.2	1.2
13	Network Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.37	$ 344.25	$ 30	54.0	49.3
13	Corridor	33	S 32 P F 2 (ELE)	F42LL	60	2.0	SW	3192	6,320	33	T 28 R F 2	F42SSILL	48	1.6	NONE	3,192	5,056	1,264	0.4	$ 152.00	$ 3,786.75	$ 330	24.9	22.7
13	Room 500-Storage	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.37	$ 344.25	$ 30	54.0	49.3
13	Room 500-Stage	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1820	328	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,820	262	66	0.0	$ 9.16	$ 344.25	$ 30	37.6	34.3
55	Auditorium	30	2T 17 R F 3 (ELE)	F23ILL	47	1.4	SW	1820	2,566	30	2T 17 R F 3 (ELE)	F23ILL	47	1.4	NONE	1,820	2,566	-	0.0	$ -	$ -	$ -		
35LED	Auditorium	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1820	819	5	T 59 R LED	TLED59	59	0.3	NONE	1,820	537	282	0.2	$ 39.42	$ 2,160.00	$ 250	54.8	48.4
13	Hallway	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	3192	1,149	6	T 28 R F 2	F42SSILL	48	0.3	NONE	3,192	919	230	0.1	$ 27.64	$ 688.50	$ 60	24.9	22.7
35LED	Lobby	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	3192	1,436	5	T 59 R LED	TLED59	59	0.3	NONE	3,192	942	495	0.2	$ 59.49	$ 2,160.00	$ 250	36.3	32.1
13	Room 514	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	T 28 R F 2	F42SSILL	48	0.4	NONE	2,400	922	230	0.1	$ 29.67	$ 918.00	$ 80	30.9	28.2
96	Room 514-Bathroom	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33	1	W 17 C F 2	F22ILL	33	0.0	NONE	1,000	33	-	0.0	$ -	$ -	$ -		
13	Room 528-Office	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3000	180	1	T 28 R F 2	F42SSILL	48	0.0	NONE	3,000	144	36	0.0	$ 4.39	$ 114.75	$ 10	26.1	23.9
13	Room 526-Cafeteria	63	S 32 P F 2 (ELE)	F42LL	60	3.8	SW	1600	6,048	63	T 28 R F 2	F42SSILL	48	3.0	NONE	1,600	4,838	1,210	0.8	$ 176.59	$ 7,229.25	$ 630	40.9	37.4
13	Room 526-Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.25	$ 229.50	$ 20	54.0	49.3

Energy Audit of Matawan Avenue Middle School

CHA Project No.27221

ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS							RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	($/kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Men's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.37	$ 344.25	$ 30	54.0	49.3
13	Corridor	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,681	14	T 28 R F 2	F42SSILL	48	0.7	NONE	3,192	2,145	536	0.2	$ 64.48	$ 1,606.50	$ 140	24.9	22.7
35LED	Room 310	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,430	15	T 59 R LED	TLED59	59	0.9	NONE	1,800	1,593	837	0.5	$ 117.40	$ 6,480.00	$ 750	55.2	48.8
35LED	Room 311	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,430	15	T 59 R LED	TLED59	59	0.9	NONE	1,800	1,593	837	0.5	$ 117.40	$ 6,480.00	$ 750	55.2	48.8
35LED	Room 312	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	1800	2,430	15	T 59 R LED	TLED59	59	0.9	NONE	1,800	1,593	837	0.5	$ 117.40	$ 6,480.00	$ 750	55.2	48.8
35LED	Room 308	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	Room 309	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
35LED	Room 307-Prep	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2400	1,296	6	T 59 R LED	TLED59	59	0.4	NONE	2,400	850	446	0.2	$ 57.49	$ 2,592.00	$ 300	45.1	39.9
13	Mechanical Room 313	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1000	360	6	T 28 R F 2	F42SSILL	48	0.3	NONE	1,000	288	72	0.1	$ 12.74	$ 688.50	$ 60	54.0	49.3
35LED	Room 306	11	T 32 R F 3 (ELE)	F43ILL/2	90	1.0	SW	1800	1,782	11	T 59 R LED	TLED59	59	0.6	NONE	1,800	1,168	614	0.3	$ 86.09	$ 4,752.00	$ 550	55.2	48.8
13	Women's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.37	$ 344.25	$ 30	54.0	49.3
13	Men's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.37	$ 344.25	$ 30	54.0	49.3
105	Room 305	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	NONE	1,800	979	-	0.0	$ -	$ -	$ -	-	
13	Room 314-Storage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.25	$ 229.50	$ 20	54.0	49.3
13	Room 315-Guidance	6	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	T 28 R F 2	F42SSILL	48	0.3	NONE	2,400	691	173	0.1	$ 22.25	$ 688.50	$ 60	30.9	28.2
13	Men's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.37	$ 344.25	$ 30	54.0	49.3
13	Faculty Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.12	$ 114.75	$ 10	54.0	49.3
105	Room 304	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	NONE	1,800	979	-	0.0	$ -	$ -	$ -	-	
105	Room 303	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	NONE	1,800	979	-	0.0	$ -	$ -	$ -	-	
105	Room 302	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	NONE	1,800	979	-	0.0	$ -	$ -	$ -	-	
105	Room 301	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	NONE	1,800	979	-	0.0	$ -	$ -	$ -	-	
105	Room 300	17	W 32 F 1	F41LL	32	0.5	SW	1800	979	17	W 32 F 1	F41LL	32	0.5	NONE	1,800	979	-	0.0	$ -	$ -	$ -	-	
13	Custodial Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.12	$ 114.75	$ 10	54.0	49.3
13	Storage	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.12	$ 114.75	$ 10	54.0	49.3
13	Corridor	11	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	3192	2,107	11	T 28 R F 2	F42SSILL	48	0.5	NONE	3,192	1,685	421	0.1	$ 50.67	$ 1,262.25	$ 110	24.9	22.7
13	Room 316-Faculty Room	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	3600	1,944	9	T 28 R F 2	F42SSILL	48	0.4	NONE	3,600	1,555	389	0.1	$ 45.61	$ 1,032.75	$ 90	22.6	20.7
13	Faculty Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.12	$ 114.75	$ 10	54.0	49.3
13	Faculty Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.12	$ 114.75	$ 10	54.0	49.3
13	Mechanical Room	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.37	$ 344.25	$ 30	54.0	49.3
13	Room 408	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	1800	756	7	T 28 R F 2	F42SSILL	48	0.3	NONE	1,800	605	151	0.1	$ 21.21	$ 803.25	$ 70	37.9	34.6
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S	**Total**	**1,544**				**121.9**			**251,574**	**1,544**				**97.5**				**197,766**		**24.4**	**7,089**	**304,640**	**$33,705**		
S																		**Demand Savings**			**24.4**	**$2,011**			
S																		**kWh Savings**			**53,808**	**$5,078**			
S																		**Total Savings**				**$7,089**		**43.0**	**38.2**

Matawan-Aberdeen Regional School District - NJBPU
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Rate of Discount (used for NPV) 3.0%

Utility Costs		Yearly Usage	Building Area	Annual Utility Cost	
$ 0.157	$/kWh blended		153,914	Electric	Natural Gas
$ 0.102	$/kWh supply	1,201,265		135,069	80,720
$ 4.37	$/kW	323.5			
$ 1.16	$/Therm	69,723			
$ 18.00	$/kgals	570			

Matawan Regional High School

	Item	Savings					Cost	Simple Payback	Life Expectancy	NJ Smart Start Incentives	Direct Install Eligible (Y/N)*	Direct Install Incentives**	Max Incentives	Payback w/ Incentives***	Simple Projected Lifetime Savings					ROI	NPV	IRR
		kW	kWh	therms	Water kgal	$									kW	kWh	therms	kgal/vr	$			
ECM-2	Replace Boilers with Condensing HW Boiler	0.0	0	746	0	864	$ 316,536	366.5	25	$ 7,000	N	$ -	$ 7,000	358.4	0.0	0	18,643	0	$ 21,589	(0.9)	($294,499)	-14.7%
ECM-3	Replace Window A/C Units w/ Ductless Splits	0.0	2,647	0	0	416	$ 168,600	405.8	15	$ 2,208	N	$ -	$ 2,208	400.4	0.0	39,699	0	0	$ 6,233	(1.0)	($161,432)	-26.8%
ECM-10	Install Vending Machine Controls	0.0	12,045	0	0	1,891	$ 1,600	0.8	15.0	$ -	N	$ -	$ -	0.8	0.0	180,675	0	0	$ 28,366	16.7	$20,975	118.2%
ECM-11	Install Network Controller	0.0	22,500	0	0	3,533	$ 5,000	1.4			N	$ -	$ -	1.4	0.0	0	0	0	$ -	(1.0)	($5,000)	#NUM!
ECM-13	Install Kitchen Hood Controls	0.0	1,747	0	0	274	$ 39,318	143.4	15.0	$ -	N	$ -	$ -	143.4	0.0	26,198	0	0	$ 4,113	(0.9)	($36,044)	-20.3%
ECM-14	Install Walk-in Cooler Controls	0.0	12,974	0	0	2,037	$ 30,000	14.7	15.0	$ -	N	$ -	$ -	14.7	0.0	194,605	0	0	$ 30,553	0.0	($5,684)	0.2%
ECM-L1	Lighting Replacements / Upgrades	27.8	79,372	0	0	9,555	$ 293,693	30.7	15.0	$ 32,660	N	$ -	$ 32,660	27.3	417.0	1,190,578	0	0	########	(0.3)	($146,964)	-6.7%
Total		**27.8**	**131,284**	**746**	**0**	**$ 18,569**	**$ 854,746**	46.0	16.7	$ 41,868		$ -	$ 41,868	43.8	417.0	1,631,755	18,643	0	########	(0.6)	($579,633)	-10.0%
Total Measures with Payback <15		**0.0**	**47,519**	**0**	**0**	**$ 7,460**	**$ 36,600**	4.9	15.0	$ -		$ -	$ -	4.9	0.0	375,280	0	0	$ 58,919	0.6	$52,462	18.9%
% of Existing		**9%**	**11%**	**1%**	**0%**																	

Matawan-Aberdeen Regional School District - NJBPU
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Matawan Regional High School

ECM-2: Boiler Replacement

* Replace (2) existing Cleaverbrooks boilers with gas fired condensing boilers

Existing Fuel Nat.Gas
Proposed Fuel Nat.Gas

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.16	/ Therm	
Proposed Fuel Cost	$ 1.16	/ Therm	
Baseline Fuel Use	5,717	Therms	Based on historical utility data
Existing Boiler Plant Efficiency	80%		Estimated
Baseline Boiler Load	457,383	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 100 Mbtu/Therms
Baseline Fuel Cost	$ 6,621		
Proposed Boiler Plant Efficiency	92%		New Boiler Efficiency
Proposed Fuel Use	4,972	Therms	Baseline Boiler Load / Proposed Efficiency / 100 Mbtu/Therms
Proposed Fuel Cost	$ 5,757		
Estimated Annual Savings	746	Therms	

*Note to engineer: Link savings back to summary sheet in appropriate column.

Matawan-Aberdeen Regional School District - NJBPU
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ECM-2: Boiler Replacement - Cost

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
4,000 MBH NG Condensing Boiler	2	EA	$ 65,000	$ 10,000		$143,000	$ 27,000	$ -	$ 170,000	Vendor Quote
Flue Installation	2	LF	$4,000.0	$2,500.00		$ 8,800	$ 6,750	$ -	$ 15,550	RS Means 2012
Controls	2	EA	$1,500.0	$1,500.00		$ 3,300	$ 4,050	$ -	$ 7,350	Engineering Estimate
Miscellaneous Electrical	2	LS	$ 1,500	$ 1,500		$ 3,300	$ 4,050	$ -	$ 7,350	RS Means 2012
Miscellaneous HW Piping	2	LS	$ 5,000	$ 2,500		$ 11,000	$ 6,750	$ -	$ 17,750	RS Means 2012
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 218,000	Subtotal
$ 21,800.00	10% Contingency
$ 47,960.00	20% Contractor O&P
$ 28,776	10% Engineering Fees
$ 316,536	**Total**

Matawan-Aberdeen Regional School District - NJBPU
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Matawan Regional High School

ECM-3: Replace Window A/C Units w/ Ductless Splits

ECM Description Summary
Replace window A/C units with ductless split systems. These systesm have higher energy efficiency and are permananet thereby reducing the winter infiltration that occurs with window A/C units

ASSUMPTIONS			Comments
Electric Cost	$0.157	/ kWh	
Average run hours per Week	50	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	72	deg F	Setpoint.
Avg BTU/Hr Rating of existing equipment	24000	Btu / Hr	
Number of Units	12		
BTU/Hr Rating of existing equipment	288,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	9.8		Units average than 3 years old, EERs were 9.8 when new
Existing Annual Electric Usage	8,285	kWh	

Item	Value	Units	Comments
Proposed EER	14.4		New ductless mini-splits (per manufacturer)
Proposed Annual Electric Usage	5,638	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	2,647	kWh
Annual Cost Savings	$416	

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	2	89%	2
92.5	31	9	79%	7
87.5	131	39	68%	27
82.5	500	149	58%	86
77.5	620	185	47%	87
72.5	664	198	37%	73
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	581	49%	282

Matawan-Aberdeen Regional School District - NJBPU
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Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-3: Replace Window A/C Units w/ Ductless Splits - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
24,000 MBH Split System	12	EA	$ 2,500	$ 1,500		$ 33,000	$ 24,300	$ -	$ 57,300	RS Means 2012
Piping	12	EA	$ 500	$ 500		$ 6,600	$ 8,100	$ -	$ 14,700	RS Means 2012
Miscellaneous Electric	12	EA	$ 1,500	$ 1,500		$ 19,800	$ 24,300	$ -	$ 44,100	RS Means 2012
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 116,100	Subtotal
$ 11,610	10% Contingency
$ 25,542	20% Contractor O&P
$ 15,325	10% Engineering
$ 168,600	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Matawan Regional High School

ECM-9: Install Vending Machine Controls

Summary: Vending machines generally operate 24/7 regardless of the actual usage. This meas
vending machine controls to reduce the total run time of these units. The result is a r
energy usage.

Unit Cost: $0.157 $/kWh blended

Energy Savings Calculations:

Ex. Cold Beverage Vending Machine Electric usage	14,016	kWh[1,4,7]
Ex. Snack Vending Machine Electric usage	5,256	kWh[2,5,7]
Ex. Dual Vending Machine Electric Usage	2,628	kWh[3,6,7]
Total Vending Machine Electric Usage	21,900	kWh
Proposed Vending Machine Electric usage	9,855	kWh[8]
Vending Machine Controls Usage Savings	**12,045**	**kWh**
Total cost savings	**$ 1,891**	
Estimated Total Project Cost	**$ 1,600**	[9]
Simple Payback	**1**	**years**

Assumptions

1	4	Number of cold beverage vending machines
2	3	Number of snack vending machines
3	1	Number of dual snack/beverage vending machines
4	400	Average wattage, typical of cold beverage machines based on prior pro
5	200	Average wattage, typical of snack machines based on prior project exp
6	300	Average wattage, typical of dual snack/beverage machines based on pr
7	8760	Hours per year vending machine plugged in
8	55%	Typical savings for cold vending machines based on historical data for r
9	$200	Estimated installed cost per vending machine

Matawan-Aberdeen Regional School District - NJBPU
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ECM-11: Install Network Controller

Background Data Average Consumption and Savings Figures	kWh
Average Total Consumption per PC per Year	500-700
Average Energy and Cost Waste per PC per Year	350-450
Average savings transparently available via Surveyor	90

Number of PCs	250
Return on Investment Analysis	
	kWh
Annual Energy Savings	22,500

Notes:

1. Savings are for the installation of a centralized computer management system installed on the client server that will centralize the power management functions that are native to the Windows environment.
2. Energy savings per computer are based on historical information from previous installations encompassing tens of thousands of computers.
3. School did not give exact number of computers. Estimated 250 are desktop computers

Matawan-Aberdeen Regional School District - NJBPU
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Matawan Regional High School

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-11: Install Network Controller - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Network Controller Software	1	ea	$ 2,900	$ 500		$ 3,190	$ 675	$ -	$ 3,865	Engineering Estimate
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

Cost Estimates are for Energy Calculations Only - Do Not Use for Procurement

$ 3,865	Subtotal
$ 387	10% Contingency
$ 748	18% Contractor O&P
$ -	0% Engineering Fees
$ 5,000	**Total**

Matawan-Aberdeen Regional School District - NJBPU
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Matawan Regional High School

ECM-13: Kitchen Hood Control

Motor Operating Savings

Hours of Operation (per day)	4		A
Days/Year	190		B
Weeks/Year	38		C
Motor HP	7.5		D
Equivalent KW	4.66	KW	E
Cost of Electricity	$0.16	KWh	F
Total Time/Year	760	hrs/year	G
Total KWH/YR	3544	KWh	H

% Rated RPM I	% Run Time J	Time K J * G	Output L I * E ^ 2.5	KWH/YR M L *K	
100%	25%	190	4.663	886	
90%	5%	38	3.583	136	
80%	10%	76	2.669	203	
70%	15%	114	1.911	218	
60%	20%	152	1.300	198	
50%	25%	190	0.824	157	
40%	0%	0	0.472	0	
30%	0%	0	0.230	0	
20%	0%	0	0.083	0	
10%	0%	0	0.015	0	
				1,797	N

Total Savings = H - N 1,747 KWh

Conditioned Make Up Air: Heating

Previous Net Exhaust Volume	0	CFM	
New Net Exhaust Volume	0	CFM	Note 1
Previous net heat load	0	BTU/hr	
new net heat load	0	BTU/hr	
Design Indoor Conditions	68	F	
Average Outdoor Air Temp (during Heating)	37.5	F	
Heating Hours	4,589	hrs/yr	
Total Therms Savings	0	Therms	

% Rated RPM I	% Run Time J	H * J
100%	25%	25.00%
90%	5%	4.50%
80%	10%	8.00%
70%	15%	10.50%
60%	20%	12.00%
50%	25%	12.50%
40%	0%	0.00%
30%	0%	0.00%
20%	0%	0.00%
10%	0%	0.00%
Avg RPM		72.50%

Cost of Fuel = $1.16 / therm

Reduced Electricity Savings =	**1,747**	**kWh**
Reduced Fuel Savings =	**0**	**therms**
Reduced Financial Savings =	**$274**	

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-13: Kitchen Hood Control - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Me-Link Kitchen Hood Control System	1	ea	$ 15,000	$ 2,000		$ 16,500	$ 2,700	$ -	$ 19,200	Vendor Quote
7.5 HP VFDs (1-exhaust fan)	1	ea	$ 2,021	$ 509		$ 2,223	$ 687	$ -	$ 2,911	RS Means 2012
7.5 HP Motor	1	ea	$ 536	$ 84		$ 589	$ 113	$ -	$ 702	RS Means 2012
Controls	1	ea	$ 100	$ 1,200		$ 110	$ 1,620	$ -	$ 1,730	Engineering Estimate
Electrical - misc.	1	ls	$ 200	$ 500		$ 220	$ 675	$ -	$ 895	RS Means 2012
Remote bulb thermostat	2	ea	$ 500	$ 200		$ 1,100	$ 540	$ -	$ 1,640	RS Means 2012
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 27,078	Subtotal
$ 2,708	10% Contingency
$ 5,957	20% Contractor O&P
$ 3,574	10% Engineering Fees
$ 39,318	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Matawan Regional High School

ECM-14: Walk-in Cooler & Freezer Controls

ECM Description Summary

For kitchens that contain walk-in coolers and freezers, CoolTrol is a controller that reduces energy consumption by controlling off of dewpoint temperature. Compressor cycling is reduced and the evaporator fans run 25% to 80% less. Door and frame heaters are also installed and controlled by store dew point temperature; this can reduce run time by up to 95% in coolers and 60% in freezers. The evaporator fan motors are also replaced with hi-efficiency fan motors saving 40% to 70% in energy. The proposed system comprises of an anti-sweat door controller, evaporator fan motor replacement and CoolTrol Cooler Control System.

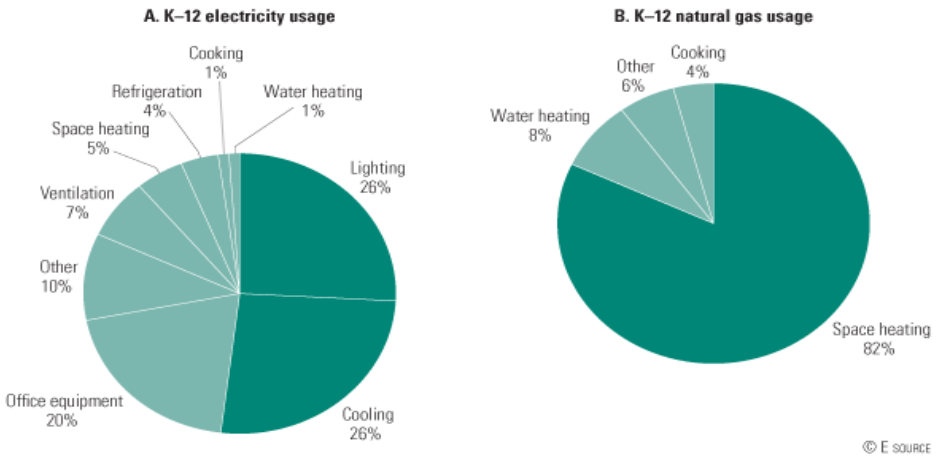
Utility Cost

$0.16 $/kWh Blended

EXISTING CONDITIONS		
Existing Facility Total Electric usage	1,201,265	kWh
Existing Facility Refrigeration Electric usage	72,076	kWh[1]
Existing Facility Walk-In Electric usage	43,246	kWh[2]
Walk-In Controls System Annual Electric savings	12,974	kWh[3]
SAVINGS		
Walk-In Controls Electric Usage Savings	12,974	**kWh**
Total cost savings	$ 2,036.86	
Estimated Total Project Cost	$ 30,000	[4]
Simple Payback	14.7	**years**

Assumptions

1	6%	of facility total electricity; Source: E source, data from U.S. Energy Information Administration
2	60%	of refrigeration attributable to walk-in based on site observations
3	30%	Electric load reduction typical for walk-in controllers
4		Based on (2) "Cooltrol" walk-in controls systems



Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
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New Jersey Pay For Performance Incentive Program

Note: The following calculation is based on the New Jersey Pay For Performance Incentive Program per April, 2012.
Building must have a minimum average electric demand of 100 kW. This minimum is waived for buildings owned by local governements or non-profit organizations.
Values used in this calculation are for measures with a payback of 15 years or less only.

Total Building Area (Square Feet)	153,914
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilites (BPU)

Incentive #1		
Audit is funded by NJ BPU	$0.10	$/sqft

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	$135,069	$80,720
Existing Usage (from utility)	1,201,265	69,723
Proposed Savings	131,284	746
Existing Total MMBtus	11,072	
Proposed Savings MMBtus	523	
% Energy Reduction	**4.7%**	
Proposed Annual Savings	$18,569	

	Min (Savings = 15%)		Increase (Savings > 15%)		Max Incentive		Achieved Incentive	
	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm
Incentive #2	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.00	$0.00
Incentive #3	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.00	$0.00

	Incentives $		
	Elec	Gas	Total
Incentive #1	$0	$0	$0
Incentive #2	$0	$0	$0
Incentive #3	$0	$0	$0
Total All Incentives	**$0**	**$0**	**$0**

Total Project Cost	$854,746

		Allowable Incentive
% Incentives #1 of Utility Cost*	0.0%	$0
% Incentives #2 of Project Cost**	0.0%	$0
% Incentives #3 of Project Cost**	0.0%	$0
Total Eligible Incentives***	**$0**	
Project Cost w/ Incentives	$854,746	

Project Payback (years)	
w/o Incentives	w/ Incentives
46.0	46.0

* Maximum allowable incentive is 50% of annual utility cost if not funded by NJ BPU, and %25 if it is.

** Maximum allowable amount of Incentive #2 is 25% of total project cost.
Maximum allowable amount of Incentive #3 is 25% of total project cost.

*** Maximum allowable amount of Incentive #1 is $50,000 if not funded by NJ BPU, and $25,000 if it is.
Maximum allowable amount of Incentive #2 & #3 is $1 million per gas account and $1 million per electric account; maximum 2 million per project

Energy Audit of Matawan Regional High School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.107** **$/kWh**
$6.74 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
13	Band Office	Offices	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	2400	None	288	
13	Room 120	Classroom	15	S 32 P F 2 (ELE)	F42LL	60	0.90	SW	2912	None	2,621	
13	Men's Bathroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	None	60	
13	Women's Bathroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	None	60	
13	Room 119	Classroom	21	S 32 P F 2 (ELE)	F42LL	60	1.26	SW	2912	None	3,669	
105	Room 118	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
13	Room 116	Classroom	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	2912	None	699	
13	Stage	Auditorium	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1820	None	218	
13	Storage Closet	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	None	60	
13	Storage Closet	Storage Areas	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	None	60	
13	Room 117	Classroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	2912	None	349	
13	Faculty Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
13	Faculty Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
96	Room 106-Student Personnel Services	Offices	4	W 17 C F 2	F22ILL	33	0.13	SW	2400	None	317	
13	Room 106-Private Offices	Offices	16	S 32 P F 2 (ELE)	F42LL	60	0.96	SW	2400	None	2,304	
18LED	Main Office	Offices	4	T 32 R F 4 (ELE)	F44ILL	112	0.45	SW	2400	None	1,075	
13	Main Office	Offices	21	S 32 P F 2 (ELE)	F42LL	60	1.26	SW	2400	None	3,024	
105	Nurse 200	Offices	15	W 32 F 1	F41LL	32	0.48	SW	2400	None	1,152	
13	Electrical Closet	Linen/Utility/Wet/Janitor/Electrical	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	1000	None	240	
13	Electrical Closet	Linen/Utility/Wet/Janitor/Electrical	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	1000	None	240	
105	Room 207	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 205	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 202	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 201	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 204	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 203	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
13	Women's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
13	Men's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
105	Room 211	Classroom	12	W 32 F 1	F41LL	32	0.38	SW	2912	None	1,118	
105	Room 213	Classroom	12	W 32 F 1	F41LL	32	0.38	SW	2912	None	1,118	
13	Library Hallway	Hallways	21	S 32 P F 2 (ELE)	F42LL	60	1.26	SW	3192	None	4,022	
13	Library Hallway	Hallways	18	S 32 P F 2 (ELE)	F42LL	60	1.08	SW	3192	None	3,447	
18LED	Room 307	Classroom	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	2912	None	3,914	
18LED	Room 308	Classroom	11	T 32 R F 4 (ELE)	F44ILL	112	1.23	SW	2912	None	3,588	
18LED	Computer Room	Classroom	8	T 32 R F 4 (ELE)	F44ILL	112	0.90	SW	2912	None	2,609	
18LED	Room 312	Classroom	8	T 32 R F 4 (ELE)	F44ILL	112	0.90	SW	2912	None	2,609	
18LED	Room 305	Classroom	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	2912	None	3,914	
18LED	Room 306	Classroom	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	2912	None	3,914	
105	Room 609	Classroom	20	W 32 F 1	F41LL	32	0.64	SW	2912	None	1,864	
105	Room 608	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 610	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 612	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
35LED	Room 611	Classroom	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2912	None	1,572	
35LED	Room 613	Classroom	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2912	None	1,572	
35LED	Room 615	Classroom	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2912	None	1,572	
35LED	Hallway	Hallways	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.89	SW	3192	None	6,033	
183	Entrance	Hallways	3	BED 17 C F 4	F24ILL	61	0.18	SW	3192	None	584	
13	Men's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
13	Women's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
35LED	Room 617	Classroom	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.35	SW	2912	None	3,931	
35LED	Room 616	Classroom	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.35	SW	2912	None	3,931	
35LED	Room 617 Prep Area	Classroom	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2912	None	1,572	
35LED	Room 616 Prep Area	Classroom	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2912	None	1,572	
35LED	Room 619	Classroom	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2912	None	3,145	
35LED	Room 619 Prep Area	Classroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2912	None	1,048	
35LED	Room 621	Classroom	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2912	None	3,145	
35LED	Room 618	Classroom	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.53	SW	2912	None	4,455	
35LED	Room 620	Classroom	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.53	SW	2912	None	4,455	
35LED	Room 620 Prep Area	Classroom	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	2912	None	786	
35LED	Room 622	Classroom	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	2912	None	2,097	
35LED	Room 623	Classroom	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	2912	None	3,669	
35LED	Room 623 Prep Area	Classroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	2912	None	524	
37	Auditorium	Auditorium	41	SP 26 R CF 2	CFQ26/2-L	50	2.05	SW	1820	None	3,731	
236	Auditorium Hallway	Hallways	38	R 75 C Q 1	h75/1	75	2.85	SW	3192	None	9,097	
71	Auditorium	Auditorium	7	I 60	I60/1	60	0.42	SW	1820	None	764	
13	Room 125	Classroom	36	S 32 P F 2 (ELE)	F42LL	60	2.16	SW	2912	None	6,290	
13	Room 124	Classroom	36	S 32 P F 2 (ELE)	F42LL	60	2.16	SW	2912	None	6,290	
13	Room 123	Classroom	36	S 32 P F 2 (ELE)	F42LL	60	2.16	SW	2912	None	6,290	
35LED	100 Hallway	Hallways	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.34	SW	3192	None	7,469	
35LED	Instructor Offices	Offices	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.90	SW	2400	None	2,160	
13	Storage-Band	Storage Areas	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	1000	None	720	

