ROXBURY BOARD OF EDUCATION
LINCOLN ROOSEVELT SCHOOL
ENERGY ASSESSMENT

For

NEW JERSEY
BOARD OF PUBLIC UTILITIES

CHA PROJECT NO. 24454

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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 facility 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 facility staff and spot measurements taken in the field.

1.0 EXECUTIVE SUMMARY

The Roxbury Board of Education recently engaged CHA to perform an energy audit in connection with the New Jersey Board of Public Utilities' Local Government Energy Audit Program. This report details the results of the energy audit conducted for:

Building Name	Address	Square Feet	Construction Date
Lincoln Roosevelt School	34 North Hillside Ave, Succasunna, NJ	236,340	Original: 1918

The Energy Conservation Measures (ECMs) identified in this report will allow for a more efficient use of energy and if pursued have the opportunity to qualify for the New Jersey SmartStart Buildings Program. Potential annual savings of $25,400 for the recommended ECMs may be realized with a combined payback of 1.8 years. A summary of the costs, savings, and paybacks for the recommended ECMs follows:

Summary of Energy Conservation Measures

Energy Conservation Measure		Approx. Costs ($)	Approx. Savings ($/year)	Payback (Years) w/o Incentive	Potential Incentive ($)*	Payback (Years) w/ Incentive	Recommended For Implementation
ECM-1	Upgrade Attic Insulation-Roosevelt School	17,000	7,800	2.2	0	2.2	X
ECM-2	Replace Windows	384,000	1,300	>20	0	>20	
ECM-3	Demand Control Ventilation For Gym Unit	2,000	7,600	0.3	0	0.3	X
ECM-4	Kitchen Hood Controls-Lincoln and Roosevelt Schools	6,000	200	>20	0	>20	
ECM-5	Lighting Replacement / Upgrades	9,967	10,000	1.0	3,100	0.7	X
ECM-6	Install Lighting Controls (Occupancy Sensors)	30,000	8,200	3.0	5,100	3.0	
ECM-7	Lighting Replacements with Lighting Controls (Occupancy Sensors)	40,000	15,300	2.1	8,200	2.1	
ECM-8	Install Low Flow Fixtures	52,000	400	>20	0	>20	

2.0 INTRODUCTION AND BACKGROUND

New Jersey's Clean Energy Program, funded by the New Jersey Board of Public Utilities, supports energy efficiency and sustainability for Municipal and Local Government Energy Audits. Through the support of a utility trust fund, New Jersey is able to assist state and local authorities in reducing energy consumption while increasing comfort.

The Lincoln Roosevelt School is an elementary school located in Succasunna, NJ, is a 236,340 square foot, two story block structure with exterior brick facing. The buildings were constructed in 1918, with an addition of a media center/library in 2004. Occupancy includes approximately 650 students and 45 faculty members. The school is open and occupied by maintenance personnel Monday through Friday from 6:00 am to approximately 11:30 pm during the school year. Students are typically in the school between 8:30 am and 3:00 pm.

3.0 EXISTING CONDITIONS

3.1 Building - General

Built in the 1918 with an addition of a library/media center in 2004, the Lincoln/Roosevelt School building is a 236,340 square foot, two-story facility.

The school has approximately 650 students and 45 staff, and appeared fully utilized during the field survey. The building can be assumed to be fully occupied until 3:00 pm during the week. Custodial staff is typically in the building until 11:30 pm during the week. The hours of operation are:

- Monday through Friday 6:00 am to 11:30 pm (staff)
- Monday through Friday 8:30 am to 3:00 pm (students)

The original two schools were constructed in 1918; both schools are two stories, block construction with red brick exterior. The windows and doors are original in both schools and in poor condition. The Lincoln school has a pitched asphalt roof with minimal attic insulation while the Roosevelt school has a flat rubber membrane roof; both roofs are in good condition. The buildings were coupled together in 2004 with the addition of a library/media center. The new media center has a pitched asphalt roof and double pane vinyl windows. The roof and windows in the new addition are in excellent condition.

3.2 Utility Usage

Utilities include electricity, natural gas, and potable water. Electricity is delivered by JCP&L and supplied by Hess. Natural gas is supplied and delivered by NJNG. See Appendix A for a detailed utility analysis.

The school has one electric meter and one gas meter. For the 12-month period ranging from June 2011 through May 2012, the utilities usage for the building was as follows:

Actual Cost & Site Usage by Utility

Electric		
Annual Usage	552,920	kWh/yr.
Annual Cost	124,925	$
Blended Rate	0.225	$/kWh
Supply Rate	0.129	$/kWh
Demand Rate	5.44	$/kW
Peak Demand	114.6	kW
Min. Demand	83.8	kW
Avg. Demand	100.8	kW
Natural Gas		
Annual Usage	34,739	therms/yr.
Annual Cost	45,332	$
Rate	1.19	$/Therm

Electrical usage was generally higher in the summer months when air conditioning equipment was 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. With the supply portion open to competition, customers can shop around for the best price on their energy supplies. Their electric and natural gas distribution utilities will still deliver those supplies through their wires and pipes – and respond to emergencies, should they arise – regardless of where those supplies are purchased. Purchasing your 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 your 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.

3.3 HVAC Systems

The systems and equipment described below serve the Lincoln/Roosevelt school buildings. Specifics on the mechanical equipment can be found within the equipment inventory located in Appendix B.

3.3.1 Heating Hot Water Systems

The schools are heated with hot water supplied by five Aerco Benchmark 2000 condensing, natural gas fired boilers with full modulation gas burners. The boilers were installed in 2007 and are located in the boiler room in the basement of the Roosevelt School. The hot water system operates from October until April, and the boilers are shut down during the summer.

The hot water is delivered to the Lincoln School section by two 7.5 hp pumps; the pumps have high efficiency motors and variable frequency drives and operate in a lead/lag design. The pumps supply hot water to fin tube radiation, classroom unit ventilators, cabinet unit heaters, and the gymnasium and auditorium H&V units.

The hot water is delivered to the Roosevelt School by two 15 hp pumps; the pumps have efficiency motors and variable frequency drives and operate in a lead/lag design. The pumps supply hot water to fin tube radiation, classroom unit ventilators, and cabinet unit heaters.
The boilers have a factory installed hot water reset controller for energy savings.
The hot water system piping and valves in the boiler room appear to be adequately insulated.

3.3.4 Classroom Unit Ventilators

Typically each classroom is served by a unit ventilator, which consists of heating/cooling coils, a circulation fan, outdoor air and return air dampers and temperature controls. During our audit we found that the unit ventilators are turned off due to comfort and/ or noise issues. When the units are “off”, the dampers are closed and no outdoor air is being introduced through the unit, therefore the heating load on the unit is much diminished. Replacing the existing unit ventilators with new units would require that the outside air quantity be provided to each classroom to meet the present code requirements which would result in an increase in energy use verses the current units. Although modern controls can help reduce the amount of energy used, ultimately the new unit ventilators will consume more energy than the present units.

3.3.5 Air Conditioning Systems

The school does not have a central air-conditioning system however there are several ductless split systems and window units in use for administrative offices.

3.3.7 Exhaust Systems

Common exhaust plenums serve classrooms with rooftop mounted constant volume exhaust fans. Exhaust fans are used for restrooms and custodial closets throughout the building.

3.4 Control Systems

There are several areas which are integrated in the districts Automated Logic DDC system; these are the nurses’ office, library, main office and room 101.

The school also has an antiquated Honeywell control panel with timing relays to activate the building exhaust fans and the gym HV unit. The rest of the HVAC systems in the school are controlled by individual room stats.

3.5 Lighting/Electrical Systems

Since building construction, the school has re-ballasted and re-lamped the majority of their fixtures to 32 watt T-8 units with electronic ballasts. Older style incandescent bulbs are also used in select areas, while metal halides are used in the high bay areas. The primary source of control for the lights is switches manually turned off at the end of the school day.

Exterior lights consist of metal halide bulbs in wall pack fixtures on daylight sensors and timers. The wall packs are powered by the building's electrical system; however since they are relatively few in number and it is impractical to modify these fixtures or their operation schedules, there are no recommendations regarding them in this report.

3.6 Plumbing Systems

3.6.1 Domestic Hot Water System

The Lincoln MER contains a 150 gallon A.O. Smith natural gas-fired hot water heater installed in 2004. The water heater serves the schools restrooms and both kitchens. The domestic hot water temperature is maintained at 140°F.

3.6.2 Plumbing Fixtures

The majority of the school's original lavatories, water closets, and urinals have high flow fixtures.

4.0 ENERGY CONSERVATION MEASURES

4.1 ECM-1 Upgrade Attic Insulation-Roosevelt School

The original constructed portion of the building has a pitched or partially pitched roof with a full attic. This area has little or no insulation. Installing insulation (R-38) above the ceiling of the conditioned spaces was assessed for this ECM. Insulation will result in a reduced heating and cooling load, therefore saving electrical and natural gas usage.

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

ECM-1 Upgrade Attic Insulation-Roosevelt School

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
17,000	0	0	6,500	7,800	0	7,800	12.9	0	2.2	2.2

Expected Life: 30 years

Lifetime Savings: 0 kWh 195,000 therms $ 234,000

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

This measure is recommended.

4.2 ECM-2 Replace Windows

The buildings existing windows are from the original construction of the building in 1918. The windows are single pane, aluminum frame units, over time the window seals can deteriorate and start to leak unconditioned air in or conditioned air our causing unnecessary energy consumption. The windows could be replaced with energy efficient double pane units with a higher thermal resistance to prevent air infiltration and heat transfer through the glazing.

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

ECM-2 Replace Windows

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
384,000	0	0	1,100	1,300	0	1,300	(0.9)	0	>20	>20

Expected Life: 15 years

Lifetime Savings: 0 kWh 16,500 therms $ 19,500

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

This measure is not recommended.

4.3 ECM-3 Demand Control Ventilation For Gym Unit

It is assumed the original system controls provide the full design ventilation outside air flow. Reducing outside air during unoccupied periods will reduce heating and cooling energy. The quantity of ventilation will be based on maintaining an acceptable carbon dioxide (CO_2) level in the space as an indicator of indoor air quality. A limit of 1000 PPM of CO_2 is recommended in ASHRAE Standard 62-1982, Ventilation for Acceptable Indoor Air Quality. Sensors will be installed to measure the building air CO_2 concentration, and the control sequence of operation programmed into the BAS. During unoccupied periods, the outside air dampers should be closed.

Equipment supply and outside airflows were obtained from existing design drawings where possible, or from vendors per serial/model numbers found in the field. For the analysis, estimated savings for demand control ventilation are based on reducing the total average volume of outside air by 50% based on observed space usage. The energy savings are the differences in utility usage.

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

ECM-3 Demand Control Ventilation For Gym Unit

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
2,000	9,700	0	4,600	7,600	0	7,600	56.3	0	0.3	0.3

Expected Life: 15 years

Lifetime Savings: 145,500 kWh 69,000 therms $114,000

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

This measure is recommended.

4.4 ECM-4 Kitchen Hood Controls-Lincoln And Roosevelt Schools

The cafeteria kitchens in both schools contain a 10'x4' kitchen hood with a 3 HP motor that runs continuously during the school day. Installing a control system was assessed. Upon activation, the hood lights turn on and the fans reach a preset minimum speed of between 10 and 50 percent. When the cooking appliances are turned on; the fan speed increases based on exhaust air temperature. During actual cooking, the speed increases to 100 percent until smoke and heat are removed. The control will also send a signal to the kitchen AHU to modulate the speed on the supply fan drive based on exhaust air quantity. Energy saving is calculated from reduction of exhaust and make-up fan speed.
The implementation cost and savings related to this ECM are presented in Appendix C and summarized below:

ECM-4 Kitchen Hood Controls-Lincoln and Roosevelt Schools

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)
	Electric	Electric	Nat Gas	Total					
$	kWh	kW	Therms	$	$	$		$	Years
6,000	700	0	0	200	0	200	(0.5)	0	>20

Expected Life: 15 years
Lifetime Savings: 10,500 kWh 0 therms $ 3,000

Note: This energy calculation is per hood exhaust hood.
This measure is not recommended.

4.5 ECM-5 Lighting Replacements/Upgrades

The building's classrooms and occupied spaces generally use linear fluorescent fixtures with T-8s and some T-5 bulbs.

A comprehensive fixture survey was conducted of the entire building. Each switch and circuit was identified, and the number of fixtures, locations, and existing wattage established (Appendix C). There is an opportunity to reduce consumption by upgrading the existing T-12 fixtures to T-8 or super T-8 fixtures.

Energy savings for this measure were calculated by applying the existing and proposed fixture wattages to estimated times of operation. Supporting calculations, including assumptions for lighting hours and annual energy usage for each fixture, are provided in Appendix C.

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

ECM-5 Lighting Replacement / Upgrades

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years

9,967	27,330	16	0	9,967	0	10,000	5.8	3,100	1.0	0.7

Expected Life: 15 years

Lifetime Savings: 410,000 kWh 0 therms $ 149,500

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

This measure is not recommended.

4.6 ECM-6 Install Lighting Controls (Occupancy Sensors)

The school lighting is controlled by manual switches. Lights are generally turned on in the morning and shut off at night. During occupied times, there are rooms that are not occupied; however, the lights remain on. Adding occupancy controls to the individual rooms will automatically control the lights based on occupancy. The occupancy sensor can be wall mounted near the switch or placed at the ceiling for larger room coverage. All occupancy sensors are equipped with a manual override feature. These sensors are generally not recommended in public toilet rooms.

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

ECM-6 Install Lighting Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
30,000	36,500	0	0	8,200	0	8,200	3.1	5,100	3.7	3.0

Expected Life: 15 years

Lifetime Savings: 547,500 kWh 0 therms $ 123,000

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

This measure is recommended

4.7 ECM-7 Lighting Replacements with Occupancy Sensors

Due to interactive effects, the energy and cost savings for occupancy sensors and lighting upgrades are not cumulative. This measure is a combination of ECM-8 and ECM-9 to reflect actual expected energy and demand reduction.

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

ECM-7 **Lighting Replacements with Lighting Controls (Occupancy Sensors)**

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
40,000	63,400	0	0	15,300	0	15,300	2.5	8,200	2.6	2.1

Expected Life: 15 years

Lifetime 951,000 kWh 0 therms $ 229,500

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

This measure is not recommended

4.8 ECM-7 Install Low Flow Fixtures

The existing toilet room fixtures consume more water than modern plumbing fixtures. It was determined that the current toilets and urinals with an average water use of 1.6 gal/flush for toilets and 1.6 gal/flush for urinals and 2.2 gallons per minute for faucets. Based on the number of occupants, it was estimated that each toilet and faucet is utilized approximately three times per day. The water savings associated from replacing these fixtures with low-flow fixtures was calculated by taking the difference of the annual water usage for the proposed and base case. The basis of this calculation is the number of times each fixture is used, gallons per use, and number of fixtures. Replacing the existing fixtures in the restrooms with 1.28 gals/flush toilets and 0.5 gal/flush urinals and 0.5 gallon per minute faucets.

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

ECM-8 **Install Low Flow Fixtures**

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
52,000	0	0	0	400	0	400	(0.9)	0	>20	>20

Expected Life: 15 years

Lifetime Savings: 0 kWh 0 therms $ 6,000

5.0 PROJECT INCENTIVES

5.1 Incentives Overview

5.1.1 New Jersey Pay For Performance Program

The school 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 School annual energy cost

The standard incentive pays $0.10 per square foot, up to a maximum of $50,000, not to exceed 50% of school 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

Incentives #2 and #3 can be combined to yield additive savings.

The table below shows the summary of incentives available through the Pay for Performance program for this building. The total ECM exceeded the minimum 15% annual savings required to obtain incentives # 2 and #3. Detailed calculations can be found in Appendix D.

	Incentives $		
	Elec	Gas	Total
Incentive #1	$0	$0	$11,817
Incentive #2	$8,043	$13,880	$21,923
Incentive #3	$8,043	$13,880	$21,923
Total All Incentives	**$16,087**	**$27,760**	**$55,664**

The current ECM's does meet the minimum savings of 15% and therefore the building will be eligible for incentives #2 and #3. See Appendix D for additional details.

5.1.2 New Jersey Smart Start Program

For this program, specific incentives for energy conservation measures are calculated on an individual basis utilizing the 2011 New Jersey Smart Start incentive program. This program provides incentives dependent upon mechanical and electrical equipment. If applicable, incentives from this program are reflected in the ECM summaries and attached appendices.

If the complex qualifies and enters into the New Jersey Pay for Performance Program, all energy savings will be included in the total site energy reduction, and savings will be applied towards the Pay for Performance incentive. A project is not applicable for both New Jersey incentive programs.

5.1.3 Direct Install Program

The Direct Install Program targets small and medium sized facilities where the peak electrical demand does not exceed 150 kW 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 or natural gas 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, natural gas, refrigeration, and other equipment upgrades with higher efficiency alternatives. If a building is eligible for this funding, the Direct Install Program can significantly reduce the implementation cost of energy conservation projects.

The program pays 70% of each project cost up to $75,000 per electrical utility account; total funding for each year is capped at $250,000 per customer. Installations must be completed by a Direct Install participating contractor, a list of which can be found on the New Jersey Clean Energy Website at http://www.njcleanenergy.com. Contractors will coordinate with the applicant to arrange installation of recommended measures identified in a previous energy assessment, such as this document.

The school is potentially eligible to receive funding from the Direct Install Program. The total implementation cost for all ECMs potentially eligible for Direct Install funding is $9,967 and includes replacing the existing boiler with a condensing hot water boiler, domestic water heater with a natural gas unit, demand control ventilation, booster heater replacement; lighting replacements, upgrades and controls in select areas. The program normally has a potential to pay 70% of the initial costs, leaving 30% to be paid out of pocket. Direct Install funding has the potential to significantly reduce the payback period of Energy Conservation Measures.

5.1.4 Energy Savings Improvement Plans (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 (see Appendix E). 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

6.0 ALTERNATIVE ENERGY SCREENING EVALUATION

6.1 Solar

6.1.1 Photovoltaic Rooftop Solar Power Generation

The school was 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 building's roof has sufficient room to install a large solar cell array. All rooftop areas have been replaced, and are in good condition. It is recommended to install a permanent PV array at this time.

The PVWATTS solar power generation model was utilized to calculate PV power generation. The closest city available in the model is Newark, New Jersey and a fixed tilt array type was utilized to calculate energy production. The PVWATT solar power generation model is provided in Appendix F.

Federal tax credits are also available for renewable energy projects up to 30% of installation cost. Since the school is a non-profit organization, federal taxes are paid and this project is eligible for this incentive.

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. 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. The average SREC value per credit is estimated to be about $77/ SREC per year based on current market data, and this number was utilized in the cash flow for this report.

The existing load justifies the use of a 20 kW PV solar array. The system costs for PV installations were derived from contractor budgetary pricing in the state of New Jersey for estimates of total cost of system installation. It should be noted that the cost of installation is currently about $4.00 per watt or $4,000 per kW of installed system. Other cost considerations will also need to be considered. 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 need to be replaced multiple times during the useful life of the PV system.

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

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
$80,000	**20.0**	**24,979**	**0**	**$5,787**	**0**	**$5,787**	**$0**	**$1,923**	**13.8**	**10.4**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $77 /1000kwh

* No federal tax credit currently available.
** Solar Renewable Energy Certificate Program (SREC) for 2012 is $77/1000kwh

This measure is not recommended due to the long payback time. It is suggested, however, that the market for SREC credits is closely monitored. This market is fluctuating, and if the value per SREC is increased the measure could potentially show for a shorter payback in the near future.

6.1.2 Solar Thermal Hot Water Plant

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.

7.0 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 ECMs, 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 school 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). Site EUI is a measure of a building's annual energy utilization per square foot. Site EUI is a good measure of a building's energy use and is utilized regularly for comparison of energy performance for similar building types.

$$\textbf{\textit{Site Energy Intensity}} = \frac{(\textit{Electric Usage in kBtu + Natural Gas in kBtu})}{\textit{Building Square Footage}}$$

To provide an equitable comparison for different buildings with varying proportions of primary and secondary energy consumption, the Portfolio Manager uses the convention of Source EUIs. The source energy also accounts for all losses incurred in production, storage, transmission, and delivery of energy to the site; which provides an equivalent measure for various types of buildings with different energy sources.

$$\textbf{\textit{Source Energy Intensity}} = \frac{(\textit{Electric Usage in kBtu X Site/Source Ratio + Natural Gas in kBtu X Site/Source Ratio})}{\textit{Building Square Footage}}$$

The EPA Score, Site EUI, and Source EUI for Lincoln Roosevelt School are as follows:

Energy Intensity	Lincoln Roosevelt School	National Average
EPA Score	100	50
Site (kBtu/sf/year)	23	54
Source (kBtu/sf/year)	42	101

To be eligible to receive a national Energy Star score, a building must meet all three of these requirements:

1. Building designation – More than 50 percent of the building's gross floor area must be one of the spaces eligible to receive an Energy Star score. The remainder of the building must abide by specific rules for each space type.
2. Operating characteristics – To ensure the building is consistent with the peer group used for comparison, each space in your building must meet certain minimum and maximum thresholds for key operating characteristics.
3. Energy data – At least 12 full consecutive calendar months for all active meters, accounting for all energy use (regardless of fuel type) in the building.

In addition, a Licensed Professional (meaning a Professional Engineer or Registered Architect) must verify that all energy use is accounted for accurately, that the building characteristics have been properly reported (including the square footage of the building), that the building is fully functional in accordance with industry standards, and that each of the indoor environment criteria has been met.

The Lincoln Roosevelt School is considered a higher than average energy consumer by the EPA Portfolio Manager which gives it a lower than average EPA score. For the School to qualify for the Energy Star label the EPA score is required to be above 75. There are several energy conservation measures recommended in this report, that if implemented will further reduce the energy use intensity and increase the EPA score of the Elementary School. This building does appear to be eligible for Energy Star certification at this time.

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 ("*roxburyboe*") and password ("*energystar*") for the building's EPA Portfolio Manager Account has been provided to the Roxbury Board of Education.

