RIDGEWOOD BOARD OF EDUCATION

RIDGEWOOD HIGH SCHOOL

627 E Ridgewood Ave, Ridgewood NJ 07450

LOCAL GOVERNMENT ENERGY AUDIT PROGRAM
FOR
NEW JERSEY
BOARD OF PUBLIC UTILITIES

July 2015

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CHA PROJECT NO. 30237

TABLE OF CONTENTS

APPENDICES

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

List of Common Energy Audit Abbreviations

- A/C – Air Conditioning
- AHS – Air Handling Unit
- BMS – Building Management System
- Btu – British thermal unit
- CDW – Condenser Water
- CFM – Cubic feet per minute
- CHW – Chilled Water
- DCV – Demand Control Ventilation
- DDC – Direct Digital Control
- DHW – Domestic Hot Water
- DX – Direct Expansion
- EER – Energy Efficiency Ratio
- EF – Exhaust Fan
- EUI – Energy Use Intensity
- Gal – Gallon
- GPD – Gallons per day
- GPF – Gallons Per Flush
- GPH – Gallons per hour
- GPM – Gallons per minute
- GPS – Gallons per second
- HHW – Heating Hot Water
- HID – High Intensity Discharge
- HP – Horsepower
- HRU – Heat Recovery Unit
- HVAC – Heating, Ventilation, Air Conditioning
- HX – Heat Exchanger
- kbtu/mbtu – One thousand (1,000) Btu
- kW – Kilowatt (1,000 watts)
- kWh – Kilowatt-hours
- LED – Light Emitting Diode
- mbh – Thousand Btu per hour
- mmbtu – One million (1,000,000) Btu
- OCC – Occupancy Sensor
- PSI – Pounds per square inch
- RTU – Rooftop Unit
- SBC – System Benefits Charge
- SF – Square foot
- UH – Unit Heater
- V – Volts
- VAV – Variable Air Volume
- VSD – Variable Speed Drive
- W – Watt

1.0 EXECUTIVE SUMMARY

This report summarizes the energy audit performed by CHA for Ridgewood Board of Education in connection with the New Jersey Board of Public Utilities (NJBPU) Local Government Energy Audit (LGEA) Program. The purpose of this report is to identify energy savings opportunities associated with major energy consumers and inefficient practices. Low-cost and no-cost energy conservation measures (ECMs) have also been identified in this study. This report details the results of the energy audit conducted for the building listed below:

Building Name	Address	Square Feet	Construction Date
Ridgewood High School	627 E Ridgewood Ave, Ridgewood NJ 07450	248,286	1919,1930, 1937,1961 and 2000

The potential total annual energy and cost savings for the recommended energy conservation measures (ECM) identified in the survey are shown below:

Building Name	Electric Savings (kWh)	NG Savings (therms)	Total Savings ($)	Payback (years)
Ridgewood High School	601,040	2,465	$ 116,158	7.4

Each individual measure's annual savings are dependent on that measure alone, there are no interactive effects calculated. There are three options shown for lighting ECM savings; only one option can be chosen. The incentives shown (if any) are based only on the SmartStart Incentive Program. Other NJBPU or local utility incentives may also be available/applicable and are further discussed in Section 6.0.

Each measure recommended by CHA typically has a stand-alone simple payback period of 15 years or less. However, if the owner choses to pursue an Energy Savings Improvement Plan (ESIP), high payback measures could be bundled with lower payback measures which ultimately can result in a payback which is favorable for an ESIP project to proceed. Occasionally, we will recommend an ECM that has a longer payback period. This decision is generally based on the need to replace the piece(s) of equipment due to its age, such as a boiler.

The following table provides a detailed summary of each ECM for the building surveyed, including costs, savings, SmartStart incentives and payback.