Energy Audit of Matawan Regional High School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.107** **$/kWh**
$6.74 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
35LED	Room 121	Classroom	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.71	SW	2912	None	4,980	
35LED	Hallway	Hallways	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	3192	None	575	
13	Auxilary Gym	Gymnasium	24	S 32 P F 2 (ELE)	F42LL	60	1.44	SW	2000	None	2,880	
13	Rear Hallway	Hallways	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	3192	None	383	
13	Locker Room	Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	0.96	SW	2800	None	2,688	
13	Locker Room	Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	0.96	SW	2800	None	2,688	
13	Men's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
13	Women's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
45	Closet	Linen/Utility/Wet/Janitor/Electrical	1	SP 26 R CF 1	CFQ26/1-L	27	0.03	SW	1000	None	27	
45	Closet	Linen/Utility/Wet/Janitor/Electrical	1	SP 26 R CF 1	CFQ26/1-L	27	0.03	SW	1000	None	27	
45	Closet	Linen/Utility/Wet/Janitor/Electrical	1	SP 26 R CF 1	CFQ26/1-L	27	0.03	SW	1000	None	27	
250	Main Gymnasium	Gymnasium	24	T 54 W F 4 (ELE) (T-5)	F44GHL	234	5.62	SW	2000	None	11,232	
105	Room 502	Classroom	30	W 32 F 1	F41LL	32	0.96	SW	2912	None	2,796	
105	Room 503	Classroom	12	W 32 F 1	F41LL	32	0.38	SW	2912	None	1,118	
35LED	Kiln/Storage	Linen/Utility/Wet/Janitor/Electrical	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.45	SW	1000	None	450	
35LED	Athletic Office	Offices	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	2400	None	1,728	
35LED	Room 509	Classroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2912	None	1,048	
35LED	Room 507	Classroom	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	2912	None	2,359	
35LED	Room 505	Classroom	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	2912	None	2,359	
35LED	500 Hallway	Hallways	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.62	SW	3192	None	5,171	
18LED	AD Office	Offices	17	T 32 R F 4 (ELE)	F44ILL	112	1.90	SW	2400	None	4,570	
35LED	Room 518	Classroom	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2912	None	1,572	
35LED	Room 520	Classroom	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2912	None	1,572	
35LED	Room 523	Classroom	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2912	None	1,572	
35LED	Room 524	Classroom	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2912	None	1,572	
35LED	Room 522	Classroom	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2912	None	3,145	
35LED	Room 521	Classroom	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2912	None	3,145	
96	Hallway	Hallways	4	W 17 C F 2	F22ILL	33	0.13	SW	3192	None	421	
13	Men's Bathroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	None	60	
13	Women's Bathroom	Restroom	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	None	60	
35LED	600 Hallway	Hallways	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	3192	None	4,022	
13	Room 600	Classroom	15	S 32 P F 2 (ELE)	F42LL	60	0.90	SW	2912	None	2,621	
13	Electrical Closet	Linen/Utility/Wet/Janitor/Electrical	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	None	60	
13	Boiler Room	Mechanical Room	13	S 32 P F 2 (ELE)	F42LL	60	0.78	SW	1000	None	780	
13	Boiler Room Hallway	Hallways	13	S 32 P F 2 (ELE)	F42LL	60	0.78	SW	3192	None	2,490	
13	Cooler Room	Cafeteria	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1600	None	192	
105	Women's Bathroom	Restroom	1	W 32 F 1	F41LL	32	0.03	SW	1000	None	32	
13	Loading Dock	Hallways	8	S 32 P F 2 (ELE)	F42LL	60	0.48	SW	3192	None	1,532	
13	Kitchen	Cafeteria	42	S 32 P F 2 (ELE)	F42LL	60	2.52	SW	1600	None	4,032	
105	Room 209	Classroom	15	W 32 F 1	F41LL	32	0.48	SW	2912	None	1,398	
105	Room 211	Classroom	12	W 32 F 1	F41LL	32	0.38	SW	2912	None	1,118	
105	Room 214	Classroom	2	W 32 F 1	F41LL	32	0.06	SW	2912	None	186	
35LED	Conference Room	Conference	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	1200	None	216	
35LED	Conference Room	Conference	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	1200	None	216	
105	Room 214-Office	Offices	2	W 32 F 1	F41LL	32	0.06	SW	2400	None	154	
35LED	400 Hallway	Hallways	40	T 32 R F 3 (ELE)	F43ILL/2	90	3.60	SW	3192	None	11,491	
105	Room 400	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 402	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 404	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 406	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 401	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 403	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 405	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 408	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 420	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 422	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 407	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 409	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 414	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 411	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 416	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 413	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 418	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 415	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
105	Room 417	Classroom	18	W 32 F 1	F41LL	32	0.58	SW	2912	None	1,677	
35LED	Room 412	Classroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2912	None	1,048	
105	Men's Bathroom	Restroom	2	W 32 F 1	F41LL	32	0.06	SW	1000	None	64	
105	Women's Bathroom	Restroom	2	W 32 F 1	F41LL	32	0.06	SW	1000	None	64	
13	Room 419	Offices	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	2400	None	288	
18LED	Room 303	Classroom	15	T 32 R F 4 (ELE)	F44ILL	112	1.68	SW	2912	None	4,892	
18LED	Room 304	Classroom	15	T 32 R F 4 (ELE)	F44ILL	112	1.68	SW	2912	None	4,892	

Energy Audit of Matawan Regional High School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.107** **$/kWh**
$6.74 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
18LED	Room 302	Classroom	8	T 32 R F 4 (ELE)	F44ILL	112	0.90	SW	2912	None	2,609	
18LED	Room 301	Classroom	8	T 32 R F 4 (ELE)	F44ILL	112	0.90	SW	2912	None	2,609	
183	Room 300 - Faculty Lounge	Staff Lounge	9	BED 17 C F 4	F24ILL	61	0.55	SW	3600	None	1,976	
13	AV Storage	Storage Areas	5	S 32 P F 2 (ELE)	F42LL	60	0.30	SW	1000	None	300	
13	Men's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
13	Women's Bathroom	Restroom	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
45	Media Center	Media Center	3	SP 26 R CF 1	CFQ26/1-L	27	0.08	SW	2200	None	178	
105	Media Center	Media Center	36	W 32 F 1	F41LL	32	1.15	SW	2200	None	2,534	
236	Media Center	Media Center	16	R 75 C Q 1	h75/1	75	1.20	SW	2200	None	2,640	
13	Media Center	Media Center	30	S 32 P F 2 (ELE)	F42LL	60	1.80	SW	2200	None	3,960	
13	Media Center	Media Center	42	S 32 P F 2 (ELE)	F42LL	60	2.52	SW	2200	None	5,544	
13	Custodian	Linen/Utility/Wet/Janitor/Electrical	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	None	120	
13	Men's Locker Room	Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	0.96	SW	2800	None	2,688	
13	Women's Locker Room	Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	0.96	SW	2800	None	2,688	
226LED	Exterior	Outdoor Lighting	2	70 High Pressure Sodium	HPS70/1	95	0.19	Breaker	4368	None	830	
169LED	Exterior	Outdoor Lighting	6	SP 250 MH ROOF	MH250/1	295	1.77	Breaker	4368	None	7,731	
	Total		**1,916**				**119.61**				**325,296**	

Energy Audit of Matawan Regional High School
CHA Project No.27221
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Band Office	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	T 28 R F 2	F42SSILL	48	0.1	SW	2,400	230	58	0.0	$ 8.10	$ 229.50	$20	28.3	25.9
13	Room 120	15	S 32 P F 2 (ELE)	F42LL	60	0.9	SW	2912	2,621	15	T 28 R F 2	F42SSILL	48	0.7	SW	2,912	2,097	524	0.2	$ 70.64	$ 1,721.25	$150	24.4	22.2
13	Men's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.25	$ 114.75	$10	50.9	46.5
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.25	$ 114.75	$10	50.9	46.5
13	Room 119	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	2912	3,669	21	T 28 R F 2	F42SSILL	48	1.0	SW	2,912	2,935	734	0.3	$ 98.90	$ 2,409.75	$210	24.4	22.2
105	Room 118	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 116	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2912	699	4	T 28 R F 2	F42SSILL	48	0.2	SW	2,912	559	140	0.0	$ 18.84	$ 459.00	$40	24.4	22.2
13	Stage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1820	218	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,820	175	44	0.0	$ 6.61	$ 229.50	$20	34.7	31.7
13	Storage Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.25	$ 114.75	$10	50.9	46.5
13	Storage Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.25	$ 114.75	$10	50.9	46.5
13	Room 117	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2912	349	2	T 28 R F 2	F42SSILL	48	0.1	SW	2,912	280	70	0.0	$ 9.42	$ 229.50	$20	24.4	22.2
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
96	Room 106-Student Personnel Services	4	W 17 C F 2	F22ILL	33	0.1	SW	2400	317	4	W 17 C F 2	F22ILL	33	0.1	SW	2,400	317	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 106-Private Offices	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2400	2,304	16	T 28 R F 2	F42SSILL	48	0.8	SW	2,400	1,843	461	0.2	$ 64.83	$ 1,836.00	$160	28.3	25.9
18LED	Main Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075	4	T 74 R LED	TLED74	74	0.3	SW	2,400	710	365	0.2	$ 51.33	$ 1,728.00	$200	33.7	29.8
13	Main Office	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	2400	3,024	21	T 28 R F 2	F42SSILL	48	1.0	SW	2,400	2,419	605	0.3	$ 85.10	$ 2,409.75	$210	28.3	25.9
105	Nurse 200	15	W 32 F 1	F41LL	32	0.5	SW	2400	1,152	15	W 32 F 1	F41LL	32	0.5	SW	2,400	1,152	-	0.0	$ -	$ -	$0		#DIV/0!
13	Electrical Closet	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	192	48	0.0	$ 9.02	$ 459.00	$40	50.9	46.5
13	Electrical Closet	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	192	48	0.0	$ 9.02	$ 459.00	$40	50.9	46.5
105	Room 207	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 205	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 202	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 201	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 204	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 203	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
105	Room 211	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118	12	W 32 F 1	F41LL	32	0.4	SW	2,912	1,118	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 213	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118	12	W 32 F 1	F41LL	32	0.4	SW	2,912	1,118	-	0.0	$ -	$ -	$0		#DIV/0!
13	Library Hallway	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	3192	4,022	21	T 28 R F 2	F42SSILL	48	1.0	SW	3,192	3,218	804	0.3	$ 106.45	$ 2,409.75	$210	22.6	20.7
13	Library Hallway	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	3192	3,447	18	T 28 R F 2	F42SSILL	48	0.9	SW	3,192	2,758	689	0.2	$ 91.24	$ 2,065.50	$180	22.6	20.7
18LED	Room 307	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2912	3,914	12	T 74 R LED	TLED74	74	0.9	SW	2,912	2,586	1,328	0.5	$ 178.96	$ 5,184.00	$600	29.0	25.6
18LED	Room 308	11	T 32 R F 4 (ELE)	F44ILL	112	1.2	SW	2912	3,588	11	T 74 R LED	TLED74	74	0.8	SW	2,912	2,370	1,217	0.4	$ 164.05	$ 4,752.00	$550	29.0	25.6
18LED	Computer Room	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609	8	T 74 R LED	TLED74	74	0.6	SW	2,912	1,724	885	0.3	$ 119.31	$ 3,456.00	$400	29.0	25.6
18LED	Room 312	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609	8	T 74 R LED	TLED74	74	0.6	SW	2,912	1,724	885	0.3	$ 119.31	$ 3,456.00	$400	29.0	25.6
18LED	Room 305	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2912	3,914	12	T 74 R LED	TLED74	74	0.9	SW	2,912	2,586	1,328	0.5	$ 178.96	$ 5,184.00	$600	29.0	25.6
18LED	Room 306	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2912	3,914	12	T 74 R LED	TLED74	74	0.9	SW	2,912	2,586	1,328	0.5	$ 178.96	$ 5,184.00	$600	29.0	25.6
105	Room 609	20	W 32 F 1	F41LL	32	0.6	SW	2912	1,864	20	W 32 F 1	F41LL	32	0.6	SW	2,912	1,864	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 608	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 610	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 612	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	Room 611	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	SW	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$300	35.5	31.4
35LED	Room 613	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	SW	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$300	35.5	31.4
35LED	Room 615	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	SW	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$300	35.5	31.4
35LED	Hallway	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	3192	6,033	21	T 59 R LED	TLED59	59	1.2	SW	3,192	3,955	2,078	0.7	$ 275.00	$ 9,072.00	$1,050	33.0	29.2
183	Entrance	3	BED 17 C F 4	F24ILL	61	0.2	SW	3192	584	3	BED 17 C F 4	F24ILL	61	0.2	SW	3,192	584	-	0.0	$ -	$ -	$0		#DIV/0!
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
35LED	Room 617	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2912	3,931	15	T 59 R LED	TLED59	59	0.9	SW	2,912	2,577	1,354	0.5	$ 182.50	$ 6,480.00	$750	35.5	31.4
35LED	Room 616	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2912	3,931	15	T 59 R LED	TLED59	59	0.9	SW	2,912	2,577	1,354	0.5	$ 182.50	$ 6,480.00	$750	35.5	31.4
35LED	Room 617 Prep Area	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	SW	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$300	35.5	31.4
35LED	Room 616 Prep Area	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	SW	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$300	35.5	31.4
35LED	Room 619	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145	12	T 59 R LED	TLED59	59	0.7	SW	2,912	2,062	1,083	0.4	$ 146.00	$ 5,184.00	$600	35.5	31.4
35LED	Room 619 Prep Area	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2912	1,048	4	T 59 R LED	TLED59	59	0.2	SW	2,912	687	361	0.1	$ 48.67	$ 1,728.00	$200	35.5	31.4
35LED	Room 621	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145	12	T 59 R LED	TLED59	59	0.7	SW	2,912	2,062	1,083	0.4	$ 146.00	$ 5,184.00	$600	35.5	31.4
35LED	Room 618	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2912	4,455	17	T 59 R LED	TLED59	59	1.0	SW	2,912	2,921	1,535	0.5	$ 206.83	$ 7,344.00	$850	35.5	31.4
35LED	Room 620	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2912	4,455	17	T 59 R LED	TLED59	59	1.0	SW	2,912	2,921	1,535	0.5	$ 206.83	$ 7,344.00	$850	35.5	31.4
35LED	Room 620 Prep Area	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2912	786	3	T 59 R LED	TLED59	59	0.2	SW	2,912	515	271	0.1	$ 36.50	$ 1,296.00	$150	35.5	31.4
35LED	Room 622	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2912	2,097	8	T 59 R LED	TLED59	59	0.5	SW	2,912	1,374	722	0.2	$ 97.33	$ 3,456.00	$400	35.5	31.4
35LED	Room 623	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	2912	3,669	14	T 59 R LED	TLED59	59	0.8	SW	2,912	2,405	1,264	0.4	$ 170.33	$ 6,048.00	$700	35.5	31.4
35LED	Room 623 Prep Area	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2912	524	2	T 59 R LED	TLED59	59	0.1	SW	2,912	344	181	0.1	$ 24.33	$ 864.00	$100	35.5	31.4
37	Auditorium	41	SP 26 R CF 2	CFQ26/2-L	50	2.1	SW	1820	3,731	41	SP 26 R CF 2	CFQ26/2-L	50	2.1	SW	1,820	3,731	-	0.0	$ -	$ -	$0		#DIV/0!
236	Auditorium Hallway	38	R 75 C Q 1	h75/1	75	2.9	SW	3192	9,097	38	CF 26	CFQ26/1-L	27	1.0	SW	3,192	3,275	5,822	1.8	$ 770.50	$ 256.50	$0	0.3	0.3
71	Auditorium	7	I 60	I60/1	60	0.4	SW	1820	764	7	CF 26	CFQ26/1-L	27	0.2	SW	1,820	344	420	0.2	$ 63.67	$ 47.25	$0	0.7	0.7
13	Room 125	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2912	6,290	36	T 28 R F 2	F42SSILL	48	1.7	SW	2,912	5,032	1,258	0.4	$ 169.54	$ 4,131.00	$360	24.4	22.2
13	Room 124	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2912	6,290	36	T 28 R F 2	F42SSILL	48	1.7	SW	2,912	5,032	1,258	0.4	$ 169.54	$ 4,131.00	$360	24.4	22.2
13	Room 123	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2912	6,290	36	T 28 R F 2	F42SSILL	48	1.7	SW	2,912	5,032	1,258	0.4	$ 169.54	$ 4,131.00	$360	24.4	22.2
35LED	100 Hallway	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	SW	3192	7,469	26	T 59 R LED	TLED59	59	1.5	SW	3,192	4,897	2,573	0.8	$ 340.47	$ 11,232.00	$1,300	33.0	29.2
35LED	Instructor Offices	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	SW	2400	2,160	10	T 59 R LED	TLED59	59	0.6	SW	2,400	1,416	744	0.3	$ 104.68	$ 4,320.00	$500	41.3	36.5
13	Storage-Band	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	720	12	T 28 R F 2	F42SSILL	48	0.6	SW	1,000	576	144	0.1	$ 27.05	$ 1,377.00	$120	50.9	46.5
35LED	Room 121	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2912	4,980	19	T 59 R LED	TLED59	59	1.1	SW	2,912	3,264	1,715	0.6	$ 231.16	$ 8,208.00	$950	35.5	31.4
35LED	Hallway	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3192	575	2	T 59 R LED	TLED59	59	0.1	SW	3,192	377	198	0.1	$ 26.19	$ 864.00	$100	33.0	29.2
13	Auxilary Gym	24	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	2000	2,880	24	T 28 R F 2	F42SSILL	48	1.2	SW	2,000	2,304	576	0.3	$ 84.93	$ 2,754.00	$240	32.4	29.6
13	Rear Hallway	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383	2	T 28 R F 2	F42SSILL	48	0.1	SW	3,192	306	77	0.0	$ 10.14	$ 229.50	$20	22.6	20.7
13	Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688	16	T 28 R F 2	F42SSILL	48	0.8	SW	2,800	2,150	538	0.2	$ 73.05	$ 1,836.00	$160	25.1	22.9
13	Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688	16	T 28 R F 2	F42SSILL	48	0.8	SW	2,800	2,150	538	0.2	$ 73.05	$ 1,836.00	$160	25.1	22.9
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1,000	27	-	0.0	$ -	$ -	$0		#DIV/0!
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1,000	27	-	0.0	$ -	$ -	$0		#DIV/0!
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1,000	27	-	0.0	$ -	$ -	$0		#DIV/0!
250	Main Gymnasium	24	T 54 W F 4 (ELE) (T-5)	F44GHL	234	5.6	SW	2000	11,232	24	T 54 W F 4 (ELE) (T-5)	F44GHL	234	5.6	SW	2,000	11,232	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 502	30	W 32 F 1	F41LL	32	1.0	SW	2912	2,796	30	W 32 F 1	F41LL	32	1.0	SW	2,912	2,796	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 503	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118	12	W 32 F 1	F41LL	32	0.4	SW	2,912	1,118	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	Kiln/Storage	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1000	450	5	T 59 R LED	TLED59	59	0.3	SW	1,000	295	155	0.2	$ 29.12	$ 2,160.00	$250	74.2	65.6
35LED	Athletic Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2400	1,728	8	T 59 R LED	TLED59	59	0.5	SW	2,400	1,133	595	0.2	$ 83.74	$ 3,456.00	$400	41.3	36.5
35LED	Room 509	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2912	1,048	4	T 59 R LED	TLED59	59	0.2	SW	2,912	687	361	0.1	$ 48.67	$ 1,728.00	$200	35.5	31.4
35LED	Room 507	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2912	2,359	9	T 59 R LED	TLED59	59	0.5	SW	2,912	1,546	812	0.3	$ 109.50	$ 3,888.00	$450	35.5	31.4
35LED	Room 505	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2912	2,359	9	T 59 R LED	TLED59	59	0.5	SW	2,912	1,546	812	0.3	$ 109.50	$ 3,888.00	$450	35.5	31.4
35LED	500 Hallway	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	3192	5,171	18	T 59 R LED	TLED59	59	1.1	SW	3,192	3,390	1,781	0.6	$ 235.71	$ 7,776.00	$900	33.0	29.2
18LED	AD Office	17	T 32 R F 4 (ELE)	F44ILL	112	1.9	SW	2400	4,570	17	T 74 R LED	TLED74	74	1.3	SW	2,400	3,019	1,550	0.6	$ 218.14	$ 7,344.00	$850	33.7	29.8
35LED	Room 518	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	SW	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$300	35.5	31.4
35LED	Room 520	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	SW	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$300	35.5	31.4
35LED	Room 523	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	SW	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$300	35.5	31.4
35LED	Room 524	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	SW	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$300	35.5	31.4
35LED	Room 522	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145	12	T 59 R LED	TLED59	59	0.7	SW	2,912	2,062	1,083	0.4	$ 146.00	$ 5,184.00	$600	35.5	31.4
35LED	Room 521	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145	12	T 59 R LED	TLED59	59	0.7	SW	2,912	2,062	1,083	0.4	$ 146.00	$ 5,184.00	$600	35.5	31.4
96	Hallway	4	W 17 C F 2	F22ILL	33	0.1	SW	3192	421	4	W 17 C F 2	F22ILL	33	0.1	SW	3,192	421	-	0.0	$ -	$ -	$0		#DIV/0!
13	Men's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.25	$ 114.75	$10	50.9	46.5
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.25	$ 114.75	$10	50.9	46.5
35LED	600 Hallway	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	3192	4,022	14	T 59 R LED	TLED59	59	0.8	SW	3,192	2,637	1,385	0.4	$ 183.33	$ 6,048.00	$700	33.0	29.2
13	Room 600	15	S 32 P F 2 (ELE)	F42LL	60	0.9	SW	2912	2,621	15	T 28 R F 2	F42SSILL	48	0.7	SW	2,912	2,097	524	0.2	$ 70.64	$ 1,721.25	$150	24.4	22.2
13	Electrical Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.25	$ 114.75	$10	50.9	46.5
13	Boiler Room	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1000	780	13	T 28 R F 2	F42SSILL	48	0.6	SW	1,000	624	156	0.2	$ 29.31	$ 1,491.75	$130	50.9	46.5
13	Boiler Room Hallway	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,490	13	T 28 R F 2	F42SSILL	48	0.6	SW	3,192	1,992	498	0.2	$ 65.90	$ 1,491.75	$130	22.6	20.7
13	Cooler Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1600	192	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,600	154	38	0.0	$ 6.05	$ 229.50	$20	37.9	34.6
105	Women's Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	SW	1,000	32	-	0.0	$ -	$ -	$0		#DIV/0!
13	Loading Dock	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	3192	1,532	8	T 28 R F 2	F42SSILL	48	0.4	SW	3,192	1,226	306	0.1	$ 40.55	$ 918.00	$80	22.6	20.7
13	Kitchen	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	1600	4,032	42	T 28 R F 2	F42SSILL	48	2.0	SW	1,600	3,226	806	0.5	$ 127.05	$ 4,819.50	$420	37.9	34.6
105	Room 209	15	W 32 F 1	F41LL	32	0.5	SW	2912	1,398	15	W 32 F 1	F41LL	32	0.5	SW	2,912	1,398	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 211	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118	12	W 32 F 1	F41LL	32	0.4	SW	2,912	1,118	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 214	2	W 32 F 1	F41LL	32	0.1	SW	2912	186	2	W 32 F 1	F41LL	32	0.1	SW	2,912	186	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	Conference Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1200	216	2	T 59 R LED	TLED59	59	0.1	SW	1,200	142	74	0.1	$ 12.98	$ 864.00	$100	66.6	58.9
35LED	Conference Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1200	216	2	T 59 R LED	TLED59	59	0.1	SW	1,200	142	74	0.1	$ 12.98	$ 864.00	$100	66.6	58.9
105	Room 214-Office	2	W 32 F 1	F41LL	32	0.1	SW	2400	154	2	W 32 F 1	F41LL	32	0.1	SW	2,400	154	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	400 Hallway	40	T 32 R F 3 (ELE)	F43ILL/2	90	3.6	SW	3192	11,491	40	T 59 R LED	TLED59	59	2.4	SW	3,192	7,533	3,958	1.2	$ 523.81	$ 17,280.00	$2,000	33.0	29.2
105	Room 400	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 402	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 404	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 406	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 401	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!

Energy Audit of Matawan Regional High School

CHA Project No.27221

ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	($/kWh) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
105	Room 403	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 405	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 408	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 420	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 422	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 407	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 409	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 414	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 411	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 416	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 413	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 418	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 415	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 417	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	SW	2,912	1,677	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	Room 412	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2912	1,048	4	T 59 R LED	TLED59	59	0.2	SW	2,912	687	361	0.1	$ 48.67	$ 1,728.00	$200	35.5	31.4
105	Men's Bathroom	2	W 32 F 1	F41LL	32	0.1	SW	1000	64	2	W 32 F 1	F41LL	32	0.1	SW	1,000	64	-	0.0	$ -	$ -	$0		#DIV/0!
105	Women's Bathroom	2	W 32 F 1	F41LL	32	0.1	SW	1000	64	2	W 32 F 1	F41LL	32	0.1	SW	1,000	64	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 419	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	T 28 R F 2	F42SSILL	48	0.1	SW	2,400	230	58	0.0	$ 8.10	$ 229.50	$20	28.3	25.9
18LED	Room 303	15	T 32 R F 4 (ELE)	F44ILL	112	1.7	SW	2912	4,892	15	T 74 R LED	TLED74	74	1.1	SW	2,912	3,232	1,660	0.6	$ 223.70	$ 6,480.00	$750	29.0	25.6
18LED	Room 304	15	T 32 R F 4 (ELE)	F44ILL	112	1.7	SW	2912	4,892	15	T 74 R LED	TLED74	74	1.1	SW	2,912	3,232	1,660	0.6	$ 223.70	$ 6,480.00	$750	29.0	25.6
18LED	Room 302	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609	8	T 74 R LED	TLED74	74	0.6	SW	2,912	1,724	885	0.3	$ 119.31	$ 3,456.00	$400	29.0	25.6
18LED	Room 301	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609	8	T 74 R LED	TLED74	74	0.6	SW	2,912	1,724	885	0.3	$ 119.31	$ 3,456.00	$400	29.0	25.6
183	Room 300 - Faculty Lounge	9	BED 17 C F 4	F24ILL	61	0.5	SW	3600	1,976	9	BED 17 C F 4	F24ILL	61	0.5	SW	3,600	1,976	-	0.0	$ -	$ -	$0		#DIV/0!
13	AV Storage	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1000	300	5	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	240	60	0.1	$ 11.27	$ 573.75	$50	50.9	46.5
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
45	Media Center	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	2200	178	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	2,200	178	-	0.0	$ -	$ -	$0		#DIV/0!
105	Media Center	36	W 32 F 1	F41LL	32	1.2	SW	2200	2,534	36	W 32 F 1	F41LL	32	1.2	SW	2,200	2,534	-	0.0	$ -	$ -	$0		#DIV/0!
236	Media Center	16	R 75 C Q 1	h75/1	75	1.2	SW	2200	2,640	16	CF 26	CFQ26/1-L	27	0.4	SW	2,200	950	1,690	0.8	$ 242.90	$ 108.00	$0	0.4	0.4
13	Media Center	30	S 32 P F 2 (ELE)	F42LL	60	1.8	SW	2200	3,960	30	T 28 R F 2	F42SSILL	48	1.4	SW	2,200	3,168	792	0.4	$ 113.86	$ 3,442.50	$300	30.2	27.6
13	Media Center	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	2200	5,544	42	T 28 R F 2	F42SSILL	48	2.0	SW	2,200	4,435	1,109	0.5	$ 159.41	$ 4,819.50	$420	30.2	27.6
13	Custodian	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.51	$ 229.50	$20	50.9	46.5
13	Men's Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688	16	T 28 R F 2	F42SSILL	48	0.8	SW	2,800	2,150	538	0.2	$ 73.05	$ 1,836.00	$160	25.1	22.9
13	Women's Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688	16	T 28 R F 2	F42SSILL	48	0.8	SW	2,800	2,150	538	0.2	$ 73.05	$ 1,836.00	$160	25.1	22.9
226LED	Exterior	2	70 High Pressure Sodium	HPS70/1	95	0.2	Breaker	4368	830	2	FXLED18	FXLED18/1	18	0.0	Breaker	4,368	157	673	0.2	$ 84.43	$ 846.45	$200	10.0	7.7
169LED	Exterior	6	SP 250 MH ROOF	MH250/1	295	1.8	Breaker	4368	7,731	6	FXLED78	FXLED78/1	78	0.5	Breaker	4,368	2,044	5,687	1.3	$ 713.83	$ 5,714.55	$1,050	8.0	6.5
	Total	1,916				119.6			325,296	1,916			7,663	91.8				245,924	79,372	27.8	$10,741	$293,693	$32,660		
																		Demand Savings			27.8	$2,249			
																		kWh Savings			79,372	$8,493			
																		Total savings				$10,741		27.3	24.3