8.0 CONCLUSIONS & RECOMMENDATIONS

The energy audit conducted by CHA at the Lincoln Roosevelt identified potential ECMs for lighting and control replacement, attic insulation installation, demand controlled ventilation. Potential annual savings of $23,600 may be realized for the recommended ECMs, with a summary of the costs, savings, and paybacks as follows:

ECM-1 Upgrade Attic Insulation-Roosevelt School

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
17,000	0	0	6,500	7,800	0	7,800	12.9	0	2.2	2.2

Expected Life: 30 years
Lifetime Savings: 0 kWh 195,000 therms $ 234,000

ECM-3 Demand Control Ventilation For Gym Unit

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
2,000	9,700	0	4,600	7,600	0	7,600	56.3	0	0.3	0.3

Expected Life: 15 years
Lifetime Savings: 145,500 kWh 69,000 therms $ 114,000

ECM-6 Install Lighting Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
30,000	36,500	0	0	8,200	0	8,200	3.1	5,100	3.7	3.0

Expected Life: 15 years
Lifetime Savings: 547,500 kWh 0 therms $ 123,000

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APPENDIX A

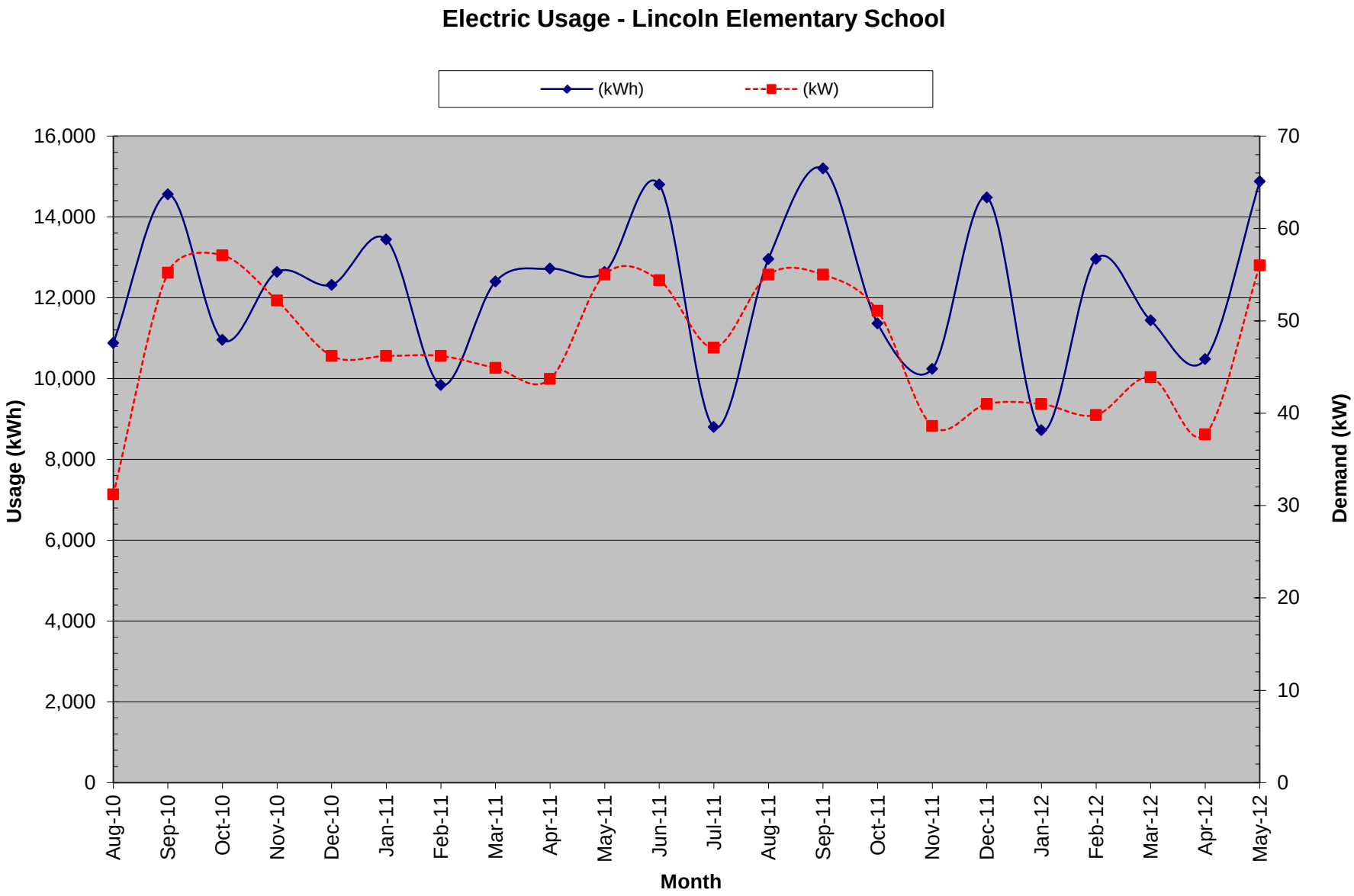
Utility Usage Analysis

Roxbury Township BOE
42 Hillside Ave.
Succasunna, NJ 07876

Electric Service
Delivery - JCP&L
Supplier -

For Service at: **Lincoln Elementary School**
Account No.: **100000-0806-53**
Meter No.: **28634245**

			Charges			Unit Costs		
Month	Consumption (kWh)	Demand (kW)	Total ($)	Delivery ($)	Supply ($)	Blended Rate ($/kWh)	Consumption ($/kWh)	Demand ($/kW)
August-10	10,880	31.20	$ 2,701.11			$ 0.248	$ 0.248	$ -
September-10	14,560	55.20	$ 3,682.40			$ 0.253	$ 0.253	$ -
October-10	10,960	57.10	$ 2,872.36			$ 0.262	$ 0.262	$ -
November-10	12,640	52.20	$ 3,225.81			$ 0.255	$ 0.255	$ -
December-10	12,320	46.20	$ 3,206.17			$ 0.260	$ 0.260	$ -
January-11	13,440	46.20	$ 3,370.03			$ 0.251	$ 0.251	$ -
February-11	9,840	46.20	$ 2,547.25			$ 0.259	$ 0.259	$ -
March-11	12,400	44.90	$ 3,032.01			$ 0.245	$ 0.245	$ -
April-11	12,720	43.70	$ 3,080.22			$ 0.242	$ 0.242	$ -
May-11	12,640	55.00	$ 2,999.48			$ 0.237	$ 0.237	$ -
June-11	14,800	54.40	$ 3,442.78			$ 0.233	$ 0.233	$ -
July-11	8,800	47.10	$ 2,239.09			$ 0.254	$ 0.238	$ 3.16
August-11	12,960	55.00	$ 3,065.30			$ 0.237	$ 0.212	$ 5.68
September-11	15,200	55.00	$ 3,503.50			$ 0.230	$ 0.211	$ 5.29
October-11	11,360	51.10	$ 2,682.90			$ 0.236	$ 0.213	$ 5.20
November-11	10,240	38.60	$ 2,374.35			$ 0.232	$ 0.214	$ 4.79
December-11	14,480	41.00	$ 3,305.07			$ 0.228	$ 0.214	$ 4.89
January-12	8,720	41.00	$ 2,069.84			$ 0.237	$ 0.214	$ 4.89
February-12	12,960	39.80	$ 2,938.54			$ 0.227	$ 0.212	$ 4.84
March-12	11,440	43.90	$ 2,593.91	$ 1,539.94	$ 1,053.97	$ 0.227	$ 0.135	$ 5.00
April-12	10,480	37.70	$ 2,356.89	$ 1,391.37	$ 965.52	$ 0.225	$ 0.133	$ 4.75
May-12	14,880	56.00	$ 3,324.52			$ 0.223	$ 0.223	$ -
Total (12-months)	**146,320**	**56.00**	**$33,896.69**	**$2,931.31**	**$2,019.49**	**$ 0.232**	**$ 0.217**	**$ 3.92**

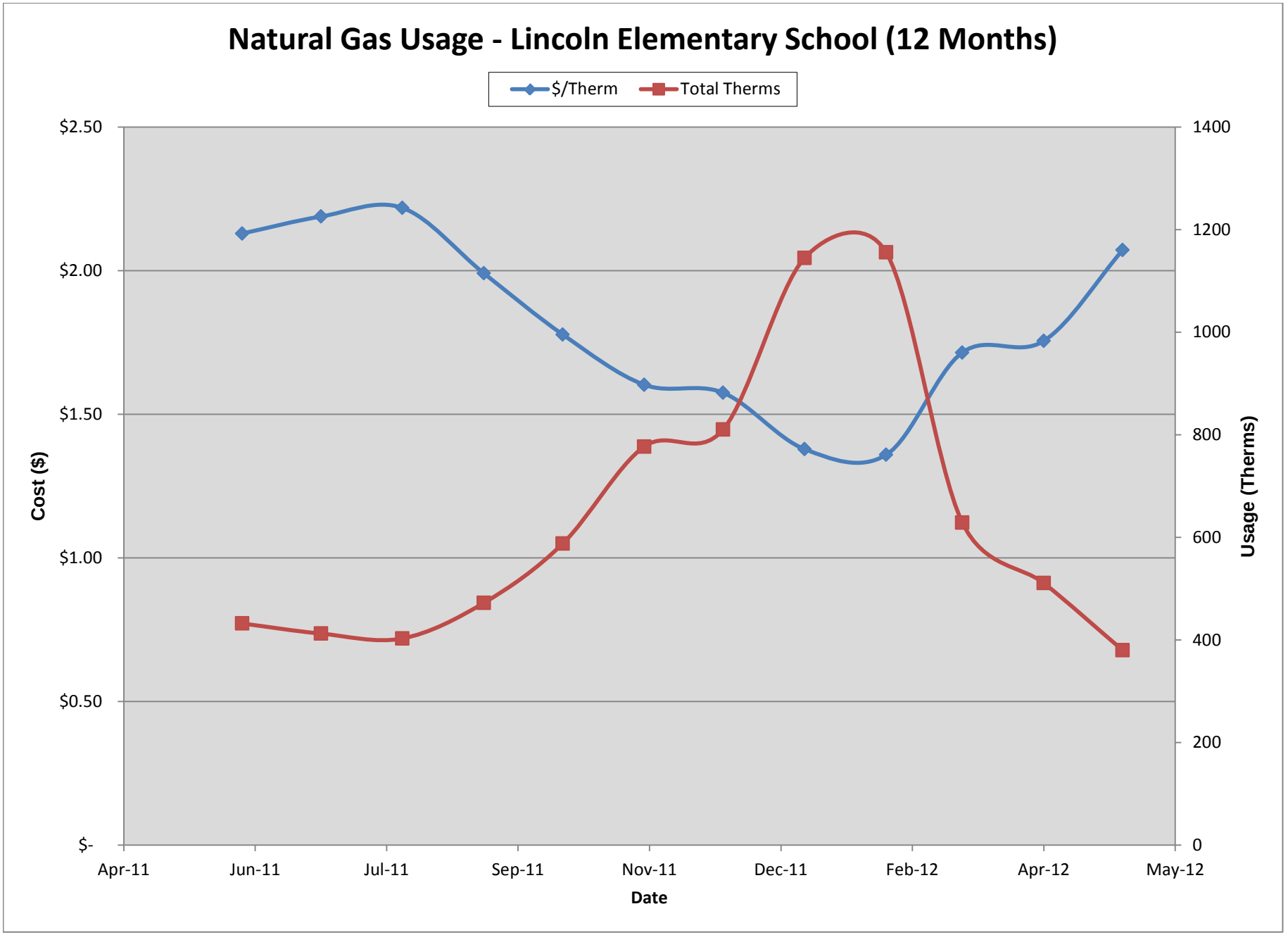

Electric Usage - Lincoln Elementary School
(kWh)
(kW)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Usage (kWh)
70
60
50
40
30
20
10
0
Demand (kW)
Aug-10
Sep-10
Oct-10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Jul-11
Aug-11
Sep-11
Oct-11
Nov-11
Dec-11
Jan-12
Feb-12
Mar-12
Apr-12
May-12
Month

Roxbury Township BOE
42 Hillside Ave.
Succasunna, NJ 07876

Gas Service
Delivery - NJNG
Supplier - NJNG

For Service at: Lincoln Elementary School
Account No.: 02-1106-4280-26
Meter No.: 00765786

Month	Total ($)	Delivery ($)	Supply ($)	Total Therms	$/Therm
Sep-10	$ 534.41			30.7	$ 17.41
Oct-10	$ 1,469.59			996.4	$ 1.47
Nov-10	$ 1,183.88			694.7	$ 1.70
Dec-10	$ 2,391.64			1894.7	$ 1.26
Jan-11	$ 2,326.30			1833.5	$ 1.27
Feb-11	$ 2,205.06			1712.5	$ 1.29
Mar-11	$ 1,239.06			636	$ 1.95
Apr-11	$ 1,170.93			669.5	$ 1.75
May-11	$ 1,055.79			570.2	$ 1.85
Jun-11	$ 920.38			432.2	$ 2.13
Jul-11	$ 902.82			412.5	$ 2.19
Aug-11	$ 894.18			403	$ 2.22
Sep-11	$ 940.57			472.4	$ 1.99
Oct-11	$ 1,045.39			588	$ 1.78
Nov-11	$ 1,245.84			777.2	$ 1.60
Dec-11	$ 1,276.50			810.4	$ 1.58
Jan-12	$ 1,578.78			1145	$ 1.38
Feb-12	$ 1,570.84			1155.9	$ 1.36
Mar-12	$ 1,078.74			628.9	$ 1.72
Apr-12	$ 897.21			511	$ 1.76
May-12	$ 787.35			380	$ 2.07
Total (12-months)	**$ 13,138.60**	**$ -**	**$ -**	**7716.50**	**$ 1.70**

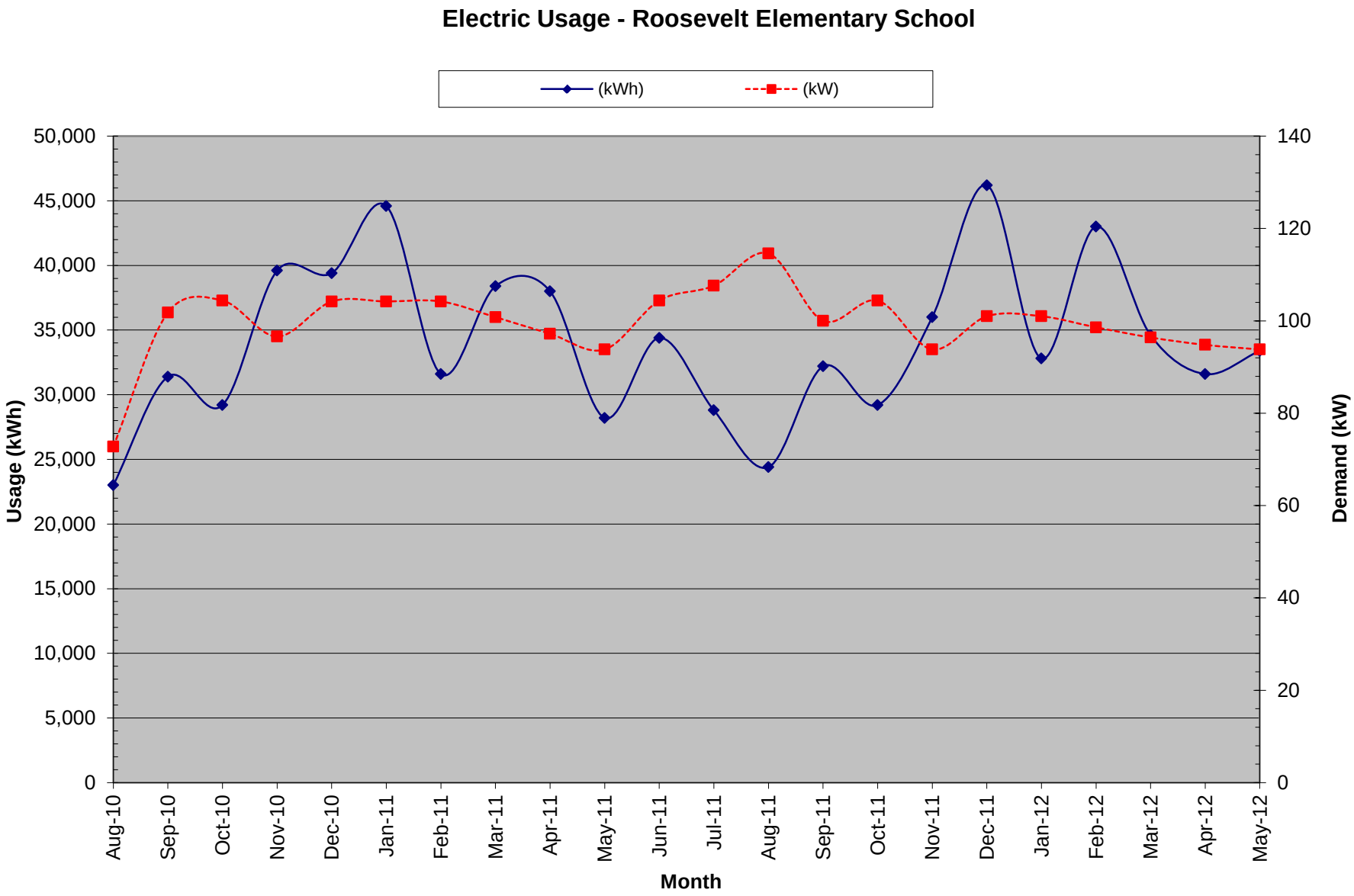

Natural Gas Usage - Lincoln Elementary School (12 Months)
$/Therm
Total Therms
$2.50
$2.00
$1.50
$1.00
$0.50
$-
Cost ($)
1400
1200
1000
800
600
400
200
0
Usage (Therms)
Apr-11
Jun-11
Jul-11
Sep-11
Nov-11
Dec-11
Feb-12
Apr-12
May-12
Date

Roxbury Township BOE
42 Hillside Ave.
Succasunna, NJ 07876

Electric Service
Delivery - JCP&L
Supplier - Hess

For Service at: **Roosevelt Elementary School**
Account No.: **100000-0805-96**
Meter No.: **17851714**

			Charges			Unit Costs		
Month	Consumption (kWh)	Demand (kW)	Total ($)	Delivery ($)	Supply ($)	Blended Rate ($/kWh)	Consumption ($/kWh)	Demand ($/kW)
August-10	23,000	72.80	$ 5,758.35			$ 0.250	$ 0.250	$ -
September-10	31,400	101.80	$ 7,830.61			$ 0.249	$ 0.249	$ -
October-10	29,200	104.40	$ 7,344.91			$ 0.252	$ 0.252	$ -
November-10	39,600	96.60	$ 9,674.51			$ 0.244	$ 0.244	$ -
December-10	39,400	104.20	$ 9,678.55			$ 0.246	$ 0.246	$ -
January-11	44,600	104.20	$ 10,867.05			$ 0.244	$ 0.244	$ -
February-11	31,600	104.20	$ 7,895.84			$ 0.250	$ 0.250	$ -
March-11	38,400	100.80	$ 9,143.32			$ 0.238	$ 0.238	$ -
April-11	38,000	97.20	$ 8,987.45			$ 0.237	$ 0.237	$ -
May-11	28,200	93.80	$ 6,492.16			$ 0.230	$ 0.230	$ -
June-11	34,400	104.40	$ 7,850.11			$ 0.228	$ 0.228	$ -
July-11	28,800	107.60	$ 6,007.06			$ 0.209	$ 0.185	$ 6.29
August-11	24,400	114.60	$ 5,848.42			$ 0.240	$ 0.210	$ 6.33
September-11	32,200	100.00	$ 7,315.73			$ 0.227	$ 0.209	$ 5.82
October-11	29,200	104.40	$ 6,722.85			$ 0.230	$ 0.209	$ 5.85
November-11	36,000	93.80	$ 8,077.79			$ 0.224	$ 0.209	$ 5.78
December-11	46,200	101.00	$ 10,246.31			$ 0.222	$ 0.209	$ 5.83
January-12	32,800	101.00	$ 7,442.98			$ 0.227	$ 0.209	$ 5.83
February-12	43,000	98.60	$ 9,534.83			$ 0.222	$ 0.208	$ 5.81
March-12	34,600	96.40	$ 7,611.24	$ 4,423.54	$ 3,187.70	$ 0.220	$ 0.128	$ 5.80
April-12	31,600	94.80	$ 6,985.83	$ 4,074.52	$ 2,911.31	$ 0.221	$ 0.129	$ 5.79
May-12	33,400	93.80	$ 7,386.64	$ 4,309.50	$ 3,077.14	$ 0.221	$ 0.129	$ 6.20
Total (12-months)	**406,600**	**114.60**	**$91,029.79**	**$12,807.56**	**$9,176.15**	**$ 0.224**	**$ 0.208**	**$ 5.44**

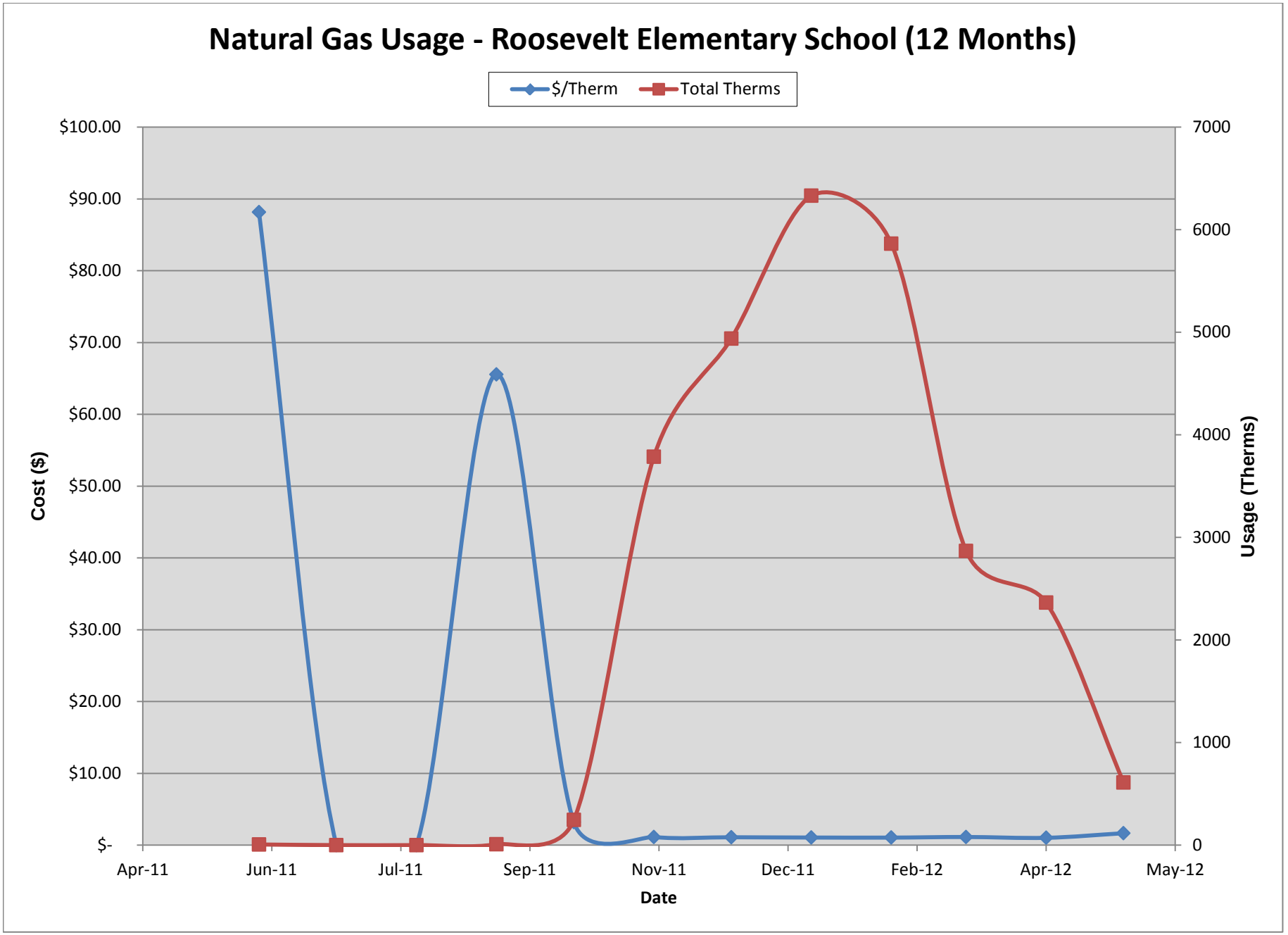

Electric Usage - Roosevelt Elementary School
(kWh)
(kW)
Usage (kWh)
Demand (kW)
Month
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
140
120
100
80
60
40
20
0
Aug-10
Sep-10
Oct-10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Jul-11
Aug-11
Sep-11
Oct-11
Nov-11
Dec-11
Jan-12
Feb-12
Mar-12
Apr-12
May-12

Roxbury Township BOE
42 Hillside Ave.
Succasunna, NJ 07876

Gas Service
Delivery - NJNG
Supplier - NJNG

For Service at: Roosevelt Elementary School
Account No.: 02-1106-4290-29
Meter No.: 00765557