Summary of Energy Conservation Measures

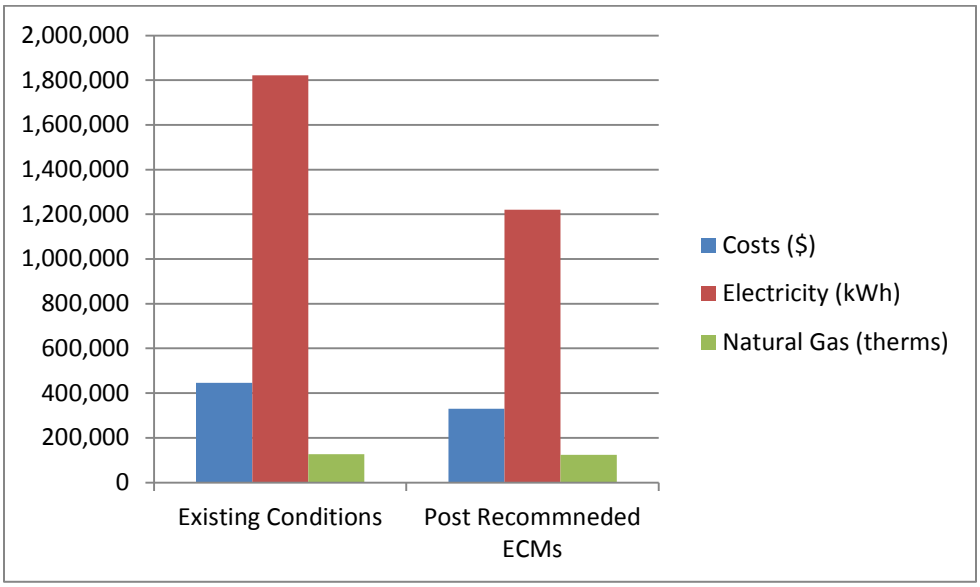
ECM #	Energy Conservation Measure	Est. Costs ($)	Est. Savings ($/year)	Payback w/o Incentive	Potential Incentive ($)*	Payback w/ Incentive	Recommended
ECM-1	Added a Condensing Boiler to the Old Boiler Plant	176,245	5,112	34.5	6,000	33.3	N
ECM-2	Install VFDs on HHW Pump Motors	86,385	5,441	15.9	4,650	15.0	Y
ECM-3	Install VFDs on CHW Pump Motors	68,540	5,670	12.1	2,400	11.7	Y
ECM-4	Replace Pneumatic Control Devices with DDC Devices	306,855	4,486	68.4	0	68.4	N
ECM-5	Install Demand Control Ventilation on AHUs	85,500	1,596	53.6	0	53.6	N
ECM-6	Install Window AC Controller	8,300	3,739	2.2	0	2.2	Y
ECM-7	Kitchen Hood Control	37,350	2,255	16.6	0	16.6	Y
ECM-8	Walk-in Cooler & Freezer EC Motor Retrofits	22,275	1,183	18.8	0	18.8	Y
ECM-L1**	Lighting Replacements / Upgrades	607,530	95,862	6.3	67,130	5.6	N
ECM-L2**	Install Lighting Controls (Add Occupancy Sensors)	29,882	3,997	7.5	4,660	6.3	N
ECM-L3	Lighting Replacements with Controls (Occupancy Sensors)	637,412	97,871	6.5	71,790	5.8	Y
Total**		**1,428,862**	**127,353**	**11.2**	**84,840**	**10.6**	
Total(Recommended)		**860,262**	**116,159**	**7.4**	**78,840**	**6.7**	

* Incentive shown is per the New Jersey SmartStart Program.
** These ECMs are not included in the Total, as they are alternate measures not recommended.

By implementing the recommended ECMs, the building could result in a total of 266 metric tons of greenhouse gas (GHG) reduction.

If the Ridgewood Board of Education implements the recommended ECMs, energy savings would be as follows:

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs ($)	396,082	330,109	26%
Electricity (kWh)	1,822,033	1,220,993	33%
Natural Gas (therms)	126,965	124,500	2%
Site EUI (kbtu/SF/Yr)	76.2	66.9	



2.0 BUILDING INFORMATION AND EXISTING CONDITIONS

The following is a summary of the building information related to HVAC, plumbing, building envelope, lighting, kitchen equipment and domestic hot water systems as observed during CHA's site visit. See appendix B for detailed information on mechanical equipment, including capacities, model numbers and age. See appendix F for some representative photos of some of the existing conditions observed while onsite.