Energy Audit of Matawan Regional High School
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Band Office	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	2400	288.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 120	15	S 32 P F 2 (ELE)	F42LL	60	0.9	SW	2912	2,620.8	15	S 32 P F 2 (ELE)	F42LL	60	0.9	None	2912	2,620.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 119	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	2912	3,669.1	21	S 32 P F 2 (ELE)	F42LL	60	1.3	None	2912	3,669.1	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 118	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 116	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2912	698.9	4	S 32 P F 2 (ELE)	F42LL	60	0.2	None	2912	698.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Stage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1820	218.4	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1820	218.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 117	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2912	349.4	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	2912	349.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
96	Room 106-Student Personnel Services	4	W 17 C F 2	F22ILL	33	0.1	SW	2400	316.8	4	W 17 C F 2	F22ILL	33	0.1	None	2400	316.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 106-Private Offices	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2400	2,304.0	16	S 32 P F 2 (ELE)	F42LL	60	1.0	None	2400	2,304.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Main Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075.2	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	None	2400	1,075.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Main Office	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	2400	3,024.0	21	S 32 P F 2 (ELE)	F42LL	60	1.3	None	2400	3,024.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Nurse 200	15	W 32 F 1	F41LL	32	0.5	SW	2400	1,152.0	15	W 32 F 1	F41LL	32	0.5	None	2400	1,152.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Electrical Closet	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	None	1000	240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Electrical Closet	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	None	1000	240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 207	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 205	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 202	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 201	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 204	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 203	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 211	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118.2	12	W 32 F 1	F41LL	32	0.4	None	2912	1,118.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 213	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118.2	12	W 32 F 1	F41LL	32	0.4	None	2912	1,118.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Library Hallway	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	3192	4,021.9	21	S 32 P F 2 (ELE)	F42LL	60	1.3	None	3192	4,021.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Library Hallway	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	3192	3,447.4	18	S 32 P F 2 (ELE)	F42LL	60	1.1	None	3192	3,447.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 307	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2912	3,913.7	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	None	2912	3,913.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 308	11	T 32 R F 4 (ELE)	F44ILL	112	1.2	SW	2912	3,587.6	11	T 32 R F 4 (ELE)	F44ILL	112	1.2	None	2912	3,587.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Computer Room	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609.2	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	None	2912	2,609.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 312	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609.2	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	None	2912	2,609.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 305	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2912	3,913.7	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	None	2912	3,913.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 306	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2912	3,913.7	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	None	2912	3,913.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 609	20	W 32 F 1	F41LL	32	0.6	SW	2912	1,863.7	20	W 32 F 1	F41LL	32	0.6	None	2912	1,863.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 608	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 610	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 612	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 611	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572.5	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	2912	1,572.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 613	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572.5	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	2912	1,572.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 615	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572.5	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	2912	1,572.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Hallway	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	3192	6,032.9	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	None	3192	6,032.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
183	Entrance	3	BED 17 C F 4	F24ILL	61	0.2	SW	3192	584.1	3	BED 17 C F 4	F24ILL	61	0.2	None	3192	584.1	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 617	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2912	3,931.2	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	None	2912	3,931.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 616	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2912	3,931.2	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	None	2912	3,931.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 617 Prep Area	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572.5	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	2912	1,572.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 616 Prep Area	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572.5	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	2912	1,572.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 619	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145.0	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	None	2912	3,145.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 619 Prep Area	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2912	1,048.3	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	None	2912	1,048.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 621	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145.0	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	None	2912	3,145.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 618	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2912	4,455.4	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	None	2912	4,455.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 620	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2912	4,455.4	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	None	2912	4,455.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 620 Prep Area	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2912	786.2	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	None	2912	786.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 622	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2912	2,096.6	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	None	2912	2,096.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 623	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	2912	3,669.1	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	None	2912	3,669.1	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 623 Prep Area	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2912	524.2	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	None	2912	524.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
37	Auditorium	41	SP 26 R CF 2	CFQ26/2-L	50	2.1	SW	1820	3,731.0	41	SP 26 R CF 2	CFQ26/2-L	50	2.1	None	1820	3,731.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
236	Auditorium Hallway	38	R 75 C Q 1	h75/1	75	2.9	SW	3192	9,097.2	38	R 75 C Q 1	h75/1	75	2.9	None	3192	9,097.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Auditorium	7	I 60	I60/1	60	0.4	SW	1820	764.4	7	I 60	I60/1	60	0.4	None	1820	764.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 125	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2912	6,289.9	36	S 32 P F 2 (ELE)	F42LL	60	2.2	None	2912	6,289.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 124	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2912	6,289.9	36	S 32 P F 2 (ELE)	F42LL	60	2.2	None	2912	6,289.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 123	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2912	6,289.9	36	S 32 P F 2 (ELE)	F42LL	60	2.2	None	2912	6,289.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	100 Hallway	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	SW	3192	7,469.3	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	None	3192	7,469.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Instructor Offices	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	SW	2400	2,160.0	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	None	2400	2,160.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Storage-Band	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	720.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	None	1000	720.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 121	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2912	4,979.5	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	None	2912	4,979.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Hallway	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3192	574.6	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	None	3192	574.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Auxilary Gym	24	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	2000	2,880.0	24	S 32 P F 2 (ELE)	F42LL	60	1.4	None	2000	2,880.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Rear Hallway	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	3192	383.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688.0	16	S 32 P F 2 (ELE)	F42LL	60	1.0	None	2800	2,688.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688.0	16	S 32 P F 2 (ELE)	F42LL	60	1.0	None	2800	2,688.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27.0	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	None	1000	27.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27.0	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	None	1000	27.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27.0	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	None	1000	27.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
250	Main Gymnasium	24	T 54 W F 4 (ELE) (T-5)	F44GHL	234	5.6	SW	2000	11,232.0	24	T 54 W F 4 (ELE) (T-5)	F44GHL	234	5.6	None	2000	11,232.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 502	30	W 32 F 1	F41LL	32	1.0	SW	2912	2,795.5	30	W 32 F 1	F41LL	32	1.0	None	2912	2,795.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 503	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118.2	12	W 32 F 1	F41LL	32	0.4	None	2912	1,118.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Kiln/Storage	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1000	450.0	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	1000	450.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Athletic Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2400	1,728.0	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	None	2400	1,728.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 509	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2912	1,048.3	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	None	2912	1,048.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 507	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2912	2,358.7	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	None	2912	2,358.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 505	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2912	2,358.7	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	None	2912	2,358.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	500 Hallway	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	3192	5,171.0	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	None	3192	5,171.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	AD Office	17	T 32 R F 4 (ELE)	F44ILL	112	1.9	SW	2400	4,569.6	17	T 32 R F 4 (ELE)	F44ILL	112	1.9	None	2400	4,569.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 518	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572.5	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	2912	1,572.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 520	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572.5	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	2912	1,572.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 523	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572.5	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	2912	1,572.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 524	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572.5	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	None	2912	1,572.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 522	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145.0	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	None	2912	3,145.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 521	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145.0	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	None	2912	3,145.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
96	Hallway	4	W 17 C F 2	F22ILL	33	0.1	SW	3192	421.3	4	W 17 C F 2	F22ILL	33	0.1	None	3192	421.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	600 Hallway	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	3192	4,021.9	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	None	3192	4,021.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 600	15	S 32 P F 2 (ELE)	F42LL	60	0.9	SW	2912	2,620.8	15	S 32 P F 2 (ELE)	F42LL	60	0.9	None	2912	2,620.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Electrical Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Boiler Room	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1000	780.0	13	S 32 P F 2 (ELE)	F42LL	60	0.8	None	1000	780.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Boiler Room Hallway	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,489.8	13	S 32 P F 2 (ELE)	F42LL	60	0.8	None	3192	2,489.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Cooler Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1600	192.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1600	192.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Women's Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32.0	1	W 32 F 1	F41LL	32	0.0	None	1000	32.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Loading Dock	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	3192	1,532.2	8	S 32 P F 2 (ELE)	F42LL	60	0.5	None	3192	1,532.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Kitchen	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	1600	4,032.0	42	S 32 P F 2 (ELE)	F42LL	60	2.5	None	1600	4,032.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 209	15	W 32 F 1	F41LL	32	0.5	SW	2912	1,397.8	15	W 32 F 1	F41LL	32	0.5	None	2912	1,397.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 211	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118.2	12	W 32 F 1	F41LL	32	0.4	None	2912	1,118.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 214	2	W 32 F 1	F41LL	32	0.1	SW	2912	186.4	2	W 32 F 1	F41LL	32	0.1	None	2912	186.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Conference Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1200	216.0	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	None	1200	216.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Conference Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1200	216.0	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	None	1200	216.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 214-Office	2	W 32 F 1	F41LL	32	0.1	SW	2400	153.6	2	W 32 F 1	F41LL	32	0.1	None	2400	153.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	400 Hallway	40	T 32 R F 3 (ELE)	F43ILL/2	90	3.6	SW	3192	11,491.2	40	T 32 R F 3 (ELE)	F43ILL/2	90	3.6	None	3192	11,491.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 400	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 402	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 404	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 406	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 401	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!

Energy Audit of Matawan Regional High School

CHA Project No.27221

ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS							RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
105	Room 403	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 405	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 408	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 420	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 422	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 407	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 409	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 414	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 411	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 416	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 413	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 418	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 415	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 417	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677.3	18	W 32 F 1	F41LL	32	0.6	None	2912	1,677.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 412	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2912	1,048.3	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	None	2912	1,048.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Men's Bathroom	2	W 32 F 1	F41LL	32	0.1	SW	1000	64.0	2	W 32 F 1	F41LL	32	0.1	None	1000	64.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Women's Bathroom	2	W 32 F 1	F41LL	32	0.1	SW	1000	64.0	2	W 32 F 1	F41LL	32	0.1	None	1000	64.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 419	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	2400	288.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 303	15	T 32 R F 4 (ELE)	F44ILL	112	1.7	SW	2912	4,892.2	15	T 32 R F 4 (ELE)	F44ILL	112	1.7	None	2912	4,892.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 304	15	T 32 R F 4 (ELE)	F44ILL	112	1.7	SW	2912	4,892.2	15	T 32 R F 4 (ELE)	F44ILL	112	1.7	None	2912	4,892.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 302	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609.2	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	None	2912	2,609.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 301	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609.2	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	None	2912	2,609.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
183	Room 300 - Faculty Lounge	9	BED 17 C F 4	F24ILL	61	0.5	SW	3600	1,976.4	9	BED 17 C F 4	F24ILL	61	0.5	None	3600	1,976.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	AV Storage	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1000	300.0	5	S 32 P F 2 (ELE)	F42LL	60	0.3	None	1000	300.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Media Center	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	2200	178.2	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	None	2200	178.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Media Center	36	W 32 F 1	F41LL	32	1.2	SW	2200	2,534.4	36	W 32 F 1	F41LL	32	1.2	None	2200	2,534.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
236	Media Center	16	R 75 C Q 1	h75/1	75	1.2	SW	2200	2,640.0	16	R 75 C Q 1	h75/1	75	1.2	None	2200	2,640.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Media Center	30	S 32 P F 2 (ELE)	F42LL	60	1.8	SW	2200	3,960.0	30	S 32 P F 2 (ELE)	F42LL	60	1.8	None	2200	3,960.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Media Center	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	2200	5,544.0	42	S 32 P F 2 (ELE)	F42LL	60	2.5	None	2200	5,544.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Custodian	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	None	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688.0	16	S 32 P F 2 (ELE)	F42LL	60	1.0	None	2800	2,688.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688.0	16	S 32 P F 2 (ELE)	F42LL	60	1.0	None	2800	2,688.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
226LED	Exterior	2	70 High Pressure Sodium	HPS70/1	95	0.2	Breaker	4368	829.9	2	70 High Pressure Sodium	HPS70/1	95	0.2	None	4368	829.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
169LED	Exterior	6	SP 250 MH ROOF	MH250/1	295	1.8	Breaker	4368	7,731.4	6	SP 250 MH ROOF	MH250/1	295	1.8	None	4368	7,731.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
															0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
															0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
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															0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
															0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
															0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
	Total	**1,916**				**119.6**			**325296.1**	**1916.0**				**119.6**			**325296.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**		
																	Demand Savings			**0.0**	**$0**			
																	kWh Savings			**0**	**$0**			
																	Total Savings				**$0**		**#DIV/0!**	**#DIV/0!**

Energy Audit of Matawan Regional High School
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Band Office	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	T 28 R F 2	F42SSILL	48	0.1	None	2,400	230	58	0.0	$ 8.10	$ 229.50	$ 20	28.3	25.9
13	Room 120	15	S 32 P F 2 (ELE)	F42LL	60	0.9	SW	2912	2,621	15	T 28 R F 2	F42SSILL	48	0.7	None	2,912	2,097	524	0.2	$ 70.64	$ 1,721.25	$ 150	24.4	22.2
13	Men's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	None	1,000	48	12	0.0	$ 2.25	$ 114.75	$ 10	50.9	46.5
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	None	1,000	48	12	0.0	$ 2.25	$ 114.75	$ 10	50.9	46.5
13	Room 119	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	2912	3,669	21	T 28 R F 2	F42SSILL	48	1.0	None	2,912	2,935	734	0.3	$ 98.90	$ 2,409.75	$ 210	24.4	22.2
105	Room 118	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
13	Room 116	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2912	699	4	T 28 R F 2	F42SSILL	48	0.2	None	2,912	559	140	0.0	$ 18.84	$ 459.00	$ 40	24.4	22.2
13	Stage	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1820	218	2	T 28 R F 2	F42SSILL	48	0.1	None	1,820	175	44	0.0	$ 6.61	$ 229.50	$ 20	34.7	31.7
13	Storage Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	None	1,000	48	12	0.0	$ 2.25	$ 114.75	$ 10	50.9	46.5
13	Storage Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	None	1,000	48	12	0.0	$ 2.25	$ 114.75	$ 10	50.9	46.5
13	Room 117	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2912	349	2	T 28 R F 2	F42SSILL	48	0.1	None	2,912	280	70	0.0	$ 9.42	$ 229.50	$ 20	24.4	22.2
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
96	Room 106-Student Personnel Services	4	W 17 C F 2	F22ILL	33	0.1	SW	2400	317	4	W 17 C F 2	F22ILL	33	0.1	None	2,400	317	-	0.0	$ -	$ -	$ -		
13	Room 106-Private Offices	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2400	2,304	16	T 28 R F 2	F42SSILL	48	0.8	None	2,400	1,843	461	0.2	$ 64.83	$ 1,836.00	$ 160	28.3	25.9
18LED	Main Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2400	1,075	4	T 74 R LED	TLED74	74	0.3	None	2,400	710	365	0.2	$ 51.33	$ 1,728.00	$ 200	33.7	29.8
13	Main Office	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	2400	3,024	21	T 28 R F 2	F42SSILL	48	1.0	None	2,400	2,419	605	0.3	$ 85.10	$ 2,409.75	$ 210	28.3	25.9
105	Nurse 200	15	W 32 F 1	F41LL	32	0.5	SW	2400	1,152	15	W 32 F 1	F41LL	32	0.5	None	2,400	1,152	-	0.0	$ -	$ -	$ -		
13	Electrical Closet	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	None	1,000	192	48	0.0	$ 9.02	$ 459.00	$ 40	50.9	46.5
13	Electrical Closet	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	None	1,000	192	48	0.0	$ 9.02	$ 459.00	$ 40	50.9	46.5
105	Room 207	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 205	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 202	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 201	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 204	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 203	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
105	Room 211	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118	12	W 32 F 1	F41LL	32	0.4	None	2,912	1,118	-	0.0	$ -	$ -	$ -		
105	Room 213	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118	12	W 32 F 1	F41LL	32	0.4	None	2,912	1,118	-	0.0	$ -	$ -	$ -		
13	Library Hallway	21	S 32 P F 2 (ELE)	F42LL	60	1.3	SW	3192	4,022	21	T 28 R F 2	F42SSILL	48	1.0	None	3,192	3,218	804	0.3	$ 106.45	$ 2,409.75	$ 210	22.6	20.7
13	Library Hallway	18	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	3192	3,447	18	T 28 R F 2	F42SSILL	48	0.9	None	3,192	2,758	689	0.2	$ 91.24	$ 2,065.50	$ 180	22.6	20.7
18LED	Room 307	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2912	3,914	12	T 74 R LED	TLED74	74	0.9	None	2,912	2,586	1,328	0.5	$ 178.96	$ 5,184.00	$ 600	29.0	25.6
18LED	Room 308	11	T 32 R F 4 (ELE)	F44ILL	112	1.2	SW	2912	3,588	11	T 74 R LED	TLED74	74	0.8	None	2,912	2,370	1,217	0.4	$ 164.05	$ 4,752.00	$ 550	29.0	25.6
18LED	Computer Room	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609	8	T 74 R LED	TLED74	74	0.6	None	2,912	1,724	885	0.3	$ 119.31	$ 3,456.00	$ 400	29.0	25.6
18LED	Room 312	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609	8	T 74 R LED	TLED74	74	0.6	None	2,912	1,724	885	0.3	$ 119.31	$ 3,456.00	$ 400	29.0	25.6
18LED	Room 305	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2912	3,914	12	T 74 R LED	TLED74	74	0.9	None	2,912	2,586	1,328	0.5	$ 178.96	$ 5,184.00	$ 600	29.0	25.6
18LED	Room 306	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	2912	3,914	12	T 74 R LED	TLED74	74	0.9	None	2,912	2,586	1,328	0.5	$ 178.96	$ 5,184.00	$ 600	29.0	25.6
105	Room 609	20	W 32 F 1	F41LL	32	0.6	SW	2912	1,864	20	W 32 F 1	F41LL	32	0.6	None	2,912	1,864	-	0.0	$ -	$ -	$ -		
105	Room 608	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 610	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 612	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
35LED	Room 611	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	None	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$ 300	35.5	31.4
35LED	Room 613	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	None	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$ 300	35.5	31.4
35LED	Room 615	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	None	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$ 300	35.5	31.4
35LED	Hallway	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	3192	6,033	21	T 59 R LED	TLED59	59	1.2	None	3,192	3,955	2,078	0.7	$ 275.00	$ 9,072.00	$ 1,050	33.0	29.2
183	Entrance	3	BED 17 C F 4	F24ILL	61	0.2	SW	3192	584	3	BED 17 C F 4	F24ILL	61	0.2	None	3,192	584	-	0.0	$ -	$ -	$ -		
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
35LED	Room 617	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2912	3,931	15	T 59 R LED	TLED59	59	0.9	None	2,912	2,577	1,354	0.5	$ 182.50	$ 6,480.00	$ 750	35.5	31.4
35LED	Room 616	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2912	3,931	15	T 59 R LED	TLED59	59	0.9	None	2,912	2,577	1,354	0.5	$ 182.50	$ 6,480.00	$ 750	35.5	31.4
35LED	Room 617 Prep Area	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	None	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$ 300	35.5	31.4
35LED	Room 616 Prep Area	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	None	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$ 300	35.5	31.4
35LED	Room 619	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145	12	T 59 R LED	TLED59	59	0.7	None	2,912	2,062	1,083	0.4	$ 146.00	$ 5,184.00	$ 600	35.5	31.4
35LED	Room 619 Prep Area	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2912	1,048	4	T 59 R LED	TLED59	59	0.2	None	2,912	687	361	0.1	$ 48.67	$ 1,728.00	$ 200	35.5	31.4
35LED	Room 621	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145	12	T 59 R LED	TLED59	59	0.7	None	2,912	2,062	1,083	0.4	$ 146.00	$ 5,184.00	$ 600	35.5	31.4
35LED	Room 618	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2912	4,455	17	T 59 R LED	TLED59	59	1.0	None	2,912	2,921	1,535	0.5	$ 206.83	$ 7,344.00	$ 850	35.5	31.4
35LED	Room 620	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2912	4,455	17	T 59 R LED	TLED59	59	1.0	None	2,912	2,921	1,535	0.5	$ 206.83	$ 7,344.00	$ 850	35.5	31.4
35LED	Room 620 Prep Area	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2912	786	3	T 59 R LED	TLED59	59	0.2	None	2,912	515	271	0.1	$ 36.50	$ 1,296.00	$ 150	35.5	31.4
35LED	Room 622	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2912	2,097	8	T 59 R LED	TLED59	59	0.5	None	2,912	1,374	722	0.2	$ 97.33	$ 3,456.00	$ 400	35.5	31.4
35LED	Room 623	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	2912	3,669	14	T 59 R LED	TLED59	59	0.8	None	2,912	2,405	1,264	0.4	$ 170.33	$ 6,048.00	$ 700	35.5	31.4
35LED	Room 623 Prep Area	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2912	524	2	T 59 R LED	TLED59	59	0.1	None	2,912	344	181	0.1	$ 24.33	$ 864.00	$ 100	35.5	31.4
37	Auditorium	41	SP 26 R CF 2	CFQ26/2-L	50	2.1	SW	1820	3,731	41	SP 26 R CF 2	CFQ26/2-L	50	2.1	None	1,820	3,731	-	0.0	$ -	$ -	$ -		
236	Auditorium Hallway	38	R 75 C Q 1	h75/1	75	2.9	SW	3192	9,097	38	CF 26	CFQ26/1-L	27	1.0	None	3,192	3,275	5,822	1.8	$ 770.50	$ 256.50	$ -	0.3	0.3
71	Auditorium	7	I 60	I60/1	60	0.4	SW	1820	764	7	CF 26	CFQ26/1-L	27	0.2	None	1,820	344	420	0.2	$ 63.67	$ 47.25	$ -	0.7	0.7
13	Room 125	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2912	6,290	36	T 28 R F 2	F42SSILL	48	1.7	None	2,912	5,032	1,258	0.4	$ 169.54	$ 4,131.00	$ 360	24.4	22.2
13	Room 124	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2912	6,290	36	T 28 R F 2	F42SSILL	48	1.7	None	2,912	5,032	1,258	0.4	$ 169.54	$ 4,131.00	$ 360	24.4	22.2
13	Room 123	36	S 32 P F 2 (ELE)	F42LL	60	2.2	SW	2912	6,290	36	T 28 R F 2	F42SSILL	48	1.7	None	2,912	5,032	1,258	0.4	$ 169.54	$ 4,131.00	$ 360	24.4	22.2
35LED	100 Hallway	26	T 32 R F 3 (ELE)	F43ILL/2	90	2.3	SW	3192	7,469	26	T 59 R LED	TLED59	59	1.5	None	3,192	4,897	2,573	0.8	$ 340.47	$ 11,232.00	$ 1,300	33.0	29.2
35LED	Instructor Offices	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	SW	2400	2,160	10	T 59 R LED	TLED59	59	0.6	None	2,400	1,416	744	0.3	$ 104.68	$ 4,320.00	$ 500	41.3	36.5
13	Storage-Band	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	1000	720	12	T 28 R F 2	F42SSILL	48	0.6	None	1,000	576	144	0.1	$ 27.05	$ 1,377.00	$ 120	50.9	46.5
35LED	Room 121	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2912	4,980	19	T 59 R LED	TLED59	59	1.1	None	2,912	3,264	1,715	0.6	$ 231.16	$ 8,208.00	$ 950	35.5	31.4
35LED	Hallway	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3192	575	2	T 59 R LED	TLED59	59	0.1	None	3,192	377	198	0.1	$ 26.19	$ 864.00	$ 100	33.0	29.2
13	Auxilary Gym	24	S 32 P F 2 (ELE)	F42LL	60	1.4	SW	2000	2,880	24	T 28 R F 2	F42SSILL	48	1.2	None	2,000	2,304	576	0.3	$ 84.93	$ 2,754.00	$ 240	32.4	29.6
13	Rear Hallway	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383	2	T 28 R F 2	F42SSILL	48	0.1	None	3,192	306	77	0.0	$ 10.14	$ 229.50	$ 20	22.6	20.7
13	Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688	16	T 28 R F 2	F42SSILL	48	0.8	None	2,800	2,150	538	0.2	$ 73.05	$ 1,836.00	$ 160	25.1	22.9
13	Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688	16	T 28 R F 2	F42SSILL	48	0.8	None	2,800	2,150	538	0.2	$ 73.05	$ 1,836.00	$ 160	25.1	22.9
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	None	1,000	27	-	0.0	$ -	$ -	$ -		
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	None	1,000	27	-	0.0	$ -	$ -	$ -		
45	Closet	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1000	27	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	None	1,000	27	-	0.0	$ -	$ -	$ -		
250	Main Gymnasium	24	T 54 W F 4 (ELE) (T-5)	F44GHL	234	5.6	SW	2000	11,232	24	T 54 W F 4 (ELE) (T-5)	F44GHL	234	5.6	None	2,000	11,232	-	0.0	$ -	$ -	$ -		
105	Room 502	30	W 32 F 1	F41LL	32	1.0	SW	2912	2,796	30	W 32 F 1	F41LL	32	1.0	None	2,912	2,796	-	0.0	$ -	$ -	$ -		
105	Room 503	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118	12	W 32 F 1	F41LL	32	0.4	None	2,912	1,118	-	0.0	$ -	$ -	$ -		
35LED	Kiln/Storage	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1000	450	5	T 59 R LED	TLED59	59	0.3	None	1,000	295	155	0.2	$ 29.12	$ 2,160.00	$ 250	74.2	65.6
35LED	Athletic Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	2400	1,728	8	T 59 R LED	TLED59	59	0.5	None	2,400	1,133	595	0.2	$ 83.74	$ 3,456.00	$ 400	41.3	36.5
35LED	Room 509	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2912	1,048	4	T 59 R LED	TLED59	59	0.2	None	2,912	687	361	0.1	$ 48.67	$ 1,728.00	$ 200	35.5	31.4
35LED	Room 507	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2912	2,359	9	T 59 R LED	TLED59	59	0.5	None	2,912	1,546	812	0.3	$ 109.50	$ 3,888.00	$ 450	35.5	31.4
35LED	Room 505	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2912	2,359	9	T 59 R LED	TLED59	59	0.5	None	2,912	1,546	812	0.3	$ 109.50	$ 3,888.00	$ 450	35.5	31.4
35LED	500 Hallway	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	3192	5,171	18	T 59 R LED	TLED59	59	1.1	None	3,192	3,390	1,781	0.6	$ 235.71	$ 7,776.00	$ 900	33.0	29.2
18LED	AD Office	17	T 32 R F 4 (ELE)	F44ILL	112	1.9	SW	2400	4,570	17	T 74 R LED	TLED74	74	1.3	None	2,400	3,019	1,550	0.6	$ 218.14	$ 7,344.00	$ 850	33.7	29.8
35LED	Room 518	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	None	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$ 300	35.5	31.4
35LED	Room 520	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	None	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$ 300	35.5	31.4
35LED	Room 523	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	None	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$ 300	35.5	31.4
35LED	Room 524	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2912	1,572	6	T 59 R LED	TLED59	59	0.4	None	2,912	1,031	542	0.2	$ 73.00	$ 2,592.00	$ 300	35.5	31.4
35LED	Room 522	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145	12	T 59 R LED	TLED59	59	0.7	None	2,912	2,062	1,083	0.4	$ 146.00	$ 5,184.00	$ 600	35.5	31.4
35LED	Room 521	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2912	3,145	12	T 59 R LED	TLED59	59	0.7	None	2,912	2,062	1,083	0.4	$ 146.00	$ 5,184.00	$ 600	35.5	31.4
96	Hallway	4	W 17 C F 2	F22ILL	33	0.1	SW	3192	421	4	W 17 C F 2	F22ILL	33	0.1	None	3,192	421	-	0.0	$ -	$ -	$ -		
13	Men's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	None	1,000	48	12	0.0	$ 2.25	$ 114.75	$ 10	50.9	46.5
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	None	1,000	48	12	0.0	$ 2.25	$ 114.75	$ 10	50.9	46.5
35LED	600 Hallway	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	3192	4,022	14	T 59 R LED	TLED59	59	0.8	None	3,192	2,637	1,385	0.4	$ 183.33	$ 6,048.00	$ 700	33.0	29.2
13	Room 600	15	S 32 P F 2 (ELE)	F42LL	60	0.9	SW	2912	2,621	15	T 28 R F 2	F42SSILL	48	0.7	None	2,912	2,097	524	0.2	$ 70.64	$ 1,721.25	$ 150	24.4	22.2
13	Electrical Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	None	1,000	48	12	0.0	$ 2.25	$ 114.75	$ 10	50.9	46.5
13	Boiler Room	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	1000	780	13	T 28 R F 2	F42SSILL	48	0.6	None	1,000	624	156	0.2	$ 29.31	$ 1,491.75	$ 130	50.9	46.5
13	Boiler Room Hallway	13	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	3192	2,490	13	T 28 R F 2	F42SSILL	48	0.6	None	3,192	1,992	498	0.2	$ 65.90	$ 1,491.75	$ 130	22.6	20.7
13	Cooler Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1600	192	2	T 28 R F 2	F42SSILL	48	0.1	None	1,600	154	38	0.0	$ 6.05	$ 229.50	$ 20	37.9	34.6
105	Women's Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	None	1,000	32	-	0.0	$ -	$ -	$ -		
13	Loading Dock	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	3192	1,532	8	T 28 R F 2	F42SSILL	48	0.4	None	3,192	1,226	306	0.1	$ 40.55	$ 918.00	$ 80	22.6	20.7
13	Kitchen	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	1600	4,032	42	T 28 R F 2	F42SSILL	48	2.0	None	1,600	3,226	806	0.5	$ 127.05	$ 4,819.50	$ 420	37.9	34.6
105	Room 209	15	W 32 F 1	F41LL	32	0.5	SW	2912	1,398	15	W 32 F 1	F41LL	32	0.5	None	2,912	1,398	-	0.0	$ -	$ -	$ -		
105	Room 211	12	W 32 F 1	F41LL	32	0.4	SW	2912	1,118	12	W 32 F 1	F41LL	32	0.4	None	2,912	1,118	-	0.0	$ -	$ -	$ -		
105	Room 214	2	W 32 F 1	F41LL	32	0.1	SW	2912	186	2	W 32 F 1	F41LL	32	0.1	None	2,912	186	-	0.0	$ -	$ -	$ -		
35LED	Conference Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1200	216	2	T 59 R LED	TLED59	59	0.1	None	1,200	142	74	0.1	$ 12.98	$ 864.00	$ 100	66.6	58.9
35LED	Conference Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1200	216	2	T 59 R LED	TLED59	59	0.1	None	1,200	142	74	0.1	$ 12.98	$ 864.00	$ 100	66.6	58.9
105	Room 214-Office	2	W 32 F 1	F41LL	32	0.1	SW	2400	154	2	W 32 F 1	F41LL	32	0.1	None	2,400	154	-	0.0	$ -	$ -	$ -		
35LED	400 Hallway	40	T 32 R F 3 (ELE)	F43ILL/2	90	3.6	SW	3192	11,491	40	T 59 R LED	TLED59	59	2.4	None	3,192	7,533	3,958	1.2	$ 523.81	$ 17,280.00	$ 2,000	33.0	29.2
105	Room 400	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 402	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 404	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 406	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 401	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		