Month	Total ($)	Delivery ($)	Supply ($)	Total Therms	$/Therm
Sep-10	$ 549.19			0	#DIV/0!
Oct-10	$ 1,322.02			770	$ 1.72
Nov-10	$ 4,479.26			3881.4	$ 1.15
Dec-10	$ 7,858.04			7067.4	$ 1.11
Jan-11	$ 9,601.84			8775.4	$ 1.09
Feb-11	$ 7,138.29			6391.7	$ 1.12
Mar-11	$ 7,134.04			6281	$ 1.14
Apr-11	$ 3,531.92			2893.2	$ 1.22
May-11	$ 560.85			11.6	$ 48.35
Jun-11	$ 555.47			6.3	$ 88.17
Jul-11	$ 549.19			0	#DIV/0!
Aug-11	$ 549.19			0	#DIV/0!
Sep-11	$ 557.27			8.5	$ 65.56
Oct-11	$ 782.17			245.6	$ 3.18
Nov-11	$ 4,282.36			3785.7	$ 1.13
Dec-11	$ 5,413.78			4939	$ 1.10
Jan-12	$ 6,690.30			6330.8	$ 1.06
Feb-12	$ 6,143.04			5863.9	$ 1.05
Mar-12	$ 3,250.98			2868.3	$ 1.13
Apr-12	$ 2,407.86			2364	$ 1.02
May-12	$ 1,013.35			611	$ 1.66
Total (12-months)	**$ 32,194.96**	**$ -**	**$ -**	**27023.10**	**$ 1.19**


Natural Gas Usage - Roosevelt Elementary School (12 Months)
$/Therm
Total Therms
$100.00
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$-
Cost ($)
7000
6000
5000
4000
3000
2000
1000
0
Usage (Therms)
Apr-11
Jun-11
Jul-11
Sep-11
Nov-11
Dec-11
Feb-12
Apr-12
May-12
Date

APPENDIX B

Equipment Inventory

New Jersey BPU Energy Audit Program
CHA #24454
Roxbury BOE
Lincoln/Roosevelt School
Original Construction Date: 1918
Renovation/Addtion Date:

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size/Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)	Other Info.
HV	1				Heating and Ventilation	.25 HP	Gym	Gym	1992	0	
B-1	1	AERCO	Benchmark 2000	G-05-0451	Boiler / NG	Input: 2000 MBH / Output: 1720 MBH	MER	School	2006	-1987	
B-2	1	AERCO	Benchmark 2000	G-05-0448	Boiler / NG	Input: 2000 MBH / Output: 1720 MBH	MER	School	2006	19	
B-3	1	AERCO	Benchmark 2000	G-05-0449	Boiler / NG	Input: 2000 MBH / Output: 1720 MBH	MER	School	2006	19	
B-4	1	AERCO	Benchmark 2000	G-05-0450	Boiler / NG	Input: 2000 MBH / Output: 1720 MBH	MER	School	2006	19	
B-5	1	AERCO	Benchmark 2000	G-05-0447	Boiler / NG	Input: 2000 MBH / Output: 1720 MBH	MER	School	2006	19	
PP	2				HW Pump	15 HP Lead/Lag w/VFD	MER	School	2006	14	
SP	2				HW Pump	7.5 HP Lead/Lag w/VFD	MER	School	2006	14	
FCU	1				Fan Coil Unit	1/8 HP		Roosevelt	2002	14	
Oven	1	Blodgett	Dual Flow		Dual Flow Oven / NG		Roosevelt Kitchen	Roosevelt	1992	-5	
Store	1	Crescor			Hot Storage		Roosevelt Kitchen	Roosevelt	1992	-5	
Stove	1				Electric Range		Lincoln Kitchen	Lincoln	1992	-5	
Refrigerator	1	Superior			Refrigerator		Lincoln Kitchen	Lincoln	1992	-5	
Freezer	1	Traulsen			Walk-In Freezer		Lincoln Kitchen	Lincoln	1992	-5	
Refrigerator	1	Traulsen			Refrigerator		Lincoln Kitchen	Lincoln	1992	-5	
Freezer	1	Traulsen			Walk-In Freezer		Lincoln Kitchen	Lincoln	1992	-5	
Refrigerator	1	Traulsen			Refrigerator		Lincoln Kitchen	Lincoln	1992	-5	
Oven	2	Blodgett			Electric Oven		Lincoln Kitchen	Lincoln	1992	-5	
Freezer	1				Freezer		Lincoln Kitchen	Lincoln	1992	-5	
DHW	1	AO Smith	BTP 150-199,000	SE05108276Y3	DHW	150 gal. 199 MBH	Lincoln	Lincoln MER	1970	-27	
Vending	1				Cold Drink Machine		Faculty Lounge	Faculty Lounge	2002	5	
Refrigerator	3				Residential Type Refrigerator		Faculty Lounge	Faculty Lounge	1992	-5	
AHU	1				AHU w/ HW & DX		Media Center	Media Center	2006	9	
AC	13				Window AC		School	School	1996	-6	
RCU	2	Friedrich	MR24C3F		Remote Condensing Unit	1/8 HP	School	School	1996	4	
RCU	1	Friedrich	MR12CF		Remote Condensing Unit	1/8 HP	School	School	1996	4	
CU	2	Airedale	SCC24DF	1-05-B-0960-07	Condenser	1/8 HP	School	School	1996	4	
CU	1	Airedale	MC4D04040F0FA0G	1-05-D-5712-16	Condenser	1/8 HP	School	School	1996	4	

APPENDIX C

ECM Calculations

Summary of Energy Conservation Measures							
Energy Conservation Measure		Approx. Costs ($)	Approx. Savings ($/year)	Payback (Years) w/o Incentive	Potential Incentive ($)*	Payback (Years) w/ Incentive	Recommended For Implementation
ECM-1	Upgrade Attic Insulation-Roosevelt School	17,000	7,800	2.2	0	2.2	X
ECM-2	Replace Windows	384,000	1,300	>20	0	>20	
ECM-3	Demand Control Ventilation For Gym Unit	2,000	7,600	0.3	0	0.3	X
ECM-4	Kitchen Hood Controls-Lincoln and Roosevelt Schools	6,000	200	>20	0	>20	
ECM-5	Lighting Replacement / Upgrades	9,967	10,000	1.0	3,100	0.7	X
ECM-6	Install Lighting Controls (Occupancy Sensors)	30,000	8,200	3.0	5,100	3.0	
ECM-7	Lighting Replacements with Lighting Controls (Occupancy Sensors)	40,000	15,300	2.1	8,200	2.1	

Roxbury BOE
CHA Project #24454
Lincoln/ Roosevelt School

ECM Summary Sheet

ECM-1 **Upgrade Attic Insulation-Roosevelt School**

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
17,000	0	0	6,500	7,800	0	7,800	12.9	0	2.2	2.2

Expected Life: 30 years
Lifetime Savings: 0 kWh 195,000 therms $ 234,000

ECM-2 **Replace Windows**

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
384,000	0	0	1,100	1,300	0	1,300	(0.9)	0	>20	>20

Expected Life: 15 years
Lifetime Savings: 0 kWh 16,500 therms $ 19,500

ECM-3 **Demand Control Ventilation For Gym Unit**

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
2,000	9,700	0	4,600	7,600	0	7,600	56.3	0	0.3	0.3

Expected Life: 15 years
Lifetime Savings: 145,500 kWh 69,000 therms $ 114,000

ECM-4 **Kitchen Hood Controls-Lincoln and Roosevelt Schools**

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
6,000	700	0	0	200	0	200	(0.5)	0	>20	>20

Expected Life: 15 years
Lifetime Savings: 10,500 kWh 0 therms $ 3,000

ECM-5 **Lighting Replacement / Upgrades**

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
9,967	27,330	16	0	9,967	0	10,000	5.8	3,100	1.0	0.7

Expected Life: 15 years
Lifetime Savings: 410,000 kWh 0 therms $ 149,500

ECM-6 **Install Lighting Controls (Occupancy Sensors)**

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
30,000	36,500	0	0	8,200	0	8,200	3.1	5,100	3.7	3.0

Expected Life: 15 years
Lifetime Savings: 547,500 kWh 0 therms $ 123,000

ECM-7 **Lighting Replacements with Lighting Controls (Occupancy Sensors)**

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	ROI	Incentive *	Payback (without incentive)	Payback (with incentive)
	Electric	Electric	Nat Gas	Total						
$	kWh	kW	Therms	$	$	$		$	Years	Years
40,000	63,400	0	0	15,300	0	15,300	2.5	8,200	2.6	2.1

Expected Life: 15 years
Lifetime Savings: 951,000 kWh 0 therms $ 229,500

Roxbury BOE
CHA Project #24454

Utility Costs		Yearly Usage	MTCDE	Building Area	Annual Utility Cost	
$ 0.225	$/kWh blended	552,920	0.00042021	236,340	Electric	Natural Gas
$ 0.129	$/kWh supply	552,920	0.00042021		124,925	45,332
$ 5.44	$/kW	1,770	0			
$ 1.19	$/Therm	34,739	0.00533471			
$ -	$/kgals	-	0			

Lincoln/ Roosevelt School

	Item	Savings						Cost	Simple Payback	MTCDE	Life Expectancy	NJ Smart Start Incentives	Direct Install Eligible (Y/N)*	Direct Install Incentives**	Max Incentives	Payback w/ Incentives***	Simple Projected Lifetime Savings						ROI
		kW	kWh	therms	cooling kWh	kgal/yr	$										kW	kWh	therms	cooling	kgal/yr	$	
ECM-1	Upgrade Attic Insulation-Roosevelt School	0.0	0	6,524	0	0	$ 7,800	$ 16,800	2.2	34.8	30	$ -		$ -	$ -	2.2	0.0	0	195,721	0	0	$ 232,908	12.9
ECM-2	Replace Windows	0.0	0	1,095	0	0	$ 1,300	$ 384,000	295.4	5.8	15	$ -		$ -	$ -	295.4	0.0	0	16,431	0	0	$ 19,553	(0.9)
ECM-3	Demand Control Ventilation For Gym Unit	0.0	9720	4580	0	0	$ 7,600	$ 2,000	0.3	28.5	15	$ -		$ -	$ -	0.3	0.0	145,800	68,701	0	0	$ 114,559	56.3
ECM-4	Kitchen Hood Controls-Lincoln and Roosevelt Schools	0.0	710	17	0	0	$ 200	$ 5,702	28.5	0.4	15			$ -	$ -	28.5	0.0	10,648	256	0	0	$ 2,700	(0.5)
ECM-5	Lighting Replacement / Upgrades	15.5	27,330	0	0	0	$ 7,173	$ 9,967	1.4	11.5	15	$ 3,095		$ -	$ 3,095	1.0	232.6	409,951	0	0	0	$ 68,068	5.8
ECM-6	Install Lighting Controls (Occupancy Sensors)	0.0	36,478	0	0	0	$ 8,208	$ 29,768	3.6	15.3	15	$ 5,145		$ -	$ 5,145	3.0	0.0	547,175	0	0	0	$ 123,114	3.1
ECM-7	Lighting Replacements with Lighting Controls (Occupancy Sensors)	15.5	63,401	0	0	0	$ 15,278	$ 39,734	2.6	26.6	15	$ 8,240		$ -	$ 8,240	2.1	232.6	951,018	0	0	0	$ 137,866	2.5
	Total (Does Not Include ECM-5 & ECM-6)	**15.5**	**73,831**	**12,217**	**0**	**0**	**$ 32,178**	**$ 448,236**	13.9		18.0	$ 8,240		$ -	$ 8,240	13.7	232.6	1,107,466	281,109	0	0	$ 507,587	0.1
	Total Measures with Payback <10	**15.5**	**73,121**	**11,104**	**0**	**0**	**$ 30,678**	**$ 58,534**	1.9		18.0	$ 8,240		$ -	$ 8,240	1.6	232.6	1,096,818	264,422	0	0	$ 485,333	7.3
	% of Existing	**1%**	**13%**	**35%**	**0%**	**#DIV/0!**																	

Roxbury BOE
CHA Project #24454
Lincoln/ Roosevelt School

ECM-1: Upgrade Attic Insulation

Add R-38 Add Insulation to Attic Area

Fuel Table

Area of ceiling	25,000	SF	**Cooling System Efficiency**	0	kW/ton	Heating System Efficienc	90%	
Existing Infiltration Factor	**0.00**	**cfm/SF**	**Ex Occupied Clng Temp.**	66	*F	Heating On Point	55	*F
Proposed Infiltration Factor	**0.00**	**cfm/SF**	**Ex Unoccupied Clng Temp.**	70	*F	Ex Occupied Htg Temp.	70	*F
Existing U Value	**0.200**	**Btuh/SF/°F**	**Cooling Occ Enthalpy Setpoint**	27.5	Btu/lb	Ex Unoccupied Htg Tem	68	*F
Proposed U Value	**0.026**	**Btuh/SF/°F**	**Cooling Unocc Enthalpy Setpoint**	27.5	Btu/lb	Electricity	$ 0.225	$/kWh
						Natural Gas	$ 1.19	$/Therm

					EXISTING LOADS		PROPOSED LOADS		COOLING ENERGY		HEATING ENERGY	
					Occupied	Unoccupied	Occupied	Unoccupied				
Avg Outdoor Air Temp. Bins °F	**Avg Outdoor Air Enthalpy**	**Existing Equipment Bin Hours**	**Occupied Equipment Bin Hours**	**Unoccupied Equipment Bin Hours**	**Wall Infiltration & Heat Load BTUH**	**Wall Infiltration & Heat Load BTUH**	**Wall Infiltration & Heat Load BTUH**	**Wall Infiltration & Heat Load BTUH**	**Existing Cooling Energy kWh**	**Proposed Cooling Energy kWh**	**Existing Heating Energy Therms**	**Proposed Heating Energy Therms**
A		**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**
102.5		0	0	0	-182,500	-162,500	-24,013	-21,382	0	0	0	0
97.5		0	0	0	-157,500	-137,500	-20,724	-18,092	0	0	0	0
92.5		9	3	6	-132,500	-112,500	-17,434	-14,803	0	0	0	0
87.5		37	13	24	-107,500	-87,500	-14,145	-11,513	0	0	0	0
82.5		186	66	120	-82,500	-62,500	-10,855	-8,224	0	0	0	0
77.5		247	88	159	-57,500	-37,500	-7,566	-4,934	0	0	0	0
72.5		320	114	206	-32,500	-12,500	-4,276	-1,645	0	0	0	0
67.5		618	221	397	-7,500	0	-987	0	0	0	0	0
62.5		828	296	532	0	0	0	0	0	0	0	0
57.5		600	214	386	0	0	0	0	0	0	0	0
52.5		610	218	392	87,500	77,500	11,513	10,197	0	0	549	72
47.5		611	218	393	112,500	102,500	14,803	13,487	0	0	720	95
42.5		656	234	422	137,500	127,500	18,092	16,776	0	0	955	126
37.5		1,023	365	658	162,500	152,500	21,382	20,066	0	0	1,774	233
32.5		734	262	472	187,500	177,500	24,671	23,355	0	0	1,477	194
27.5		334	119	215	212,500	202,500	27,961	26,645	0	0	765	101
22.5		252	90	162	237,500	227,500	31,250	29,934	0	0	647	85
17.5		125	45	80	262,500	252,500	34,539	33,224	0	0	356	47
12.5		47	17	30	287,500	277,500	37,829	36,513	0	0	147	19
7.5		22	8	14	312,500	302,500	41,118	39,803	0	0	75	10
2.5		13	5	8	337,500	327,500	44,408	43,092	0	0	48	6
-2.5		0	0	0	362,500	352,500	47,697	46,382	0	0	0	0
-7.5		0	0	0	387,500	377,500	50,987	49,671	0	0	0	0
TOTALS		**7,272**	**2,597**	**4,675**					0	0	**7,513**	**988**

Existing Ceiling Infiltration	**0**	**cfm**
Existing Ceiling Heat Transfer	**5,000**	**Btuh/°F**
Proposed Ceiling Infiltration	**0**	**cfm**
Proposed Ceiling Heat Transfer	**658**	**Btuh/°F**

Savings	**6,524**	**Therms**	**$ 7,764**

Maywood Schools
CHA Project # 24473

Roxbury BOE
CHA Project #24454
Lincoln/ Roosevelt School

ECM-1

Install Attic Insulation Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Fiberglass Blacket R-38 Insulation (6" Thick, 23" wide)	25,000	SF	$ 0.47	$ 0.20		$ 11,825	$ 4,950	$ -	$ 16,800	

$ 16,800.00	Subtotal
$ -	0% Contingency
$ -	0% Contractor O&P
$ -	Engineering
$ 16,800.00	**Total**

Blanket Insulation - Fiberglass (kraft faced)

R-19 (6" thick)					
11" wide	$	0.47	$	0.32	
15" wide	$	0.47	$	0.24	
23" wide	$	0.47	$	0.20	
R-38 (12" thick)					
15" wide	$	0.99	$	0.32	
23" wide	$	0.99	$	0.24	

Blown Insulation - Cellulose or Fiberglass

3 1/2" thick - R-:	$	0.23	$	0.15	$	0.06
6 1/2" thick - R-:	$	0.44	$	0.26	$	0.10
10 7/8" thick R-:	$	0.76	$	0.43	$	0.17

Board Insulation
3 lb density
($/sf)
Fiberglass

Note: Pricing for energy savings calculations only- do not use for bidding purposes

Roxbury BOE
CHA Project #24454
Lincoln/ Roosevelt School

Linear Feet of window Edge	2,880.0	LF	Cooling System Efficiency	0	kW/ton	Heating System Efficiency	90%	
Area of window glass	3,840.0	SF	Ex Occupied Clng Temp.	74	*F	Heating On Temp.	55	*F
Existing Infiltration Factor	**0.20**	**cfm/LF**	Ex Unoccupied Clng Temp.	78	*F	Ex Occupied Htg Temp.	70	*F
Proposed Infiltration Factor	**0.10**	**cfm/LF**	Cooling Occ Enthalpy Setpoint	27.5	Btu/lb	Ex Unoccupied Htg Temp.	60	*F
Existing U Value	**0.60**	**Btuh/SF/°F**	Cooling Unocc Enthalpy Setpoint	27.5	Btu/lb	Electricity	$ 0.225	$/kWh
Proposed U Value	**0.45**	**Btuh/SF/°F**				Natural Gas	$ 1.19	$/therm

					EXISTING LOADS		PROPOSED LOADS		COOLING ENERGY		HEATING ENERGY	
					Occupied	**Unoccupied**	**Occupied**	**Unoccupied**				
Avg Outdoor Air Temp. Bins °F	**Avg Outdoor Air Enthalpy**	**Existing Equipment Bin Hours**	**Occupied Equipment Bin Hours**	**Unoccupied Equipment Bin Hours**	**Window Infiltration & Heat Load BTUH**	**Window Infiltration & Heat Load BTUH**	**Window Infiltration & Heat Load BTUH**	**Window Infiltration & Heat Load BTUH**	**Existing Cooling Energy kWh**	**Proposed Cooling Energy kWh**	**Existing Heating Energy Therms**	**Proposed Heating Energy Therms**
A		**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**
102.5	50.1	0	0	0	-124,243	-115,027	-78,538	-71,626	0	0	0	0
97.5	42.5	3	1	2	-93,024	-83,808	-60,048	-53,136	0	0	0	0
92.5	39.5	34	11	23	-73,728	-64,512	-47,520	-40,608	0	0	0	0
87.5	36.6	131	43	88	-54,691	-45,475	-35,122	-28,210	0	0	0	0
82.5	34.0	500	164	336	-36,432	-27,216	-23,112	-16,200	0	0	0	0
77.5	31.6	620	203	417	-18,691	0	-11,362	0	0	0	0	0
72.5	29.2	664	217	447	0	0	0	0	0	0	0	0
67.5	27.0	854	280	574	0	0	0	0	0	0	0	0
62.5	24.5	927	303	624	0	0	0	0	0	0	0	0
57.5	21.4	600	196	404	0	0	0	0	0	0	0	0
52.5	18.7	610	200	410	51,206	21,946	35,683	15,293	0	0	214	149
47.5	16.2	611	200	411	65,837	36,576	45,878	25,488	0	0	313	218
42.5	14.4	656	215	441	80,467	51,206	56,074	35,683	0	0	443	309
37.5	12.6	1,023	335	688	95,098	65,837	66,269	45,878	0	0	857	597
32.5	10.7	734	240	494	109,728	80,467	76,464	56,074	0	0	734	512
27.5	8.6	334	109	225	124,358	95,098	86,659	66,269	0	0	388	271
22.5	6.8	252	83	170	138,989	109,728	96,854	76,464	0	0	334	233
17.5	5.5	125	41	84	153,619	124,358	107,050	86,659	0	0	186	130
12.5	4.1	47	15	32	168,250	138,989	117,245	96,854	0	0	78	54
7.5	2.6	22	7	15	182,880	153,619	127,440	107,050	0	0	40	28
2.5	1.0	13	4	9	197,510	168,250	137,635	117,245	0	0	26	18
0.0	0.0	0	0	0	204,826	175,565	142,733	122,342	0	0	0	0
TOTALS		**8,760**	**2,868**	**5,892**					0	0	**3,613**	**2,518**

Existing Window Infiltration	**576**	**cfm**
Existing Window Heat Transfer	**2,304**	**Btuh/°F**
Proposed Window Infiltration	**288**	**cfm**
Proposed Window Heat Transfer	**1,728**	**Btuh/°F**

Savings	**1,095**	**Therms**	**$**	**1,304**
	0	**kWh**	**$**	**-**
			$	**1,304**

Window ID	Location	Quantity	Width (ft)	Height (ft)	Linear Feet (LF)	Area (SF)	Infiltration Rate (CFM/LF)	U Value (Btuh/SF/°F)	Infiltration (CFM)	Heat Transfer (Btuh/°F)
1	North Top	15	4	8	360.0	480.0	0.2	0.6	72.0	288.0
2	North Bottom	15	4	8	360.0	480.0	0.2	0.6	72.0	288.0
3	South Top	15	4	8	360.0	480.0	0.2	0.6	72.0	288.0
4	South Bottom	15	4	8	360.0	480.0	0.2	0.6	72.0	288.0
5	East Top	15	4	8	360.0	480.0	0.2	0.6	72.0	288.0
6	East Bottom	15	4	8	360.0	480.0	0.2	0.6	72.0	288.0
7	West Top	15	4	8	360.0	480.0	0.2	0.6	72.0	288.0
8	West Bottom	15	4	8	360.0	480.0	0.2	0.6	72.0	288.0
Total		**120**	**32**	**64**	**2,880.0**	**3,840.0**	**0.20**	**0.60**	**576.0**	**2304.0**

Roxbury BOE
CHA Project #24454
Lincoln/ Roosevelt School

ECM-3 Demand Control Ventilation- GYM HVAC Unit

Assumed RTU total CFM= 4000
Assumed OA % =20% =800 CFM
Assumed reduction in OA to 10%- 400 CFM

Blended Electric Rate	$	0.225	per kWh
Blended Natural Gas Rate	$	1.190	per therm

ECM-1 Demand Control Ventilation

Facility Ventilation Heating Load		164,160	BTU/Hour[1,2,3]
Facility Ventilation Cooling Load(Sensible)		43,200	BTU/Hour[1,2,4]
Existing Ventilation Heating Usage		5,089	therms[6]
Proposed Ventilation Heating Load		16,416	BTU/Hour[1,2,3]
Proposed Ventilation Cooling Load		33,480	BTU/Hour[1,2,4]
Proposed Ventilation Heating Usage		509	therms
Total heating savings		4580	therms
Total cooling savings		**9720**	kWh
Total cost savings	**$**	**7,637**	
Estimated Total Project Cost	**$**	**2,000**	
Simple Payback		**0.3**	**years**

Assumptions

1	4,000	AHU OA flow (20% of 4000 cfm- assumed)
2	400	Proposed AHU OA flow (20% of 4000 cfm- assumed)
3	38	°F, Assumed average heating Δt
4	10	°F, Assumed average cooling Δt
5	3,100	AHU run hours per heating/cooling seasons
6	50%	Estimated OA reduction during low occupancy periods

ECM-3 Cost- Demand Control Ventilation

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
CO2 Sensors	2	EA	$ 250	$ 250		$ 500	$ 500	$ -	$ 1,000	
DDC Programming	1	EA	$ -	$ 250		$ -	$ 250	$ -	$ 250	
Miscellaneous Electrical	1	EA	$ 500	$ 250		$ 500	$ 250	$ -	$ 750	

$ 2,000	Subtotal
$ -	0% Contingency
$ -	0% Contractor O&P
$ 2,000	**Total**

Roxbury BOE
CHA Project #24454
Lincoln/ Roosevelt School

ECM-4: Install Kitchen Hood Controller

Motor Operating Savings

Hours of Operation (per day)	4		A
Days/Year	180		B
Weeks/Year	36		C
Motor HP	3		D
Equivalent KW	1.87	KW	E
Cost of Electricity	$0.23	KWh	F
Total Time/Year	720	hrs/year	G
Total KWH/YR	1343	KWh	H

% Rated RPM I	% Run Time J	Time K J * G	Output L I * E ^ 2.5	KWH/YR M L *K	
100%	9%	65	1.865	121	
90%	11%	79	1.433	114	
80%	14%	101	1.068	108	
70%	35%	252	0.765	193	
60%	18%	130	0.520	67	
50%	13%	94	0.330	31	
40%	0%	0	0.189	0	
30%	0%	0	0.092	0	
20%	0%	0	0.033	0	
10%	0%	0	0.006	0	
				633	N

Total Savings .= H - N 710 KWh

Conditioned Make Up Air: Heating

Previous Net Exhaust Volume	2,500	CFM	
New Net Exhaust Volume	1,798	CFM	
Previous net heat load	102,600	BTU/hr	
new net heat load	73,769	BTU/hr	
Design Indoor Conditions	68	F	
Average Outdoor Air Temp (during Heating)	30	F	
Heating Hours	720	hrs/yr	
Total Therms Savings	17	Therms	

% Rated RPM I	% Run Time J	H * J
100%	9%	9.00%
90%	11%	9.90%
80%	14%	11.20%
70%	35%	24.50%
60%	18%	10.80%
50%	13%	6.50%
40%	0%	0.00%
30%	0%	0.00%
20%	0%	0.00%
10%	0%	0.00%
Avg RPM		71.90%

Cost of Fuel = $1.19 / therm

Reduced Electricity Savings =	**710**	**kWh**
Reduced Fuel Savings =	**17**	**therms**
Reduced Financial Savings =	**$180**	

Multipliers	
Material:	1.00
Labor:	1.00
Equipment:	1.00

ECM-4: Install Kitchen Hood Controller - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
VFD	2	ea	$ 1,575	$ 500		$ 3,150	$ 1,000	$ -	$ 4,150	
Motor	2	ea	$ 326	$ 100		$ 652	$ 200	$ -	$ 852	
Electrical - misc.	1	ls	$ 300	$ 200		$ 300	$ 200	$ -	$ 500	
T-stat installation	1	ea	$ 100	$ 100		$ 100	$ 100	$ -	$ 200	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

$ 5,702	Subtotal
$ -	
$ -	
$ -	
$ 5,702	**Total**

Rev. 8 *issued: 12/01/09*

make summary sheet a overall reference, move hours and occ hours to sheet
can delete pages, eliminated cross page references
add economizer to reconcile sheet
separate cost estimates onto separate tabs
dark tabs are not to be used
add ECO-M18 Replace Window Units, modified % runtime calc
add ECO-M21 Hot Water Reset
add ECO-M22 Kitchen Hood Control
ECO-E9 add sensor count column
converted to therms and cooling kWh
broke supply and demand charges where appropriate (lighting)
do not delete colored tabs
corrected window calcs - occ not included
fixed WCO-1 D22 calc
modified DCV calcs to include Heating "on" and proper cooling calc

Rev. 9 *issued: 8/1/2010*

corrected ECO-E1 delamp calc
added more inputs on partition walls in block load
added occ and unoccupied forced ventilation
corrected issues with WCOs
added existing R-values to wall and roof insulation ECOs
added building volume calculator (walls, doors, and windows spreadsheet)
added air changes per hour calc to block load spreadsheet
added Infrared Heaters ECM to workbook (ECO-M7)
added "Heating On" points to Insulation calcs
added yearly usage to summary page and % checks
added stand alone Door Seals calcs (ECO-M19) - does not require block load
added electric DHW heater replacement calc (ECO-M20)
added HW reset with boiler replacement (ECO-M21)
added wire-to-shaft efficiency for VFD calcs ECO-M5
added U-value calculator for block load

ECM-1 Lighting Replacements

Budgetary	Annual Utility Savings				Estimated	Total	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Incentive	(without incentive)	(with incentive)
					Savings				
$	kW	kWh	therms	$	$	$	$	Years	Years
$9,967	**15.5**	**27,330**	**0**	**$7,162**	**0**	**$7,173**	**$3,095**	**1.4**	**1.0**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-2 Install Occupancy Sensors

Budgetary	Annual Utility Savings				Estimated	Total	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Incentive	(without incentive)	(with incentive)
					Savings				
$	kW	kWh	therms	$	$	$	$	Years	Years
$29,768	**0.0**	**36,478**	**0**	**$8,208**	**0**	**$8,208**	**$5,145**	**3.6**	**3.0**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-3 Lighting Replacements with Occupancy Sensors

Budgetary	Annual Utility Savings				Estimated	Total	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Incentive	(without incentive)	(with incentive)
					Savings				
$	kW	kWh	therms	$	$	$	$	Years	Years
$39,734	**15.5**	**63,401**	**0**	**$15,278**	**0**	**$15,278**	**$8,240**	**2.6**	**2.1**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

Existing Lighting

Cost of Electricity: **$0.225** **$/kWh**

$5.44 **$/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**	
15	Assistant Principal	Offices	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
108	Assistant Principal	Offices	2	I 65	I65/1	65	0.13	SW	2400	C-OCC	312	
15	L100	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	L101	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
245	L102	Classrooms	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	C-OCC	1,056	
210	L102	Classrooms	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.18	C-OCC	2400	C-OCC	427	
15	L103	Classrooms	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	C-OCC	864	
15	L104	Classrooms	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	C-OCC	864	
15	L105	Classrooms	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	C-OCC	864	
15	L105A	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
245	L106	Classrooms	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	C-OCC	1,056	
210	L106	Classrooms	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.18	C-OCC	2400	C-OCC	427	
245	L107	Classrooms	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	C-OCC	1,056	
210	L107	Classrooms	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.18	C-OCC	2400	C-OCC	427	
245	L108	Classrooms	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	C-OCC	1,056	
210	L108	Classrooms	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.18	C-OCC	2400	C-OCC	427	
245	L109	Classrooms	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	C-OCC	1,056	
210	L109	Classrooms	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.18	C-OCC	2400	C-OCC	427	
254	Auditorium	Auditorium	16	T 32 R F 4 (ELE)	F44LL	118	1.89	SW	1000	C-OCC	1,888	
254	Auditorium	Auditorium	3	T 32 R F 4 (ELE)	F44LL	118	0.35	SW	1000	C-OCC	354	
108	Auditorium	Auditorium	7	I 65	I65/1	65	0.46	SW	1000	C-OCC	455	
108	Auditorium	Auditorium	1	I 65	I65/1	65	0.07	SW	1000	C-OCC	65	
129	Stage	Storage Areas	28	SP 75 I	I75/1	75	2.10	SW	1000	SW	2,100	
129	Stage	Storage Areas	28	SP 75 I	I75/1	75	2.10	SW	1000	SW	2,100	
15	L201	Classrooms	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	C-OCC	864	
245	L202	Classrooms	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	C-OCC	1,056	
210	L202	Classrooms	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.18	C-OCC	2400	C-OCC	427	
15	L203	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	L204	Classrooms	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	C-OCC	864	
15	L205	Classrooms	5	S 32 C F 2 (ELE)	F42LL	60	0.30	SW	2400	C-OCC	720	
15	L205	Classrooms	5	S 32 C F 2 (ELE)	F42LL	60	0.30	SW	2400	C-OCC	720	
15	L205	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	L205	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	L206	Classrooms	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	C-OCC	1,152	
15	L207	Classrooms	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	C-OCC	1,152	
15	L208	Classrooms	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	C-OCC	1,152	
15	L209	Classrooms	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	C-OCC	1,152	
15	L210	Classrooms	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	C-OCC	1,152	
15	Lincoln Basement Cafeteria	Cafeteria	9	S 32 C F 2 (ELE)	F42LL	60	0.54	SW	1600	C-OCC	864	
15	Lincoln Basement Boy's Bathroom 1	Bath Room	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2000	SW	360	
198	Lincoln Basement Boy's Bathroom 1	Bath Room	1	2T 17 R F 2 (ELE)	F22LL	31	0.03	SW	2000	SW	62	
15	Lincoln Basement Girl's Bathroom 1	Bath Room	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2000	SW	360	
198	Lincoln Basement Girl's Bathroom 1	Bath Room	1	2T 17 R F 2 (ELE)	F22LL	31	0.03	SW	2000	SW	62	
11	Lincoln Basement Custodian 1	Storage Areas	2	S 34 P F 2 (MAG)	F42EE	72	0.14	SW	1000	SW	144	
15	Lincoln Basement Custodian 2	Storage Areas	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	1000	SW	120	
5	Lincoln Basement Men's Bathroom	Bath Room	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2000	SW	120	
198	Lincoln Basement Women's Bathroom	Bath Room	2	2T 17 R F 2 (ELE)	F22LL	31	0.06	SW	2000	SW	124	
15	Lincoln Basement Small Classroom	Classrooms	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	C-OCC	864	
15	Lincoln Basement Large Classroom	Classrooms	5	S 32 C F 2 (ELE)	F42LL	60	0.30	SW	2400	C-OCC	720	
15	Lincoln Basement Large Classroom	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	Lincoln Basement Large Classroom	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
108	Lincoln Basement Storage 1	Storage Areas	1	I 65	I65/1	65	0.07	SW	1000	SW	65	
129	Lincoln Basement Storage 1	Storage Areas	3	SP 75 I	I75/1	75	0.23	SW	1000	SW	225	
254	Lincoln Basement Storage 2	Storage Areas	5	T 32 R F 4 (ELE)	F44LL	118	0.59	SW	1000	SW	590	
210	Lincoln Basement Storage 2	Storage Areas	1	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.09	SW	1000	SW	89	

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

Existing Lighting

Cost of Electricity: **$0.225** **$/kWh**

$5.44 **$/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**	
108	Lincoln Basement Storage 3	Storage Areas	1	I 65	I65/1	65	0.07	SW	1000	SW	65	
15	Lincoln Basement Teacher's Lounge	Offices	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	C-OCC	864	
15	Lincoln Basement Teacher's Lounge	Offices	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144	
20	Lincoln Basement Teacher's Lounge	Offices	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	2400	C-OCC	77	
15	Lincoln Basement Boy's Bathroom 2	Bath Room	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2000	SW	120	
5	Lincoln Basement Boy's Bathroom 2	Bath Room	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2000	SW	240	
15	Lincoln Basement Girl's Bathroom 2	Bath Room	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2000	SW	240	
191	Lincoln Gym	Gynasium	8	S 60 C F 2 (ELE) 8'	F82EE	123	0.98	SW	2000	C-OCC	1,968	
254	Lincoln Basement Hallway	Hallways	18	T 32 R F 4 (ELE)	F44LL	118	2.12	SW	2280	SW	4,843	
254	H Hallway	Hallways	3	T 32 R F 4 (ELE)	F44LL	118	0.35	SW	2280	SW	807	
15	I Hallway	Hallways	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2280	SW	547	
254	J Hallway	Hallways	3	T 32 R F 4 (ELE)	F44LL	118	0.35	SW	2280	SW	807	
15	K Hallway	Hallways	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2280	SW	274	
254	L Hallway	Hallways	3	T 32 R F 4 (ELE)	F44LL	118	0.35	SW	2280	SW	807	
15	M Hallway	Hallways	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	SW	410	
108	M Hallway	Hallways	1	I 65	I65/1	65	0.07	SW	2280	SW	148	
15	N Hallway	Hallways	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2280	SW	137	
254	N Hallway	Hallways	2	T 32 R F 4 (ELE)	F44LL	118	0.24	SW	2280	SW	538	
15	"O" Hallway	Hallways	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2280	SW	274	
15	Pink Stairwell	Hallways	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	SW	410	
20	Pink Stairwell Crown Room	Offices	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	2400	C-OCC	77	
15	Orange Stairwell	Hallways	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	SW	410	
15	Orange Stairwell Crown Room	Offices	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144	
15	Purple Stairwell	Hallways	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	SW	410	
11	Purple Stairwell Crown Room	Offices	1	S 34 P F 2 (MAG)	F42EE	72	0.07	SW	2400	C-OCC	173	
15	Green Stairwell	Hallways	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	SW	410	
11	Green Stairwell Crown Room	Offices	1	S 34 P F 2 (MAG)	F42EE	72	0.07	SW	2400	C-OCC	173	
1	1st Floor Central Hallway	Hallways	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.28	SW	2280	SW	636	
15	1st Floor Central Hallway	Hallways	13	S 32 C F 2 (ELE)	F42LL	60	0.78	SW	2280	SW	1,778	
1	1st Floor Central Hallway	Hallways	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.12	SW	2280	SW	283	
254	1st Floor Central Hallway	Hallways	1	T 32 R F 4 (ELE)	F44LL	118	0.12	SW	2280	SW	269	
15	Central Bathroom	Bath Room	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2000	SW	120	
213	Central Office	Offices	4	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.36	SW	2400	C-OCC	864	
15	Central Office	Offices	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
15	Media Center Lobby	Hallways	9	S 32 C F 2 (ELE)	F42LL	60	0.54	SW	2280	SW	1,231	
254	Media Center	Classrooms	22	T 32 R F 4 (ELE)	F44LL	118	2.60	SW	2400	C-OCC	6,230	
213	Media Center	Classrooms	20	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	1.80	SW	2400	C-OCC	4,320	
1	2nd Floor Central Hallway	Hallways	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.28	SW	2280	SW	636	
15	2nd Floor Central Hallway	Hallways	13	S 32 C F 2 (ELE)	F42LL	60	0.78	SW	2280	SW	1,778	
1	2nd Floor Central Hallway	Hallways	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.12	SW	2280	SW	283	
254	2nd Floor Central Hallway	Hallways	1	T 32 R F 4 (ELE)	F44LL	118	0.12	SW	2280	SW	269	
15	Grey Stairwell	Hallways	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2280	SW	547	
245	Main Office	Offices	9	T 32 R F 3 (ELE)	F43LE	110	0.99	SW	2400	C-OCC	2,376	
5	Main Office	Offices	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2400	C-OCC	288	
15	Main Office Bathroom	Bath Room	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2000	SW	120	
245	Principal's Office	Offices	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	C-OCC	1,320	
245	R101	Classrooms	10	T 32 R F 3 (ELE)	F43LE	110	1.10	SW	2400	C-OCC	2,640	
198	R101	Classrooms	2	2T 17 R F 2 (ELE)	F22LL	31	0.06	SW	2400	C-OCC	149	
15	R102	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	R102	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R102	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
20	R102	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
15	R103	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	R103	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R103	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

Existing Lighting

Cost of Electricity: **$0.225** **$/kWh**

$5.44 **$/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**	
20	R103	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
15	R105	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	R105	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R105	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
20	R105	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
15	R106	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	R106	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R106	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
20	R106	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
15	R107	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	R107	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R107	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
20	R107	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
15	R109	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	R109	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R109	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
20	R109	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
254	R110	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R110	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R111	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R111	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
20	R112	Offices	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	2400	C-OCC	77	
15	R113	Offices	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
254	R114	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R114	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R115	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R115	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
15	Mail Room	Offices	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144	
108	Mail Room	Offices	1	I 65	I65/1	65	0.07	SW	2400	C-OCC	156	
108	Mail Room	Offices	1	I 65	I65/1	65	0.07	SW	2400	C-OCC	156	
20	Copy Room	Offices	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384	
15	Nurse	Offices	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	C-OCC	1,152	
15	Nurse	Offices	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144	
198	Nurse	Offices	2	2T 17 R F 2 (ELE)	F22LL	31	0.06	SW	2400	C-OCC	149	
15	Roosevelt 1st Floor Boy's Bathroom	Bath Room	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2000	SW	240	
15	Roosevelt 1st Floor Girl's Bathroom	Bath Room	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2000	SW	240	
146	Roosevelt Gym	Gynasium	26	High Bay MH 400	MH400/1	458	11.91	SW	2000	C-OCC	23,816	
1	Roosevelt 1st Floor Elevator Area	Hallways	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.03	SW	2280	SW	71	
15	Roosevelt 1st Floor Storage	Storage Areas	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	1000	SW	60	
245	R201	Classrooms	6	T 32 R F 3 (ELE)	F43LE	110	0.66	SW	2400	C-OCC	1,584	
245	R201	Classrooms	6	T 32 R F 3 (ELE)	F43LE	110	0.66	SW	2400	C-OCC	1,584	
15	R202	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	R202	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R202	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
20	R202	Classrooms	6	S 32 C F 1 (ELE)	F41LL	32	0.19	SW	2400	C-OCC	461	
15	R203	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	R203	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R203	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384	
20	R203	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384	
15	R204	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	R204	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R204	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384	
20	R204	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384	
245	R205	Classrooms	15	T 32 R F 3 (ELE)	F43LE	110	1.65	C-OCC	2400	C-OCC	3,960	
15	R206	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

Existing Lighting

Cost of Electricity: **$0.225** **$/kWh**

$5.44 **$/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**	
15	R206	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R206	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384	
20	R206	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384	
245	R207	Classrooms	12	T 32 R F 3 (ELE)	F43LE	110	1.32	C-OCC	2400	C-OCC	3,168	
15	R208	Classrooms	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	R208	Classrooms	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	R208	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384	
20	R208	Classrooms	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384	
254	R209	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R209	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R211	Classrooms	14	T 32 R F 4 (ELE)	F44LL	118	1.65	SW	2400	C-OCC	3,965	
254	R212	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R212	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R213	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R213	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
20	R214	Offices	8	S 32 C F 1 (ELE)	F41LL	32	0.26	SW	2400	C-OCC	614	
254	R215	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R215	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R216	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
254	R216	Classrooms	4	T 32 R F 4 (ELE)	F44LL	118	0.47	SW	2400	C-OCC	1,133	
20	Guidance 1	Offices	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	C-OCC	384	
15	Guidance 2	Offices	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	C-OCC	288	
20	Guidance 2	Offices	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	2400	C-OCC	77	
108	Guidance 2	Offices	1	I 65	I65/1	65	0.07	SW	2400	C-OCC	156	
108	Guidance 2	Offices	1	I 65	I65/1	65	0.07	SW	2400	C-OCC	156	
15	Roosevelt 2nd Floor Boy's Bathroom	Bath Room	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2000	SW	240	
15	Roosevelt 2nd Floor Girl's Bathroom	Bath Room	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2000	SW	240	
1	Roosevelt 2nd Floor Elevator Area	Hallways	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.03	SW	2280	SW	71	
15	Roosevelt 2nd Floor Storage	Storage Areas	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	1000	SW	60	
79	Roosevelt Basement	Storage Areas	3	SP I 100	I100/1	100	0.30	SW	1000	SW	300	
15	Roosevelt Basement	Offices	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
129	Roosevelt Basement	Storage Areas	1	SP 75 I	I75/1	75	0.08	SW	1000	SW	75	
15	Roosevelt Basement	Offices	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	Roosevelt Basement	Offices	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	C-OCC	576	
15	Roosevelt Basement	Offices	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	C-OCC	144	
15	Roosevelt Basement	Offices	5	S 32 C F 2 (ELE)	F42LL	60	0.30	SW	2400	C-OCC	720	
129	Roosevelt Basement	Storage Areas	1	SP 75 I	I75/1	75	0.08	SW	1000	SW	75	
129	Roosevelt Basement	Storage Areas	1	SP 75 I	I75/1	75	0.08	SW	1000	SW	75	
15	Roosevelt Basement	Offices	5	S 32 C F 2 (ELE)	F42LL	60	0.30	SW	2400	C-OCC	720	
129	Roosevelt Basement	Storage Areas	3	SP 75 I	I75/1	75	0.23	SW	1000	SW	225	
108	Roosevelt Basement	Storage Areas	1	I 65	I65/1	65	0.07	SW	1000	SW	65	
128	Roosevelt Main Entrance Lobby	Hallways	2	DC 50 I 16	I60/16	960	1.92	SW	2280	SW	4,378	
134	Roosevelt Main Entrance Lobby	Hallways	1	DC 50 I 4	I60/4	240	0.24	SW	2280	SW	547	
134	A Hallway	Hallways	8	DC 50 I 4	I60/4	240	1.92	SW	2280	SW	4,378	
245	A Hallway	Hallways	12	T 32 R F 3 (ELE)	F43LE	110	1.32	SW	2280	SW	3,010	
15	B Hallway	Hallways	5	S 32 C F 2 (ELE)	F42LL	60	0.30	SW	2280	SW	684	
15	C Hallway	Hallways	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2280	SW	547	
15	Roosevelt 1st Floor Central Connector	Hallways	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	SW	410	
254	E Hallway	Hallways	13	T 32 R F 4 (ELE)	F44LL	118	1.53	SW	2280	SW	3,498	
15	F Hallway	Hallways	5	S 32 C F 2 (ELE)	F42LL	60	0.30	SW	2280	SW	684	
15	G Hallway	Hallways	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2280	SW	547	
15	Roosevelt 2nd Floor Central Connector	Hallways	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	SW	410	
254	Red Stairwell	Hallways	2	T 32 R F 4 (ELE)	F44LL	118	0.24	SW	2280	SW	538	
254	Yellow Stairwell	Hallways	2	T 32 R F 4 (ELE)	F44LL	118	0.24	SW	2280	SW	538	
20	Yellow Stairwell	Hallways	2	S 32 C F 1 (ELE)	F41LL	32	0.06	SW	2280	SW	146	

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

Existing Lighting

Cost of Electricity: **$0.225** **$/kWh**

$5.44 **$/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**	
254	Blue Stairwell	Hallways	2	T 32 R F 4 (ELE)	F44LL	118	0.24	SW	2280	SW	538	
	Total		**997**				**87**				**187,035**	