Energy Audit of Matawan Regional High School

CHA Project No.27221

ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS							RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	($/kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
105	Room 403	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 405	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 408	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 420	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 422	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 407	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 409	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 414	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 411	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 416	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 413	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 418	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 415	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
105	Room 417	18	W 32 F 1	F41LL	32	0.6	SW	2912	1,677	18	W 32 F 1	F41LL	32	0.6	None	2,912	1,677	-	0.0	$ -	$ -	$ -		
35LED	Room 412	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2912	1,048	4	T 59 R LED	TLED59	59	0.2	None	2,912	687	361	0.1	$ 48.67	$ 1,728.00	$ 200	35.5	31.4
105	Men's Bathroom	2	W 32 F 1	F41LL	32	0.1	SW	1000	64	2	W 32 F 1	F41LL	32	0.1	None	1,000	64	-	0.0	$ -	$ -	$ -		
105	Women's Bathroom	2	W 32 F 1	F41LL	32	0.1	SW	1000	64	2	W 32 F 1	F41LL	32	0.1	None	1,000	64	-	0.0	$ -	$ -	$ -		
13	Room 419	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	T 28 R F 2	F42SSILL	48	0.1	None	2,400	230	58	0.0	$ 8.10	$ 229.50	$ 20	28.3	25.9
18LED	Room 303	15	T 32 R F 4 (ELE)	F44ILL	112	1.7	SW	2912	4,892	15	T 74 R LED	TLED74	74	1.1	None	2,912	3,232	1,660	0.6	$ 223.70	$ 6,480.00	$ 750	29.0	25.6
18LED	Room 304	15	T 32 R F 4 (ELE)	F44ILL	112	1.7	SW	2912	4,892	15	T 74 R LED	TLED74	74	1.1	None	2,912	3,232	1,660	0.6	$ 223.70	$ 6,480.00	$ 750	29.0	25.6
18LED	Room 302	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609	8	T 74 R LED	TLED74	74	0.6	None	2,912	1,724	885	0.3	$ 119.31	$ 3,456.00	$ 400	29.0	25.6
18LED	Room 301	8	T 32 R F 4 (ELE)	F44ILL	112	0.9	SW	2912	2,609	8	T 74 R LED	TLED74	74	0.6	None	2,912	1,724	885	0.3	$ 119.31	$ 3,456.00	$ 400	29.0	25.6
183	Room 300 - Faculty Lounge	9	BED 17 C F 4	F24ILL	61	0.5	SW	3600	1,976	9	BED 17 C F 4	F24ILL	61	0.5	None	3,600	1,976	-	0.0	$ -	$ -	$ -		
13	AV Storage	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1000	300	5	T 28 R F 2	F42SSILL	48	0.2	None	1,000	240	60	0.1	$ 11.27	$ 573.75	$ 50	50.9	46.5
13	Men's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
13	Women's Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
45	Media Center	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	2200	178	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	None	2,200	178	-	0.0	$ -	$ -	$ -		
105	Media Center	36	W 32 F 1	F41LL	32	1.2	SW	2200	2,534	36	W 32 F 1	F41LL	32	1.2	None	2,200	2,534	-	0.0	$ -	$ -	$ -		
236	Media Center	16	R 75 C Q 1	h75/1	75	1.2	SW	2200	2,640	16	CF 26	CFQ26/1-L	27	0.4	None	2,200	950	1,690	0.8	$ 242.90	$ 108.00	$ -	0.4	0.4
13	Media Center	30	S 32 P F 2 (ELE)	F42LL	60	1.8	SW	2200	3,960	30	T 28 R F 2	F42SSILL	48	1.4	None	2,200	3,168	792	0.4	$ 113.86	$ 3,442.50	$ 300	30.2	27.6
13	Media Center	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	2200	5,544	42	T 28 R F 2	F42SSILL	48	2.0	None	2,200	4,435	1,109	0.5	$ 159.41	$ 4,819.50	$ 420	30.2	27.6
13	Custodian	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	None	1,000	96	24	0.0	$ 4.51	$ 229.50	$ 20	50.9	46.5
13	Men's Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688	16	T 28 R F 2	F42SSILL	48	0.8	None	2,800	2,150	538	0.2	$ 73.05	$ 1,836.00	$ 160	25.1	22.9
13	Women's Locker Room	16	S 32 P F 2 (ELE)	F42LL	60	1.0	SW	2800	2,688	16	T 28 R F 2	F42SSILL	48	0.8	None	2,800	2,150	538	0.2	$ 73.05	$ 1,836.00	$ 160	25.1	22.9
226LED	Exterior	2	70 High Pressure Sodium	HPS70/1	95	0.2	Breaker	4368	830	2	FXLED18	FXLED18/1	18	0.0	None	4,368	157	673	0.2	$ 84.43	$ 846.45	$ 200	10.0	7.7
169LED	Exterior	6	SP 250 MH ROOF	MH250/1	295	1.8	Breaker	4368	7,731	6	FXLED78	FXLED78/1	78	0.5	None	4,368	2,044	5,687	1.3	$ 713.83	$ 5,714.55	$ 1,050	8.0	6.5
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S	**Total**	**1,916**				**119.6**			**325,296**	**1,916**				**91.8**				**245,924**		**27.8**	**10,741**	**293,693**	**$32,660**		
S																		**Demand Savings**			**27.8**	**$2,249**			
S																		**kWh Savings**			**79,372**	**$8,493**			
S																		**Total Savings**				**$10,741**		**27.3**	**24.3**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221

Rate of Discount (used for NPV) 3.0%

Utility Costs		Yearly Usage	Building Area	Annual Utility Cost	
$ 0.113	$/kWh blended		46,848	Electric	Natural Gas
$ 0.102	$/kWh supply	102,712		11,643	28,913
$ 4.29	$/kW	50.8			
$ 1.20	$/Therm	24,049			
$ 18.00	$/kgals	570			

Ravine Drive Elementary School

	Item	Savings					Cost	Simple Payback	Life Expectancy	NJ Smart Start Incentives	Direct Install Eligible (Y/N)*	Direct Install Incentives**	Max Incentives	Payback w/ Incentives***	Simple Projected Lifetime Savings					ROI	NPV	IRR
		kW	kWh	therms	Water kgal	$									kW	kWh	therms	kgal/vr	$			
ECM-2	Replace Boilers with Condensing HW Boilers	0.0	0	2,572	0	3,092	$ 304,194	98.4	25	$ 6,000	Y	$ 75,000	$ 6,000	96.4	0.0	0	64,306	0	$ 77,311	(0.7)	($244,345)	-8.5%
ECM-3	Replace Window A/C Units w/ Ductless Splits	0.0	1,103	0	0	125	$ 3,000	24.0	15	$ 920	Y	$ 2,100	$ 920	16.6	0.0	16,541	0	0	$ 1,875	(0.4)	($588)	-1.3%
ECM-4	Replace Old Motors with Premium Efficiency Motors	0.7	2,899	0	0	328	$ 4,117	12.6	12	$ -	Y	$ 2,900	$ -	12.6	7.9	34,791	0	0	$ 4,348	0.1	($852)	-0.7%
ECM-L1	Lighting Replacements / Upgrades	5.1	10,640	0	0	1,342	$ 56,410	42.0	15.0	$ 6,040	Y	$ 39,500	$ 6,040	37.5	76.2	159,599	0	0	$ 22,011	(0.6)	($34,355)	-9.8%
	Total	**5.7**	**14,642**	**2,572**	**0**	**$ 4,887**	**$ 367,721**	75.2	16.8	$ 12,960		$ 119,500	$ 12,960	72.6	84.0	210,931	64,306	0	########	(0.7)	($293,375)	-14.0%
	Total Measures with Payback <15	**0.7**	**2,899**	**0**	**0**	**$ 328**	**$ 4,117**	12.6	12.0	$ -		$ 2,900	$ -	12.6	7.9	34,791	0	0	$ 4,348	0.1	($852)	-0.7%
	% of Existing	**11%**	**14%**	**11%**	**0%**																	

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Ravine Drive Elementary School

ECM-2: Boiler Replacement

Existing Fuel Nat.Gas
Proposed Fuel Nat.Gas

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.20	/ Therm	
Proposed Fuel Cost	$ 1.20	/ Therm	
Baseline Fuel Use	19,721	Therms	Based on historical utility data
Existing Boiler Plant Efficiency	80%		Estimated
Baseline Boiler Load	1,577,643	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 100 Mbtu/Therms
Baseline Fuel Cost	$ 23,709		
Proposed Boiler Plant Efficiency	92%		New Boiler Efficiency
Proposed Fuel Use	17,148	Therms	Baseline Boiler Load / Proposed Efficiency / 100 Mbtu/Therms
Proposed Fuel Cost	$ 20,616		
Estimated Annual Savings	2,572	Therms	

*Note to engineer: Link savings back to summary sheet in appropriate column.

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Ravine Drive Elementary School

ECM-2: Boiler Replacement - Cost

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
3,000 MBH NG Condensing Boiler	2	EA	$ 45,000	$ 10,000		$ 99,000	$ 27,000	$ -	$ 126,000	
Flue Installation	2	LF	$4,000.0	$2,500.00		$ 8,800	$ 6,750	$ -	$ 15,550	
Controls	2	EA	$1,500.0	$1,500.00		$ 3,300	$ 4,050	$ -	$ 7,350	
Miscellaneous Electrical	2	LS	$ 1,500	$ 1,500		$ 3,300	$ 4,050	$ -	$ 7,350	
Miscellaneous HW Piping	2	LS	$ 5,000	$ 2,500		$ 11,000	$ 6,750	$ -	$ 17,750	
Boiler room/space construction	1	LS	$ 20,000	$ 10,000		$ 22,000	$ 13,500	$ -	$ 35,500	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 209,500	Subtotal
$ 20,950.00	10% Contingency
$ 46,090.00	20% Contractor O&P
$ 27,654	10% Engineering Fees
$ 304,194	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Ravine Drive Elementary School

ECM-3: Replace Window A/C Units w/ Ductless Splits

ECM Description Summary
By replacing window air conditioners with DX equipment with higher SEER/EER DX condensing units, significant electrical energy can be saved. Control schemes can be incorporated that were not possible with the older equiopment as well, but the equipment can also operate in same manner as existing (i.e., stand alone, or monitored/sequenced by a BAS). It is recommended these units be replaced by more modern DX split system equipment with high efficiecny fans and compressors.

ASSUMPTIONS			Comments
Electric Cost	$0.113	/ kWh	
Average run hours per Week	50	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	72	deg F	Setpoint.
Avg BTU/Hr Rating of existing equipment	24000	Btu / Hr	
Number of Units	5		
BTU/Hr Rating of existing equipment	120,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	9.8		Units average than 3 years old, EERs were 9.8 when new
Existing Annual Electric Usage	3,452	kWh	

Item	Value	Units	Comments
Proposed EER	14.4		New ductless mini-splits (per manufacturer)
Proposed Annual Electric Usage	2,349	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	1,103	kWh
Annual Cost Savings	$125	

OAT - DB Bin Temp F	Annual Hours	Cooling Hrs at Temp Above balance point	Assumed % of time of operation	Assumed hrs of Operation
102.5	0	0	100%	0
97.5	6	2	89%	2
92.5	31	9	79%	7
87.5	131	39	68%	27
82.5	500	149	58%	86
77.5	620	185	47%	87
72.5	664	198	37%	73
67.5	854	0	0%	0
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	581	49%	282

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Ravine Drive Elementary School

Multipliers	
Material:	1.35
Labor:	1.10
Equipment:	1.10

ECM-3: Replace Window A/C Units w/ Ductless Splits - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
24,000 MBH Split System	5	EA	$ 2,500	$ 1,500		$ 16,875	$ 8,250	$ -	$ 25,125	RS Means 2012
Piping	5	EA	$ 500	$ 500		$ 3,375	$ 2,750	$ -	$ 6,125	RS Means 2012
Miscellaneous Electric	5	EA	$ 1,500	$ 1,500		$ 10,125	$ 8,250	$ -	$ 18,375	RS Means 2012
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 49,625	Subtotal
$ 4,963	10% Contingency
$ 10,918	20% Contractor O&P
$ 6,551	10% Engineering
$ 72,100	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Ravine Drive Elementary School

ECM-4: Install Premium Efficiency Motors

Demand Cost $/kW-month
$ 4.29

Energy Cost $/kWh
$ 0.11

Multipliers		
Material	Labor	Equipment
1.10	1.35	1.10

Savings Analysis

Cost Estimates

#	Description	Location	Existing HP	Load Factor	Existing Efficiency[a]	Existing kW	New HP[b]	New Load Factor	New Efficiency[a]	New kW	Demand Savings	Demand Savings $	Annual Hours	kWh Savings	$ kWh Savings	Total $ Savings	Estimated Cost	Payback Years	Unit Costs Materials	Unit Costs Labor	Unit Costs Equipment	Subtotal Costs Materials	Subtotal Costs Labor	Subtotal Costs Equipment	Total Cost	Remarks
1	HWP-3	MER	1	0.8	0.767	0.8	1	0.8	0.852	0.7	0.078	$ 4	4,427	344	$ 39	$ 43	$ 515	12.0	$ 284	$ 150	$ -	$ 312	$ 203	$ -	$ 515	
2	HWP-4	MER	1	0.8	0.767	0.8	1	0.8	0.852	0.7	0.078	$ 4	4,427	344	$ 39	$ 43	$ 515	12.0	$ 284	$ 150	$ -	$ 312	$ 203	$ -	$ 515	
3	HWP-6	MER	1.5	0.8	0.791	1.1	2	0.8	0.863	1.0	0.095	$ 5	4,427	419	$ 48	$ 52	$ 515	9.8	$ 284	$ 150	$ -	$ 312	$ 203	$ -	$ 515	
4	HWP-5	MER	1.5	0.8	0.791	1.1	2	0.8	0.863	1.0	0.095	$ 5	4,427	419	$ 48	$ 52	$ 515	9.8	$ 284	$ 150	$ -	$ 312	$ 203	$ -	$ 515	
5	HWP-7	MER	1	0.8	0.767	0.8	1	0.8	0.852	0.7	0.078	$ 4	4,427	344	$ 39	$ 43	$ 515	12.0	$ 284	$ 150	$ -	$ 312	$ 203	$ -	$ 515	
6	HWP-8	MER	1	0.8	0.767	0.8	1	0.8	0.852	0.7	0.078	$ 4	4,427	344	$ 39	$ 43	$ 515	12.0	$ 284	$ 150	$ -	$ 312	$ 203	$ -	$ 515	
7	HWP-1	MER	1	0.8	0.767	0.8	1	0.8	0.852	0.7	0.078	$ 4	4,427	344	$ 39	$ 43	$ 515	12.0	$ 284	$ 150	$ -	$ 312	$ 203	$ -	$ 515	
8	HWP-2	MER	1	0.8	0.767	0.8	1	0.8	0.852	0.7	0.078	$ 4	4,427	344	$ 39	$ 43	$ 515	12.0	$ 284	$ 150	$ -	$ 312	$ 203	$ -	$ 515	
12																										
		Total	**9**			**6.9**	**9**			**6.3**	**0.65**	**$ 34**		**2,899**	**$ 329**	**$ 362**	**$ 4,117**										

Notes

a Existing and new efficiencies should be entered if known. If not known, use provided curve fit based on "DOE Survey Installed Average" and NEMA Premium values, respectively.

b Same as existing HP unless resized to better match load

Costs from RSM Electrical Costs 2006, p202
Motors - Totally enclosed, premium efficiency
Table used for cost estimates

HP	Mat'l	Labor	Total
0	0	0	$ -
1	$ 284	$ 150	$ 434
2	$ 342	$ 200	$ 542
3	$ 550	$ 250	$ 800
5	$ 550	$ 250	$ 800
7.5	$ 621	$ 270	$ 891
10	$ 749	$ 270	$ 1,019
15	$ 999	$ 400	$ 1,399
20	$ 1,218	$ 400	$ 1,618
25	$ 1,492	$ 500	$ 1,992
30	$ 1,736	$ 500	$ 2,236
40	$ 2,253	$ 600	$ 2,853
50	$ 2,771	$ 600	$ 3,371
60	$ 4,141	$ 900	$ 5,041
75	$ 5,298	$ 1,000	$ 6,298
100	$ 6,303	$ 1,200	$ 7,503
125	$ 9,135	$ 1,500	$ 10,635
150	$ 10,353	$ 1,600	$ 11,953
200	$ 12,424	$ 2,000	$ 14,424

costs updated 12/09

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Ravine Drive Elementary School

New Jersey Pay For Performance Incentive Program

Note: The following calculation is based on the New Jersey Pay For Performance Incentive Program per April, 2012.
Building must have a minimum average electric demand of 100 kW. This minimum is waived for buildings owned by local governements or non-profit organizations.
Values used in this calculation are for measures with a payback of 15 years or less only.

Total Building Area (Square Feet)	46,848
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilites (BPU)

Incentive #1		
Audit is funded by NJ BPU	$0.10	$/sqft

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	$11,643	$28,913
Existing Usage (from utility)	102,712	24,049
Proposed Savings	14,642	2,572
Existing Total MMBtus	2,755	
Proposed Savings MMBtus	307	
% Energy Reduction	**11.1%**	
Proposed Annual Savings	$4,887	

	Min (Savings = 15%)		Increase (Savings > 15%)		Max Incentive		Achieved Incentive	
	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm
Incentive #2	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.00	$0.00
Incentive #3	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.00	$0.00

	Incentives $		
	Elec	Gas	Total
Incentive #1	$0	$0	$0
Incentive #2	$0	$0	$0
Incentive #3	$0	$0	$0
Total All Incentives	**$0**	**$0**	**$0**

Total Project Cost	$367,721

		Allowable Incentive
% Incentives #1 of Utility Cost*	0.0%	$0
% Incentives #2 of Project Cost**	0.0%	$0
% Incentives #3 of Project Cost**	0.0%	$0
Total Eligible Incentives***	**$0**	
Project Cost w/ Incentives	$367,721	

Project Payback (years)	
w/o Incentives	w/ Incentives
75.2	75.2

* Maximum allowable incentive is 50% of annual utility cost if not funded by NJ BPU, and %25 if it is.

** Maximum allowable amount of Incentive #2 is 25% of total project cost.
Maximum allowable amount of Incentive #3 is 25% of total project cost.

*** Maximum allowable amount of Incentive #1 is $50,000 if not funded by NJ BPU, and $25,000 if it is.
Maximum allowable amount of Incentive #2 & #3 is $1 million per gas account and $1 million per electric account; maximum 2 million per project

Energy Audit of Ravine Drive Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.102** **$/kWh**
$4.29 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
35LED	Main Office	Office w/ OCC	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.80	SW	1500	NONE	2,700	
18LED	Gymnasium	Gymnasium	20	T 32 R F 4 (ELE)	F44ILL	112	2.24	SW	2912	NONE	6,523	
13	Boiler Room	Mechanical Room	8	S 32 P F 2 (ELE)	F42LL	60	0.48	SW	1000	NONE	480	
13	Custodial Office	Offices	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
13	Gym Hallway	Hallways	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	3192	NONE	575	
105	Closet	Storage Areas	1	W 32 F 1	F41LL	32	0.03	SW	1000	NONE	32	
35LED	Men's Bathroom	Restrooms	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	1000	NONE	180	
35LED	Women's Restroom	Restrooms	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	1000	NONE	180	
13	Stage	Cafeteria	5	S 32 P F 2 (ELE)	F42LL	60	0.30	SW	1600	NONE	480	
96	Stage	Cafeteria	1	W 17 C F 2	F22ILL	33	0.03	SW	1600	NONE	53	
13	Custodian	Linen/Utility/Wet/Janitor/Electrical	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
18LED	Cafeteria	Cafeteria	14	T 32 R F 4 (ELE)	F44ILL	112	1.57	SW	1600	NONE	2,509	
13	Kitchen	Kitchen	19	S 32 P F 2 (ELE)	F42LL	60	1.14	SW	1600	NONE	1,824	
96	Closet	Linen/Utility/Wet/Janitor/Electrical	1	W 17 C F 2	F22ILL	33	0.03	SW	1000	NONE	33	
220	Bathroom	Restrooms	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Hallway	Hallways	7	S 32 P F 2 (ELE)	F42LL	60	0.42	SW	3192	NONE	1,341	
18LED	Room 28	Classroom w/ OCC	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	1800	NONE	2,419	
13	Nurse	Office w/ OCC	8	S 32 P F 2 (ELE)	F42LL	60	0.48	SW	1500	NONE	720	
105	Faculty Lounge	Staff Lounge	8	W 32 F 1	F41LL	32	0.26	SW	3600	C-OCC	922	
18LED	Men's Bathroom	Restrooms	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	1000	NONE	112	
18LED	Women's Restroom	Restrooms	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	1000	NONE	112	
18LED	Room 27	Classroom w/ OCC	6	T 32 R F 4 (ELE)	F44ILL	112	0.67	SW	1800	NONE	1,210	
44	Library	Library	14	DC 26 W CF 2	CFQ26/2-L	50	0.70	SW	2200	NONE	1,540	
13	Library Closet	Storage Areas	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Library	Media Center	38	S 32 P F 2 (ELE)	F42LL	60	2.28	SW	2200	NONE	5,016	
18LED	Library	Media Center	13	T 32 R F 4 (ELE)	F44ILL	112	1.46	SW	2200	NONE	3,203	
13	Lobby	Hallways	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	3192	NONE	383	
217	Lobby	Hallways	1	2B 17 R F 4 (ELE)	F24ILL	61	0.06	SW	3192	NONE	195	
41	Girl's Bathroom	Restrooms	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.35	SW	1000	NONE	354	
41	Boy's Bathroom	Restrooms	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.35	SW	1000	NONE	354	
13	Electrical	Linen/Utility/Wet/Janitor/Electrical	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
13	Electrical	Linen/Utility/Wet/Janitor/Electrical	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
105	Room A	Classroom w/ OCC	22	W 32 F 1	F41LL	32	0.70	SW	1800	NONE	1,267	
105	Room B	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 1	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 3	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 4	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 5	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 7	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 8	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 9	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 10	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 11	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 12	Classroom w/ OCC	18	W 32 F 1	F41LL	32	0.58	SW	1800	NONE	1,037	
105	Room 23-Art Room	Classroom w/ OCC	26	W 32 F 1	F41LL	32	0.83	SW	1800	NONE	1,498	
13	Room 12A-Guidance	Office w/ OCC	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	1500	NONE	360	
105	Room 13	Classroom w/ OCC	19	W 32 F 1	F41LL	32	0.61	SW	1800	NONE	1,094	
105	Room 14	Classroom w/ OCC	19	W 32 F 1	F41LL	32	0.61	SW	1800	NONE	1,094	
105	Room 15	Classroom w/ OCC	19	W 32 F 1	F41LL	32	0.61	SW	1800	NONE	1,094	
105	Room 16	Classroom w/ OCC	19	W 32 F 1	F41LL	32	0.61	SW	1800	NONE	1,094	
105	Room 17	Classroom w/ OCC	19	W 32 F 1	F41LL	32	0.61	SW	1800	NONE	1,094	
105	Room 18	Classroom w/ OCC	19	W 32 F 1	F41LL	32	0.61	SW	1800	NONE	1,094	
105	Room 19	Classroom w/ OCC	19	W 32 F 1	F41LL	32	0.61	SW	1800	NONE	1,094	
105	Room 20	Classroom w/ OCC	19	W 32 F 1	F41LL	32	0.61	SW	1800	NONE	1,094	
105	Room 21	Classroom w/ OCC	19	W 32 F 1	F41LL	32	0.61	SW	1800	NONE	1,094	
105	Room 22	Classroom w/ OCC	19	W 32 F 1	F41LL	32	0.61	SW	1800	NONE	1,094	
13	Custodian	Linen/Utility/Wet/Janitor/Electrical	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
105	Boy's Bathroom	Restrooms	4	W 32 F 1	F41LL	32	0.13	SW	1000	NONE	128	
105	Girl's Bathroom	Restrooms	4	W 32 F 1	F41LL	32	0.13	SW	1000	NONE	128	
96	Electrical	Linen/Utility/Wet/Janitor/Electrical	1	W 17 C F 2	F22ILL	33	0.03	SW	1000	NONE	33	
13	Faculty Lounge	Staff Lounge	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	3600	C-OCC	648	
105	Men's Bathroom	Restrooms	1	W 32 F 1	F41LL	32	0.03	SW	1000	NONE	32	
105	Women's Restroom	Restrooms	1	W 32 F 1	F41LL	32	0.03	SW	1000	NONE	32	
13	Hallway	Hallways	42	S 32 P F 2 (ELE)	F42LL	60	2.52	SW	3192	NONE	8,044	

Energy Audit of Ravine Drive Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity: $0.102 $/kWh
$4.29 $/kW

			EXISTING CONDITIONS										
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes

Energy Audit of Ravine Drive Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity:	$0.102 $/kWh
	$4.29 $/kW

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
	Total		726				34.75				68,754	