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

ECM-1 Lighting Replacements

Cost of Electricity: **$0.225 $/kWh**

$5.44 $/kW

		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
15	Assistant Principal	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
108	Assistant Principal	2	I 65	I65/1	65	0.1	SW	2400	312	2	CF 26	CFQ26/1-L	27	0.054	SW	2400	129.6	182.40	0.08	$ 46.00	$ 40.50	$ -	0.9	0.2
15	L100	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	L101	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
245	L102	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	1056	0.00	0.00	$ -	$ -	$ -		
210	L102	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	2400	427.2	0.00	0.00	$ -	$ -	$ -		
15	L103	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	864	0.00	0.00	$ -	$ -	$ -		
15	L104	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	864	0.00	0.00	$ -	$ -	$ -		
15	L105	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	864	0.00	0.00	$ -	$ -	$ -		
15	L105A	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
245	L106	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	1056	0.00	0.00	$ -	$ -	$ -		
210	L106	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	2400	427.2	0.00	0.00	$ -	$ -	$ -		
245	L107	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	1056	0.00	0.00	$ -	$ -	$ -		
210	L107	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	2400	427.2	0.00	0.00	$ -	$ -	$ -		
245	L108	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	1056	0.00	0.00	$ -	$ -	$ -		
210	L108	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	2400	427.2	0.00	0.00	$ -	$ -	$ -		
245	L109	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	1056	0.00	0.00	$ -	$ -	$ -		
210	L109	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	2400	427.2	0.00	0.00	$ -	$ -	$ -		
254	Auditorium	16	T 32 R F 4 (ELE)	F44LL	118	1.9	SW	1000	1,888	16	T 32 R F 4 (ELE)	F44LL	118	1.888	SW	1000	1888	0.00	0.00	$ -	$ -	$ -		
254	Auditorium	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	1000	354	3	T 32 R F 4 (ELE)	F44LL	118	0.354	SW	1000	354	0.00	0.00	$ -	$ -	$ -		
108	Auditorium	7	I 65	I65/1	65	0.5	SW	1000	455	7	CF 26	CFQ26/1-L	27	0.189	SW	1000	189	266.00	0.27	$ 77.21	$ 141.75	$ -	1.8	0.5
108	Auditorium	1	I 65	I65/1	65	0.1	SW	1000	65	1	CF 26	CFQ26/1-L	27	0.027	SW	1000	27	38.00	0.04	$ 11.03	$ 20.25	$ -	1.8	0.5
129	Stage	28	SP 75 I	I75/1	75	2.1	SW	1000	2,100	28	CF 26	CFQ26/1-L	27	0.756	SW	1000	756	1344.00	1.34	$ 390.14	$ 567.00	$ 196.00	1.5	0.3
129	Stage	28	SP 75 I	I75/1	75	2.1	SW	1000	2,100	28	CF 26	CFQ26/1-L	27	0.756	SW	1000	756	1344.00	1.34	$ 390.14	$ 567.00	$ 196.00	1.5	0.3
15	L201	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	864	0.00	0.00	$ -	$ -	$ -		
245	L202	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	2400	1056	0.00	0.00	$ -	$ -	$ -		
210	L202	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	2400	427.2	0.00	0.00	$ -	$ -	$ -		
15	L203	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	L204	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	864	0.00	0.00	$ -	$ -	$ -		
15	L205	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	0.00	0.00	$ -	$ -	$ -		
15	L205	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	0.00	0.00	$ -	$ -	$ -		
15	L205	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	L205	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	L206	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	1152	0.00	0.00	$ -	$ -	$ -		
15	L207	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	1152	0.00	0.00	$ -	$ -	$ -		
15	L208	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	1152	0.00	0.00	$ -	$ -	$ -		
15	L209	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	1152	0.00	0.00	$ -	$ -	$ -		
15	L210	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	1152	0.00	0.00	$ -	$ -	$ -		
15	Lincoln Basement Cafeteria	9	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	1600	864	9	S 32 C F 2 (ELE)	F42LL	60	0.54	SW	1600	864	0.00	0.00	$ -	$ -	$ -		
15	1	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2000	360	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2000	360	0.00	0.00	$ -	$ -	$ -		
198	1	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2000	62	1	2T 17 R F 2 (ELE)	F22LL	31	0.031	SW	2000	62	0.00	0.00	$ -	$ -	$ -		
15	1	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2000	360	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2000	360	0.00	0.00	$ -	$ -	$ -		
198	1	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2000	62	1	2T 17 R F 2 (ELE)	F22LL	31	0.031	SW	2000	62	0.00	0.00	$ -	$ -	$ -		
11	Lincoln Basement Custodian 1	2	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	C 28 P F 2	F42SSILL	48	0.096	SW	1000	96	48.00	0.05	$ 13.93	$ 212.50	$ 20.00	15.3	4.0
15	Lincoln Basement Custodian 2	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	1000	120	0.00	0.00	$ -	$ -	$ -		
5	Lincoln Basement Men's Bathroom	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	120	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2000	120	0.00	0.00	$ -	$ -	$ -		
198	Bathroom	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	SW	2000	124	2	2T 17 R F 2 (ELE)	F22LL	31	0.062	SW	2000	124	0.00	0.00	$ -	$ -	$ -		
15	Classroom	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	864	0.00	0.00	$ -	$ -	$ -		
15	Classroom	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	0.00	0.00	$ -	$ -	$ -		
15	Classroom	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	Classroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
108	Lincoln Basement Storage 1	1	I 65	I65/1	65	0.1	SW	1000	65	1	CF 26	CFQ26/1-L	27	0.027	SW	1000	27	38.00	0.04	$ 11.03	$ 20.25	$ -	1.8	0.5
129	Lincoln Basement Storage 1	3	SP 75 I	I75/1	75	0.2	SW	1000	225	3	CF 26	CFQ26/1-L	27	0.081	SW	1000	81	144.00	0.14	$ 41.80	$ 60.75	$ 21.00	1.5	0.3
254	Lincoln Basement Storage 2	5	T 32 R F 4 (ELE)	F44LL	118	0.6	SW	1000	590	5	T 32 R F 4 (ELE)	F44LL	118	0.59	SW	1000	590	0.00	0.00	$ -	$ -	$ -		
210	Lincoln Basement Storage 2	1	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.1	SW	1000	89	1	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.089	SW	1000	89	0.00	0.00	$ -	$ -	$ -		
108	Lincoln Basement Storage 3	1	I 65	I65/1	65	0.1	SW	1000	65	1	CF 26	CFQ26/1-L	27	0.027	SW	1000	27	38.00	0.04	$ 11.03	$ 20.25	$ -	1.8	0.5
15	Lounge	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	SW	2400	864	0.00	0.00	$ -	$ -	$ -		
15	Lounge	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	144	0.00	0.00	$ -	$ -	$ -		
20	Lounge	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	77	1	S 32 C F 1 (ELE)	F41LL	32	0.032	SW	2400	76.8	0.00	0.00	$ -	$ -	$ -		
15	2	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2000	120	0.00	0.00	$ -	$ -	$ -		
5	2	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	240	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
15	2	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
191	Lincoln Gym	8	S 60 C F 2 (ELE) 8'	F82EE	123	1.0	SW	2000	1,968	8	S 60 C F 2 (ELE) 8'	F82EE	123	0.984	SW	2000	1968	0.00	0.00	$ -	$ -	$ -		
254	Lincoln Basement Hallway	18	T 32 R F 4 (ELE)	F44LL	118	2.1	SW	2280	4,843	18	T 32 R F 4 (ELE)	F44LL	118	2.124	SW	2280	4842.72	0.00	0.00	$ -	$ -	$ -		
254	H Hallway	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807	3	T 32 R F 4 (ELE)	F44LL	118	0.354	SW	2280	807.12	0.00	0.00	$ -	$ -	$ -		
15	I Hallway	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2280	547.2	0.00	0.00	$ -	$ -	$ -		
254	J Hallway	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807	3	T 32 R F 4 (ELE)	F44LL	118	0.354	SW	2280	807.12	0.00	0.00	$ -	$ -	$ -		
15	K Hallway	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	274	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2280	273.6	0.00	0.00	$ -	$ -	$ -		
254	L Hallway	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807	3	T 32 R F 4 (ELE)	F44LL	118	0.354	SW	2280	807.12	0.00	0.00	$ -	$ -	$ -		
15	M Hallway	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
108	M Hallway	1	I 65	I65/1	65	0.1	SW	2280	148	1	CF 26	CFQ26/1-L	27	0.027	SW	2280	61.56	86.64	0.04	$ 21.97	$ 20.25	$ -	0.9	0.2
15	N Hallway	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	137	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2280	136.8	0.00	0.00	$ -	$ -	$ -		
254	N Hallway	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538	2	T 32 R F 4 (ELE)	F44LL	118	0.236	SW	2280	538.08	0.00	0.00	$ -	$ -	$ -		
15	"O" Hallway	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	274	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2280	273.6	0.00	0.00	$ -	$ -	$ -		
15	Pink Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
20	Pink Stairwell Crown Room	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	77	1	S 32 C F 1 (ELE)	F41LL	32	0.032	SW	2400	76.8	0.00	0.00	$ -	$ -	$ -		
15	Orange Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
15	Orange Stairwell Crown Room	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	144	0.00	0.00	$ -	$ -	$ -		
15	Purple Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
11	Purple Stairwell Crown Room	1	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	2400	173	1	C 28 P F 2	F42SSILL	48	0.048	SW	2400	115.2	57.60	0.02	$ 14.53	$ 106.25	$ 10.00	7.3	1.7
15	Green Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
11	Green Stairwell Crown Room	1	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	2400	173	1	C 28 P F 2	F42SSILL	48	0.048	SW	2400	115.2	57.60	0.02	$ 14.53	$ 106.25	$ 10.00	7.3	1.7
1	1st Floor Central Hallway	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.3	SW	2280	636	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.279	SW	2280	636.12	0.00	0.00	$ -	$ -	$ -		
15	1st Floor Central Hallway	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1,778	13	S 32 C F 2 (ELE)	F42LL	60	0.78	SW	2280	1778.4	0.00	0.00	$ -	$ -	$ -		
1	1st Floor Central Hallway	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.1	SW	2280	283	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.124	SW	2280	282.72	0.00	0.00	$ -	$ -	$ -		
254	1st Floor Central Hallway	1	T 32 R F 4 (ELE)	F44LL	118	0.1	SW	2280	269	1	T 32 R F 4 (ELE)	F44LL	118	0.118	SW	2280	269.04	0.00	0.00	$ -	$ -	$ -		
15	Central Bathroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2000	120	0.00	0.00	$ -	$ -	$ -		
213	Central Office	4	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.4	SW	2400	864	4	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.36	SW	2400	864	0.00	0.00	$ -	$ -	$ -		
15	Central Office	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
15	Media Center Lobby	9	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2280	1,231	9	S 32 C F 2 (ELE)	F42LL	60	0.54	SW	2280	1231.2	0.00	0.00	$ -	$ -	$ -		
254	Media Center	22	T 32 R F 4 (ELE)	F44LL	118	2.6	SW	2400	6,230	22	T 32 R F 4 (ELE)	F44LL	118	2.596	SW	2400	6230.4	0.00	0.00	$ -	$ -	$ -		
213	Media Center	20	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	1.8	SW	2400	4,320	20	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	1.8	SW	2400	4320	0.00	0.00	$ -	$ -	$ -		
1	2nd Floor Central Hallway	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.3	SW	2280	636	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.279	SW	2280	636.12	0.00	0.00	$ -	$ -	$ -		

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

ECM-1 Lighting Replacements

Cost of Electricity: **$0.225 $/kWh**

$5.44 $/kW

		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
15	2nd Floor Central Hallway	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1,778	13	S 32 C F 2 (ELE)	F42LL	60	0.78	SW	2280	1778.4	0.00	0.00	$ -	$ -	$ -		
1	2nd Floor Central Hallway	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.1	SW	2280	283	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.124	SW	2280	282.72	0.00	0.00	$ -	$ -	$ -		
254	2nd Floor Central Hallway	1	T 32 R F 4 (ELE)	F44LL	118	0.1	SW	2280	269	1	T 32 R F 4 (ELE)	F44LL	118	0.118	SW	2280	269.04	0.00	0.00	$ -	$ -	$ -		
15	Grey Stairwell	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2280	547.2	0.00	0.00	$ -	$ -	$ -		
245	Main Office	9	T 32 R F 3 (ELE)	F43LE	110	1.0	SW	2400	2,376	9	T 32 R F 3 (ELE)	F43LE	110	0.99	SW	2400	2376	0.00	0.00	$ -	$ -	$ -		
5	Main Office	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2400	288	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
15	Main Office Bathroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2000	120	0.00	0.00	$ -	$ -	$ -		
245	Principal's Office	5	T 32 R F 3 (ELE)	F43LE	110	0.6	SW	2400	1,320	5	T 32 R F 3 (ELE)	F43LE	110	0.55	SW	2400	1320	0.00	0.00	$ -	$ -	$ -		
245	R101	10	T 32 R F 3 (ELE)	F43LE	110	1.1	SW	2400	2,640	10	T 32 R F 3 (ELE)	F43LE	110	1.1	SW	2400	2640	0.00	0.00	$ -	$ -	$ -		
198	R101	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	SW	2400	149	2	2T 17 R F 2 (ELE)	F22LL	31	0.062	SW	2400	148.8	0.00	0.00	$ -	$ -	$ -		
15	R102	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R102	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R102	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
20	R102	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
15	R103	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R103	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R103	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
20	R103	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
15	R105	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R105	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R105	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
20	R105	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
15	R106	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R106	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R106	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
20	R106	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
15	R107	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R107	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R107	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
20	R107	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
15	R109	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R109	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R109	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
20	R109	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
254	R110	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R110	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R111	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R111	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
20	R112	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	77	1	S 32 C F 1 (ELE)	F41LL	32	0.032	SW	2400	76.8	0.00	0.00	$ -	$ -	$ -		
15	R113	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
254	R114	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R114	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R115	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R115	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
15	Mail Room	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	144	0.00	0.00	$ -	$ -	$ -		
108	Mail Room	1	I 65	I65/1	65	0.1	SW	2400	156	1	CF 26	CFQ26/1-L	27	0.027	SW	2400	64.8	91.20	0.04	$ 23.00	$ 20.25	$ -	0.9	0.2
108	Mail Room	1	I 65	I65/1	65	0.1	SW	2400	156	1	CF 26	CFQ26/1-L	27	0.027	SW	2400	64.8	91.20	0.04	$ 23.00	$ 20.25	$ -	0.9	0.2
20	Copy Room	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00	0.00	$ -	$ -	$ -		
15	Nurse	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2400	1152	0.00	0.00	$ -	$ -	$ -		
15	Nurse	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	144	0.00	0.00	$ -	$ -	$ -		
198	Nurse	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	SW	2400	149	2	2T 17 R F 2 (ELE)	F22LL	31	0.062	SW	2400	148.8	0.00	0.00	$ -	$ -	$ -		
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
146	Roosevelt Gym	26	High Bay MH 400	MH400/1	458	11.9	SW	2000	23,816	26	P 54 C F 4	FC20	20	0.52	SW	2000	1040	22776.00	11.39	$ 5,868.01	$ 7,800.00	$ 2,600.00	1.3	0.2
1	Roosevelt 1st Floor Elevator Area	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.0	SW	2280	71	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.031	SW	2280	70.68	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt 1st Floor Storage	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	1000	60	0.00	0.00	$ -	$ -	$ -		
245	R201	6	T 32 R F 3 (ELE)	F43LE	110	0.7	SW	2400	1,584	6	T 32 R F 3 (ELE)	F43LE	110	0.66	SW	2400	1584	0.00	0.00	$ -	$ -	$ -		
245	R201	6	T 32 R F 3 (ELE)	F43LE	110	0.7	SW	2400	1,584	6	T 32 R F 3 (ELE)	F43LE	110	0.66	SW	2400	1584	0.00	0.00	$ -	$ -	$ -		
15	R202	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R202	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R202	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
20	R202	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	SW	2400	460.8	0.00	0.00	$ -	$ -	$ -		
15	R203	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R203	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R203	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00	0.00	$ -	$ -	$ -		
20	R203	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00	0.00	$ -	$ -	$ -		
15	R204	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R204	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R204	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00	0.00	$ -	$ -	$ -		
20	R204	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00	0.00	$ -	$ -	$ -		
245	R205	15	T 32 R F 3 (ELE)	F43LE	110	1.7	C-OCC	2400	3,960	15	T 32 R F 3 (ELE)	F43LE	110	1.65	C-OCC	2400	3960	0.00	0.00	$ -	$ -	$ -		
15	R206	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R206	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R206	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00	0.00	$ -	$ -	$ -		
20	R206	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00	0.00	$ -	$ -	$ -		
245	R207	12	T 32 R F 3 (ELE)	F43LE	110	1.3	C-OCC	2400	3,168	12	T 32 R F 3 (ELE)	F43LE	110	1.32	C-OCC	2400	3168	0.00	0.00	$ -	$ -	$ -		
15	R208	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	R208	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	R208	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00	0.00	$ -	$ -	$ -		
20	R208	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00	0.00	$ -	$ -	$ -		
254	R209	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R209	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R211	14	T 32 R F 4 (ELE)	F44LL	118	1.7	SW	2400	3,965	14	T 32 R F 4 (ELE)	F44LL	118	1.652	SW	2400	3964.8	0.00	0.00	$ -	$ -	$ -		
254	R212	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R212	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R213	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R213	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
20	R214	8	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	2400	614	8	S 32 C F 1 (ELE)	F41LL	32	0.256	SW	2400	614.4	0.00	0.00	$ -	$ -	$ -		
254	R215	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R215	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R216	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
254	R216	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	SW	2400	1132.8	0.00	0.00	$ -	$ -	$ -		
20	Guidance 1	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	SW	2400	384	0.00	0.00	$ -	$ -	$ -		

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

ECM-1 Lighting Replacements

Cost of Electricity: **$0.225 $/kWh**

$5.44 $/kW

		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
15	Guidance 2	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2400	288	0.00	0.00	$ -	$ -	$ -		
20	Guidance 2	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	77	1	S 32 C F 1 (ELE)	F41LL	32	0.032	SW	2400	76.8	0.00	0.00	$ -	$ -	$ -		
108	Guidance 2	1	I 65	I65/1	65	0.1	SW	2400	156	1	CF 26	CFQ26/1-L	27	0.027	SW	2400	64.8	91.20	0.04	$ 23.00	$ 20.25	$ -	0.9	0.2
108	Guidance 2	1	I 65	I65/1	65	0.1	SW	2400	156	1	CF 26	CFQ26/1-L	27	0.027	SW	2400	64.8	91.20	0.04	$ 23.00	$ 20.25	$ -	0.9	0.2
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
1	Roosevelt 2nd Floor Elevator Area	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.0	SW	2280	71	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.031	SW	2280	70.68	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt 2nd Floor Storage	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	1000	60	0.00	0.00	$ -	$ -	$ -		
79	Roosevelt Basement	3	SP I 100	I100/1	100	0.3	SW	1000	300	3	CF 26	CFQ26/1-L	27	0.081	SW	1000	81	219.00	0.22	$ 63.57	$ 60.75	$ -	1.0	0.3
15	Roosevelt Basement	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
129	Roosevelt Basement	1	SP 75 I	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.027	SW	1000	27	48.00	0.05	$ 13.93	$ 20.25	$ 7.00	1.5	0.3
15	Roosevelt Basement	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt Basement	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2400	576	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt Basement	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2400	144	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt Basement	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	0.00	0.00	$ -	$ -	$ -		
129	Roosevelt Basement	1	SP 75 I	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.027	SW	1000	27	48.00	0.05	$ 13.93	$ 20.25	$ 7.00	1.5	0.3
129	Roosevelt Basement	1	SP 75 I	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.027	SW	1000	27	48.00	0.05	$ 13.93	$ 20.25	$ 7.00	1.5	0.3
15	Roosevelt Basement	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	0.00	0.00	$ -	$ -	$ -		
129	Roosevelt Basement	3	SP 75 I	I75/1	75	0.2	SW	1000	225	3	CF 26	CFQ26/1-L	27	0.081	SW	1000	81	144.00	0.14	$ 41.80	$ 60.75	$ 21.00	1.5	0.3
108	Roosevelt Basement	1	I 65	I65/1	65	0.1	SW	1000	65	1	CF 26	CFQ26/1-L	27	0.027	SW	1000	27	38.00	0.04	$ 11.03	$ 20.25	$ -	1.8	0.5
128	Roosevelt Main Entrance Lobby	2	DC 50 I 16	I60/16	960	1.9	SW	2280	4,378	2	DC 50 I 16	I60/16	960	1.92	SW	2280	4377.6	0.00	0.00	$ -	$ -	$ -		
134	Roosevelt Main Entrance Lobby	1	DC 50 I 4	I60/4	240	0.2	SW	2280	547	1	DC 50 I 4	I60/4	240	0.24	SW	2280	547.2	0.00	0.00	$ -	$ -	$ -		
134	A Hallway	8	DC 50 I 4	I60/4	240	1.9	SW	2280	4,378	8	DC 50 I 4	I60/4	240	1.92	SW	2280	4377.6	0.00	0.00	$ -	$ -	$ -		
245	A Hallway	12	T 32 R F 3 (ELE)	F43LE	110	1.3	SW	2280	3,010	12	T 32 R F 3 (ELE)	F43LE	110	1.32	SW	2280	3009.6	0.00	0.00	$ -	$ -	$ -		
15	B Hallway	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684	0.00	0.00	$ -	$ -	$ -		
15	C Hallway	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2280	547.2	0.00	0.00	$ -	$ -	$ -		
15	Connector	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
254	E Hallway	13	T 32 R F 4 (ELE)	F44LL	118	1.5	SW	2280	3,498	13	T 32 R F 4 (ELE)	F44LL	118	1.534	SW	2280	3497.52	0.00	0.00	$ -	$ -	$ -		
15	F Hallway	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684	0.00	0.00	$ -	$ -	$ -		
15	G Hallway	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2280	547.2	0.00	0.00	$ -	$ -	$ -		
15	Connector	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
254	Red Stairwell	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538	2	T 32 R F 4 (ELE)	F44LL	118	0.236	SW	2280	538.08	0.00	0.00	$ -	$ -	$ -		
254	Yellow Stairwell	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538	2	T 32 R F 4 (ELE)	F44LL	118	0.236	SW	2280	538.08	0.00	0.00	$ -	$ -	$ -		
20	Yellow Stairwell	2	S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2280	146	2	S 32 C F 1 (ELE)	F41LL	32	0.064	SW	2280	145.92	0.00	0.00	$ -	$ -	$ -		
254	Blue Stairwell	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538	2	T 32 R F 4 (ELE)	F44LL	118	0.236	SW	2280	538.08	0.00	0.00	$ -	$ -	$ -		
	Total	**997**				**87**			**187,035**	**997**			**15,656**	**71**			**159704.52**	**27,330**	**16**	**$ 7,161.56**	**$ 9,966.50**	**$ 3,095.00**		
																		Demand Savings		**15.5**	**$ 1,012.30**			
																		kWh Savings		**27,330**	**$ 6,149.26**			
																		Total savings			**$ 7,161.56**		**1.4**	**1.0**