Energy Audit of Ravine Drive Elementary School

CHA Project No.27221

ECM-L1 Lighting Replacements

		EXISTING CONDITIONS							RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	($/kWh) * (kWh Saved)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
35LED	Main Office	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	1500	2,700	20	T 59 R LED	TLED59	59	1.2	SW	1,500	1,770	930	0.6	$ 126.32	$ 8,640.00	$1,000	68.4	60.5
18LED	Gymnasium	20	T 32 R F 4 (ELE)	F44ILL	112	2.2	SW	2912	6,523	20	T 74 R LED	TLED74	74	1.5	SW	2,912	4,310	2,213	0.8	$ 263.79	$ 8,640.00	$1,000	32.8	29.0
13	Boiler Room	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1000	480	8	T 28 R F 2	F42SSILL	48	0.4	SW	1,000	384	96	0.1	$ 14.69	$ 918.00	$80	62.5	57.1
13	Custodial Office	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	T 28 R F 2	F42SSILL	48	0.1	SW	2,400	230	58	0.0	$ 7.08	$ 229.50	$20	32.4	29.6
13	Gym Hallway	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3192	575	3	T 28 R F 2	F42SSILL	48	0.1	SW	3,192	460	115	0.0	$ 13.52	$ 344.25	$30	25.5	23.2
105	Closet	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	SW	1,000	32	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	Men's Bathroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1000	180	2	T 59 R LED	TLED59	59	0.1	SW	1,000	118	62	0.1	$ 9.48	$ 864.00	$100	91.1	80.6
35LED	Women's Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1000	180	2	T 59 R LED	TLED59	59	0.1	SW	1,000	118	62	0.1	$ 9.48	$ 864.00	$100	91.1	80.6
13	Stage	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1600	480	5	T 28 R F 2	F42SSILL	48	0.2	SW	1,600	384	96	0.1	$ 12.83	$ 573.75	$50	44.7	40.8
96	Stage	1	W 17 C F 2	F22ILL	33	0.0	SW	1600	53	1	W 17 C F 2	F22ILL	33	0.0	SW	1,600	53	-	0.0	$ -	$ -	$0		#DIV/0!
13	Custodian	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 1.84	$ 114.75	$10	62.5	57.1
18LED	Cafeteria	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	1600	2,509	14	T 74 R LED	TLED74	74	1.0	SW	1,600	1,658	851	0.5	$ 113.79	$ 6,048.00	$700	53.1	47.0
13	Kitchen	19	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1600	1,824	19	T 28 R F 2	F42SSILL	48	0.9	SW	1,600	1,459	365	0.2	$ 48.77	$ 2,180.25	$190	44.7	40.8
96	Closet	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33	1	W 17 C F 2	F22ILL	33	0.0	SW	1,000	33	-	0.0	$ -	$ -	$0		#DIV/0!
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Hallway	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	3192	1,341	7	T 28 R F 2	F42SSILL	48	0.3	SW	3,192	1,073	268	0.1	$ 31.54	$ 803.25	$70	25.5	23.2
18LED	Room 28	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	1800	2,419	12	T 74 R LED	TLED74	74	0.9	SW	1,800	1,598	821	0.5	$ 106.79	$ 5,184.00	$600	48.5	42.9
13	Nurse	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1500	720	8	T 28 R F 2	F42SSILL	48	0.4	SW	1,500	576	144	0.1	$ 19.56	$ 918.00	$80	46.9	42.8
105	Faculty Lounge	8	W 32 F 1	F41LL	32	0.3	SW	3600	922	8	W 32 F 1	F41LL	32	0.3	SW	3,600	922	-	0.0	$ -	$ -	$0		#DIV/0!
18LED	Men's Bathroom	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	1000	112	1	T 74 R LED	TLED74	74	0.1	SW	1,000	74	38	0.0	$ 5.81	$ 432.00	$50	74.3	65.7
18LED	Women's Restroom	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	1000	112	1	T 74 R LED	TLED74	74	0.1	SW	1,000	74	38	0.0	$ 5.81	$ 432.00	$50	74.3	65.7
18LED	Room 27	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	1800	1,210	6	T 74 R LED	TLED74	74	0.4	SW	1,800	799	410	0.2	$ 53.40	$ 2,592.00	$300	48.5	42.9
44	Library	14	DC 26 W CF 2	CFQ26/2-L	50	0.7	SW	2200	1,540	14	DC 26 W CF 2	CFQ26/2-L	50	0.7	SW	2,200	1,540	-	0.0	$ -	$ -	$0		#DIV/0!
13	Library Closet	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 3.67	$ 229.50	$20	62.5	57.1
13	Library	38	S 32 P F 2 (ELE)	F42LL	60	2.3	SW	2200	5,016	38	T 28 R F 2	F42SSILL	48	1.8	SW	2,200	4,013	1,003	0.5	$ 125.31	$ 4,360.50	$380	34.8	31.8
18LED	Library	13	T 32 R F 4 (ELE)	F44ILL	112	1.5	SW	2200	3,203	13	T 74 R LED	TLED74	74	1.0	SW	2,200	2,116	1,087	0.5	$ 135.76	$ 5,616.00	$650	41.4	36.6
13	Lobby	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383	2	T 28 R F 2	F42SSILL	48	0.1	SW	3,192	306	77	0.0	$ 9.01	$ 229.50	$20	25.5	23.2
217	Lobby	1	2B 17 R F 4 (ELE)	F24ILL	61	0.1	SW	3192	195	1	2B 17 R F 4 (ELE)	F24ILL	61	0.1	SW	3,192	195	-	0.0	$ -	$ -	$0		#DIV/0!
41	Girl's Bathroom	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	SW	1000	354	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	SW	1,000	354	-	0.0	$ -	$ -	$0		#DIV/0!
41	Boy's Bathroom	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	SW	1000	354	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	SW	1,000	354	-	0.0	$ -	$ -	$0		#DIV/0!
13	Electrical	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 3.67	$ 229.50	$20	62.5	57.1
13	Electrical	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 3.67	$ 229.50	$20	62.5	57.1
105	Room A	22	W 32 F 1	F41LL	32	0.7	SW	1800	1,267	22	W 32 F 1	F41LL	32	0.7	SW	1,800	1,267	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room B	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 1	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 3	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 4	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 5	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 7	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 8	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 9	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 10	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 11	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 12	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	SW	1,800	1,037	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 23-Art Room	26	W 32 F 1	F41LL	32	0.8	SW	1800	1,498	26	W 32 F 1	F41LL	32	0.8	SW	1,800	1,498	-	0.0	$ -	$ -	$0		#DIV/0!
13	Room 12A-Guidance	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1500	360	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,500	288	72	0.0	$ 9.78	$ 459.00	$40	46.9	42.8
105	Room 13	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	SW	1,800	1,094	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 14	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	SW	1,800	1,094	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 15	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	SW	1,800	1,094	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 16	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	SW	1,800	1,094	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 17	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	SW	1,800	1,094	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 18	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	SW	1,800	1,094	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 19	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	SW	1,800	1,094	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 20	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	SW	1,800	1,094	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 21	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	SW	1,800	1,094	-	0.0	$ -	$ -	$0		#DIV/0!
105	Room 22	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	SW	1,800	1,094	-	0.0	$ -	$ -	$0		#DIV/0!
13	Custodian	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 1.84	$ 114.75	$10	62.5	57.1
105	Boy's Bathroom	4	W 32 F 1	F41LL	32	0.1	SW	1000	128	4	W 32 F 1	F41LL	32	0.1	SW	1,000	128	-	0.0	$ -	$ -	$0		#DIV/0!
105	Girl's Bathroom	4	W 32 F 1	F41LL	32	0.1	SW	1000	128	4	W 32 F 1	F41LL	32	0.1	SW	1,000	128	-	0.0	$ -	$ -	$0		#DIV/0!
96	Electrical	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33	1	W 17 C F 2	F22ILL	33	0.0	SW	1,000	33	-	0.0	$ -	$ -	$0		#DIV/0!
13	Faculty Lounge	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3600	648	3	T 28 R F 2	F42SSILL	48	0.1	SW	3,600	518	130	0.0	$ 15.01	$ 344.25	$30	22.9	20.9
105	Men's Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	SW	1,000	32	-	0.0	$ -	$ -	$0		#DIV/0!
105	Women's Restroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	SW	1,000	32	-	0.0	$ -	$ -	$0		#DIV/0!
13	Hallway	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	3192	8,044	42	T 28 R F 2	F42SSILL	48	2.0	SW	3,192	6,435	1,609	0.5	$ 189.26	$ 4,819.50	$420	25.5	23.2

Energy Audit of Ravine Drive Elementary School
CHA Project No.27221
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS							
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
	Total	726				34.8			68,754	726				2,787	29.7			58,115	10,640	5.1	$1,342	$56,410	$6,040		
																		Demand Savings			5.1	$261			
																		kWh Savings			10,640	$1,080			
																		Total savings				$1,342		42.0	37.5

Energy Audit of Ravine Drive Elementary School
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	**No. of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**Exist Control**	**Annual Hours**	**Annual kWh**	**Number of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**Retrofit Control**	**Annual Hours**	**Annual kWh**	**Annual kWh Saved**	**Annual kW Saved**	**Annual $ Saved**	**Retrofit Cost**	**NJ Smart Start Lighting Incentive**	**Simple Payback With Out Incentive**	**Simple Payback**
Field Code	**Unique description of the location - Room number/Room name: Floor number (if applicable)**	**No. of fixtures before the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Fixt No.)**	**Pre-inst. control device**	**Estimated annual hours for the usage group**	**(kW/space) * (Annual Hours)**	**No. of fixtures after the retrofit**	**"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Number of Fixtures)**	**Retrofit control device**	**Estimated annual hours for the usage group**	**(kW/space) * (Annual Hours)**	**(Original Annual kWh) - (Retrofit Annual kWh)**	**(Original Annual kW) - (Retrofit Annual kW)**	**(kW Saved) * ($/kWh)**	**Cost for renovations to lighting system**		**Length of time for renovations cost to be recovered**	**Length of time for renovations cost to be recovered**
35LED	Main Office	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	1500	2,700.0	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	NONE	1500	2,700.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Gymnasium	20	T 32 R F 4 (ELE)	F44ILL	112	2.2	SW	2912	6,522.9	20	T 32 R F 4 (ELE)	F44ILL	112	2.2	NONE	2912	6,522.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Boiler Room	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1000	480.0	8	S 32 P F 2 (ELE)	F42LL	60	0.5	NONE	1000	480.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Custodial Office	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	C-OCC	1200	144.0	144.0	0.0	$14.62	$270.00	$35.00	18.5	16.1
13	Gym Hallway	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3192	574.6	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	3192	574.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Closet	1	W 32 F 1	F41LL	32	0.0	SW	1000	32.0	1	W 32 F 1	F41LL	32	0.0	NONE	1000	32.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Men's Bathroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1000	180.0	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Women's Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1000	180.0	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Stage	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1600	480.0	5	S 32 P F 2 (ELE)	F42LL	60	0.3	NONE	1600	480.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
96	Stage	1	W 17 C F 2	F22ILL	33	0.0	SW	1600	52.8	1	W 17 C F 2	F22ILL	33	0.0	NONE	1600	52.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Custodian	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Cafeteria	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	1600	2,508.8	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	NONE	1600	2,508.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Kitchen	19	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1600	1,824.0	19	S 32 P F 2 (ELE)	F42LL	60	1.1	NONE	1600	1,824.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
96	Closet	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33.0	1	W 17 C F 2	F22ILL	33	0.0	NONE	1000	33.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Hallway	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	3192	1,340.6	7	S 32 P F 2 (ELE)	F42LL	60	0.4	NONE	3192	1,340.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 28	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	1800	2,419.2	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	NONE	1800	2,419.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Nurse	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1500	720.0	8	S 32 P F 2 (ELE)	F42LL	60	0.5	NONE	1500	720.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Faculty Lounge	8	W 32 F 1	F41LL	32	0.3	SW	3600	921.6	8	W 32 F 1	F41LL	32	0.3	C-OCC	2800	716.8	204.8	0.0	$20.79	$270.00	$35.00	13.0	11.3
18LED	Men's Bathroom	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	1000	112.0	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	NONE	1000	112.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Women's Restroom	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	1000	112.0	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	NONE	1000	112.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Room 27	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	1800	1,209.6	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	NONE	1800	1,209.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
44	Library	14	DC 26 W CF 2	CFQ26/2-L	50	0.7	SW	2200	1,540.0	14	DC 26 W CF 2	CFQ26/2-L	50	0.7	NONE	2200	1,540.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Library Closet	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Library	38	S 32 P F 2 (ELE)	F42LL	60	2.3	SW	2200	5,016.0	38	S 32 P F 2 (ELE)	F42LL	60	2.3	NONE	2200	5,016.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Library	13	T 32 R F 4 (ELE)	F44ILL	112	1.5	SW	2200	3,203.2	13	T 32 R F 4 (ELE)	F44ILL	112	1.5	NONE	2200	3,203.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Lobby	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	3192	383.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
217	Lobby	1	2B 17 R F 4 (ELE)	F24ILL	61	0.1	SW	3192	194.7	1	2B 17 R F 4 (ELE)	F24ILL	61	0.1	NONE	3192	194.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Girl's Bathroom	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	SW	1000	354.0	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	NONE	1000	354.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Boy's Bathroom	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	SW	1000	354.0	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	NONE	1000	354.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Electrical	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Electrical	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room A	22	W 32 F 1	F41LL	32	0.7	SW	1800	1,267.2	22	W 32 F 1	F41LL	32	0.7	NONE	1800	1,267.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room B	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 1	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 3	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 4	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 5	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 7	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 8	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 9	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 10	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 11	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 12	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,036.8	18	W 32 F 1	F41LL	32	0.6	NONE	1800	1,036.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 23-Art Room	26	W 32 F 1	F41LL	32	0.8	SW	1800	1,497.6	26	W 32 F 1	F41LL	32	0.8	NONE	1800	1,497.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 12A-Guidance	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1500	360.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1500	360.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 13	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094.4	19	W 32 F 1	F41LL	32	0.6	NONE	1800	1,094.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 14	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094.4	19	W 32 F 1	F41LL	32	0.6	NONE	1800	1,094.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 15	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094.4	19	W 32 F 1	F41LL	32	0.6	NONE	1800	1,094.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 16	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094.4	19	W 32 F 1	F41LL	32	0.6	NONE	1800	1,094.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 17	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094.4	19	W 32 F 1	F41LL	32	0.6	NONE	1800	1,094.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 18	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094.4	19	W 32 F 1	F41LL	32	0.6	NONE	1800	1,094.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 19	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094.4	19	W 32 F 1	F41LL	32	0.6	NONE	1800	1,094.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 20	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094.4	19	W 32 F 1	F41LL	32	0.6	NONE	1800	1,094.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 21	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094.4	19	W 32 F 1	F41LL	32	0.6	NONE	1800	1,094.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Room 22	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094.4	19	W 32 F 1	F41LL	32	0.6	NONE	1800	1,094.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Custodian	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Boy's Bathroom	4	W 32 F 1	F41LL	32	0.1	SW	1000	128.0	4	W 32 F 1	F41LL	32	0.1	NONE	1000	128.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Girl's Bathroom	4	W 32 F 1	F41LL	32	0.1	SW	1000	128.0	4	W 32 F 1	F41LL	32	0.1	NONE	1000	128.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
96	Electrical	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33.0	1	W 17 C F 2	F22ILL	33	0.0	NONE	1000	33.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Faculty Lounge	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3600	648.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	C-OCC	2800	504.0	144.0	0.0	$14.62	$270.00	$35.00	18.5	16.1
105	Men's Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32.0	1	W 32 F 1	F41LL	32	0.0	NONE	1000	32.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Women's Restroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32.0	1	W 32 F 1	F41LL	32	0.0	NONE	1000	32.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Hallway	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	3192	8,043.8	42	S 32 P F 2 (ELE)	F42LL	60	2.5	NONE	3192	8,043.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
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Energy Audit of Ravine Drive Elementary School
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
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																	Demand Savings			0.0	$0			
																	kWh Savings			493	$50			
																	Total Savings				$50		16.2	14.1

Energy Audit of Ravine Drive Elementary School
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
35LED	Main Office	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	1500	2,700	20	T 59 R LED	TLED59	59	1.2	NONE	1,500	1,770	930	0.6	$ 126.32	$ 8,640.00	$ 1,000	68.4	60.5
18LED	Gymnasium	20	T 32 R F 4 (ELE)	F44ILL	112	2.2	SW	2912	6,523	20	T 74 R LED	TLED74	74	1.5	NONE	2,912	4,310	2,213	0.8	$ 263.79	$ 8,640.00	$ 1,000	32.8	29.0
13	Boiler Room	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1000	480	8	T 28 R F 2	F42SSILL	48	0.4	NONE	1,000	384	96	0.1	$ 14.69	$ 918.00	$ 80	62.5	57.1
13	Custodial Office	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	T 28 R F 2	F42SSILL	48	0.1	C-OCC	1,200	115	173	0.0	$ 18.78	$ 499.50	$ 55	26.6	23.7
13	Gym Hallway	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3192	575	3	T 28 R F 2	F42SSILL	48	0.1	NONE	3,192	460	115	0.0	$ 13.52	$ 344.25	$ 30	25.5	23.2
105	Closet	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	NONE	1,000	32	-	0.0	$ -	$ -	$ -		
35LED	Men's Bathroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1000	180	2	T 59 R LED	TLED59	59	0.1	NONE	1,000	118	62	0.1	$ 9.48	$ 864.00	$ 100	91.1	80.6
35LED	Women's Restroom	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	1000	180	2	T 59 R LED	TLED59	59	0.1	NONE	1,000	118	62	0.1	$ 9.48	$ 864.00	$ 100	91.1	80.6
13	Stage	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1600	480	5	T 28 R F 2	F42SSILL	48	0.2	NONE	1,600	384	96	0.1	$ 12.83	$ 573.75	$ 50	44.7	40.8
96	Stage	1	W 17 C F 2	F22ILL	33	0.0	SW	1600	53	1	W 17 C F 2	F22ILL	33	0.0	NONE	1,600	53	-	0.0	$ -	$ -	$ -		
13	Custodian	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 1.84	$ 114.75	$ 10	62.5	57.1
18LED	Cafeteria	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	1600	2,509	14	T 74 R LED	TLED74	74	1.0	NONE	1,600	1,658	851	0.5	$ 113.79	$ 6,048.00	$ 700	53.1	47.0
13	Kitchen	19	S 32 P F 2 (ELE)	F42LL	60	1.1	SW	1600	1,824	19	T 28 R F 2	F42SSILL	48	0.9	NONE	1,600	1,459	365	0.2	$ 48.77	$ 2,180.25	$ 190	44.7	40.8
96	Closet	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33	1	W 17 C F 2	F22ILL	33	0.0	NONE	1,000	33	-	0.0	$ -	$ -	$ -		
220	Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Hallway	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	3192	1,341	7	T 28 R F 2	F42SSILL	48	0.3	NONE	3,192	1,073	268	0.1	$ 31.54	$ 803.25	$ 70	25.5	23.2
18LED	Room 28	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	1800	2,419	12	T 74 R LED	TLED74	74	0.9	NONE	1,800	1,598	821	0.5	$ 106.79	$ 5,184.00	$ 600	48.5	42.9
13	Nurse	8	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	1500	720	8	T 28 R F 2	F42SSILL	48	0.4	NONE	1,500	576	144	0.1	$ 19.56	$ 918.00	$ 80	46.9	42.8
105	Faculty Lounge	8	W 32 F 1	F41LL	32	0.3	SW	3600	922	8	W 32 F 1	F41LL	32	0.3	C-OCC	2,800	717	205	0.0	$ 20.79	$ 270.00	$ 35	13.0	11.3
18LED	Men's Bathroom	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	1000	112	1	T 74 R LED	TLED74	74	0.1	NONE	1,000	74	38	0.0	$ 5.81	$ 432.00	$ 50	74.3	65.7
18LED	Women's Restroom	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	1000	112	1	T 74 R LED	TLED74	74	0.1	NONE	1,000	74	38	0.0	$ 5.81	$ 432.00	$ 50	74.3	65.7
18LED	Room 27	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	1800	1,210	6	T 74 R LED	TLED74	74	0.4	NONE	1,800	799	410	0.2	$ 53.40	$ 2,592.00	$ 300	48.5	42.9
44	Library	14	DC 26 W CF 2	CFQ26/2-L	50	0.7	SW	2200	1,540	14	DC 26 W CF 2	CFQ26/2-L	50	0.7	NONE	2,200	1,540	-	0.0	$ -	$ -	$ -		
13	Library Closet	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 3.67	$ 229.50	$ 20	62.5	57.1
13	Library	38	S 32 P F 2 (ELE)	F42LL	60	2.3	SW	2200	5,016	38	T 28 R F 2	F42SSILL	48	1.8	NONE	2,200	4,013	1,003	0.5	$ 125.31	$ 4,360.50	$ 380	34.8	31.8
18LED	Library	13	T 32 R F 4 (ELE)	F44ILL	112	1.5	SW	2200	3,203	13	T 74 R LED	TLED74	74	1.0	NONE	2,200	2,116	1,087	0.5	$ 135.76	$ 5,616.00	$ 650	41.4	36.6
13	Lobby	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	3192	383	2	T 28 R F 2	F42SSILL	48	0.1	NONE	3,192	306	77	0.0	$ 9.01	$ 229.50	$ 20	25.5	23.2
217	Lobby	1	2B 17 R F 4 (ELE)	F24ILL	61	0.1	SW	3192	195	1	2B 17 R F 4 (ELE)	F24ILL	61	0.1	NONE	3,192	195	-	0.0	$ -	$ -	$ -		
41	Girl's Bathroom	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	SW	1000	354	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	NONE	1,000	354	-	0.0	$ -	$ -	$ -		
41	Boy's Bathroom	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	SW	1000	354	6	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.4	NONE	1,000	354	-	0.0	$ -	$ -	$ -		
13	Electrical	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 3.67	$ 229.50	$ 20	62.5	57.1
13	Electrical	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 3.67	$ 229.50	$ 20	62.5	57.1
105	Room A	22	W 32 F 1	F41LL	32	0.7	SW	1800	1,267	22	W 32 F 1	F41LL	32	0.7	NONE	1,800	1,267	-	0.0	$ -	$ -	$ -		
105	Room B	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 1	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 3	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 4	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 5	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 7	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 8	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 9	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 10	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 11	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 12	18	W 32 F 1	F41LL	32	0.6	SW	1800	1,037	18	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,037	-	0.0	$ -	$ -	$ -		
105	Room 23-Art Room	26	W 32 F 1	F41LL	32	0.8	SW	1800	1,498	26	W 32 F 1	F41LL	32	0.8	NONE	1,800	1,498	-	0.0	$ -	$ -	$ -		
13	Room 12A-Guidance	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1500	360	4	T 28 R F 2	F42SSILL	48	0.2	NONE	1,500	288	72	0.0	$ 9.78	$ 459.00	$ 40	46.9	42.8
105	Room 13	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,094	-	0.0	$ -	$ -	$ -		
105	Room 14	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,094	-	0.0	$ -	$ -	$ -		
105	Room 15	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,094	-	0.0	$ -	$ -	$ -		
105	Room 16	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,094	-	0.0	$ -	$ -	$ -		
105	Room 17	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,094	-	0.0	$ -	$ -	$ -		
105	Room 18	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,094	-	0.0	$ -	$ -	$ -		
105	Room 19	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,094	-	0.0	$ -	$ -	$ -		
105	Room 20	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,094	-	0.0	$ -	$ -	$ -		
105	Room 21	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,094	-	0.0	$ -	$ -	$ -		
105	Room 22	19	W 32 F 1	F41LL	32	0.6	SW	1800	1,094	19	W 32 F 1	F41LL	32	0.6	NONE	1,800	1,094	-	0.0	$ -	$ -	$ -		
13	Custodian	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 1.84	$ 114.75	$ 10	62.5	57.1
105	Boy's Bathroom	4	W 32 F 1	F41LL	32	0.1	SW	1000	128	4	W 32 F 1	F41LL	32	0.1	NONE	1,000	128	-	0.0	$ -	$ -	$ -		
105	Girl's Bathroom	4	W 32 F 1	F41LL	32	0.1	SW	1000	128	4	W 32 F 1	F41LL	32	0.1	NONE	1,000	128	-	0.0	$ -	$ -	$ -		
96	Electrical	1	W 17 C F 2	F22ILL	33	0.0	SW	1000	33	1	W 17 C F 2	F22ILL	33	0.0	NONE	1,000	33	-	0.0	$ -	$ -	$ -		
13	Faculty Lounge	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3600	648	3	T 28 R F 2	F42SSILL	48	0.1	C-OCC	2,800	403	245	0.0	$ 26.71	$ 614.25	$ 65	23.0	20.6
105	Men's Bathroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	NONE	1,000	32	-	0.0	$ -	$ -	$ -		
105	Women's Restroom	1	W 32 F 1	F41LL	32	0.0	SW	1000	32	1	W 32 F 1	F41LL	32	0.0	NONE	1,000	32	-	0.0	$ -	$ -	$ -		
13	Hallway	42	S 32 P F 2 (ELE)	F42LL	60	2.5	SW	3192	8,044	42	T 28 R F 2	F42SSILL	48	2.0	NONE	3,192	6,435	1,609	0.5	$ 189.26	$ 4,819.50	$ 420	25.5	23.2
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Energy Audit of Ravine Drive Elementary School
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
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S	Total	726				34.8			68,754	726				29.7			57,679		5.1	1,386	57,220	$6,145		
S																	Demand Savings			5.1	$261			
S																	kWh Savings			11,075	$1,124			
S																	Total Savings				$1,386		41.3	36.9

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221

Rate of Discount (used for NPV) 3.0%

Utility Costs		Yearly Usage	Building Area	Annual Utility Cost	
$ 0.123	$/kWh blended		60,110	Electric	Natural Gas
$ 0.096	$/kWh supply	285,068		35,011	23,343
$ 6.25	$/kW	137.4			
$ 1.11	$/Therm	23,343			
$ 18.00	$/kgals	570			

Strathmore Elementary School

	Item	Savings					Cost	Simple Payback	Life Expectancy	NJ Smart Start Incentives	Direct Install Eligible (Y/N)*	Direct Install Incentives**	Max Incentives	Payback w/ Incentives***	Simple Projected Lifetime Savings					ROI	NPV	IRR
		kW	kWh	therms	Water kgal	$									kW	kWh	therms	kgal/vr	$			
ECM-2	Replace Boilers with Condensing HW Boilers	0.0	0	1,248	0	1,387	$ 126,324	91.1	25	$ 3,000	Y	$ 75,000	$ 3,000	88.9	0.0	0	31,209	0	$ 34,673	(0.7)	($99,173)	-8.1%
ECM-5	Install VFDs & Premium Pumps on Hot water Pumps	0.0	5,791	0	0	711	$ 12,246	17.2	15	$ 552	Y	$ 8,600	$ 552	16.4	0.0	86,867	0	0	$ 10,669	(0.1)	($3,203)	-1.1%
ECM-9	Demand Control Ventilation	0.0	0	1,109	0	1,232	$ 8,000	6.5	15.0	$ -	N	$ -	$ -	6.5	0.0	0	16,629	0	$ 18,475	1.3	$6,704	12.9%
ECM-L1	Lighting Replacements / Upgrades	15.4	46,570	0	0	5,606	$ 109,686	19.6	15.0	$ 11,500	Y	$ 75,000	$ 11,500	17.5	231.3	698,553	0	0	########	(0.1)	($31,266)	-1.9%
	Total	**15.4**	**52,361**	**2,357**	**0**	**$ 8,935**	**$ 256,255**	28.7	17.5	$ 15,052		$ 158,600	$ 15,052	27.0	231.3	785,420	47,838	0	########	(0.3)	($123,558)	-4.7%
	Total Measures with Payback <15	**0.0**	**0**	**1,109**	**0**	**$ 1,232**	**$ 8,000**	6.5	15.0	$ -		$ -	$ -	6.5	0.0	0	16,629	0	$ 18,475	1.3	$6,704	12.9%
	% of Existing	**11%**	**18%**	**10%**	**0%**																	

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Strathmore Elementary School

ECM-2: Boiler Replacement

* Replace Cleaverbrooks boiler with gas fired condensing boiler

Existing Fuel Nat.Gas
Proposed Fuel Nat.Gas

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.11	/ Therm	
Proposed Fuel Cost	$ 1.11	/ Therm	
Baseline Fuel Use	9,571	Therms	Based on historical utility data
Existing Boiler Plant Efficiency	80%		Estimated
Baseline Boiler Load	765,656	Mbtu/yr	Baseline Fuel Use x Existing Efficiency x 100 Mbtu/Therms
Baseline Fuel Cost	$ 10,633		
Proposed Boiler Plant Efficiency	92%		New Boiler Efficiency
Proposed Fuel Use	8,322	Therms	Baseline Boiler Load / Proposed Efficiency / 100 Mbtu/Therms
Proposed Fuel Cost	$ 9,246		
Estimated Annual Savings	1,248	Therms	

*Note to engineer: Link savings back to summary sheet in appropriate column.

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.10

ECM-2: Boiler Replacement - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
3,000 MBH NG Condensing Boiler	1	EA	$ 45,000	$ 10,000		$ 49,500	$ 13,500	$ -	$ 63,000	
Flue Installation	1	EA	$4,000.0	$2,500.00		$ 4,400	$ 3,375	$ -	$ 7,775	
Controls	1	EA	$1,500.0	$1,500.00		$ 1,650	$ 2,025	$ -	$ 3,675	
Miscellaneous Electrical	1	LS	$ 1,500	$ 1,500		$ 1,650	$ 2,025	$ -	$ 3,675	
Miscellaneous HW Piping	1	LS	$ 5,000	$ 2,500		$ 5,500	$ 3,375	$ -	$ 8,875	
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 87,000	Subtotal
$ 8,700.00	10% Contingency
$ 19,140.00	20% Contractor O&P
$ 11,484	10% Engineering Fees
$ 126,324	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Strathmore Elementary School

ECM-5: Install Variable Speed Drives - HW Pump

Variable Inputs

Blended Electric Rate	$0.12
Heating System "On" Point	55
VFD Efficiency	98.5%

ECM Description Summary

PUMP SCHEDULE							
Pump ID	Qty	HP	Total HP	Existing Motor Motor Eff.	New Motor Motor Eff.	Exist. Motor kW Note 1	New Motor kW Note 2
HWP-1,2	1	3.0	3.0	89.5%	89.5%	2.00	2.00
					Total:	2.00	2.00

SAVINGS ANALYSIS								
OAT - DB Avg Temp F	Annual Hours in Bin	Heating Hours Bin	Pump Load %	Existing Pump kWh	Proposed Pump kW	Speed efficiency %	Proposed Pump kWh	Proposed Savings kWh
(A) See Note 3	(B) See Note 3	(C) =IF(A>TP,0,C)	(D) =0.5+0.5* (50-A)/(50-10)) See Note 4	(E) =D*AA	(F) =BB*E^2.5/CC See Note 5	(G)	(H) =C*F/G	(I) =E-H
102.5	0	0	0%	0	0.0	0.0%	0	0
97.5	6	0	0%	0	0.0	0.0%	0	0
92.5	31	0	0%	0	0.0	0.0%	0	0
87.5	131	0	0%	0	0.0	0.0%	0	0
82.5	500	0	0%	0	0.0	0.0%	0	0
77.5	620	0	0%	0	0.0	0.0%	0	0
72.5	664	0	0%	0	0.0	0.0%	0	0
67.5	854	0	0%	0	0.0	0.0%	0	0
62.5	927	0	0%	0	0.0	0.0%	0	0
57.5	600	0	0%	0	0.0	0.0%	0	0
52.5	730	730	48%	1,460	0.3	78.9%	292	1,168
47.5	491	491	53%	982	0.4	83.9%	237	745
42.5	656	656	58%	1,312	0.5	88.2%	379	933
37.5	1,023	1,023	63%	2,046	0.6	91.8%	699	1,348
32.5	734	734	68%	1,468	0.8	94.9%	588	880
27.5	334	334	73%	668	0.9	97.2%	312	356
22.5	252	252	78%	504	1.1	99.0%	273	231
17.5	125	125	83%	250	1.3	100.0%	157	93
12.5	47	47	88%	94	1.5	100.0%	68	26
7.5	34	34	93%	68	1.7	100.0%	57	11
2.5	1	1	98%	2	1.9	99.7%	2	0
-2.5	0	0	0%	0	0.0	0.0%	0	0
-7.5	0	0	0%	0	0.0	0.0%	0	0
	8,760	4,427		8,856			3,065	5,791

Notes:

1) Existing motor power was determined using motor nameplate data. Formula: Motor HP x 0.746 x 0.8 / Exist. Motor Eff.
2) New motor power is the same as existing motor power adjusted for the new efficiency, if a new motor is proposed.
3) Weather data from NOAA for Newark, NJ
4) The pump load is estimated at 100% at X deg. OAT and 50% at X deg. OAT and varies linearly in between.
5) The required VFD motor draw is based on a 2.5 power relationship to load.
6) The pumps are lead lag so the quantity is shown as (1) because one pump operates at a time

Multipliers	
Material:	1.10
Labor:	1.35
Equipment:	1.00

ECM-5: Install Variable Speed Drives - HW Pump - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
3.0 VFD	2	ea	$ 1,575	$ 431		$ 3,465	$ 1,162	$ -	$ 4,627	RS Means 2012
3.0 Motor	2	ea	$ 326	$ 79		$ 716	$ 213	$ -	$ 929	RS Means 2012
Electrical - misc.	2	ls	$ 200	$ 150		$ 440	$ 405	$ -	$ 845	RS Means 2012
Pipe pressure sensor/transmitter	1	ea	$ 850	$ 500		$ 935	$ 675	$ -	$ 1,610	RS Means 2012
Misc. piping modification	1	ea	$ 200	$ 150		$ 220	$ 203	$ -	$ 423	RS Means 2012
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

Cost estimated are for Energy Savings only- do not use for procurement

$ 8,434	Subtotal
$ 843	10% Contingency
$ 1,855	20% Contractor O&P
$ 1,113	10% Engineering Fees
$ 12,246	**Total**

Matawan-Aberdeen Regional School District - NJBPU
CHA Project #27221
Strathmore Elementary School

AIR HANDLER	AREA SERVED	CFM	OA CFM	% OA
HV-1	Gym	10,000	2,120	21%
			2,120	*CFM*

ECM 8: Demand Controlled Ventilation

*Full DDC Control is needed to implement this ECM

ECM Description Summary

It is assumed the original system controls provide the full design ventilation outside air flow. Reducing outside air during occupied time periods will reduce heating and cooling energy used during the occupied period. A limit of 1000 PPM of CO2 is recommended in ASHRAE Standard 62-1982, Ventilation for Acceptable Indoor Air Quality. During unoccupied periods the outside air dampers should be closed.