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

ECM-2 Install Occupancy Sensors

Cost of Electricity: **$0.225 $/kWh**

$5.44 $/kW

		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
15	Assistant Principal	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1200	288	288.00	0.00	$ 64.80	$ 202.50	$ 35.00	3.1	2.6
108	Assistant Principal	2	I 65	I65/1	65	0.1	SW	2400	312.0	2	I 65	I65/1	65	0.1	C-OCC	1200	156	156.00	0.00	$ 35.10	$ 202.50	$ 35.00	5.8	4.8
15	L100	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	L101	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
245	L102	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056.0	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	1680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L102	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427.2	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	1680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
15	L103	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864.0	6	S 32 C F 2 (ELE)	F42LL	60	0.4	C-OCC	1680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
15	L104	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864.0	6	S 32 C F 2 (ELE)	F42LL	60	0.4	C-OCC	1680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
15	L105	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864.0	6	S 32 C F 2 (ELE)	F42LL	60	0.4	C-OCC	1680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
15	L105A	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
245	L106	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056.0	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	1680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L106	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427.2	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	1680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
245	L107	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056.0	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	1680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L107	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427.2	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	1680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
245	L108	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056.0	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	1680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L108	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427.2	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	1680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
245	L109	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056.0	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	1680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L109	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427.2	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	1680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
254	Auditorium	16	T 32 R F 4 (ELE)	F44LL	118	1.9	SW	1000	1,888.0	16	T 32 R F 4 (ELE)	F44LL	118	1.9	C-OCC	750	1416	472.00	0.00	$ 106.20	$ 202.50	$ 35.00	1.9	1.6
254	Auditorium	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	1000	354.0	3	T 32 R F 4 (ELE)	F44LL	118	0.4	C-OCC	750	265.5	88.50	0.00	$ 19.91	$ 202.50	$ 35.00	10.2	8.4
108	Auditorium	7	I 65	I65/1	65	0.5	SW	1000	455.0	7	I 65	I65/1	65	0.5	C-OCC	750	341.25	113.75	0.00	$ 25.59	$ 202.50	$ 35.00	7.9	6.5
108	Auditorium	1	I 65	I65/1	65	0.1	SW	1000	65.0	1	I 65	I65/1	65	0.1	C-OCC	750	48.75	16.25	0.00	$ 3.66	$ 202.50	$ 35.00	55.4	45.8
129	Stage	28	SP 75 I	I75/1	75	2.1	SW	1000	2,100.0	28	SP 75 I	I75/1	75	2.1	SW	1000	2100	0.00	0.00	$ -	$ -	$ -		
129	Stage	28	SP 75 I	I75/1	75	2.1	SW	1000	2,100.0	28	SP 75 I	I75/1	75	2.1	SW	1000	2100	0.00	0.00	$ -	$ -	$ -		
15	L201	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864.0	6	S 32 C F 2 (ELE)	F42LL	60	0.4	C-OCC	1680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
245	L202	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056.0	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	1680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L202	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427.2	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	1680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
15	L203	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	L204	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864.0	6	S 32 C F 2 (ELE)	F42LL	60	0.4	C-OCC	1680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
15	L205	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720.0	5	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1680	504	216.00	0.00	$ 48.60	$ 202.50	$ 35.00	4.2	3.4
15	L205	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720.0	5	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1680	504	216.00	0.00	$ 48.60	$ 202.50	$ 35.00	4.2	3.4
15	L205	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	L205	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	L206	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152.0	8	S 32 C F 2 (ELE)	F42LL	60	0.5	C-OCC	1680	806.4	345.60	0.00	$ 77.76	$ 202.50	$ 35.00	2.6	2.2
15	L207	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152.0	8	S 32 C F 2 (ELE)	F42LL	60	0.5	C-OCC	1680	806.4	345.60	0.00	$ 77.76	$ 202.50	$ 35.00	2.6	2.2
15	L208	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152.0	8	S 32 C F 2 (ELE)	F42LL	60	0.5	C-OCC	1680	806.4	345.60	0.00	$ 77.76	$ 202.50	$ 35.00	2.6	2.2
15	L209	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152.0	8	S 32 C F 2 (ELE)	F42LL	60	0.5	C-OCC	1680	806.4	345.60	0.00	$ 77.76	$ 202.50	$ 35.00	2.6	2.2
15	L210	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152.0	8	S 32 C F 2 (ELE)	F42LL	60	0.5	C-OCC	1680	806.4	345.60	0.00	$ 77.76	$ 202.50	$ 35.00	2.6	2.2
15	Lincoln Basement Cafeteria	9	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	1600	864.0	9	S 32 C F 2 (ELE)	F42LL	60	0.5	C-OCC	1200	648	216.00	0.00	$ 48.60	$ 202.50	$ 35.00	4.2	3.4
15	1	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2000	360.0	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2000	360	0.00	0.00	$ -	$ -	$ -		
198	1	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2000	62.0	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2000	62	0.00	0.00	$ -	$ -	$ -		
15	1	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2000	360.0	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2000	360	0.00	0.00	$ -	$ -	$ -		
198	1	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2000	62.0	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2000	62	0.00	0.00	$ -	$ -	$ -		
11	Lincoln Basement Custodian 1	2	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	1000	144.0	2	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	1000	144	0.00	0.00	$ -	$ -	$ -		
15	Lincoln Basement Custodian 2	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	120.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	120	0.00	0.00	$ -	$ -	$ -		
5	Lincoln Basement Men's Bathroom	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	120.0	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	120	0.00	0.00	$ -	$ -	$ -		
198	Bathroom	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	SW	2000	124.0	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	SW	2000	124	0.00	0.00	$ -	$ -	$ -		
15	Classroom	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864.0	6	S 32 C F 2 (ELE)	F42LL	60	0.4	C-OCC	1680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
15	Classroom	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720.0	5	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1680	504	216.00	0.00	$ 48.60	$ 202.50	$ 35.00	4.2	3.4
15	Classroom	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	Classroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
108	Lincoln Basement Storage 1	1	I 65	I65/1	65	0.1	SW	1000	65.0	1	I 65	I65/1	65	0.1	SW	1000	65	0.00	0.00	$ -	$ -	$ -		
129	Lincoln Basement Storage 1	3	SP 75 I	I75/1	75	0.2	SW	1000	225.0	3	SP 75 I	I75/1	75	0.2	SW	1000	225	0.00	0.00	$ -	$ -	$ -		
254	Lincoln Basement Storage 2	5	T 32 R F 4 (ELE)	F44LL	118	0.6	SW	1000	590.0	5	T 32 R F 4 (ELE)	F44LL	118	0.6	SW	1000	590	0.00	0.00	$ -	$ -	$ -		
210	Lincoln Basement Storage 2	1	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.1	SW	1000	89.0	1	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.1	SW	1000	89	0.00	0.00	$ -	$ -	$ -		
108	Lincoln Basement Storage 3	1	I 65	I65/1	65	0.1	SW	1000	65.0	1	I 65	I65/1	65	0.1	SW	1000	65	0.00	0.00	$ -	$ -	$ -		
15	Lounge	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864.0	6	S 32 C F 2 (ELE)	F42LL	60	0.4	C-OCC	1200	432	432.00	0.00	$ 97.20	$ 202.50	$ 35.00	2.1	1.7
15	Lounge	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1200	72	72.00	0.00	$ 16.20	$ 202.50	$ 35.00	12.5	10.3
20	Lounge	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	76.8	1	S 32 C F 1 (ELE)	F41LL	32	0.0	C-OCC	1200	38.4	38.40	0.00	$ 8.64	$ 202.50	$ 35.00	23.4	19.4
15	2	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	0.00	0.00	$ -	$ -	$ -		
5	2	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	240.0	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
15	2	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
191	Lincoln Gym	8	S 60 C F 2 (ELE) 8'	F82EE	123	1.0	SW	2000	1,968.0	8	S 60 C F 2 (ELE) 8'	F82EE	123	1.0	C-OCC	2000	1968	0.00	0.00	$ -	$ 202.50	$ 35.00		
254	Lincoln Basement Hallway	18	T 32 R F 4 (ELE)	F44LL	118	2.1	SW	2280	4,842.7	18	T 32 R F 4 (ELE)	F44LL	118	2.1	SW	2280	4842.72	0.00	0.00	$ -	$ -	$ -		
254	H Hallway	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807.1	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807.12	0.00	0.00	$ -	$ -	$ -		
15	I Hallway	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547.2	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547.2	0.00	0.00	$ -	$ -	$ -		
254	J Hallway	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807.1	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807.12	0.00	0.00	$ -	$ -	$ -		
15	K Hallway	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	273.6	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	273.6	0.00	0.00	$ -	$ -	$ -		
254	L Hallway	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807.1	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807.12	0.00	0.00	$ -	$ -	$ -		
15	M Hallway	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
108	M Hallway	1	I 65	I65/1	65	0.1	SW	2280	148.2	1	I 65	I65/1	65	0.1	SW	2280	148.2	0.00	0.00	$ -	$ -	$ -		
15	N Hallway	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	136.8	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	136.8	0.00	0.00	$ -	$ -	$ -		
254	N Hallway	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538.1	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538.08	0.00	0.00	$ -	$ -	$ -		
15	"O" Hallway	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	273.6	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	273.6	0.00	0.00	$ -	$ -	$ -		
15	Pink Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
20	Pink Stairwell Crown Room	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	76.8	1	S 32 C F 1 (ELE)	F41LL	32	0.0	C-OCC	1200	38.4	38.40	0.00	$ 8.64	$ 202.50	$ 35.00	23.4	19.4
15	Orange Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
15	Orange Stairwell Crown Room	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1200	72	72.00	0.00	$ 16.20	$ 202.50	$ 35.00	12.5	10.3
15	Purple Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
11	Purple Stairwell Crown Room	1	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	2400	172.8	1	S 34 P F 2 (MAG)	F42EE	72	0.1	C-OCC	1200	86.4	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
15	Green Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
11	Green Stairwell Crown Room	1	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	2400	172.8	1	S 34 P F 2 (MAG)	F42EE	72	0.1	C-OCC	1200	86.4	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
1	1st Floor Central Hallway	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.3	SW	2280	636.1	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.3	SW	2280	636.12	0.00	0.00	$ -	$ -	$ -		
15	1st Floor Central Hallway	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1,778.4	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1778.4	0.00	0.00	$ -	$ -	$ -		
1	1st Floor Central Hallway	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.1	SW	2280	282.7	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.1	SW	2280	282.72	0.00	0.00	$ -	$ -	$ -		
254	1st Floor Central Hallway	1	T 32 R F 4 (ELE)	F44LL	118	0.1	SW	2280	269.0	1	T 32 R F 4 (ELE)	F44LL	118	0.1	SW	2280	269.04	0.00	0.00	$ -	$ -	$ -		
15	Central Bathroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	0.00	0.00	$ -	$ -	$ -		
213	Central Office	4	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.4	SW	2400	864.0	4	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.4	C-OCC	1200	432	432.00	0.00	$ 97.20	$ 202.50	$ 35.00	2.1	1.7
15	Central Office	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1200	144	144.00	0.00	$ 32.40	$ 202.50	$ 35.00	6.3	5.2
15	Media Center Lobby	9	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2280	1,231.2	9	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2280	1231.2	0.00	0.00	$ -	$ -	$ -		
254	Media Center	22	T 32 R F 4 (ELE)	F44LL	118	2.6	SW	2400	6,230.4	22	T 32 R F 4 (ELE)	F44LL	118	2.6	C-OCC	1680	4361.28	1869.12	0.00	$ 420.55	$ 202.50	$ 35.00	0.5	0.4
213	Media Center	20	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	1.8	SW	2400	4,320.0	20	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	1.8	C-OCC	1680	3024	1296.00	0.00	$ 291.60	$ 202.50	$ 35.00	0.7	0.6
1	2nd Floor Central Hallway	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.3	SW	2280	636.1	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.3	SW	2280	636.12	0.00	0.00	$ -	$ -	$ -		

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

ECM-2 Install Occupancy Sensors

Cost of Electricity: **$0.225 $/kWh**

$5.44 $/kW

		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
15	2nd Floor Central Hallway	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1,778.4	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1778.4	0.00	0.00	$ -	$ -	$ -		
1	2nd Floor Central Hallway	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.1	SW	2280	282.7	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.1	SW	2280	282.72	0.00	0.00	$ -	$ -	$ -		
254	2nd Floor Central Hallway	1	T 32 R F 4 (ELE)	F44LL	118	0.1	SW	2280	269.0	1	T 32 R F 4 (ELE)	F44LL	118	0.1	SW	2280	269.04	0.00	0.00	$ -	$ -	$ -		
15	Grey Stairwell	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547.2	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547.2	0.00	0.00	$ -	$ -	$ -		
245	Main Office	9	T 32 R F 3 (ELE)	F43LE	110	1.0	SW	2400	2,376.0	9	T 32 R F 3 (ELE)	F43LE	110	1.0	C-OCC	1200	1188	1188.00	0.00	$ 267.30	$ 202.50	$ 35.00	0.8	0.6
5	Main Office	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2400	288.0	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	C-OCC	1200	144	144.00	0.00	$ 32.40	$ 202.50	$ 35.00	6.3	5.2
15	Main Office Bathroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	0.00	0.00	$ -	$ -	$ -		
245	Principal's Office	5	T 32 R F 3 (ELE)	F43LE	110	0.6	SW	2400	1,320.0	5	T 32 R F 3 (ELE)	F43LE	110	0.6	C-OCC	1200	660	660.00	0.00	$ 148.50	$ 202.50	$ 35.00	1.4	1.1
245	R101	10	T 32 R F 3 (ELE)	F43LE	110	1.1	SW	2400	2,640.0	10	T 32 R F 3 (ELE)	F43LE	110	1.1	C-OCC	1680	1848	792.00	0.00	$ 178.20	$ 202.50	$ 35.00	1.1	0.9
198	R101	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	SW	2400	148.8	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	C-OCC	1680	104.16	44.64	0.00	$ 10.04	$ 202.50	$ 35.00	20.2	16.7
15	R102	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R102	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R102	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R102	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R103	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R103	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R103	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R103	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R105	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R105	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R105	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R105	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R106	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R106	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R106	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R106	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R107	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R107	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R107	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R107	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R109	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R109	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R109	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R109	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
254	R110	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R110	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R111	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R111	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
20	R112	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	76.8	1	S 32 C F 1 (ELE)	F41LL	32	0.0	C-OCC	1200	38.4	38.40	0.00	$ 8.64	$ 202.50	$ 35.00	23.4	19.4
15	R113	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1200	144	144.00	0.00	$ 32.40	$ 202.50	$ 35.00	6.3	5.2
254	R114	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R114	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R115	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R115	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
15	Mail Room	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1200	72	72.00	0.00	$ 16.20	$ 202.50	$ 35.00	12.5	10.3
108	Mail Room	1	I 65	I65/1	65	0.1	SW	2400	156.0	1	I 65	I65/1	65	0.1	C-OCC	1200	78	78.00	0.00	$ 17.55	$ 202.50	$ 35.00	11.5	9.5
108	Mail Room	1	I 65	I65/1	65	0.1	SW	2400	156.0	1	I 65	I65/1	65	0.1	C-OCC	1200	78	78.00	0.00	$ 17.55	$ 202.50	$ 35.00	11.5	9.5
20	Copy Room	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1200	192	192.00	0.00	$ 43.20	$ 202.50	$ 35.00	4.7	3.9
15	Nurse	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152.0	8	S 32 C F 2 (ELE)	F42LL	60	0.5	C-OCC	1200	576	576.00	0.00	$ 129.60	$ 202.50	$ 35.00	1.6	1.3
15	Nurse	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1200	72	72.00	0.00	$ 16.20	$ 202.50	$ 35.00	12.5	10.3
198	Nurse	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	SW	2400	148.8	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	C-OCC	1200	74.4	74.40	0.00	$ 16.74	$ 202.50	$ 35.00	12.1	10.0
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
146	Roosevelt Gym	26	High Bay MH 400	MH400/1	458	11.9	SW	2000	23,816.0	26	High Bay MH 400	MH400/1	458	11.9	C-OCC	2000	23816	0.00	0.00	$ -	$ 202.50	$ 35.00		
1	Roosevelt 1st Floor Elevator Area	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.0	SW	2280	70.7	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.0	SW	2280	70.68	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt 1st Floor Storage	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	60	0.00	0.00	$ -	$ -	$ -		
245	R201	6	T 32 R F 3 (ELE)	F43LE	110	0.7	SW	2400	1,584.0	6	T 32 R F 3 (ELE)	F43LE	110	0.7	C-OCC	1680	1108.8	475.20	0.00	$ 106.92	$ 202.50	$ 35.00	1.9	1.6
245	R201	6	T 32 R F 3 (ELE)	F43LE	110	0.7	SW	2400	1,584.0	6	T 32 R F 3 (ELE)	F43LE	110	0.7	C-OCC	1680	1108.8	475.20	0.00	$ 106.92	$ 202.50	$ 35.00	1.9	1.6
15	R202	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R202	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R202	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R202	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	460.8	6	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R203	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R203	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R203	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
20	R203	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
15	R204	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R204	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R204	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
20	R204	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
245	R205	15	T 32 R F 3 (ELE)	F43LE	110	1.7	C-OCC	2400	3,960.0	15	T 32 R F 3 (ELE)	F43LE	110	1.7	C-OCC	1680	2772	1188.00	0.00	$ 267.30	$ 202.50	$ 35.00	0.8	0.6
15	R206	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R206	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R206	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
20	R206	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
245	R207	12	T 32 R F 3 (ELE)	F43LE	110	1.3	C-OCC	2400	3,168.0	12	T 32 R F 3 (ELE)	F43LE	110	1.3	C-OCC	1680	2217.6	950.40	0.00	$ 213.84	$ 202.50	$ 35.00	0.9	0.8
15	R208	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R208	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R208	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
20	R208	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
254	R209	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R209	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R211	14	T 32 R F 4 (ELE)	F44LL	118	1.7	SW	2400	3,964.8	14	T 32 R F 4 (ELE)	F44LL	118	1.7	C-OCC	1680	2775.36	1189.44	0.00	$ 267.62	$ 202.50	$ 35.00	0.8	0.6
254	R212	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R212	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R213	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R213	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
20	R214	8	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	2400	614.4	8	S 32 C F 1 (ELE)	F41LL	32	0.3	C-OCC	1200	307.2	307.20	0.00	$ 69.12	$ 202.50	$ 35.00	2.9	2.4
254	R215	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R215	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R216	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R216	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,132.8	4	T 32 R F 4 (ELE)	F44LL	118	0.5	C-OCC	1680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
20	Guidance 1	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384.0	5	S 32 C F 1 (ELE)	F41LL	32	0.2	C-OCC	1200	192	192.00	0.00	$ 43.20	$ 202.50	$ 35.00	4.7	3.9

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

ECM-2 Install Occupancy Sensors

Cost of Electricity: **$0.225 $/kWh**

$5.44 $/kW

		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
15	Guidance 2	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1200	144	144.00	0.00	$ 32.40	$ 202.50	$ 35.00	6.3	5.2
20	Guidance 2	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	76.8	1	S 32 C F 1 (ELE)	F41LL	32	0.0	C-OCC	1200	38.4	38.40	0.00	$ 8.64	$ 202.50	$ 35.00	23.4	19.4
108	Guidance 2	1	I 65	I65/1	65	0.1	SW	2400	156.0	1	I 65	I65/1	65	0.1	C-OCC	1200	78	78.00	0.00	$ 17.55	$ 202.50	$ 35.00	11.5	9.5
108	Guidance 2	1	I 65	I65/1	65	0.1	SW	2400	156.0	1	I 65	I65/1	65	0.1	C-OCC	1200	78	78.00	0.00	$ 17.55	$ 202.50	$ 35.00	11.5	9.5
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	0.00	0.00	$ -	$ -	$ -		
1	Roosevelt 2nd Floor Elevator Area	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.0	SW	2280	70.7	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.0	SW	2280	70.68	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt 2nd Floor Storage	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	60.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	60	0.00	0.00	$ -	$ -	$ -		
79	Roosevelt Basement	3	SP I 100	I100/1	100	0.3	SW	1000	300.0	3	SP I 100	I100/1	100	0.3	SW	1000	300	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt Basement	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1200	288	288.00	0.00	$ 64.80	$ 202.50	$ 35.00	3.1	2.6
129	Roosevelt Basement	1	SP 75 I	I75/1	75	0.1	SW	1000	75.0	1	SP 75 I	I75/1	75	0.1	SW	1000	75	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt Basement	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1200	288	288.00	0.00	$ 64.80	$ 202.50	$ 35.00	3.1	2.6
15	Roosevelt Basement	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1200	288	288.00	0.00	$ 64.80	$ 202.50	$ 35.00	3.1	2.6
15	Roosevelt Basement	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1200	72	72.00	0.00	$ 16.20	$ 202.50	$ 35.00	12.5	10.3
15	Roosevelt Basement	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720.0	5	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1200	360	360.00	0.00	$ 81.00	$ 202.50	$ 35.00	2.5	2.1
129	Roosevelt Basement	1	SP 75 I	I75/1	75	0.1	SW	1000	75.0	1	SP 75 I	I75/1	75	0.1	SW	1000	75	0.00	0.00	$ -	$ -	$ -		
129	Roosevelt Basement	1	SP 75 I	I75/1	75	0.1	SW	1000	75.0	1	SP 75 I	I75/1	75	0.1	SW	1000	75	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt Basement	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720.0	5	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1200	360	360.00	0.00	$ 81.00	$ 202.50	$ 35.00	2.5	2.1
129	Roosevelt Basement	3	SP 75 I	I75/1	75	0.2	SW	1000	225.0	3	SP 75 I	I75/1	75	0.2	SW	1000	225	0.00	0.00	$ -	$ -	$ -		
108	Roosevelt Basement	1	I 65	I65/1	65	0.1	SW	1000	65.0	1	I 65	I65/1	65	0.1	SW	1000	65	0.00	0.00	$ -	$ -	$ -		
128	Roosevelt Main Entrance Lobby	2	DC 50 I 16	I60/16	960	1.9	SW	2280	4,377.6	2	DC 50 I 16	I60/16	960	1.9	SW	2280	4377.6	0.00	0.00	$ -	$ -	$ -		
134	Roosevelt Main Entrance Lobby	1	DC 50 I 4	I60/4	240	0.2	SW	2280	547.2	1	DC 50 I 4	I60/4	240	0.2	SW	2280	547.2	0.00	0.00	$ -	$ -	$ -		
134	A Hallway	8	DC 50 I 4	I60/4	240	1.9	SW	2280	4,377.6	8	DC 50 I 4	I60/4	240	1.9	SW	2280	4377.6	0.00	0.00	$ -	$ -	$ -		
245	A Hallway	12	T 32 R F 3 (ELE)	F43LE	110	1.3	SW	2280	3,009.6	12	T 32 R F 3 (ELE)	F43LE	110	1.3	SW	2280	3009.6	0.00	0.00	$ -	$ -	$ -		
15	B Hallway	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684.0	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684	0.00	0.00	$ -	$ -	$ -		
15	C Hallway	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547.2	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547.2	0.00	0.00	$ -	$ -	$ -		
15	Connector	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
254	E Hallway	13	T 32 R F 4 (ELE)	F44LL	118	1.5	SW	2280	3,497.5	13	T 32 R F 4 (ELE)	F44LL	118	1.5	SW	2280	3497.52	0.00	0.00	$ -	$ -	$ -		
15	F Hallway	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684.0	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684	0.00	0.00	$ -	$ -	$ -		
15	G Hallway	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547.2	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547.2	0.00	0.00	$ -	$ -	$ -		
15	Connector	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410.4	0.00	0.00	$ -	$ -	$ -		
254	Red Stairwell	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538.1	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538.08	0.00	0.00	$ -	$ -	$ -		
254	Yellow Stairwell	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538.1	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538.08	0.00	0.00	$ -	$ -	$ -		
20	Yellow Stairwell	2	S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2280	145.9	2	S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2280	145.92	0.00	0.00	$ -	$ -	$ -		
254	Blue Stairwell	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538.1	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538.08	0.00	0.00	$ -	$ -	$ -		
	Total	**997**				**87**			**187,035**	**997**				**87**			**150,556**	**36,478**	**0**	**$ 8,207.63**	**$ 29,767.50**	**$ 5,145.00**		
																	Demand Savings		**0.0**	**$ -**			
																	kWh Savings		**36,478**	**$ 8,207.63**			
																	Total Savings			**$ 8,207.63**		**3.6**	**3.0**