Electric Cost	$ 0.12	/kWh
Natural Gas Cost	$ 1.11	/therm
Facility Ventilation Heating Load	80,136	BTU/Hour[1,2,3]
Facility Ventilation Cooling Load	22,896	BTU/Hour[1,2,3]
Existing Ventilation Heating Usage	4,435	Therms[2]
Existing Ventilation Cooling Usage	0	kWh[3]
Proposed Ventilation Heating Usage	3,326	Therms[7]
Proposed Ventilation Cooling Usage	0	kWh[7]
Total heating savings	1,109	**Therms**
Total cooling savings	0	**kWh**
Total cost savings	1,232	
Estimated Total Project Cost	$8,000	[8]
Simple Payback	6.5	**years**

Note: costs are used for enrgy savings calulations only. Do not use for procurment

Assumptions

1	2,120	OA AHU airflow based exsiting equipment model numbers
2	35	°F, Assumed average heating Δt (mixed air and supply)
3	10	°F, Assumed average cooling Δt (mixed air and supply)
4	80%	Heating Efficiency - %
5	0.0	Cooling Efficiency - kW/Ton
6	4,427	AHU run time per heating/cooling season bin data
7	25%	Estimated savings for DCV based on observed occupancy
8	$ 8,000	estimated measure cost for installation of sensors and associated controls

Matawan-Aberdeen Regional School District - NJBPU
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Strathmore Elementary School

New Jersey Pay For Performance Incentive Program

Note: The following calculation is based on the New Jersey Pay For Performance Incentive Program per April, 2012.
Building must have a minimum average electric demand of 100 kW. This minimum is waived for buildings owned by local governements or non-profit organizations.
Values used in this calculation are for measures with a payback of 15 years or less only.

Total Building Area (Square Feet)	60,110
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilites (BPU)

Incentive #1		
Audit is funded by NJ BPU	$0.10	$/sqft

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	$35,011	$23,343
Existing Usage (from utility)	285,068	23,343
Proposed Savings	52,361	2,357
Existing Total MMBtus	3,307	
Proposed Savings MMBtus	414	
% Energy Reduction	**12.5%**	
Proposed Annual Savings	$8,935	

	Min (Savings = 15%)		Increase (Savings > 15%)		Max Incentive		Achieved Incentive	
	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm	$/kWh	$/therm
Incentive #2	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.00	$0.00
Incentive #3	$0.09	$0.90	$0.005	$0.05	$0.11	$1.25	$0.00	$0.00

	Incentives $		
	Elec	Gas	Total
Incentive #1	$0	$0	$0
Incentive #2	$0	$0	$0
Incentive #3	$0	$0	$0
Total All Incentives	**$0**	**$0**	**$0**

Total Project Cost	$256,255

		Allowable Incentive
% Incentives #1 of Utility Cost*	0.0%	$0
% Incentives #2 of Project Cost**	0.0%	$0
% Incentives #3 of Project Cost**	0.0%	$0
Total Eligible Incentives***	**$0**	
Project Cost w/ Incentives	$256,255	

Project Payback (years)	
w/o Incentives	w/ Incentives
28.7	28.7

* Maximum allowable incentive is 50% of annual utility cost if not funded by NJ BPU, and %25 if it is.

** Maximum allowable amount of Incentive #2 is 25% of total project cost.
Maximum allowable amount of Incentive #3 is 25% of total project cost.

*** Maximum allowable amount of Incentive #1 is $50,000 if not funded by NJ BPU, and $25,000 if it is.
Maximum allowable amount of Incentive #2 & #3 is $1 million per gas account and $1 million per electric account; maximum 2 million per project

Energy Audit of Strathmore Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity: **$0.096** **$/kWh**
$6.25 **$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
13	Back Hallway	Hallways	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	3192	NONE	575	
220	Back Hallway	Hallways	2	S 17 C F 1(ELE)	F21ILL	20	0.04	SW	3192	NONE	128	
45	Boiler Room	Mechanical Room	3	SP 26 R CF 1	CFQ26/1-L	27	0.08	SW	1000	NONE	81	
13	Boiler Room	Mechanical Room	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
105	Office	Offices	1	W 32 F 1	F41LL	32	0.03	SW	2400	C-OCC	77	
220	Servery	Kitchen	2	S 17 C F 1(ELE)	F21ILL	20	0.04	SW	1600	NONE	64	
13	Servery	Kitchen	5	S 32 P F 2 (ELE)	F42LL	60	0.30	SW	1600	NONE	480	
45	Servery	Kitchen	1	SP 26 R CF 1	CFQ26/1-L	27	0.03	SW	1600	NONE	43	
13	Cafetorium	Cafeteria	50	S 32 P F 2 (ELE)	F42LL	60	3.00	SW	1600	NONE	4,800	
13	Mechanical Penthouse	Mechanical Room	5	S 32 P F 2 (ELE)	F42LL	60	0.30	SW	1000	NONE	300	
196	Main Office	Office w/ OCC	9	W 32 C F 4 (ELE)	F44ILL	112	1.01	SW	1500	NONE	1,512	
13	Principal's Office	Office w/ OCC	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	1500	NONE	360	
35LED	Lobby	Hallways	27	T 32 R F 3 (ELE)	F43ILL/2	90	2.43	SW	3192	NONE	7,757	
35LED	CST Room	Office w/ OCC	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	1500	NONE	540	
13	Copy Room	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	2125	NONE	510	
13	Room 27	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 28	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 30	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 32	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 33	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 34	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 13	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 11	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 12	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 10	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 9	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 7	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 8	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 6	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 5	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 4	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 3	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 2	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 1	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Nurse's Office	Offices	7	S 32 P F 2 (ELE)	F42LL	60	0.42	SW	2400	C-OCC	1,008	
13	Room 29	Classroom w/ OCC	14	S 32 P F 2 (ELE)	F42LL	60	0.84	SW	2200	NONE	1,848	
13	Room 31	Classroom w/ OCC	20	S 32 P F 2 (ELE)	F42LL	60	1.20	SW	2200	NONE	2,640	
35LED	Room 14	Classroom w/ OCC	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2200	NONE	792	
13	Boy's Bathroom	Restrooms	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	1000	NONE	240	
13	Girl's Bathroom	Restrooms	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Room 16-Speech	Classroom w/ OCC	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	2200	NONE	396	
13	Room 15	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 17	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 19	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 20	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 21	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 22	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 23	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 24	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 25	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
13	Room 26	Classroom w/ OCC	12	S 32 P F 2 (ELE)	F42LL	60	0.72	SW	2200	NONE	1,584	
71	Closet	Linen/Utility/Wet/Janitor/Electrical	1	I 60	I60/1	60	0.06	SW	1000	NONE	60	
13	Boy's Bathroom	Restrooms	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
13	Girl's Bathroom	Restrooms	3	S 32 P F 2 (ELE)	F42LL	60	0.18	SW	1000	NONE	180	
13	Library	Media Center	46	S 32 P F 2 (ELE)	F42LL	60	2.76	SW	2200	NONE	6,072	
41	Copy Room	Copy Room	4	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.24	SW	2125	NONE	502	
13	Faculty Bathroom	Restrooms	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
220	Faculty Bathroom	Restrooms	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Faculty Bathroom	Restrooms	2	S 32 P F 2 (ELE)	F42LL	60	0.12	SW	1000	NONE	120	
220	Faculty Bathroom	Restrooms	1	S 17 C F 1(ELE)	F21ILL	20	0.02	SW	1000	NONE	20	
13	Men's Bathroom	Restrooms	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Women's Bathroom	Restrooms	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1000	NONE	60	
13	Gym Storage	Storage Areas	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	1000	NONE	240	
146	Gymnasium	Gymnasium	24	High Bay MH 400	MH400/1	458	10.99	SW	2912	NONE	32,009	
35LED	Gym Office	Offices	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	2400	C-OCC	432	
141LED	Exterior	Outdoor Lighting	15	HPS 200	HPS200/1	250	3.75	Breaker	4368	NONE	16,380	
241	Exterior	Outdoor Lighting	7	R 250 Q 1	h250/1	250	1.75	Breaker	4368	NONE	7,644	
231LED	Exterior	Outdoor Lighting	3	WP400MH1	MH400/1	458	1.37	Breaker	4368	NONE	6,002	
13	Gym Storage	Storage Areas	4	S 32 P F 2 (ELE)	F42LL	60	0.24	SW	1000	NONE	240	

Energy Audit of Strathmore Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity: $0.096 $/kWh
$6.25 $/kW

			EXISTING CONDITIONS										
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes

Energy Audit of Strathmore Elementary School
CHA Project No.27221
Existing Lighting

Cost of Electricity:	**$0.096**	**$/kWh**
	$6.25	**$/kW**

			EXISTING CONDITIONS									
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Retrofit Control	Annual kWh	
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	Retrofit control device	(kW/space) * (Annual Hours)	Notes
	Total		647				54.92				140,606	

Energy Audit of Strathmore Elementary School

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ECM-L1 Lighting Replacements

		EXISTING CONDITIONS							RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of Fixtures No. of fixtures before the retrofit	Standard Fixture Code "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Fixture Code Code from Table of Standard Fixture Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated daily hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Number of Fixtures No. of fixtures after the retrofit	Standard Fixture Code "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Fixture Code Code from Table of Standard Fixture Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Number of Fixtures)	Retrofit Control Retrofit control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Annual kWh Saved (Original Annual kWh) - (Retrofit Annual kWh)	Annual kW Saved (Original Annual kW) - (Retrofit Annual kW)	Annual $ Saved (kWh Saved) * ($/kWh)	Retrofit Cost Cost for renovations to lighting system	NJ Smart Start Lighting Incentive Prescriptive Lighting Measures	Simple Payback With Out Incentive Length of time for renovations cost to be recovered	Simple Payback Length of time for renovations cost to be recovered
13	Back Hallway	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3192	575	3	T 28 R F 2	F42SSILL	48	0.1	SW	3,192	460	115	0.0	$ 13.68	$ 344.25	$30	25.2	23.0
220	Back Hallway	2	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	3192	128	2	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	3,192	128	-	0.0	$ -	$ -	$0		#DIV/0!
45	Boiler Room	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	1000	81	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	1,000	81	-	0.0	$ -	$ -	$0		#DIV/0!
13	Boiler Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.09	$ 229.50	$20	56.1	51.2
105	Office	1	W 32 F 1	F41LL	32	0.0	SW	2400	77	1	W 32 F 1	F41LL	32	0.0	SW	2,400	77	-	0.0	$ -	$ -	$0		#DIV/0!
220	Servery	2	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1600	64	2	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,600	64	-	0.0	$ -	$ -	$0		#DIV/0!
13	Servery	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1600	480	5	T 28 R F 2	F42SSILL	48	0.2	SW	1,600	384	96	0.1	$ 13.67	$ 573.75	$50	42.0	38.3
45	Servery	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1600	43	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1,600	43	-	0.0	$ -	$ -	$0		#DIV/0!
13	Cafetorium	50	S 32 P F 2 (ELE)	F42LL	60	3.0	SW	1600	4,800	50	T 28 R F 2	F42SSILL	48	2.4	SW	1,600	3,840	960	0.6	$ 136.73	$ 5,737.50	$500	42.0	38.3
13	Mechanical Penthouse	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1000	300	5	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	240	60	0.1	$ 10.23	$ 573.75	$50	56.1	51.2
196	Main Office	9	W 32 C F 4 (ELE)	F44ILL	112	1.0	SW	1500	1,512	9	W 28 C F 4	F44SSILL	96	0.9	SW	1,500	1,296	216	0.1	$ 31.44	$ 1,275.75	$90	40.6	37.7
13	Principal's Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1500	360	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,500	288	72	0.0	$ 10.48	$ 459.00	$40	43.8	40.0
35LED	Lobby	27	T 32 R F 3 (ELE)	F43ILL/2	90	2.4	SW	3192	7,757	27	T 59 R LED	TLED59	59	1.6	SW	3,192	5,085	2,672	0.8	$ 318.02	$ 11,664.00	$1,350	36.7	32.4
35LED	CST Room	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1500	540	4	T 59 R LED	TLED59	59	0.2	SW	1,500	354	186	0.1	$ 27.07	$ 1,728.00	$200	63.8	56.4
13	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510	4	T 28 R F 2	F42SSILL	48	0.2	SW	2,125	408	102	0.0	$ 13.35	$ 459.00	$40	34.4	31.4
13	Room 27	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 28	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 30	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 32	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 33	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 34	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 13	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 11	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 12	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 10	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 9	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 7	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 8	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 6	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 5	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 4	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 3	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 2	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 1	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Nurse's Office	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2400	1,008	7	T 28 R F 2	F42SSILL	48	0.3	SW	2,400	806	202	0.1	$ 25.56	$ 803.25	$70	31.4	28.7
13	Room 29	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2200	1,848	14	T 28 R F 2	F42SSILL	48	0.7	SW	2,200	1,478	370	0.2	$ 47.91	$ 1,606.50	$140	33.5	30.6
13	Room 31	20	S 32 P F 2 (ELE)	F42LL	60	1.2	SW	2200	2,640	20	T 28 R F 2	F42SSILL	48	1.0	SW	2,200	2,112	528	0.2	$ 68.45	$ 2,295.00	$200	33.5	30.6
35LED	Room 14	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2200	792	4	T 59 R LED	TLED59	59	0.2	SW	2,200	519	273	0.1	$ 35.36	$ 1,728.00	$200	48.9	43.2
13	Boy's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	192	48	0.0	$ 8.19	$ 459.00	$40	56.1	51.2
13	Girl's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.05	$ 114.75	$10	56.1	51.2
13	Room 16-Speech	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2200	396	3	T 28 R F 2	F42SSILL	48	0.1	SW	2,200	317	79	0.0	$ 10.27	$ 344.25	$30	33.5	30.6
13	Room 15	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 17	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 19	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 20	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 21	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 22	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 23	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 24	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 25	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
13	Room 26	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	SW	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$120	33.5	30.6
71	Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	SW	1,000	27	33	0.0	$ 5.63	$ 6.75	$0	1.2	1.2
13	Boy's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.14	$ 344.25	$30	56.1	51.2
13	Girl's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	144	36	0.0	$ 6.14	$ 344.25	$30	56.1	51.2
13	Library	46	S 32 P F 2 (ELE)	F42LL	60	2.8	SW	2200	6,072	46	T 28 R F 2	F42SSILL	48	2.2	SW	2,200	4,858	1,214	0.6	$ 157.43	$ 5,278.50	$460	33.5	30.6
41	Copy Room	4	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	2125	502	4	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	2,125	502	-	0.0	$ -	$ -	$0		#DIV/0!
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.09	$ 229.50	$20	56.1	51.2
220	Faculty Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	SW	1,000	96	24	0.0	$ 4.09	$ 229.50	$20	56.1	51.2
220	Faculty Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1,000	20	-	0.0	$ -	$ -	$0		#DIV/0!
13	Men's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.05	$ 114.75	$10	56.1	51.2
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	SW	1,000	48	12	0.0	$ 2.05	$ 114.75	$10	56.1	51.2
13	Gym Storage	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	192	48	0.0	$ 8.19	$ 459.00	$40	56.1	51.2
146	Gymnasium	24	High Bay MH 400	MH400/1	458	11.0	SW	2912	32,009	24	C 54 C F 6	F46GHL	351	8.4	SW	2,912	24,531	7,478	2.6	$ 907.03	$ 13,284.00	$2,400	14.6	12.0
35LED	Gym Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2400	432	2	T 59 R LED	TLED59	59	0.1	SW	2,400	283	149	0.1	$ 18.87	$ 864.00	$100	45.8	40.5
141LED	Exterior	15	HPS 200	HPS200/1	250	3.8	Breaker	4368	16,380	15	FXLED78	FXLED78/1	78	1.2	Breaker	4,368	5,111	11,269	2.6	$ 1,270.11	$ 14,286.38	$1,500	11.2	10.1
241	Exterior	7	R 250 Q 1	h250/1	250	1.8	Breaker	4368	7,644	7	WP 42 1	CF42/1-L	48	0.3	Breaker	4,368	1,468	6,176	1.4	$ 696.10	$ -	$0	0.0	0.0
231LED	Exterior	3	WP400MH1	MH400/1	458	1.4	Breaker	4368	6,002	3	WPLED2T78	WPLED2T78	91	0.3	Breaker	4,368	1,192	4,809	1.1	$ 542.01	$ 3,342.75	$300	6.2	5.6
13	Gym Storage	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	SW	1,000	192	48	0.0	$ 8.19	$ 459.00	$40	56.1	51.2

Energy Audit of Strathmore Elementary School
CHA Project No.27221
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS							COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
	Total	647				54.9			140,606	647			3,600	39.5				94,035	46,570	15.4	$5,606	$109,686	$11,500		
																		Demand Savings			15.4	$1,157			
																		kWh Savings			46,570	$4,449			
																		Total savings				$5,606		19.6	17.5

Energy Audit of Strathmore Elementary School
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
13	Back Hallway	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3192	574.6	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	3192	574.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Back Hallway	2	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	3192	127.7	2	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	3192	127.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Boiler Room	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	1000	81.0	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	NONE	1000	81.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Boiler Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
105	Office	1	W 32 F 1	F41LL	32	0.0	SW	2400	76.8	1	W 32 F 1	F41LL	32	0.0	C-OCC	1200	38.4	38.4	0.0	$3.67	$270.00	$35.00	73.6	64.1
220	Servery	2	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1600	64.0	2	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1600	64.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Servery	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1600	480.0	5	S 32 P F 2 (ELE)	F42LL	60	0.3	NONE	1600	480.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
45	Servery	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1600	43.2	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	NONE	1600	43.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Cafetorium	50	S 32 P F 2 (ELE)	F42LL	60	3.0	SW	1600	4,800.0	50	S 32 P F 2 (ELE)	F42LL	60	3.0	NONE	1600	4,800.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Mechanical Penthouse	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1000	300.0	5	S 32 P F 2 (ELE)	F42LL	60	0.3	NONE	1000	300.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
196	Main Office	9	W 32 C F 4 (ELE)	F44ILL	112	1.0	SW	1500	1,512.0	9	W 32 C F 4 (ELE)	F44ILL	112	1.0	NONE	1500	1,512.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Principal's Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1500	360.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1500	360.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Lobby	27	T 32 R F 3 (ELE)	F43ILL/2	90	2.4	SW	3192	7,756.6	27	T 32 R F 3 (ELE)	F43ILL/2	90	2.4	NONE	3192	7,756.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	CST Room	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1500	540.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	NONE	1500	540.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	2125	510.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 27	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 28	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 30	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 32	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 33	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 34	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 13	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 11	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 12	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 10	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 9	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 7	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 8	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 6	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 5	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 4	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 3	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 2	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 1	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Nurse's Office	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2400	1,008.0	7	S 32 P F 2 (ELE)	F42LL	60	0.4	C-OCC	1200	504.0	504.0	0.0	$48.14	$270.00	$35.00	5.6	4.9
13	Room 29	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2200	1,848.0	14	S 32 P F 2 (ELE)	F42LL	60	0.8	NONE	2200	1,848.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 31	20	S 32 P F 2 (ELE)	F42LL	60	1.2	SW	2200	2,640.0	20	S 32 P F 2 (ELE)	F42LL	60	1.2	NONE	2200	2,640.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 14	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2200	792.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	NONE	2200	792.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Boy's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Girl's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 16-Speech	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2200	396.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	2200	396.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 15	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 17	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 19	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 20	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 21	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 22	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 23	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 24	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 25	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Room 26	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584.0	12	S 32 P F 2 (ELE)	F42LL	60	0.7	NONE	2200	1,584.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
71	Closet	1	I 60	I60/1	60	0.1	SW	1000	60.0	1	I 60	I60/1	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Boy's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Girl's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180.0	3	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	180.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Library	46	S 32 P F 2 (ELE)	F42LL	60	2.8	SW	2200	6,072.0	46	S 32 P F 2 (ELE)	F42LL	60	2.8	NONE	2200	6,072.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
41	Copy Room	4	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	2125	501.5	4	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	NONE	2125	501.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Faculty Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	120.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
220	Faculty Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20.0	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1000	20.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Men's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1000	60.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Gym Storage	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
146	Gymnasium	24	High Bay MH 400	MH400/1	458	11.0	SW	2912	32,008.7	24	High Bay MH 400	MH400/1	458	11.0	NONE	2912	32,008.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Gym Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2400	432.0	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	C-OCC	1200	216.0	216.0	0.0	$20.63	$270.00	$35.00	13.1	11.4
141LED	Exterior	15	HPS 200	HPS200/1	250	3.8	Breaker	4368	16,380.0	15	HPS 200	HPS200/1	250	3.8	NONE	4368	16,380.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
241	Exterior	7	R 250 Q 1	h250/1	250	1.8	Breaker	4368	7,644.0	7	R 250 Q 1	h250/1	250	1.8	NONE	4368	7,644.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
231LED	Exterior	3	WP400MH1	MH400/1	458	1.4	Breaker	4368	6,001.6	3	WP400MH1	MH400/1	458	1.4	NONE	4368	6,001.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
13	Gym Storage	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240.0	4	S 32 P F 2 (ELE)	F42LL	60	0.2	NONE	1000	240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
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Energy Audit of Strathmore Elementary School
CHA Project No.27221
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	**No. of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**Exist Control**	**Annual Hours**	**Annual kWh**	**Number of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**Retrofit Control**	**Annual Hours**	**Annual kWh**	**Annual kWh Saved**	**Annual kW Saved**	**Annual $ Saved**	**Retrofit Cost**	**NJ Smart Start Lighting Incentive**	**Simple Payback With Out Incentive**	**Simple Payback**
Field Code	**Unique description of the location - Room number/Room name: Floor number (if applicable)**	**No. of fixtures before the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Fixt No.)**	**Pre-inst. control device**	**Estimated annual hours for the usage group**	**(kW/space) * (Annual Hours)**	**No. of fixtures after the retrofit**	**"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Number of Fixtures)**	**Retrofit control device**	**Estimated annual hours for the usage group**	**(kW/space) * (Annual Hours)**	**(Original Annual kWh) - (Retrofit Annual kWh)**	**(Original Annual kW) - (Retrofit Annual kW)**	**(kW Saved) * ($/kWh)**	**Cost for renovations to lighting system**		**Length of time for renovations cost to be recovered**	**Length of time for renovations cost to be recovered**
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	Total	**647**				**54.9**			**140605.6**	**647.0**				**54.9**			**139847.2**	**758.4**	**0.0**	**72.4**	**810.0**	**105.0**		
																	Demand Savings			0.0	$0			
																	kWh Savings			758	$72			
																	Total Savings				$72		**11.2**	**9.7**

Energy Audit of Strathmore Elementary School
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	**Unique description of the location - Room number/Room name: Floor number (if applicable)**	**No. of fixtures before the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Fixt No.)**	**Pre-inst. control device**	**Estimated daily hours for the usage group**	**(kW/space) * (Annual Hours)**	**No. of fixtures after the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Number of Fixtures)**	**Retrofit control device**	**Estimated annual hours for the usage group**	**(kW/space) * (Annual Hours)**	**(Original Annual kWh) - (Retrofit Annual kWh)**	**(Original Annual kW) - (Retrofit Annual kW)**	**(kWh Saved) * ($/kWh)**	**Cost for renovations to lighting system**	**Prescriptive Lighting Measures**	**Length of time for renovations cost to be recovered**	**Length of time for renovations cost to be recovered**
13	Back Hallway	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	3192	575	3	T 28 R F 2	F42SSILL	48	0.1	NONE	3,192	460	115	0.0	$ 13.68	$ 344.25	$ 30	25.2	23.0
220	Back Hallway	2	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	3192	128	2	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	3,192	128	-	0.0	$ -	$ -	$ -		
45	Boiler Room	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	SW	1000	81	3	SP 26 R CF 1	CFQ26/1-L	27	0.1	NONE	1,000	81	-	0.0	$ -	$ -	$ -		
13	Boiler Room	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.09	$ 229.50	$ 20	56.1	51.2
105	Office	1	W 32 F 1	F41LL	32	0.0	SW	2400	77	1	W 32 F 1	F41LL	32	0.0	C-OCC	1,200	38	38	0.0	$ 3.67	$ 270.00	$ 35	73.6	64.1
220	Servery	2	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1600	64	2	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,600	64	-	0.0	$ -	$ -	$ -		
13	Servery	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1600	480	5	T 28 R F 2	F42SSILL	48	0.2	NONE	1,600	384	96	0.1	$ 13.67	$ 573.75	$ 50	42.0	38.3
45	Servery	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	SW	1600	43	1	SP 26 R CF 1	CFQ26/1-L	27	0.0	NONE	1,600	43	-	0.0	$ -	$ -	$ -		
13	Cafetorium	50	S 32 P F 2 (ELE)	F42LL	60	3.0	SW	1600	4,800	50	T 28 R F 2	F42SSILL	48	2.4	NONE	1,600	3,840	960	0.6	$ 136.73	$ 5,737.50	$ 500	42.0	38.3
13	Mechanical Penthouse	5	S 32 P F 2 (ELE)	F42LL	60	0.3	SW	1000	300	5	T 28 R F 2	F42SSILL	48	0.2	NONE	1,000	240	60	0.1	$ 10.23	$ 573.75	$ 50	56.1	51.2
196	Main Office	9	W 32 C F 4 (ELE)	F44ILL	112	1.0	SW	1500	1,512	9	W 28 C F 4	F44SSILL	96	0.9	NONE	1,500	1,296	216	0.1	$ 31.44	$ 1,275.75	$ 90	40.6	37.7
13	Principal's Office	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1500	360	4	T 28 R F 2	F42SSILL	48	0.2	NONE	1,500	288	72	0.0	$ 10.48	$ 459.00	$ 40	43.8	40.0
35LED	Lobby	27	T 32 R F 3 (ELE)	F43ILL/2	90	2.4	SW	3192	7,757	27	T 59 R LED	TLED59	59	1.6	NONE	3,192	5,085	2,672	0.8	$ 318.02	$ 11,664.00	$ 1,350	36.7	32.4
35LED	CST Room	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	1500	540	4	T 59 R LED	TLED59	59	0.2	NONE	1,500	354	186	0.1	$ 27.07	$ 1,728.00	$ 200	63.8	56.4
13	Copy Room	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2125	510	4	T 28 R F 2	F42SSILL	48	0.2	NONE	2,125	408	102	0.0	$ 13.35	$ 459.00	$ 40	34.4	31.4
13	Room 27	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 28	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 30	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 32	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 33	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 34	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 13	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 11	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 12	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 10	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 9	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 7	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 8	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 6	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 5	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 4	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 3	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 2	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 1	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Nurse's Office	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2400	1,008	7	T 28 R F 2	F42SSILL	48	0.3	C-OCC	1,200	403	605	0.1	$ 64.08	$ 1,073.25	$ 105	16.7	15.1
13	Room 29	14	S 32 P F 2 (ELE)	F42LL	60	0.8	SW	2200	1,848	14	T 28 R F 2	F42SSILL	48	0.7	NONE	2,200	1,478	370	0.2	$ 47.91	$ 1,606.50	$ 140	33.5	30.6
13	Room 31	20	S 32 P F 2 (ELE)	F42LL	60	1.2	SW	2200	2,640	20	T 28 R F 2	F42SSILL	48	1.0	NONE	2,200	2,112	528	0.2	$ 68.45	$ 2,295.00	$ 200	33.5	30.6
35LED	Room 14	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2200	792	4	T 59 R LED	TLED59	59	0.2	NONE	2,200	519	273	0.1	$ 35.36	$ 1,728.00	$ 200	48.9	43.2
13	Boy's Bathroom	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	NONE	1,000	192	48	0.0	$ 8.19	$ 459.00	$ 40	56.1	51.2
13	Girl's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.05	$ 114.75	$ 10	56.1	51.2
13	Room 16-Speech	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	2200	396	3	T 28 R F 2	F42SSILL	48	0.1	NONE	2,200	317	79	0.0	$ 10.27	$ 344.25	$ 30	33.5	30.6
13	Room 15	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 17	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 19	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 20	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 21	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 22	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 23	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 24	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 25	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
13	Room 26	12	S 32 P F 2 (ELE)	F42LL	60	0.7	SW	2200	1,584	12	T 28 R F 2	F42SSILL	48	0.6	NONE	2,200	1,267	317	0.1	$ 41.07	$ 1,377.00	$ 120	33.5	30.6
71	Closet	1	I 60	I60/1	60	0.1	SW	1000	60	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,000	27	33	0.0	$ 5.63	$ 6.75	$ -	1.2	1.2
13	Boy's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.14	$ 344.25	$ 30	56.1	51.2
13	Girl's Bathroom	3	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	180	3	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	144	36	0.0	$ 6.14	$ 344.25	$ 30	56.1	51.2
13	Library	46	S 32 P F 2 (ELE)	F42LL	60	2.8	SW	2200	6,072	46	T 28 R F 2	F42SSILL	48	2.2	NONE	2,200	4,858	1,214	0.6	$ 157.43	$ 5,278.50	$ 460	33.5	30.6
41	Copy Room	4	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	SW	2125	502	4	T 54 W F 1 (ELE) (T-5)	F41GHL	59	0.2	NONE	2,125	502	-	0.0	$ -	$ -	$ -		
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.09	$ 229.50	$ 20	56.1	51.2
220	Faculty Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Faculty Bathroom	2	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	T 28 R F 2	F42SSILL	48	0.1	NONE	1,000	96	24	0.0	$ 4.09	$ 229.50	$ 20	56.1	51.2
220	Faculty Bathroom	1	S 17 C F 1(ELE)	F21ILL	20	0.0	SW	1000	20	1	S 17 C F 1(ELE)	F21ILL	20	0.0	NONE	1,000	20	-	0.0	$ -	$ -	$ -		
13	Men's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.05	$ 114.75	$ 10	56.1	51.2
13	Women's Bathroom	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	T 28 R F 2	F42SSILL	48	0.0	NONE	1,000	48	12	0.0	$ 2.05	$ 114.75	$ 10	56.1	51.2
13	Gym Storage	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	NONE	1,000	192	48	0.0	$ 8.19	$ 459.00	$ 40	56.1	51.2
146	Gymnasium	24	High Bay MH 400	MH400/1	458	11.0	SW	2912	32,009	24	C 54 C F 6	F46GHL	351	8.4	NONE	2,912	24,531	7,478	2.6	$ 907.03	$ 13,284.00	$ 2,400	14.6	12.0
35LED	Gym Office	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2400	432	2	T 59 R LED	TLED59	59	0.1	C-OCC	1,200	142	290	0.1	$ 32.39	$ 1,134.00	$ 135	35.0	30.8
141LED	Exterior	15	HPS 200	HPS200/1	250	3.8	Breaker	4368	16,380	15	FXLED78	FXLED78/1	78	1.2	NONE	4,368	5,111	11,269	2.6	$ 1,270.11	$ 14,286.38	$ 1,500	11.2	10.1
241	Exterior	7	R 250 Q 1	h250/1	250	1.8	Breaker	4368	7,644	7	WP 42 1	CF42/1-L	48	0.3	NONE	4,368	1,468	6,176	1.4	$ 696.10	$ -	$ -	0.0	0.0
231LED	Exterior	3	WP400MH1	MH400/1	458	1.4	Breaker	4368	6,002	3	WPLED2T78	WPLED2T78	91	0.3	NONE	4,368	1,192	4,809	1.1	$ 542.01	$ 3,342.75	$ 300	6.2	5.6
13	Gym Storage	4	S 32 P F 2 (ELE)	F42LL	60	0.2	SW	1000	240	4	T 28 R F 2	F42SSILL	48	0.2	NONE	1,000	192	48	0.0	$ 8.19	$ 459.00	$ 40	56.1	51.2
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Energy Audit of Strathmore Elementary School
CHA Project No.27221
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
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S	Total	647				54.9			140,606	647				39.5			93,452		15.4	5,661	110,496	$11,605		
S																	Demand Savings			15.4	$1,157			
S																	kWh Savings			47,153	$4,504			
S																	Total Savings				$5,661		19.5	17.5