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

ECM-3 Lighting Replacements with Occupancy Sensors

Cost of Electricity: **$0.225 $/kWh**

$5.44 $/kW

		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
15	Assistant Principal	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,200	288	288.00	0.00	$ 64.80	$ 202.50	$ 35.00	3.1	2.6
108	Assistant Principal	2	I 65	I65/1	65	0.1	SW	2400	312	2	CF 26	CFQ26/1-L	27	0.054	C-OCC	1,200	64.8	247.20	0.08	$ 60.58	$ 243.00	$ 35.00	4.0	3.4
15	L100	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	L101	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
245	L102	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	1,680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L102	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	1,680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
15	L103	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	C-OCC	1,680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
15	L104	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	C-OCC	1,680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
15	L105	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	C-OCC	1,680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
15	L105A	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
245	L106	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	1,680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L106	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	1,680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
245	L107	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	1,680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L107	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	1,680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
245	L108	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	1,680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L108	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	1,680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
245	L109	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	1,680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L109	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	1,680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
254	Auditorium	16	T 32 R F 4 (ELE)	F44LL	118	1.9	SW	1000	1,888	16	T 32 R F 4 (ELE)	F44LL	118	1.888	C-OCC	750	1416	472.00	0.00	$ 106.20	$ 202.50	$ 35.00	1.9	1.6
254	Auditorium	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	1000	354	3	T 32 R F 4 (ELE)	F44LL	118	0.354	C-OCC	750	265.5	88.50	0.00	$ 19.91	$ 202.50	$ 35.00	10.2	8.4
108	Auditorium	7	I 65	I65/1	65	0.5	SW	1000	455	7	CF 26	CFQ26/1-L	27	0.189	C-OCC	750	141.75	313.25	0.27	$ 87.85	$ 344.25	$ 35.00	3.9	3.5
108	Auditorium	1	I 65	I65/1	65	0.1	SW	1000	65	1	CF 26	CFQ26/1-L	27	0.027	C-OCC	750	20.25	44.75	0.04	$ 12.55	$ 222.75	$ 35.00	17.7	15.0
129	Stage	28	SP 75 I	I75/1	75	2.1	SW	1000	2,100	28	CF 26	CFQ26/1-L	27	0.756	SW	1,000	756	1344.00	1.34	$ 390.14	$ 567.00	$ 196.00	1.5	1.0
129	Stage	28	SP 75 I	I75/1	75	2.1	SW	1000	2,100	28	CF 26	CFQ26/1-L	27	0.756	SW	1,000	756	1344.00	1.34	$ 390.14	$ 567.00	$ 196.00	1.5	1.0
15	L201	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	C-OCC	1,680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
245	L202	4	T 32 R F 3 (ELE)	F43LE	110	0.4	C-OCC	2400	1,056	4	T 32 R F 3 (ELE)	F43LE	110	0.44	C-OCC	1,680	739.2	316.80	0.00	$ 71.28	$ 202.50	$ 35.00	2.8	2.3
210	L202	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.2	C-OCC	2400	427	2	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.178	C-OCC	1,680	299.04	128.16	0.00	$ 28.84	$ 202.50	$ 35.00	7.0	5.8
15	L203	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	L204	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	C-OCC	1,680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
15	L205	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	5	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1,680	504	216.00	0.00	$ 48.60	$ 202.50	$ 35.00	4.2	3.4
15	L205	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	5	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1,680	504	216.00	0.00	$ 48.60	$ 202.50	$ 35.00	4.2	3.4
15	L205	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	L205	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	L206	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	C-OCC	1,680	806.4	345.60	0.00	$ 77.76	$ 202.50	$ 35.00	2.6	2.2
15	L207	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	C-OCC	1,680	806.4	345.60	0.00	$ 77.76	$ 202.50	$ 35.00	2.6	2.2
15	L208	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	C-OCC	1,680	806.4	345.60	0.00	$ 77.76	$ 202.50	$ 35.00	2.6	2.2
15	L209	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	C-OCC	1,680	806.4	345.60	0.00	$ 77.76	$ 202.50	$ 35.00	2.6	2.2
15	L210	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	C-OCC	1,680	806.4	345.60	0.00	$ 77.76	$ 202.50	$ 35.00	2.6	2.2
15	Lincoln Basement Cafeteria	9	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	1600	864	9	S 32 C F 2 (ELE)	F42LL	60	0.54	C-OCC	1,200	648	216.00	0.00	$ 48.60	$ 202.50	$ 35.00	4.2	3.4
15	1	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2000	360	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2,000	360	0.00	0.00	$ -	$ -	$ -		
198	1	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2000	62	1	2T 17 R F 2 (ELE)	F22LL	31	0.031	SW	2,000	62	0.00	0.00	$ -	$ -	$ -		
15	1	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2000	360	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2,000	360	0.00	0.00	$ -	$ -	$ -		
198	1	1	2T 17 R F 2 (ELE)	F22LL	31	0.0	SW	2000	62	1	2T 17 R F 2 (ELE)	F22LL	31	0.031	SW	2,000	62	0.00	0.00	$ -	$ -	$ -		
11	Lincoln Basement Custodian 1	2	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	1000	144	2	C 28 P F 2	F42SSILL	48	0.096	SW	1,000	96	48.00	0.05	$ 13.93	$ 212.50	$ 20.00	15.3	13.8
15	Lincoln Basement Custodian 2	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	120	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	1,000	120	0.00	0.00	$ -	$ -	$ -		
5	Lincoln Basement Men's Bathroom	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	120	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2,000	120	0.00	0.00	$ -	$ -	$ -		
198	Bathroom	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	SW	2000	124	2	2T 17 R F 2 (ELE)	F22LL	31	0.062	SW	2,000	124	0.00	0.00	$ -	$ -	$ -		
15	Classroom	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	C-OCC	1,680	604.8	259.20	0.00	$ 58.32	$ 202.50	$ 35.00	3.5	2.9
15	Classroom	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	5	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1,680	504	216.00	0.00	$ 48.60	$ 202.50	$ 35.00	4.2	3.4
15	Classroom	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	Classroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
108	Lincoln Basement Storage 1	1	I 65	I65/1	65	0.1	SW	1000	65	1	CF 26	CFQ26/1-L	27	0.027	SW	1,000	27	38.00	0.04	$ 11.03	$ 20.25	$ -	1.8	1.8
129	Lincoln Basement Storage 1	3	SP 75 I	I75/1	75	0.2	SW	1000	225	3	CF 26	CFQ26/1-L	27	0.081	SW	1,000	81	144.00	0.14	$ 41.80	$ 60.75	$ 21.00	1.5	1.0
254	Lincoln Basement Storage 2	5	T 32 R F 4 (ELE)	F44LL	118	0.6	SW	1000	590	5	T 32 R F 4 (ELE)	F44LL	118	0.59	SW	1,000	590	0.00	0.00	$ -	$ -	$ -		
210	Lincoln Basement Storage 2	1	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.1	SW	1000	89	1	2T 32 R F 3 (ELE) THIN TUBE	FU3ILL	89	0.089	SW	1,000	89	0.00	0.00	$ -	$ -	$ -		
108	Lincoln Basement Storage 3	1	I 65	I65/1	65	0.1	SW	1000	65	1	CF 26	CFQ26/1-L	27	0.027	SW	1,000	27	38.00	0.04	$ 11.03	$ 20.25	$ -	1.8	1.8
15	Lounge	6	S 32 C F 2 (ELE)	F42LL	60	0.4	SW	2400	864	6	S 32 C F 2 (ELE)	F42LL	60	0.36	C-OCC	1,200	432	432.00	0.00	$ 97.20	$ 202.50	$ 35.00	2.1	1.7
15	Lounge	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	C-OCC	1,200	72	72.00	0.00	$ 16.20	$ 202.50	$ 35.00	12.5	10.3
20	Lounge	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	77	1	S 32 C F 1 (ELE)	F41LL	32	0.032	C-OCC	1,200	38.4	38.40	0.00	$ 8.64	$ 202.50	$ 35.00	23.4	19.4
15	2	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2,000	120	0.00	0.00	$ -	$ -	$ -		
5	2	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	240	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2,000	240	0.00	0.00	$ -	$ -	$ -		
15	2	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2,000	240	0.00	0.00	$ -	$ -	$ -		
191	Lincoln Gym	8	S 60 C F 2 (ELE) 8'	F82EE	123	1.0	SW	2000	1,968	8	S 60 C F 2 (ELE) 8'	F82EE	123	0.984	C-OCC	2,000	1968	0.00	0.00	$ -	$ 202.50	$ 35.00		
254	Lincoln Basement Hallway	18	T 32 R F 4 (ELE)	F44LL	118	2.1	SW	2280	4,843	18	T 32 R F 4 (ELE)	F44LL	118	2.124	SW	2,280	4842.72	0.00	0.00	$ -	$ -	$ -		
254	H Hallway	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807	3	T 32 R F 4 (ELE)	F44LL	118	0.354	SW	2,280	807.12	0.00	0.00	$ -	$ -	$ -		
15	I Hallway	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2,280	547.2	0.00	0.00	$ -	$ -	$ -		
254	J Hallway	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807	3	T 32 R F 4 (ELE)	F44LL	118	0.354	SW	2,280	807.12	0.00	0.00	$ -	$ -	$ -		
15	K Hallway	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	274	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2,280	273.6	0.00	0.00	$ -	$ -	$ -		
254	L Hallway	3	T 32 R F 4 (ELE)	F44LL	118	0.4	SW	2280	807	3	T 32 R F 4 (ELE)	F44LL	118	0.354	SW	2,280	807.12	0.00	0.00	$ -	$ -	$ -		
15	M Hallway	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2,280	410.4	0.00	0.00	$ -	$ -	$ -		
108	M Hallway	1	I 65	I65/1	65	0.1	SW	2280	148	1	CF 26	CFQ26/1-L	27	0.027	SW	2,280	61.56	86.64	0.04	$ 21.97	$ 20.25	$ -	0.9	0.9
15	N Hallway	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	137	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2,280	136.8	0.00	0.00	$ -	$ -	$ -		
254	N Hallway	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538	2	T 32 R F 4 (ELE)	F44LL	118	0.236	SW	2,280	538.08	0.00	0.00	$ -	$ -	$ -		
15	"O" Hallway	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2280	274	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2,280	273.6	0.00	0.00	$ -	$ -	$ -		
15	Pink Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2,280	410.4	0.00	0.00	$ -	$ -	$ -		
20	Pink Stairwell Crown Room	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	77	1	S 32 C F 1 (ELE)	F41LL	32	0.032	C-OCC	1,200	38.4	38.40	0.00	$ 8.64	$ 202.50	$ 35.00	23.4	19.4
15	Orange Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2,280	410.4	0.00	0.00	$ -	$ -	$ -		
15	Orange Stairwell Crown Room	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	C-OCC	1,200	72	72.00	0.00	$ 16.20	$ 202.50	$ 35.00	12.5	10.3
15	Purple Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2,280	410.4	0.00	0.00	$ -	$ -	$ -		
11	Purple Stairwell Crown Room	1	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	2400	173	1	C 28 P F 2	F42SSILL	48	0.048	C-OCC	1,200	57.6	115.20	0.02	$ 27.49	$ 308.75	$ 45.00	11.2	9.6
15	Green Stairwell	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2,280	410.4	0.00	0.00	$ -	$ -	$ -		
11	Green Stairwell Crown Room	1	S 34 P F 2 (MAG)	F42EE	72	0.1	SW	2400	173	1	C 28 P F 2	F42SSILL	48	0.048	C-OCC	1,200	57.6	115.20	0.02	$ 27.49	$ 308.75	$ 45.00	11.2	9.6
1	1st Floor Central Hallway	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.3	SW	2280	636	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.279	SW	2,280	636.12	0.00	0.00	$ -	$ -	$ -		
15	1st Floor Central Hallway	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1,778	13	S 32 C F 2 (ELE)	F42LL	60	0.78	SW	2,280	1778.4	0.00	0.00	$ -	$ -	$ -		
1	1st Floor Central Hallway	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.1	SW	2280	283	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.124	SW	2,280	282.72	0.00	0.00	$ -	$ -	$ -		
254	1st Floor Central Hallway	1	T 32 R F 4 (ELE)	F44LL	118	0.1	SW	2280	269	1	T 32 R F 4 (ELE)	F44LL	118	0.118	SW	2,280	269.04	0.00	0.00	$ -	$ -	$ -		
15	Central Bathroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2,000	120	0.00	0.00	$ -	$ -	$ -		
213	Central Office	4	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.4	SW	2400	864	4	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	0.36	C-OCC	1,200	432	432.00	0.00	$ 97.20	$ 202.50	$ 35.00	2.1	1.7
15	Central Office	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,200	144	144.00	0.00	$ 32.40	$ 202.50	$ 35.00	6.3	5.2
15	Media Center Lobby	9	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2280	1,231	9	S 32 C F 2 (ELE)	F42LL	60	0.54	SW	2,280	1231.2	0.00	0.00	$ -	$ -	$ -		
254	Media Center	22	T 32 R F 4 (ELE)	F44LL	118	2.6	SW	2400	6,230	22	T 32 R F 4 (ELE)	F44LL	118	2.596	C-OCC	1,680	4361.28	1869.12	0.00	$ 420.55	$ 202.50	$ 35.00	0.5	0.4
213	Media Center	20	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	1.8	SW	2400	4,320	20	T 32 R F 3 (ELE) (TWO SWITCH)	F43ILL/2	90	1.8	C-OCC	1,680	3024	1296.00	0.00	$ 291.60	$ 202.50	$ 35.00	0.7	0.6
1	2nd Floor Central Hallway	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.3	SW	2280	636	9	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.279	SW	2,280	636.12	0.00	0.00	$ -	$ -	$ -		

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

ECM-3 Lighting Replacements with Occupancy Sensors

Cost of Electricity: **$0.225 $/kWh**

$5.44 $/kW

		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
15	2nd Floor Central Hallway	13	S 32 C F 2 (ELE)	F42LL	60	0.8	SW	2280	1,778	13	S 32 C F 2 (ELE)	F42LL	60	0.78	SW	2,280	1778.4	0.00	0.00	$ -	$ -	$ -		
1	2nd Floor Central Hallway	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.1	SW	2280	283	4	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.124	SW	2,280	282.72	0.00	0.00	$ -	$ -	$ -		
254	2nd Floor Central Hallway	1	T 32 R F 4 (ELE)	F44LL	118	0.1	SW	2280	269	1	T 32 R F 4 (ELE)	F44LL	118	0.118	SW	2,280	269.04	0.00	0.00	$ -	$ -	$ -		
15	Grey Stairwell	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2,280	547.2	0.00	0.00	$ -	$ -	$ -		
245	Main Office	9	T 32 R F 3 (ELE)	F43LE	110	1.0	SW	2400	2,376	9	T 32 R F 3 (ELE)	F43LE	110	0.99	C-OCC	1,200	1188	1188.00	0.00	$ 267.30	$ 202.50	$ 35.00	0.8	0.6
5	Main Office	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2400	288	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	C-OCC	1,200	144	144.00	0.00	$ 32.40	$ 202.50	$ 35.00	6.3	5.2
15	Main Office Bathroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	120	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2,000	120	0.00	0.00	$ -	$ -	$ -		
245	Principal's Office	5	T 32 R F 3 (ELE)	F43LE	110	0.6	SW	2400	1,320	5	T 32 R F 3 (ELE)	F43LE	110	0.55	C-OCC	1,200	660	660.00	0.00	$ 148.50	$ 202.50	$ 35.00	1.4	1.1
245	R101	10	T 32 R F 3 (ELE)	F43LE	110	1.1	SW	2400	2,640	10	T 32 R F 3 (ELE)	F43LE	110	1.1	C-OCC	1,680	1848	792.00	0.00	$ 178.20	$ 202.50	$ 35.00	1.1	0.9
198	R101	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	SW	2400	149	2	2T 17 R F 2 (ELE)	F22LL	31	0.062	C-OCC	1,680	104.16	44.64	0.00	$ 10.04	$ 202.50	$ 35.00	20.2	16.7
15	R102	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R102	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R102	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R102	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R103	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R103	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R103	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R103	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R105	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R105	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R105	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R105	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R106	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R106	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R106	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R106	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R107	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R107	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R107	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R107	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R109	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R109	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R109	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R109	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
254	R110	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R110	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R111	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R111	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
20	R112	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	77	1	S 32 C F 1 (ELE)	F41LL	32	0.032	C-OCC	1,200	38.4	38.40	0.00	$ 8.64	$ 202.50	$ 35.00	23.4	19.4
15	R113	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,200	144	144.00	0.00	$ 32.40	$ 202.50	$ 35.00	6.3	5.2
254	R114	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R114	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R115	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R115	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
15	Mail Room	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	C-OCC	1,200	72	72.00	0.00	$ 16.20	$ 202.50	$ 35.00	12.5	10.3
108	Mail Room	1	I 65	I65/1	65	0.1	SW	2400	156	1	CF 26	CFQ26/1-L	27	0.027	C-OCC	1,200	32.4	123.60	0.04	$ 30.29	$ 222.75	$ 35.00	7.4	6.2
108	Mail Room	1	I 65	I65/1	65	0.1	SW	2400	156	1	CF 26	CFQ26/1-L	27	0.027	C-OCC	1,200	32.4	123.60	0.04	$ 30.29	$ 222.75	$ 35.00	7.4	6.2
20	Copy Room	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	C-OCC	1,200	192	192.00	0.00	$ 43.20	$ 202.50	$ 35.00	4.7	3.9
15	Nurse	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2400	1,152	8	S 32 C F 2 (ELE)	F42LL	60	0.48	C-OCC	1,200	576	576.00	0.00	$ 129.60	$ 202.50	$ 35.00	1.6	1.3
15	Nurse	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	C-OCC	1,200	72	72.00	0.00	$ 16.20	$ 202.50	$ 35.00	12.5	10.3
198	Nurse	2	2T 17 R F 2 (ELE)	F22LL	31	0.1	SW	2400	149	2	2T 17 R F 2 (ELE)	F22LL	31	0.062	C-OCC	1,200	74.4	74.40	0.00	$ 16.74	$ 202.50	$ 35.00	12.1	10.0
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2,000	240	0.00	0.00	$ -	$ -	$ -		
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2,000	240	0.00	0.00	$ -	$ -	$ -		
146	Roosevelt Gym	26	High Bay MH 400	MH400/1	458	11.9	SW	2000	23,816	26	P 54 C F 4	FC20	20	0.52	C-OCC	2,000	1040	22776.00	11.39	$ 5,868.01	$ 8,002.50	$ 2,635.00	1.4	0.9
1	Roosevelt 1st Floor Elevator Area	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.0	SW	2280	71	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.031	SW	2,280	70.68	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt 1st Floor Storage	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	1,000	60	0.00	0.00	$ -	$ -	$ -		
245	R201	6	T 32 R F 3 (ELE)	F43LE	110	0.7	SW	2400	1,584	6	T 32 R F 3 (ELE)	F43LE	110	0.66	C-OCC	1,680	1108.8	475.20	0.00	$ 106.92	$ 202.50	$ 35.00	1.9	1.6
245	R201	6	T 32 R F 3 (ELE)	F43LE	110	0.7	SW	2400	1,584	6	T 32 R F 3 (ELE)	F43LE	110	0.66	C-OCC	1,680	1108.8	475.20	0.00	$ 106.92	$ 202.50	$ 35.00	1.9	1.6
15	R202	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R202	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R202	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
20	R202	6	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	461	6	S 32 C F 1 (ELE)	F41LL	32	0.192	C-OCC	1,680	322.56	138.24	0.00	$ 31.10	$ 202.50	$ 35.00	6.5	5.4
15	R203	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R203	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R203	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	C-OCC	1,680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
20	R203	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	C-OCC	1,680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
15	R204	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R204	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R204	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	C-OCC	1,680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
20	R204	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	C-OCC	1,680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
245	R205	15	T 32 R F 3 (ELE)	F43LE	110	1.7	C-OCC	2400	3,960	15	T 32 R F 3 (ELE)	F43LE	110	1.65	C-OCC	1,680	2772	1188.00	0.00	$ 267.30	$ 202.50	$ 35.00	0.8	0.6
15	R206	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R206	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R206	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	C-OCC	1,680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
20	R206	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	C-OCC	1,680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
245	R207	12	T 32 R F 3 (ELE)	F43LE	110	1.3	C-OCC	2400	3,168	12	T 32 R F 3 (ELE)	F43LE	110	1.32	C-OCC	1,680	2217.6	950.40	0.00	$ 213.84	$ 202.50	$ 35.00	0.9	0.8
15	R208	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,680	403.2	172.80	0.00	$ 38.88	$ 202.50	$ 35.00	5.2	4.3
15	R208	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,680	201.6	86.40	0.00	$ 19.44	$ 202.50	$ 35.00	10.4	8.6
20	R208	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	C-OCC	1,680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
20	R208	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	C-OCC	1,680	268.8	115.20	0.00	$ 25.92	$ 202.50	$ 35.00	7.8	6.5
254	R209	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R209	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R211	14	T 32 R F 4 (ELE)	F44LL	118	1.7	SW	2400	3,965	14	T 32 R F 4 (ELE)	F44LL	118	1.652	C-OCC	1,680	2775.36	1189.44	0.00	$ 267.62	$ 202.50	$ 35.00	0.8	0.6
254	R212	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R212	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R213	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R213	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
20	R214	8	S 32 C F 1 (ELE)	F41LL	32	0.3	SW	2400	614	8	S 32 C F 1 (ELE)	F41LL	32	0.256	C-OCC	1,200	307.2	307.20	0.00	$ 69.12	$ 202.50	$ 35.00	2.9	2.4
254	R215	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R215	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R216	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
254	R216	4	T 32 R F 4 (ELE)	F44LL	118	0.5	SW	2400	1,133	4	T 32 R F 4 (ELE)	F44LL	118	0.472	C-OCC	1,680	792.96	339.84	0.00	$ 76.46	$ 202.50	$ 35.00	2.6	2.2
20	Guidance 1	5	S 32 C F 1 (ELE)	F41LL	32	0.2	SW	2400	384	5	S 32 C F 1 (ELE)	F41LL	32	0.16	C-OCC	1,200	192	192.00	0.00	$ 43.20	$ 202.50	$ 35.00	4.7	3.9