APPENDIX D

New Jersey Board of Public Utilities Incentives

i. **Smart Start**

ii. **Direct Install**

iii. **Pay for Performance (P4P)**

iv. **Energy Savings Improvement Plan (ESIP)**

I. SMART START

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

PROGRAMS

NJ SMARTSTART BUILDINGS

EQUIPMENT INCENTIVES

APPLICATION FORMS

TOOLS AND RESOURCES

PAY FOR PERFORMANCE

COMBINED HEAT & POWER AND FUEL CELLS

LOCAL GOVERNMENT ENERGY AUDIT

LARGE ENERGY USERS PILOT

ENERGY SAVINGS IMPROVEMENT PROGRAM

DIRECT INSTALL

ENERGY BENCHMARKING

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

EDA PROGRAMS

T-12 SCHOOLS LIGHTING INITIATIVE

TEACH

ARRA

TECHNOLOGIES

TOOLS AND RESOURCES

PROGRAM UPDATES

CONTACT US

Home » Commercial & Industrial » Programs

NJ SmartStart Buildings

Program Overview

New Jersey SmartStart BUILDINGS®

With New Jersey SmartStart Buildings ...

... A smart start now means better performance later! Whether you're starting a commercial or industrial project from the ground up, renovating existing space, or upgrading equipment, you have unique opportunities to upgrade the energy efficiency of the project.

New Jersey SmartStart Buildings can provide a range of support — at no cost to you — to yield substantial energy savings, both now and for the future. Learn more about:

- Project Categories
- Custom Measures
- Incentives for Qualifying Equipment and Projects
- Program Terms and Conditions
- Find a Trade Ally

Please note: pre-approval is required for almost all energy efficiency incentives. This means you must submit an application form (and applicable worksheets) and receive an approval letter from the program before any equipment is installed (click here for complete Terms and Conditions.) Upon receipt of an approval letter, you may proceed to install the equipment listed on your approved application. Equipment installed prior to the date of the approval letter is not eligible for an incentive. **Any customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Getting Started

Submit your project application form as soon as you know you will be doing a construction project, or replacing/adding equipment.

Smart-Growth Eligibility: *Check to make sure your project is eligible for incentives.*

Incentives for new construction are available only for projects in areas designated for growth in the NJ State Development and Redevelopment Plan. Public school (K-12) new construction projects are exempted from this restriction and are eligible for incentives throughout the State.

Customers, or their trade allies, can determine if a location is in a designated growth area by referring to the Smart Growth Site Evaluator Tool available from the HMFA website. Contact a program representative if you are uncertain about project eligibility. The Smart Growth policies will be implemented consistent with Board Orders as described more fully in the C&I Operational Procedure Manual.

Apply for pre-approval by submitting an application for the type of equipment you have chosen to install. The application should be accompanied by a related worksheet, where applicable, and a manufacturer's specification sheet (refer to the specific program requirements on the back of the application for specs needed for your project) for the equipment you are planning to install. (Program representatives will review your application package and approve it, reject it, and/or advise you of upgrades in equipment that will save energy costs and/or increase your incentives.)

Support for Custom Energy-Efficiency Measures

Custom measures allows program participants the opportunity to receive an incentive for unique energy-efficiency measures that are not on the prescriptive equipment incentive list, but are project/facility specific.

Incentives for Qualifying Equipment and Projects

Financial incentives are available for large and small projects. These incentives offset some — or maybe even all! — of the added cost to purchase qualifying energy-efficient equipment, which provides significant long-term energy savings. Ranges of incentives are available for qualifying equipment (depending on type, size, and efficiency) in several categories.

Find out more about equipment incentives!

For specific details on equipment requirements and financial incentives, including incentives for equipment not listed here, contact a program representative. Annual financial incentives may be

Program Updates

Notice of 2013 Changes to C&I Programs

Warranty and Lease Terms for CHP/Fuel Cells Increased to 10 Years

Large Combined Heat & Power/Fuel Cell Program Update

Board Order - Standby Charges for Distributed Generation Customers

Other updates posted.

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

- PROGRAMS
  - NJ SMARTSTART BUILDINGS
    - EQUIPMENT INCENTIVES
    - APPLICATION FORMS
    - TOOLS AND RESOURCES
  - PAY FOR PERFORMANCE
  - COMBINED HEAT & POWER AND FUEL CELLS
  - LOCAL GOVERNMENT ENERGY AUDIT
  - LARGE ENERGY USERS PILOT
  - ENERGY SAVINGS IMPROVEMENT PROGRAM
  - DIRECT INSTALL
  - ENERGY BENCHMARKING
  - OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS
  - EDA PROGRAMS
  - T-12 SCHOOLS LIGHTING INITIATIVE
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  - ARRA
- TECHNOLOGIES
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Home » Commercial & Industrial » Programs » NJ SmartStart Buildings

Equipment Incentives

More reasons for a smart start on your next project!

New Jersey SmartStart Buildings provides **financial incentives for qualifying equipment**. These incentives were developed to help our customers offset some of the added cost to purchase qualifying energy-efficient equipment, which provides significant long-term energy savings. A wide range of incentives are available for qualifying equipment (depending on type, size and efficiency).

Listed below are the types of qualifying equipment and ranges of incentives. For details on equipment requirements and full listings of incentives, refer to the **online application forms**.

Please note that almost all equipment incentives require pre-approval before equipment is installed. (**click for exceptions**)To start the pre-approval process, submit an Equipment Application, and appropriate Equipment Worksheets, for the type or types of equipment you are planning to install along with equipment specification sheets (refer to the specific program requirements on the back of the application for specifications needed for your project) and a current utility bill(s).

In order to be eligible to receive financial incentives under this Program, Applicants must receive electric and/or gas service from one of the regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

Electric Chillers

- Water-cooled chillers ($12 - $170 per ton)
- Air-cooled chillers ($8 - $52 per ton)

Gas Cooling

- Gas absorption chillers ($185-$450 per ton)
- Gas Engine-Driven Chillers (Calculated through Custom Measure Path)

Desiccant Systems ($1.00 per cfm - gas or electric)

Electric Unitary HVAC

- Unitary AC and split systems ($73 - $92 per ton)
- Air-to-air heat pumps ($73 - $92 per ton)
- Water-source heat pumps ($81 per ton)
- Packaged terminal AC & HP ($65 per ton)
- Central DX AC Systems ($40 - $72 per ton)
- Dual Enthalpy Economizer Controls ($250)
- Occupancy Controlled Thermostats ($75 each)

Ground Source Heat Pumps

- Closed Loop ($450-750 per ton)

Gas Heating

- Gas-fired boilers < 300 MBH ($300 per unit)
- Gas-fired boilers ≥ 300 MBH - 1500 MBH ($1.75 per MBH)
- Gas-fired boilers ≥ 1500 MBH - ≤ 4000 MBH ($1.00 per MBH)
- Gas-fired boilers > 4000 MBH (Calculated through Custom Measure Path)
- Gas furnaces ($300-$400 per unit)

Variable Frequency Drives

- Variable air volume ($65 - $155 per hp)
- Chilled-water pumps ($60 per hp)
- Compressors ($5,250 to $12,500 per drive)

Natural Gas Water Heating

Program Updates

- Notice of 2013 Changes to C&I Programs
- Warranty and Lease Terms for CHP/Fuel Cells Increased to 10 Years
- Large Combined Heat & Power/Fuel Cell Program Update
- Board Order - Standby Charges for Distributed Generation Customers

Other updates posted.

II. DIRECT INSTALL

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

- PROGRAMS
  - NJ SMARTSTART BUILDINGS
  - PAY FOR PERFORMANCE
  - COMBINED HEAT & POWER AND FUEL CELLS
  - LOCAL GOVERNMENT ENERGY AUDIT
  - LARGE ENERGY USERS PILOT
  - ENERGY SAVINGS IMPROVEMENT PROGRAM
  - DIRECT INSTALL
    - PARTICIPATION STEPS
    - PARTICIPATING CONTRACTORS
    - SUSTAINABLE JERSEY
  - ENERGY BENCHMARKING
  - OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS
  - EDA PROGRAMS
  - T-12 SCHOOLS LIGHTING INITIATIVE
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Home » Commercial & Industrial » Programs » Direct Install

Direct Install - Steps to Participation

New Jersey SmartStart BUILDINGS

NEW JERSEY'S CLEAN ENERGY PROGRAM DIRECT Install

SIX SIMPLE STEPS TO PARTICIPATION

CONTACT THE PARTICIPATING CONTRACTOR IN YOUR AREA

Identify the contractor assigned and trained to provide Direct Install services in the county where your project is located. Using the contact information provided, call or send an e-mail to the participating contractor to discuss your project. The contractor will schedule an energy assessment and work with you to complete the program application and participation agreement.

If you're unable to contact the participating contractor or have questions, you may contact us at 866 -NJSMART or send an e-mail to DirectInstall@NJCleanEnergy.com..

REVIEW RESULTS

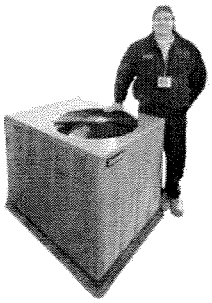
After the energy assessment, the contractor will review the results with you, including what measures qualify and your share of the project cost.

MOVE FORWARD

You will sign a scope of work document to proceed with implementation of qualifying measures.

ARRANGE INSTALLATION

You and the participating contractor will set a convenient start date for the installation.



CONFIRM INSTALLATION

Once the participating contractor completes the installation, you accept the work by signing a project completion form.

COMPLETE TRANSACTION

You pay the participating contractor your share of the project cost and New Jersey's Clean Energy Program pays the rest.

Program Updates

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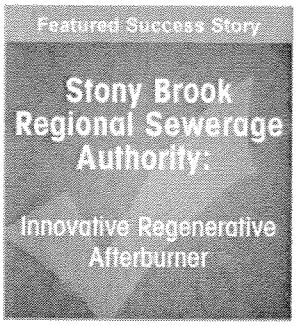
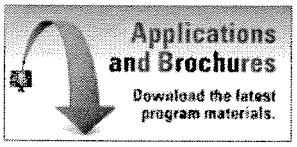
- Warranty and Lease Terms for CHP/Fuel Cells Increased to 10 Years
- Large Combined Heat & Power/Fuel Cell Program Update
- Board Order - Standby Charges for Distributed Generation Customers

Other updates posted.





Follow Us:

III. PAY FOR PERFORMANCE (P4P)

New Jersey's Clean Energy PROGRAM™
Your Power to Save
njcleanenergy.com

New Jersey SmartStart BUILDINGS®

BPU

2012 PAY FOR PERFORMANCE PROGRAM
Existing Buildings Incentive Structure

Incentive #1: Energy Reduction Plan

Incentive Amount: ..... **$0.10 per sq ft**
Minimum Incentive: **$5,000**
Maximum Incentive:: ..... **$50,000 or 50% of facility annual energy cost (whichever is less)**

This incentive is designed to offset the cost of services associated with the development of the Energy Reduction Plan (ERP) and is paid upon ERP approval. Incentive is contingent on implementation of recommended measures outlined in the ERP.

Incentive #2: Installation of Recommended Measures

Minimum Performance Target: **15%**

Electric Incentives

Base Incentive based on 15% savings: ..... **$0.09 per projected kWh saved**
For each % over 15% add: ..... **$0.005 per projected kWh saved**
Maximum Incentive: ..... **$0.11 per projected kWh saved**

Gas Incentives

Base Incentive based on 15% savings: ..... **$0.90 per projected Therm saved**
For each % over 15% add: ..... **$0.05 per projected Therm saved**
Maximum Incentive: ..... **$1.25 per projected Therm saved**

Incentive Cap: ..... **25% of total project cost**

This incentive is based on projected energy savings outlined in the ERP. Incentive is paid upon successful installation of recommended measures.

Incentive #3: Post-Construction Benchmarking Report

Minimum Performance Target: **15%**

Electric Incentives

Base Incentive based on 15% savings: ..... **$0.09 per actual kWh saved**
For each % over 15% add: ..... **$0.005 per actual kWh saved**
Maximum Incentive: ..... **$0.11 per actual kWh saved**

Gas Incentives

Base Incentive based on 15% savings: ..... **$0.90 per actual Therm saved**
For each % over 15% add: ..... **$0.05 per actual Therm saved**
Maximum Incentive: ..... **$1.25 per actual Therm saved**

Incentive Cap: ..... **25% of total project cost**

This incentive will be released upon submittal of a Post-Construction Benchmarking Report that verifies that the level of savings actually achieved by the installed measures meets or exceeds the minimum performance threshold. To validate the savings and achievement of the Energy Target, the EPA Portfolio Manager shall be used. Savings should be rounded to the nearest percent. Total value of Incentive #2 and Incentive #3 may not exceed 50% of the total project cost. Incentives will be limited to $1 million per gas and electric account per building; maximum of $2 million per project. See Participation Agreement for details.

IV. ENERGY SAVINGS IMPROVEMENT PLAN (ESIP)

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

PROGRAMS

- NJ SMARTSTART BUILDINGS
- PAY FOR PERFORMANCE
- COMBINED HEAT & POWER AND FUEL CELLS
- LOCAL GOVERNMENT ENERGY AUDIT
- LARGE ENERGY USERS PILOT
- ENERGY SAVINGS IMPROVEMENT PROGRAM
- DIRECT INSTALL
- ENERGY BENCHMARKING
- OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS
- EDA PROGRAMS
- T-12 SCHOOLS LIGHTING INITIATIVE
- TEACH
- ARRA

TECHNOLOGIES

TOOLS AND RESOURCES

PROGRAM UPDATES

CONTACT US

Home » Commercial & Industrial » Programs

Energy Savings Improvement Program

A new State law allows government agencies to make energy related improvements to their facilities and pay for the costs using the value of energy savings that result from the improvements. Under the recently enacted Chapter 4 of the Laws of 2009 (the law), the "Energy Savings Improvement Program" (ESIP), provides all government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources.

This Local Finance Notice outlines how local governments can develop and implement an ESIP for their facilities. Below are two sample RFPs:

Local Government
School Districts (K-12)

The Board also adopted protocols to measure energy savings.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Local units should carefully consider all alternatives to develop an approach that best meets their needs. Local units considering an ESIP should carefully review the Local Finance Notice, the law, and consult with qualified professionals to determine how they should approach the task.

FIRST STEP – ENERGY AUDIT

For local governments interested in pursuing an ESIP, the first step is to perform an energy audit. As explained in the Local Finance Notice, this may be done internally if an agency has qualified staff to conduct the audit. If not, the audit must be implemented by an independent contractor and not by the energy savings company producing the Energy Reduction Plan.

Pursuing a Local Government Energy Audit through New Jersey's Clean Energy Program is a valuable first step to the ESIP approach - and it's free. **Incentives provide 100% of the cost of the audit.**

ENERGY REDUCTION PLANS

If you have an ESIP plan you would like to submit to the Board of Public Utilities, please email it to ESIP@bpu.state.nj.us. Please limit the file size to 3MB (or break it into smaller files).

Frankford Township School District
Northern Hunterdon-Voorhees Regional High School
Manalapan Township ***(180 MB** - Right Click, Save As)*

Program Updates

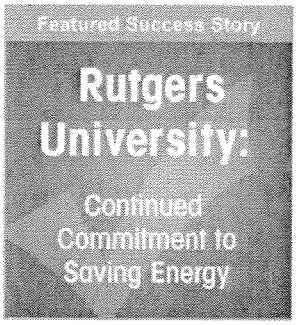
Notice of 2013 Changes to C&I Programs

Warranty and Lease Terms for CHP/Fuel Cells Increased to 10 Years

Large Combined Heat & Power/Fuel Cell Program Update

Board Order - Standby Charges for Distributed Generation Customers

Other updates posted.



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division of local government services

LFN 2011-17

June 16, 2011

Local Finance Notice

Chris Christie, *Governor* | Kim Guadagno, *Lt. Governor* | Lori Grifa, *Commissioner* | Thomas H. Neff, *Director*

Update on Implementing Energy Savings Improvement Programs

This Local Finance Notice provides guidance concerning Energy Savings Improvement Program (ESIP) matters that affect local units covered under the Local Public Contracts Law (LPCL, N.J.S.A. 40A:11) and the Public School Contracts Law (PSCL, N.J.S.A. 18A:18A).

The Notice covers a model ESCO (Energy Services Company) Request for Proposal document and provides information on using the "Do-It-Yourself" process for implementing an ESIP. This Notice supplements Local Finance Notice 2009-11 concerning ESIPs.

Model ESCO Request for Proposal Document

General Issues

The Division of Local Government Services and the Board of Public Utilities have completed development of a model ESCO Request for Proposal Document. It is designed to assist all organizations (contracting units) covered by the LPCL and PSCL hire an energy services company (ESCO) to develop and implement an Energy Savings Plan (ESP) as part of an Energy Savings Improvement Program as authorized under N.J.S.A. 40A:11-4.6 and 18A:18A-4.6.

Specifically, the document serves as the starting point for these government agencies to select an ESCO through the competitive contracting procedure (N.J.S.A. 40A:11-4.1 et seq. and 18A:18A-4.1 et seq.).

Notwithstanding the efforts of the State agencies to ensure that the RFP is consistent with all relevant procurement procedures, laws, and regulations, there are several issues contracting unit personnel should keep in mind:

1) Local legal advisors should review the document to ensure it is consistent with any allowable local practices and legal considerations.
2) The individual responsible for managing the project should review the entire RFP in order to be able to answer questions and ensure the document meets local needs.
3) Forms have been carefully designed to meet the need of this specific process. Care should be taken if proposed forms are removed and replaced with ones normally used by the contracting unit.

Contact Information

Director's Office
V. 609.292.6613
F. 609.292.9073

Local Government Research
V. 609.292.6110
F. 609.292.9073

Financial Regulation and Assistance
V. 609.292.4806
F. 609.984.7388

Local Finance Board
V. 609.292.0479
F. 609.633.6243

Local Management Services
V. 609.292.7842
F. 609.633.6243

Authority Regulation
V. 609.984.0132
F. 609.984.7388

Mail and Delivery
101 South Broad St.
PO Box 803
Trenton, New Jersey
08625-0803
Web: www.nj.gov/dca/lgs
E-mail: dlgs@dca.state.nj.us

Distribution
Municipal and Freeholder Clerks
Municipal and County Chief Financial Officers
Local Authority and Fire District Officials
School Business Administrators
Local Procurement Officials

The RFP also uses a formal process for potential proposers to submit questions and requests for clarifications. Appendix B is a form for the submission of these requests and is referred to throughout the text.

Contracting units are also reminded the Competitive Contracting process does not allow for negotiating proposals. While legal elements of the contract (project development agreement) may require legal determinations and modifications, the process does not allow for negotiation of price or related substantive elements and any element that would have provided less than a level playing field for proposers.

Contracting units are also cautioned that setting qualification standards that arbitrarily limit competition is inconsistent with public bidding requirements.

Office of State Comptroller Filing: Contracting units are also reminded of their obligations to meet State Comptroller requirements for public contracts. In accordance with N.J.S.A 52:15C-10, contracting units must notify OSC as early as practicable, but no later than 30 days before advertisement, of any negotiation or solicitation of a contract that may exceed $10 million. Contracting units must also provide post-award notification for any contract for an amount exceeding $2 million. Notification must be given within 20 days of the award.

Substantive Edits:

Several sections are highlighted in green. These sections should be carefully edited to meet contracting unit needs. This has important application to evaluation criteria in Section D. Once finalized, the green highlight should be removed.

Section B-16; Insurance should be reviewed by the contracting unit's Risk Management professionals to be sure the standards are appropriate to the contracting unit and the work to be done.

The following Sections also require local decisions and editing:

- A-3: # of copies of proposal and # of CDs to be submitted
- A-4: Web posting address, if desired
- A-5: If extra credit is to be provided on evaluation scoring for attending site walk through
- B-11: Delete LPCL or PSCL section as appropriate
- B-34: Use only if PSCL
- C-1: Explanation of type of audit information
- C-3(k): Include if ESCO is to provide financing option
- Use of Appendix F and Proposal Requirements #8: These forms are related to submission of Political Contribution Disclosure forms. Only PSCL agencies are required to use these forms as pursuant to Public School Fiscal Accountability Procedures (N.J.A.C. 6A23A-6.3). The forms and references to it should be removed for all LPCL users.

Under the ESIP DIY approach, there would be no conflict in a properly procured single organization conducting the audit, developing the ESP, then preparing plans and specifications. This does not apply when using the ESCO approach, where the auditor and ESCO must be independent.

Once construction plans and specifications are complete, the contracting unit would then conduct the bidding process as it would any public works construction project: manage the project as it sees fit (the firm that did the plans could also serve as construction manager), and then contract as necessary for commissioning and final third party verification. The two verification steps (the ESP and verifying implementation) must be performed by an organization independent of the ones preparing the ESP, overseeing construction and commissioning.

By following this process, the contracting unit can then apply to the Local Finance Board for the issuance of ESIP-based energy saving obligations or enter into appropriate lease financing.

The ESIP approach to energy improvement provides a range of options for contracting units to accrue energy savings while improving the environment, taking advantage of low-cost financing and state and federal incentives. DLGS and the BPU encourage comments and questions (through the ESIP web page) on this new opportunity so we can improve it as time goes on.

Approved: Thomas H. Neff, Director, Division of Local Government Services

Table of Web Links

Page	Shortcut text	Internet Address
1, 4	Local Finance Notice 2009-11	http://www.nj.gov/dca/lgs/lfns/09lfns/2009-11.doc
2	ESIP webpage	http://www.nj.gov/dca/lgs/lpcl/esip.htm
2	email comments	mailto:lpcl@dca.state.nj.us
2	to register (via email	mailto:lpcl@dca.state.nj.us
2	GovConnect Local Procurement	http://www.nj.gov/dca/surveys/ppsurvey.htm
3	State Comptroller requirements.	http://www.nj.gov/comptroller/compliance/index.html

New Jersey's Clean Energy PROGRAM
Your Power to Save
njcleanenergy.com

New Jersey SmartStart BUILDINGS

BPU

2012 PAY FOR PERFORMANCE PROGRAM
Existing Buildings Incentive Structure

Incentive #1: Energy Reduction Plan

Incentive Amount: ..... **$0.10 per sq ft**
Minimum Incentive: **$5,000**
Maximum Incentive:: ..... **$50,000 or 50% of facility annual energy cost (whichever is less)**

This incentive is designed to offset the cost of services associated with the development of the Energy Reduction Plan (ERP) and is paid upon ERP approval. Incentive is contingent on implementation of recommended measures outlined in the ERP.

Incentive #2: Installation of Recommended Measures

Minimum Performance Target: **15%**

Electric Incentives

Base Incentive based on 15% savings: ..... **$0.09 per projected kWh saved**
For each % over 15% add: ..... **$0.005 per projected kWh saved**
Maximum Incentive: ..... **$0.11 per projected kWh saved**

Gas Incentives

Base Incentive based on 15% savings: ..... **$0.90 per projected Therm saved**
For each % over 15% add: ..... **$0.05 per projected Therm saved**
Maximum Incentive: ..... **$1.25 per projected Therm saved**

Incentive Cap: ..... **25% of total project cost**

This incentive is based on projected energy savings outlined in the ERP. Incentive is paid upon successful installation of recommended measures.

Incentive #3: Post-Construction Benchmarking Report

Minimum Performance Target: **15%**

Electric Incentives

Base Incentive based on 15% savings: ..... **$0.09 per actual kWh saved**
For each % over 15% add: ..... **$0.005 per actual kWh saved**
Maximum Incentive: ..... **$0.11 per actual kWh saved**

Gas Incentives

Base Incentive based on 15% savings: ..... **$0.90 per actual Therm saved**
For each % over 15% add: ..... **$0.05 per actual Therm saved**
Maximum Incentive: ..... **$1.25 per actual Therm saved**

Incentive Cap: ..... **25% of total project cost**

This incentive will be released upon submittal of a Post-Construction Benchmarking Report that verifies that the level of savings actually achieved by the installed measures meets or exceeds the minimum performance threshold. To validate the savings and achievement of the Energy Target, the EPA Portfolio Manager shall be used. Savings should be rounded to the nearest percent. Total value of Incentive #2 and Incentive #3 may not exceed 50% of the total project cost. Incentives will be limited to $1 million per gas and electric account per building; maximum of $2 million per project. See Participation Agreement for details.

APPENDIX E

Photovoltaic Analysis

Matawan-Aberdeen Regional School District
Cambridge Park Administration Building

Cost of Electricity	$0.110	/kWh
Electricity Usage	305,400	kWh/yr
System Unit Cost	$4,000	/kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	Federal Tax Credit	New Jersey Renewable ** SREC	Payback (without incentive)	Payback (with incentive)
$	kW	kWh	therms	$	$	$	$	$	Years	Years
$840,000	**210.0**	**270,298**	**0**	**$29,733**	**0**	**$29,733**	**$0**	**$37,166**	**28.3**	**12.6**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $138 /1000kwh

Area Output*
4,405 m2
47,411 ft2

Perimeter Output*
460 m
1,509 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
27,471 ft2

Approximate System Size: Is the roof flat? (Yes/No) Yes

8 watt/ft2
219,768 DC watts
210 kW Enter into PV Watts

PV Watts Inputs***

Array Tilt Angle	20	Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Azimuth	180	Enter into PV Watts (default)
Zip Code	07747	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
270,298 annual kWh calculated in PV Watts program

% Offset Calc

Usage	305,400	(from utilities)
PV Generation	270,298	(generated using PV Watts)
% offset	89%	

* http://www.freemaptools.com/area-calculator.htm
** http://www.flettexchange.com
*** http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

AC Energy & Cost Savings

Cautions for Interpreting the Results

(Type comments here to appear on printout; maximum 1 row of 90 characters.)

Station Identification

Cell ID:	0268371
State:	New Jersey
Latitude:	40.5 ° N
Longitude:	74.3 ° W

PV System Specifications

DC Rating:	210.0 kW
DC to AC Derate Factor:	0.830
AC Rating:	174.3 kW
Array Type:	Fixed Tilt
Array Tilt:	40.5 °
Array Azimuth:	180.0 °

Energy Specifications

Cost of Electricity:	11.0 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	3.08	17219	1894.09
2	3.88	19435	2137.85
3	4.93	26197	2881.67
4	5.04	25023	2752.53
5	5.35	26941	2963.51
6	5.54	26232	2885.52
7	5.21	24999	2749.89
8	5.14	24825	2730.75
9	4.98	23891	2628.01
10	4.48	23067	2537.37
11	3.25	16589	1824.79
12	2.90	15880	1746.80
Year	4.48	270298	29732.78

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

Please send questions and comments to Webmaster

Disclaimer and copyright notice.

RReDC home page (*http://rredc.nrel.gov*)

Matawan-Aberdeen Regional School District
Cliffwood Elementary School

Cost of Electricity	$0.110	/kWh
Electricity Usage	345,760	kWh/yr
System Unit Cost	$4,000	/kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	Federal Tax Credit	New Jersey Renewable ** SREC	Payback (without incentive)	Payback (with incentive)
$	kW	kWh	therms	$	$	$	$	$	Years	Years
$880,000	**220.0**	**283,169**	**0**	**$31,149**	**0**	**$31,149**	**$0**	**$38,936**	**28.3**	**12.6**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $138 /1000kwh

Area Output*
4,910 m2
52,847 ft2

Perimeter Output*
612 m
2,006 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
27,867 ft2

Approximate System Size: Is the roof flat? (Yes/No) Yes

8 watt/ft2
222,936 DC watts
220 kW Enter into PV Watts

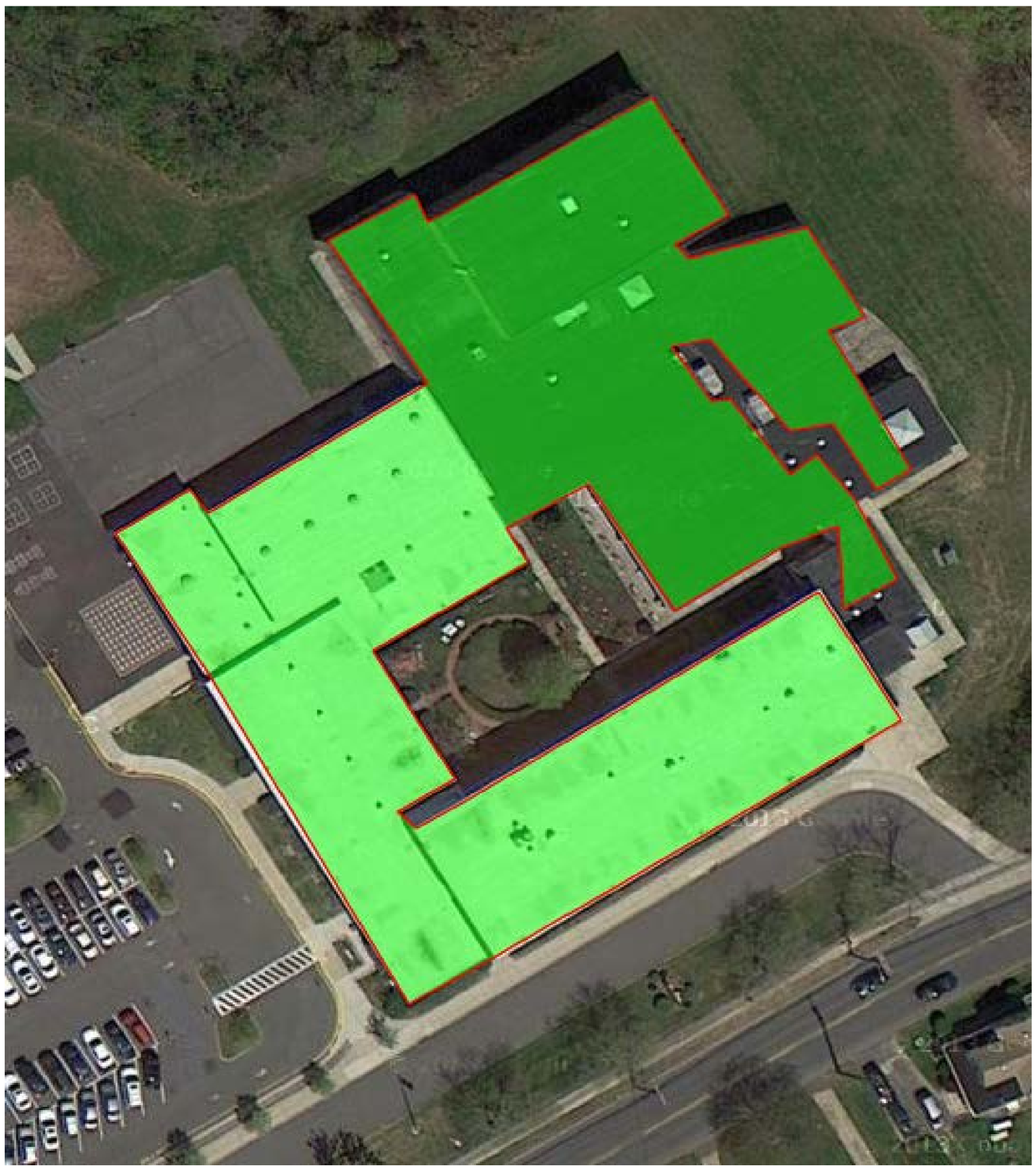
PV Watts Inputs***

Array Tilt Angle	20	Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Azimuth	180	Enter into PV Watts (default)
Zip Code	07747	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
283,169 annual kWh calculated in PV Watts program

% Offset Calc

Usage	345,760	(from utilities)
PV Generation	283,169	(generated using PV Watts)
% offset	82%	



* http://www.freemaptools.com/area-calculator.htm
** http://www.flettexchange.com
*** http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

AC Energy & Cost Savings

Cautions for Interpreting the Results

(Type comments here to appear on printout; maximum 1 row of 90 characters.)

Station Identification

Cell ID:	0268371
State:	New Jersey
Latitude:	40.5 ° N
Longitude:	74.3 ° W

PV System Specifications

DC Rating:	220.0 kW
DC to AC Derate Factor:	0.830
AC Rating:	182.6 kW
Array Type:	Fixed Tilt
Array Tilt:	40.5 °
Array Azimuth:	180.0 °

Energy Specifications

Cost of Electricity:	11.0 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	3.08	18039	1984.29
2	3.88	20361	2239.71
3	4.93	27444	3018.84
4	5.04	26214	2883.54
5	5.35	28224	3104.64
6	5.54	27481	3022.91
7	5.21	26190	2880.90
8	5.14	26007	2860.77
9	4.98	25029	2753.19
10	4.48	24166	2658.26
11	3.25	17379	1911.69
12	2.90	16636	1829.96
Year	4.48	283169	31148.59

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

Please send questions and comments to Webmaster

Disclaimer and copyright notice.

RReDC home page (*http://rredc.nrel.gov*)

Matawan-Aberdeen Regional School District
Lloyd Road Elementary School

Cost of Electricity	$0.110	/kWh
Electricity Usage	358,640	kWh/yr
System Unit Cost	$4,000	/kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	Federal Tax Credit	New Jersey Renewable ** SREC	Payback (without incentive)	Payback (with incentive)
$	kW	kWh	therms	$	$	$	$	$	Years	Years
$1,200,000	**300.0**	**270,298**	**0**	**$29,733**	**0**	**$29,733**	**$0**	**$37,166**	**40.4**	**17.9**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $138 /1000kwh

Area Output*
4,659 m2
50,150 ft2

Perimeter Output*
582 m
1,908 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
26,410 ft2

Approximate System Size: Is the roof flat? (Yes/No) No

11.5 watt/ft2
303,718 DC watts
300 kW Enter into PV Watts

PV Watts Inputs***

Array Tilt Angle	20	Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Azimuth	180	Enter into PV Watts (default)
Zip Code	07747	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
270,298 annual kWh calculated in PV Watts program

% Offset Calc

Usage	358,640	(from utilities)
PV Generation	270,298	(generated using PV Watts)
% offset	75%	

* http://www.freemaptools.com/area-calculator.htm
** http://www.flettexchange.com
*** http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

AC Energy & Cost Savings

Cautions for Interpreting the Results

(Type comments here to appear on printout; maximum 1 row of 90 characters.)

Station Identification

Cell ID:	0268371
State:	New Jersey
Latitude:	40.5 ° N
Longitude:	74.3 ° W

PV System Specifications

DC Rating:	210.0 kW
DC to AC Derate Factor:	0.830
AC Rating:	174.3 kW
Array Type:	Fixed Tilt
Array Tilt:	40.5 °
Array Azimuth:	180.0 °

Energy Specifications

Cost of Electricity:	11.0 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	3.08	17219	1894.09
2	3.88	19435	2137.85
3	4.93	26197	2881.67
4	5.04	25023	2752.53
5	5.35	26941	2963.51
6	5.54	26232	2885.52
7	5.21	24999	2749.89
8	5.14	24825	2730.75
9	4.98	23891	2628.01
10	4.48	23067	2537.37
11	3.25	16589	1824.79
12	2.90	15880	1746.80
Year	4.48	270298	29732.78

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

Please send questions and comments to Webmaster

Disclaimer and copyright notice.

RReDC home page (*http://rredc.nrel.gov*)

Matawan-Aberdeen Regional School District
Matawan Avenue Middle School

Cost of Electricity	$0.130	/kWh
Electricity Usage	805,840	kWh/yr
System Unit Cost	$4,000	/kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	Federal Tax Credit	New Jersey Renewable ** SREC	Payback (without incentive)	Payback (with incentive)
$	kW	kWh	therms	$	$	$	$	$	Years	Years
$2,400,000	**600.0**	**772,279**	**0**	**$100,396**	**0**	**$100,396**	**$0**	**$106,575**	**23.9**	**11.6**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $138 /1000kwh

Area Output*
11,836 m2
127,398 ft2

Perimeter Output*
1,180 m
3,871 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
75,389 ft2 805840

Approximate System Size: Is the roof flat? (Yes/No) Yes

8 watt/ft2
603,113 DC watts
600 kW Enter into PV Watts

PV Watts Inputs***

Array Tilt Angle	20	Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Azimuth	180	Enter into PV Watts (default)
Zip Code	07721	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
772,279 annual kWh calculated in PV Watts program

% Offset Calc

Usage	805,840	(from utilities)
PV Generation	772,279	(generated using PV Watts)
% offset	96%	

* http://www.freemaptools.com/area-calculator.htm
** http://www.flettexchange.com
*** http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

AC Energy & Cost Savings

Cautions for Interpreting the Results

(Type comments here to appear on printout; maximum 1 row of 90 characters.)

Station Identification

Cell ID:	0268371
State:	New Jersey
Latitude:	40.5 ° N
Longitude:	74.3 ° W

PV System Specifications

DC Rating:	600.0 kW
DC to AC Derate Factor:	0.830
AC Rating:	498.0 kW
Array Type:	Fixed Tilt
Array Tilt:	40.5 °
Array Azimuth:	180.0 °

Energy Specifications

Cost of Electricity:	13.0 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	3.08	49197	6395.61
2	3.88	55529	7218.77
3	4.93	74848	9730.24
4	5.04	71493	9294.09
5	5.35	76975	10006.75
6	5.54	74948	9743.24
7	5.21	71427	9285.51
8	5.14	70928	9220.64
9	4.98	68261	8873.93
10	4.48	65907	8567.91
11	3.25	47397	6161.61
12	2.90	45370	5898.10
Year	4.48	772279	100396.27

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

Please send questions and comments to Webmaster

Disclaimer and copyright notice.

RReDC home page (*http://rredc.nrel.gov*)

Matawan-Aberdeen Regional School District
Matawan Regional High School

Cost of Electricity	$0.120	/kWh
Electricity Usage	1,201,265	kWh/yr
System Unit Cost	$4,000	/kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	Federal Tax Credit	New Jersey Renewable ** SREC	Payback (without incentive)	Payback (with incentive)
$	kW	kWh	therms	$	$	$	$	$	Years	Years
$3,080,000	**770.0**	**991,092**	**0**	**$118,931**	**0**	**$118,931**	**$0**	**$136,771**	**25.9**	**12.0**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $138 /1000kwh

Area Output*
14,693 m2
158,150 ft2

Perimeter Output*
1,357 m
4,451 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
96,595 ft2

Approximate System Size: Is the roof flat? (Yes/No) Yes

8 watt/ft2
772,763 DC watts
770 kW Enter into PV Watts

PV Watts Inputs***

Array Tilt Angle	20	Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Azimuth	180	Enter into PV Watts (default)
Zip Code	07747	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
991,092 annual kWh calculated in PV Watts program

% Offset Calc

Usage	1,201,265	(from utilities)
PV Generation	991,092	(generated using PV Watts)
% offset	83%	

* http://www.freemaptools.com/area-calculator.htm
** http://www.flettexchange.com
*** http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

AC Energy & Cost Savings

Cautions for Interpreting the Results

(Type comments here to appear on printout; maximum 1 row of 90 characters.)

Station Identification

Cell ID:	0268371
State:	New Jersey
Latitude:	40.5 ° N
Longitude:	74.3 ° W

PV System Specifications

DC Rating:	770.0 kW
DC to AC Derate Factor:	0.830
AC Rating:	639.1 kW
Array Type:	Fixed Tilt
Array Tilt:	40.5 °
Array Azimuth:	180.0 °

Energy Specifications

Cost of Electricity:	12.0 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	3.08	63136	7576.32
2	3.88	71263	8551.56
3	4.93	96055	11526.60
4	5.04	91750	11010.00
5	5.35	98785	11854.20
6	5.54	96183	11541.96
7	5.21	91665	10999.80
8	5.14	91024	10922.88
9	4.98	87601	10512.12
10	4.48	84581	10149.72
11	3.25	60827	7299.24
12	2.90	58225	6987.00
Year	4.48	991092	118931.04

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

Please send questions and comments to Webmaster

Disclaimer and copyright notice.

RReDC home page (*http://rredc.nrel.gov*)

Matawan-Aberdeen Regional School District
Ravine Drive Elementary School

Cost of Electricity	$0.11	/kWh
Electricity Usage	253,120	kWh/yr
System Unit Cost	$4,000	/kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	Federal Tax Credit	New Jersey Renewable ** SREC	Payback (without incentive)	Payback (with incentive)
$	kW	kWh	therms	$	$	$	$	$	Years	Years
$640,000	**160.0**	**205,941**	**0**	**$23,173**	**0**	**$23,173**	**$0**	**$28,420**	**27.6**	**12.4**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $138 /1000kwh

Area Output*
3,617 m2
38,932 ft2

Perimeter Output*
433 m
1,422 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
21,005 ft2

Approximate System Size: Is the roof flat? (Yes/No) Yes

8 watt/ft2
168,038 DC watts
160 kW Enter into PV Watts

PV Watts Inputs***

Array Tilt Angle	20	Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Azimuth	180	Enter into PV Watts (default)
Zip Code	07747	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
205,941 annual kWh calculated in PV Watts program

% Offset Calc

Usage	253,120	(from utilities)
PV Generation	205,941	(generated using PV Watts)
% offset	81%	

* http://www.freemaptools.com/area-calculator.htm
** http://www.flettexchange.com
*** http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

AC Energy & Cost Savings

Cautions for Interpreting the Results

(Type comments here to appear on printout; maximum 1 row of 90 characters.)

Station Identification

Cell ID:	0268371
State:	New Jersey
Latitude:	40.5 ° N
Longitude:	74.3 ° W

PV System Specifications

DC Rating:	160.0 kW
DC to AC Derate Factor:	0.830
AC Rating:	132.8 kW
Array Type:	Fixed Tilt
Array Tilt:	40.5 °
Array Azimuth:	180.0 °

Energy Specifications

Cost of Electricity:	11.0 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	3.08	13119	1443.09
2	3.88	14808	1628.88
3	4.93	19959	2195.49
4	5.04	19065	2097.15
5	5.35	20527	2257.97
6	5.54	19986	2198.46
7	5.21	19047	2095.17
8	5.14	18914	2080.54
9	4.98	18203	2002.33
10	4.48	17575	1933.25
11	3.25	12639	1390.29
12	2.90	12099	1330.89
Year	4.48	205941	22653.51

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

Please send questions and comments to Webmaster

Disclaimer and copyright notice.

RReDC home page (*http://rredc.nrel.gov*)

Matawan-Aberdeen Regional School District
Strathmore Elementary School

Cost of Electricity	$0.120	/kWh
Electricity Usage	285,068	kWh/yr
System Unit Cost	$4,000	/kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	Federal Tax Credit	New Jersey Renewable ** SREC	Payback (without incentive)	Payback (with incentive)
$	kW	kWh	therms	$	$	$	$	$	Years	Years
$960,000	**240.0**	**308,912**	**0**	**$37,069**	**0**	**$37,069**	**$0**	**$42,630**	**25.9**	**12.0**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $138 /1000kwh

Area Output*
5,274 m2
56,764 ft2

Perimeter Output*
633 m
2,078 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
30,587 ft2

Approximate System Size: Is the roof flat? (Yes/No) Yes

8 watt/ft2
244,698 DC watts
240 kW Enter into PV Watts

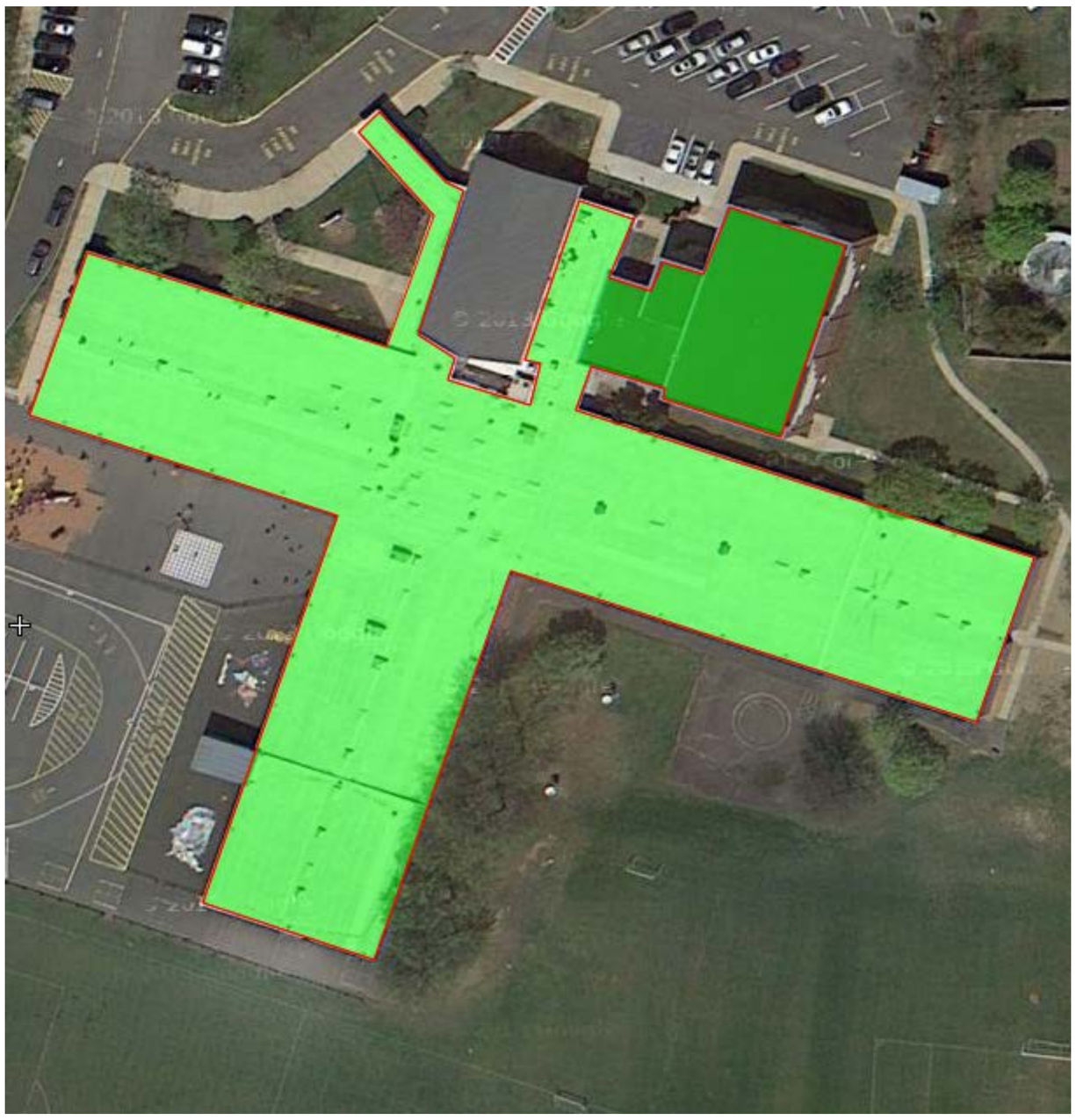
PV Watts Inputs***

Array Tilt Angle	20	Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Azimuth	180	Enter into PV Watts (default)
Zip Code	07747	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
308,912 annual kWh calculated in PV Watts program

% Offset Calc

Usage	285,068 (from utilities)
PV Generation	308,912 (generated using PV Watts)
% offset	108%



* http://www.freemaptools.com/area-calculator.htm
** http://www.flettexchange.com
*** http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

AC Energy & Cost Savings

Cautions for Interpreting the Results

(Type comments here to appear on printout; maximum 1 row of 90 characters.)

Station Identification

Cell ID:	0268371
State:	New Jersey
Latitude:	40.5 ° N
Longitude:	74.3 ° W

PV System Specifications

DC Rating:	240.0 kW
DC to AC Derate Factor:	0.830
AC Rating:	199.2 kW
Array Type:	Fixed Tilt
Array Tilt:	40.5 °
Array Azimuth:	180.0 °

Energy Specifications

Cost of Electricity:	12.0 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	3.08	19679	2361.48
2	3.88	22212	2665.44
3	4.93	29939	3592.68
4	5.04	28597	3431.64
5	5.35	30790	3694.80
6	5.54	29979	3597.48
7	5.21	28571	3428.52
8	5.14	28371	3404.52
9	4.98	27304	3276.48
10	4.48	26363	3163.56
11	3.25	18959	2275.08
12	2.90	18148	2177.76
Year	4.48	308912	37069.44

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

Please send questions and comments to Webmaster

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RReDC home page (*http://rredc.nrel.gov*)

APPENDIX F

EPA Portfolio Manager

ENERGY STAR® Statement of Energy Performance

87

ENERGY STAR® Score[1]

Cambridge Park Administration Building

Primary Property Function: Office
Gross Floor Area (ft²): 46,525
Built: 1970

For Year Ending: June 30, 2013
December NaN, NaN

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Cambridge Park Administration Building One Crest Way Aberdeen, New Jersey 07747	Matawan-Aberdeen Regional School District One Crest Way Aberdeen, NJ 07747 (____)____-_____	Clough Harbour 3 Winners Circle Albany, NY 12205 518-453-3929 jgarrett@chacompanies.com

Property ID: 3760888

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
80.6 kBtu/ft²

Source EUI
131.5 kBtu/ft²

Annual Energy by Fuel	
Natural Gas (kBtu)	2,708,500 (72%)
Electric - Grid (kBtu)	1,042,025 (28%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	134.2
National Median Source EUI (kBtu/ft²)	218.9
% Diff from National Median Source EUI	-40%
Annual Emissions	
Greenhouse Gas Emissions (MtCO2e/year)	276

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____Date: _____

Licensed Professional

Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Professional Engineer Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

93

ENERGY STAR® Score[1]

Cliffwood Elementary School

Primary Property Function: K-12 School
Gross Floor Area (ft²): 67,450
Built: 1958

For Year Ending: June 30, 2013
December NaN, NaN

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address
Cliffwood Elementary School
422 Cliffwood Avenue
Cliffwood, New Jersey 07721

Property Owner
Matawan-Aberdeen Regional School District
One Crest Way
Aberdeen, NJ 07747
(____)____-_____

Primary Contact
Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Property ID: 3760884

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
48.7 kBtu/ft²

Source EUI
87.7 kBtu/ft²

Annual Energy by Fuel

Electric - Grid (kBtu)	1,179,733 (36%)
Natural Gas (kBtu)	2,104,700 (64%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	83.2
National Median Source EUI (kBtu/ft²)	149.9
% Diff from National Median Source EUI	-41%

Annual Emissions

Greenhouse Gas Emissions (MtCO2e/year)	261

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____Date: _____

Licensed Professional

Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Professional Engineer Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

95

ENERGY STAR® Score[1]

Lloyd Road Elementary School

Primary Property Function: K-12 School
Gross Floor Area (ft²): 102,364
Built: 1967

For Year Ending: June 30, 2013
December NaN, NaN

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Lloyd Road Elementary School 401 Lloyd Road Aberdeen, New Jersey 07747	Matawan-Aberdeen Regional School District One Crest Way Aberdeen, NJ 07747 (____)____-_____	Clough Harbour 3 Winners Circle Albany, NY 12205 518-453-3929 jgarrett@chacompanies.com

Property ID: 3760893

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
48 kBtu/ft²

Source EUI
75.4 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	1,223,680 (25%)
Natural Gas (kBtu)	3,691,900 (75%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	89.6
National Median Source EUI (kBtu/ft²)	140.8
% Diff from National Median Source EUI	-46%
Annual Emissions	
Greenhouse Gas Emissions (MtCO2e/year)	351

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____Date: _____

Licensed Professional

Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Professional Engineer Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

49

ENERGY STAR® Score[1]

Matawan Avenue Middle School

Primary Property Function: K-12 School
Gross Floor Area (ft²): 89,864
Built: 1970

For Year Ending: June 30, 2013
December NaN, NaN

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address
Matawan Avenue Middle School
469 Matawan Avenue
Cliffwood, New Jersey 07721

Property Owner
Matawan-Aberdeen Regional School District
One Crest Way
Aberdeen, NJ 07747
(____)____-_____

Primary Contact
Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Property ID: 3760902

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
77.8 kBtu/ft²

Source EUI
145.6 kBtu/ft²

Annual Energy by Fuel

Natural Gas (kBtu)	4,238,600 (61%)
Electric - Grid (kBtu)	2,749,526 (39%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	77.6
National Median Source EUI (kBtu/ft²)	145.2
% Diff from National Median Source EUI	0%

Annual Emissions

Greenhouse Gas Emissions (MtCO2e/year)	573

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____Date: _____

Licensed Professional

Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Professional Engineer Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

58

ENERGY STAR® Score[1]

Matawan Regional High School

Primary Property Function: K-12 School
Gross Floor Area (ft²): 153,914
Built: 1962

For Year Ending: June 30, 2013
December NaN, NaN

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address
Matawan Regional High School
450 Atlantic Avenue
Aberdeen, New Jersey 07747

Property Owner
Matawan-Aberdeen Regional School District
One Crest Way
Aberdeen, NJ 07747
(____)____-_____

Primary Contact
Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Property ID: 3760961

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
71.9 kBtu/ft²

Source EUI
131.2 kBtu/ft²

Annual Energy by Fuel

Electric - Grid (kBtu)	4,098,716 (37%)
Natural Gas (kBtu)	6,972,200 (63%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	77.1
National Median Source EUI (kBtu/ft²)	140.6
% Diff from National Median Source EUI	-7%

Annual Emissions

Greenhouse Gas Emissions (MtCO2e/year)	889

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____Date: _____

Licensed Professional

Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Professional Engineer Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

84

ENERGY STAR® Score[1]

Ravine Drive Elementary School

Primary Property Function: K-12 School
Gross Floor Area (ft²): 46,848
Built: 1966

For Year Ending: June 30, 2013
December NaN, NaN

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Ravine Drive Elementary School 170 Ravine Drive Matawan, New Jersey 07747	Matawan-Aberdeen Regional School District One Crest Way Aberdeen, NJ 07747 (____)____-_____	Clough Harbour 3 Winners Circle Albany, NY 12205 518-453-3929 jgarrett@chacompanies.com

Property ID: 3760972

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
69.8 kBtu/ft²

Source EUI
111.8 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	863,646 (26%)
Natural Gas (kBtu)	2,404,900 (74%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	99.5
National Median Source EUI (kBtu/ft²)	159.4
% Diff from National Median Source EUI	-30%
Annual Emissions	
Greenhouse Gas Emissions (MtCO2e/year)	237

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____Date: _____

Licensed Professional

Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Professional Engineer Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

93

ENERGY STAR® Score[1]

Strathmore Elementary School

Primary Property Function: K-12 School
Gross Floor Area (ft²): 60,110
Built: 1963

For Year Ending: June 30, 2013
December NaN, NaN

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address
Strathmore Elementary School
282 Church Street
Aberdeen, New Jersey 07747

Property Owner
Matawan-Aberdeen Regional School District
One Crest Way
Aberdeen, NJ 07747
(____)____-_____

Primary Contact
Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Property ID: 3760977

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
55 kBtu/ft²

Source EUI
91.6 kBtu/ft²

Annual Energy by Fuel

Electric - Grid (kBtu)	972,652 (29%)
Natural Gas (kBtu)	2,334,200 (71%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	92.7
National Median Source EUI (kBtu/ft²)	154.4
% Diff from National Median Source EUI	-41%

Annual Emissions

Greenhouse Gas Emissions (MtCO2e/year)	247

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____Date: _____

Licensed Professional

Clough Harbour
3 Winners Circle
Albany, NY 12205
518-453-3929
jgarrett@chacompanies.com

Professional Engineer Stamp (if applicable)