Energy Audit of Lincoln/Roosevelt School

CHA Project No.24454

ECM-3 Lighting Replacements with Occupancy Sensors

Cost of Electricity: **$0.225 $/kWh**

$5.44 $/kW

		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**
15	Guidance 2	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	288	2	S 32 C F 2 (ELE)	F42LL	60	0.12	C-OCC	1,200	144	144.00	0.00	$ 32.40	$ 202.50	$ 35.00	6.3	5.2
20	Guidance 2	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	2400	77	1	S 32 C F 1 (ELE)	F41LL	32	0.032	C-OCC	1,200	38.4	38.40	0.00	$ 8.64	$ 202.50	$ 35.00	23.4	19.4
108	Guidance 2	1	I 65	I65/1	65	0.1	SW	2400	156	1	CF 26	CFQ26/1-L	27	0.027	C-OCC	1,200	32.4	123.60	0.04	$ 30.29	$ 222.75	$ 35.00	7.4	6.2
108	Guidance 2	1	I 65	I65/1	65	0.1	SW	2400	156	1	CF 26	CFQ26/1-L	27	0.027	C-OCC	1,200	32.4	123.60	0.04	$ 30.29	$ 222.75	$ 35.00	7.4	6.2
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2,000	240	0.00	0.00	$ -	$ -	$ -		
15	Bathroom	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2,000	240	0.00	0.00	$ -	$ -	$ -		
1	Roosevelt 2nd Floor Elevator Area	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.0	SW	2280	71	1	SQ 13 W CF 2 (MAG)	CFQ13/2	31	0.031	SW	2,280	70.68	0.00	0.00	$ -	$ -	$ -		
15	Roosevelt 2nd Floor Storage	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1000	60	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	1,000	60	0.00	0.00	$ -	$ -	$ -		
79	Roosevelt Basement	3	SP I 100	I100/1	100	0.3	SW	1000	300	3	CF 26	CFQ26/1-L	27	0.081	SW	1,000	81	219.00	0.22	$ 63.57	$ 60.75	$ -	1.0	1.0
15	Roosevelt Basement	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,200	288	288.00	0.00	$ 64.80	$ 202.50	$ 35.00	3.1	2.6
129	Roosevelt Basement	1	SP 75 I	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.027	SW	1,000	27	48.00	0.05	$ 13.93	$ 20.25	$ 7.00	1.5	1.0
15	Roosevelt Basement	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,200	288	288.00	0.00	$ 64.80	$ 202.50	$ 35.00	3.1	2.6
15	Roosevelt Basement	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2400	576	4	S 32 C F 2 (ELE)	F42LL	60	0.24	C-OCC	1,200	288	288.00	0.00	$ 64.80	$ 202.50	$ 35.00	3.1	2.6
15	Roosevelt Basement	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2400	144	1	S 32 C F 2 (ELE)	F42LL	60	0.06	C-OCC	1,200	72	72.00	0.00	$ 16.20	$ 202.50	$ 35.00	12.5	10.3
15	Roosevelt Basement	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	5	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1,200	360	360.00	0.00	$ 81.00	$ 202.50	$ 35.00	2.5	2.1
129	Roosevelt Basement	1	SP 75 I	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.027	SW	1,000	27	48.00	0.05	$ 13.93	$ 20.25	$ 7.00	1.5	1.0
129	Roosevelt Basement	1	SP 75 I	I75/1	75	0.1	SW	1000	75	1	CF 26	CFQ26/1-L	27	0.027	SW	1,000	27	48.00	0.05	$ 13.93	$ 20.25	$ 7.00	1.5	1.0
15	Roosevelt Basement	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2400	720	5	S 32 C F 2 (ELE)	F42LL	60	0.3	C-OCC	1,200	360	360.00	0.00	$ 81.00	$ 202.50	$ 35.00	2.5	2.1
129	Roosevelt Basement	3	SP 75 I	I75/1	75	0.2	SW	1000	225	3	CF 26	CFQ26/1-L	27	0.081	SW	1,000	81	144.00	0.14	$ 41.80	$ 60.75	$ 21.00	1.5	1.0
108	Roosevelt Basement	1	I 65	I65/1	65	0.1	SW	1000	65	1	CF 26	CFQ26/1-L	27	0.027	SW	1,000	27	38.00	0.04	$ 11.03	$ 20.25	$ -	1.8	1.8
128	Roosevelt Main Entrance Lobby	2	DC 50 I 16	I60/16	960	1.9	SW	2280	4,378	2	DC 50 I 16	I60/16	960	1.92	SW	2,280	4377.6	0.00	0.00	$ -	$ -	$ -		
134	Roosevelt Main Entrance Lobby	1	DC 50 I 4	I60/4	240	0.2	SW	2280	547	1	DC 50 I 4	I60/4	240	0.24	SW	2,280	547.2	0.00	0.00	$ -	$ -	$ -		
134	A Hallway	8	DC 50 I 4	I60/4	240	1.9	SW	2280	4,378	8	DC 50 I 4	I60/4	240	1.92	SW	2,280	4377.6	0.00	0.00	$ -	$ -	$ -		
245	A Hallway	12	T 32 R F 3 (ELE)	F43LE	110	1.3	SW	2280	3,010	12	T 32 R F 3 (ELE)	F43LE	110	1.32	SW	2,280	3009.6	0.00	0.00	$ -	$ -	$ -		
15	B Hallway	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,280	684	0.00	0.00	$ -	$ -	$ -		
15	C Hallway	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2,280	547.2	0.00	0.00	$ -	$ -	$ -		
15	Connector	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2,280	410.4	0.00	0.00	$ -	$ -	$ -		
254	E Hallway	13	T 32 R F 4 (ELE)	F44LL	118	1.5	SW	2280	3,498	13	T 32 R F 4 (ELE)	F44LL	118	1.534	SW	2,280	3497.52	0.00	0.00	$ -	$ -	$ -		
15	F Hallway	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2280	684	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	2,280	684	0.00	0.00	$ -	$ -	$ -		
15	G Hallway	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	547	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2,280	547.2	0.00	0.00	$ -	$ -	$ -		
15	Connector	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2280	410	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2,280	410.4	0.00	0.00	$ -	$ -	$ -		
254	Red Stairwell	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538	2	T 32 R F 4 (ELE)	F44LL	118	0.236	SW	2,280	538.08	0.00	0.00	$ -	$ -	$ -		
254	Yellow Stairwell	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538	2	T 32 R F 4 (ELE)	F44LL	118	0.236	SW	2,280	538.08	0.00	0.00	$ -	$ -	$ -		
20	Yellow Stairwell	2	S 32 C F 1 (ELE)	F41LL	32	0.1	SW	2280	146	2	S 32 C F 1 (ELE)	F41LL	32	0.064	SW	2,280	145.92	0.00	0.00	$ -	$ -	$ -		
254	Blue Stairwell	2	T 32 R F 4 (ELE)	F44LL	118	0.2	SW	2280	538	2	T 32 R F 4 (ELE)	F44LL	118	0.236	SW	2,280	538.08	0.00	0.00	$ -	$ -	$ -		
	Total	**997**				**86.7**			**187,035**	**997**				**71.2**			**123,633**		**15.5**	**$ 15,277.56**	**$ 39,734.00**	**$ 8,240.00**		
																		Demand Savings		**15.5**	**$ 1,012.30**			
																		kWh Savings		**63401**	**$ 14,265.27**			
																		Total Savings			**$ 15,277.56**		**2.6**	**2.1**

APPENDIX D

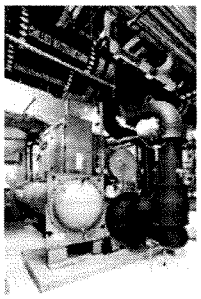
New Jersey Pay For Performance Incentive Program

Pay for Performance - Existing Buildings

Download program applications and incentive forms.

The Greater the Savings, the Greater Your Incentives

Take a comprehensive, whole-building approach to saving energy in your existing facilities and earn incentives that are directly linked to your savings. Pay for Performance relies on a network of program partners who provide technical services under direct contract to you. Acting as your energy expert, your partner will develop an energy reduction plan for each project with a whole-building technical component of a traditional energy audit, a financial plan for funding the energy efficient measures and a construction schedule for installation.



Eligibility

Existing commercial, industrial and institutional buildings with a peak demand over 100 kW for any of the preceding twelve months are eligible to participate including hotels and casinos, large office buildings, multi-family buildings, supermarkets, manufacturing facilities, schools, shopping malls and restaurants. Buildings that fall into the following five customer classes are not required to meet the 100 kW demand in order to participate in the program: hospitals, public colleges and universities, 501(c)(3) non-profits, affordable multifamily housing, and local governmental entities. Your energy reduction plan must define a comprehensive package of measures capable of reducing the existing energy consumption of your building by 15% or more.

Exceptions to the 15% threshold requirement may be made for certain industrial, manufacturing, water treatment and datacenter building types whose annual energy consumption is heavily weighted on process loads. Details are available in the high energy intensity section of the FAQ page.

ENERGY STAR Portfolio Manager

Pay for Performance takes advantage of the ENERGY STAR Program with Portfolio Manager, EPA's interactive tool that allows facility managers to track and evaluate energy and water consumption across all of their buildings. The tool provides the opportunity to load in the characteristics and energy usage of your buildings and determine an energy performance benchmark score. You can then assess energy management goals over time, identify strategic opportunities for savings, and receive EPA recognition for superior energy performance.

This rating system assesses building performance by tracking and scoring energy use in your facilities and comparing it to similar buildings. That can be a big help in locating opportunities for cost-justified energy efficiency upgrades. And, based on our findings, you may be invited to participate in the Building Performance with ENERGY STAR initiative and receive special recognition as an industry leader in energy efficiency.

Incentives

Pay for Performance incentives are awarded upon the satisfactory completion of three program milestones:

Incentive #1 - Submittal of complete energy reduction plan prepared by an approved program partner - Contingent on moving forward, incentives will be between $5,000 and $50,000 based on approximately $.10 per square foot, not to exceed 50% of the facility's annual energy expense.

Incentive #2 - Installation of recommended measures - Incentives are based on the projected level of electricity and natural gas savings resulting from the installation of comprehensive energy-efficiency measures.

Incentive #3 - Completion of Post-Construction Benchmarking Report - A completed report verifying energy reductions based on one year of post-implementation results. Incentives for electricity and natural gas savings will be paid based on actual savings, provided that the minimum performance threshold of 15% savings has been achieved.

CONTACT US

A detailed Incentive Structure document is available on the applications and forms page.

Energy Efficiency Revolving Loan Fund (EE RLF)

New Jersey-based commercial, institutional or industrial entities (including 501(c)(3) organizations) that have received an approved energy reduction plan under Pay for Performance may be eligible for supplemental financing through the EE RLF. The financing, in the form of low-interest loans, can be used to support up to 80% of total eligible project costs, not to exceed $2.5 million or 100% of total eligible project costs from all public state funding sources. Visit the NJ EDA website for details.

Steps to Participation

Click here for a step-by-step description of the program.

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.

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 positive return on investment (ROI) only.

Total Building Area (Square Feet)	236,340
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilites (BPU)

Incentive #1		
Audit is funded by NJ BPU	$0.05	$/sqft

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	$124,925	$45,332
Existing Usage (from utility)	552,920	34,739
Proposed Savings	73,121	11,104
Existing Total MMBtus	5,361	
Proposed Savings MMBtus	1,360	
% Energy Reduction	**25.4%**	
Proposed Annual Savings	$30,678	

	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	$11,817
Incentive #2	$8,043	$13,880	$21,923
Incentive #3	$8,043	$13,880	$21,923
Total All Incentives	**$16,087**	**$27,760**	**$55,664**

Total Project Cost	$58,534

		Allowable Incentive
% Incentives #1 of Utility Cost*	6.9%	$11,817
% Incentives #2 of Project Cost**	37.5%	$14,634
% Incentives #3 of Project Cost**	37.5%	$14,634
Total Eligible Incentives***	**$41,084**	
Project Cost w/ Incentives	$17,450	

Project Payback (years)	
w/o Incentives	w/ Incentives
1.9	0.6

* 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

APPENDIX E

Energy Savings Improvement Plan Information

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 PLAN
  - DIRECT INSTALL
  - ENERGY BENCHMARKING
  - T-12 SCHOOLS LIGHTING INITIATIVE
  - OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS
  - EDA PROGRAMS
  - TEACH
  - ARRA
- TECHNOLOGIES
- TOOLS AND RESOURCES
- PROGRAM UPDATES
- CONTACT US

Home » Commercial & Industrial » Programs

Energy Savings Improvement Plan

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

- Board Order - Standby Charges for Distributed Generation Customers
- T-12 Schools Lighting Replacement Initiative - Funding Allocation Reached

Other updates posted.

APPENDIX F

Photovoltaic (PV) Rooftop Solar Power Generation

Roxbury Township Board of Education
Lincoln School

Cost of Electricity	$0.232	/kWh
Electricity Usage	146,320	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
$80,000	**20.0**	**24,979**	**0**	**$5,787**	**0**	**$5,787**	**$0**	**$1,923**	**13.8**	**10.4**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $77 /1000kwh

Area Output*
682 m2
7,346 ft2

Perimeter Output*
108 m
355 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
3,226 ft2

Approximate System Size: Is the roof flat? (Yes/No) Yes

8	watt/ft2	
25,804	DC watts	
20	kW	Enter into PV Watts

PV Watts Inputs* **		Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Tilt Angle	20	
Array Azimuth	180	Enter into PV Watts (default)
Zip Code	07876	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
24,979 annual kWh calculated in PV Watts program

% Offset Calc

Usage	146,320	(from utilities)
PV Generation	24,979	(generated using PV Watts)
% offset	17%	

* http://www.freemaptools.com/area-calculator.htm
** http://www.flettexchange.com
*** http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

PVWatts * * * AC Energy & Cost Savings

Cautions for Interpreting the Results

(Type comments here to appear on printout; maximum 1 row of 80 characters.)

Station Identification	
City:	Newark
State:	New_Jersey
Latitude:	40.70° N
Longitude:	74.17° W
Elevation:	9 m
PV System Specifications	
DC Rating:	20.0 kW
DC to AC Derate Factor:	0.830
AC Rating:	16.6 kW
Array Type:	Fixed Tilt
Array Tilt:	20.0°
Array Azimuth:	180.0°
Energy Specifications	
Cost of Electricity:	23.2 ¢/kWh

Results

Month	Solar Radiation (kWh/m ^{2}/day)	AC Energy (kWh)	Energy Value ($)
1	2.78	1461	338.95
2	3.54	1683	390.46
3	4.35	2228	516.90
4	4.95	2362	547.98
5	5.69	2742	636.14
6	5.86	2653	615.50
7	5.73	2648	614.34
8	5.47	2502	580.46
9	4.91	2241	519.91
10	3.99	1944	451.01
11	2.68	1305	302.76
12	2.35	1208	280.26
Year	4.36	24979	5795.13

Output Hourly Performance Data * Output Results as Text

About the Hourly Performance Data Saving Text from a Browser

Run PVWATTS v.1 for another US location or an International location
Run PVWATTS v.2 (US only)

Please send questions and comments regarding PVWATTS to Webmaster

Disclaimer and copyright notice

Return to RReDC home page (*http://www.nrel.gov/rredc*)

Roxbury Township Board of Education
Roosevelt School

Cost of Electricity	$0.224	/kWh
Electricity Usage	406,400	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
$0	**0.0**	**5,413**	**0**	**$1,212**	**0**	**$1,212**	**$0**	**$444**	**0.0**	**0.0**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $82 /1000kwh

Area Output*
30 m2
326 ft2

Perimeter Output*
15 m
50 ft

Available Roof Space for PV:
(Area Output - 10 ft x Perimeter) x 85%
-149 ft2

Approximate System Size: Is the roof flat? (Yes/No) No

11.5 watt/ft2
-1,718 DC watts
0 kW Enter into PV Watts

PV Watts Inputs***

Array Tilt Angle	40	Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Azimuth	180	Enter into PV Watts (default)
Zip Code	07876	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
5,413 annual kWh calculated in PV Watts program

% Offset Calc

Usage	406,400	(from utilities)
PV Generation	5,413	(generated using PV Watts)
% offset	1%	

DC WATTS ROUNDED TO 4.0 KW. PV SETUP NOT FEASIBLE FOR THIS BU

* http://www.freemaptools.com/area-calculator.htm
** http://www.flettexchange.com
*** http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html

PVWatts * * * * * 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:	0267370
State:	New Jersey
Latitude:	40.9 ° N
Longitude:	74.7 ° W

PV System Specifications

DC Rating:	4.00 kW *
DC to AC Derate Factor:	0.830
AC Rating:	3.32 kW
Array Type:	Fixed Tilt
Array Tilt:	40.0 °
Array Azimuth:	180.0 °

Energy Specifications

Cost of Electricity:	22.4 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	3.11	334	74.82
2	3.92	377	84.45
3	5.05	514	115.14
4	5.32	505	113.12
5	5.60	539	120.74
6	5.84	530	118.72
7	5.52	507	113.57
8	5.48	508	113.79
9	5.29	486	108.86
10	4.73	466	104.38
11	3.42	335	75.04
12	2.96	312	69.89
Year	4.69	5413	1212.51

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*)

APPENDIX G

EPA Portfolio Manager

OMB No. 2060-0347

STATEMENT OF ENERGY PERFORMANCE
Lincoln/Roosevelt School

Building ID: 3210005
For 12-month Period Ending: May 31, 2012[1]
Date SEP becomes ineligible: N/A
Date SEP Generated: August 17, 2012

Facility
Lincoln/Roosevelt School
34 North Hillside Ave
Succasunna, NJ 07876

Facility Owner
N/A

Primary Contact for this Facility
N/A

Year Built: 1918
Gross Floor Area (ft²): 236,340

Energy Performance Rating[2] (1-100) 100

Site Energy Use Summary[3]

Electricity - Grid Purchase(kBtu)	1,885,881
Natural Gas (kBtu)[4]	3,473,960
Total Energy (kBtu)	5,359,841

Energy Intensity[4]

Site (kBtu/ft²/yr)	23
Source (kBtu/ft²/yr)	42

Emissions (based on site energy use)

Greenhouse Gas Emissions ($MtCO_2e$/year)	452

Electric Distribution Utility
Jersey Central Power & Light Co [FirstEnergy Corp]

National Median Comparison

National Median Site EUI	69
National Median Source EUI	129
% Difference from National Median Source EUI	-67%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Certifying Professional
N/A

Meets Industry Standards[5] **for Indoor Environmental Conditions:**

Ventilation for Acceptable Indoor Air Quality	**N/A**
Acceptable Thermal Environmental Conditions	**N/A**
Adequate Illumination	**N/A**

Notes:
1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.
NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Building Name	Lincoln/Roosevelt School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		☐
Type	K-12 School	Is this an accurate description of the space in question?		☐
Location	34 North Hillside Ave, Succasunna, NJ 07876	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		☐
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		☐
School (K-12 School)				
CRITERION	**VALUE AS ENTERED IN PORTFOLIO MANAGER**	**VERIFICATION QUESTIONS**	**NOTES**	☑
Gross Floor Area	236,340 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		☐
Open Weekends?	No (Default)	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		☐
Number of PCs	414 (Default)	Is this the number of personal computers in the K12 School?		☐
Number of walk-in refrigeration/freezer units	2 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		☐
Presence of cooking facilities	Yes (Default)	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		☐
Percent Cooled	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		☐
Percent Heated	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		☐
Months	N/A(Optional)	Is this school in operation for at least 8 months of the year?		☐

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		☐

ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Jersey Central Power & Light Co [FirstEnergy Corp]

Fuel Type: Electricity

Meter: Electricity (Lincoln) (kWh (thousand Watt-hours))
Space(s): Entire Facility
Generation Method: Grid Purchase

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
05/01/2012	05/31/2012	14,880.00
04/01/2012	04/30/2012	10,480.00
03/01/2012	03/31/2012	11,440.00
02/01/2012	02/29/2012	12,960.00
01/01/2012	01/31/2012	8,720.00
12/01/2011	12/31/2011	14,480.00
11/01/2011	11/30/2011	10,240.00
10/01/2011	10/31/2011	11,360.00
09/01/2011	09/30/2011	15,200.00
08/01/2011	08/31/2011	12,960.00
07/01/2011	07/31/2011	8,800.00
06/01/2011	06/30/2011	14,800.00
Electricity (Lincoln) Consumption (kWh (thousand Watt-hours))		**146,320.00**
Electricity (Lincoln) Consumption (kBtu (thousand Btu))		**499,243.84**

Meter: Electricity (Roosevelt) (kWh (thousand Watt-hours))
Space(s): Entire Facility
Generation Method: Grid Purchase

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
05/01/2012	05/31/2012	33,400.00
04/01/2012	04/30/2012	31,600.00
03/01/2012	03/31/2012	34,600.00
02/01/2012	02/29/2012	43,000.00
01/01/2012	01/31/2012	32,800.00
12/01/2011	12/31/2011	46,200.00
11/01/2011	11/30/2011	36,000.00
10/01/2011	10/31/2011	29,200.00
09/01/2011	09/30/2011	32,000.00
08/01/2011	08/31/2011	24,400.00
07/01/2011	07/31/2011	28,800.00
06/01/2011	06/30/2011	34,400.00
Electricity (Roosevelt) Consumption (kWh (thousand Watt-hours))		**406,400.00**

Electricity (Roosevelt) Consumption (kBtu (thousand Btu))	**1,386,636.80**
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))	**1,885,880.64**
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?	☐

Fuel Type: Natural Gas

Meter: Natural Gas (Lincoln) (therms)
Space(s): Entire Facility

Start Date	End Date	Energy Use (therms)
05/01/2012	05/31/2012	380.00
04/01/2012	04/30/2012	511.00
03/01/2012	03/31/2012	628.90
02/01/2012	02/29/2012	1,155.90
01/01/2012	01/31/2012	1,145.00
12/01/2011	12/31/2011	810.40
11/01/2011	11/30/2011	777.20
10/01/2011	10/31/2011	588.00
09/01/2011	09/30/2011	472.40
08/01/2011	08/31/2011	403.00
07/01/2011	07/31/2011	412.50
06/01/2011	06/30/2011	432.20
Natural Gas (Lincoln) Consumption (therms)		**7,716.50**
Natural Gas (Lincoln) Consumption (kBtu (thousand Btu))		**771,650.00**

Meter: Natural Gas (Roosevelt) (therms)
Space(s): Entire Facility

Start Date	End Date	Energy Use (therms)
05/01/2012	05/31/2012	611.00
04/01/2012	04/30/2012	2,364.00
03/01/2012	03/31/2012	2,868.30
02/01/2012	02/29/2012	5,863.90
01/01/2012	01/31/2012	6,330.80
12/01/2011	12/31/2011	4,939.00
11/01/2011	11/30/2011	3,785.70
10/01/2011	10/31/2011	245.60
09/01/2011	09/30/2011	8.50
08/01/2011	08/31/2011	0.00
07/01/2011	07/31/2011	0.00
06/01/2011	06/30/2011	6.30
Natural Gas (Roosevelt) Consumption (therms)		**27,023.10**
Natural Gas (Roosevelt) Consumption (kBtu (thousand Btu))		**2,702,310.00**
Total Natural Gas Consumption (kBtu (thousand Btu))		**3,473,960.00**
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		☐

Additional Fuels

Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	☐

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	☐

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility
Lincoln/Roosevelt School
34 North Hillside Ave
Succasunna, NJ 07876

Facility Owner
N/A

Primary Contact for this Facility
N/A

General Information

Lincoln/Roosevelt School	
Gross Floor Area Excluding Parking: (ft^2)	236,340
Year Built	1918
For 12-month Evaluation Period Ending Date:	May 31, 2012

Facility Space Use Summary

School	
Space Type	K-12 School
Gross Floor Area (ft^2)	236,340
Open Weekends? [d]	No
Number of PCs [d]	414
Number of walk-in refrigeration/freezer units [d]	2
Presence of cooking facilities [d]	Yes
Percent Cooled [d]	100
Percent Heated [d]	100
Months [o]	N/A
High School?	No
School District [o]	N/A

Energy Performance Comparison

	Evaluation Periods		Comparisons		
Performance Metrics	**Current** (Ending Date 05/31/2012)	**Baseline** (Ending Date 07/31/2011)	**Rating of 75**	**Target**	**National Median**
Energy Performance Rating	100	100	75	N/A	50
Energy Intensity					
Site (kBtu/ft^2)	23	29	54	N/A	69
Source (kBtu/ft^2)	42	49	101	N/A	129
Energy Cost					
$/year	$ 170,260.04	$ 192,608.60	$ 407,107.67	N/A	$ 520,614.36
$/$ft^2$/year	$ 0.72	$ 0.81	$ 1.72	N/A	$ 2.20
Greenhouse Gas Emissions					
$MtCO_2e$/year	452	534	1,081	N/A	1,382
$kgCO_2e/ft^2$/year	2	2	5	N/A	6

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:
o - This attribute is optional.
d - A default value has been supplied by Portfolio Manager.

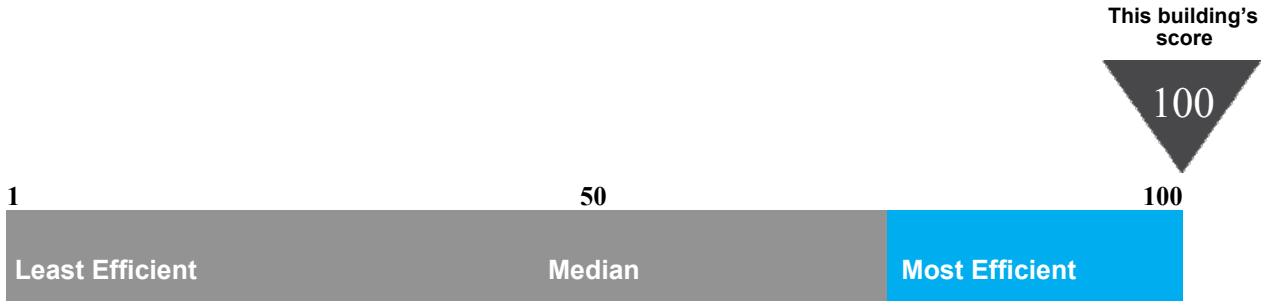
Statement of Energy Performance

2012

Lincoln/Roosevelt School
34 North Hillside Ave
Succasunna, NJ 07876

Portfolio Manager Building ID: 3210005

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 42 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending May 2012

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification

EPA United States Environmental Protection Agency

Date Generated: 08/17/2012