Building Name: Ridgewood High School
Address: 627 E Ridgewood Ave, Ridgewood NJ 07450
Gross Floor Area: 248,286
Number of Floors: Three floors and one basement
Year Built: 1919,1930,1937,1961 and 2000

General

Description of Spaces: This is an academic and office building which has office rooms, classrooms, auditoriums, gymnasiums, librarys, cafeterias, theatesr, computer labs, science labs, restrooms and mechanical rooms.
Description of Occupancy: The facility serves about 1,694 students from grade 9 to grade 12. There are also about 135 school faculty and staff members.
Number of Computers: The building has approximately 800 desktop and laptop computers.
Building Usage: The building's offices hour are typically from 6:00AM to 3:30PM during the school year; however, there are also many after school activities throughout the years. The building operates approximately 51 weeks per year.

Construction Materials: Structural steel, brick and concrete block.
Façade: Brick.
Roof: The building has a combination of sloped roof and flat roof, which is covered a with grey rubber membrane. The roof had been recently renovated and is believed to be well insulated. The roof is in good condition and no ECMs associated with roof replacement were evaluated.
Windows: The windows throughout the building are double pane aluminum framed windows. The windows are in good condition and no ECMs associated with window replacement were evaluated.
Exterior Doors: The exterior doors throughout the school are alumina frame with double pane safety glass. The sweeps on the exterior doors are still in good condition; therefore, no ECMs associated with exterior doors were evaluated.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating: The original building is heated by two A.L. Eastmond & Sons Inc. heating hot water (HHW) boilers located in the basement mechanical room. Each of the boilers has a rated energy input of 10,500MBH and an energy output of 8,369MBH; which results in a nameplate efficiency of 79.7%. The heating hot water is circulated to baseboard heaters and unit ventilators by two sets of pumps. One loop has three pumps driven by 5HP motors, while the other loop is driven by three 3HP pump motors. There are also two new Aerco Benchmark 2.0 condensing boilers located in the penthouse mechanical room. These two hot water boilers provide heating hot water for the new wing and AHUs that are equipped with HHW coils. The HHW is circulated by two pumps driven by 10HP motors. Apart from the central heating hot water system, there are air handling units (AHUs) or roof top units (RTUs) equipped with gas fired furnaces to provide heating for the areas they serve. The detail of these AHUs and RTUs are listed in the table below:

Name	Number	Heating Capacity	Location	Serving Area
2nd Floor Office RTU (RTU-3)	1	80MBH gas input, 64MBH heating energy output	Roof	2nd floor
RTU-Room 5&7	1	80MBH gas input, 64MBH heating energy output	Roof	Basement Classroom 5& 7
RTU- 1 Music Room	1	200MBH gas input, 160MBH heating energy output	Roof	Music Room
RTU- 2 Music Room	1	1 200MBH gas input, 160MBH heating energy output	Roof	Music Room
RTU-Library	1	300MBH gas input, 240MBH heating energy output	Roof	Library
RTU-TV	1	205MBH gas input, 166MBH heating energy output	Roof	TV Stadio
RTU-Library	1	120MBH gas input, 96MBH heating energy output	Roof	Dance Room
RTU-Campus Center	2	350MBH gas input, 284MBH heating energy output	Roof	Campus Center

RTU-Campus Center Auxiliary Room	2	120MBH gas input, 96MBH heating energy output	Roof	Campus Center Auxiliary Rooms
Five Science Lab RTUs	5	~ 100-300MBH gas input, 79-237MBH heating energy output	Roof	Science Labs
RTU-Hallway	1	N/A	Roof	Hallway

ECMs related to old boiler replacements and installing VFD on HHW pump motors were evaluated.

Cooling: There is a central chilled water (CHW) system in the school. The chilled water is provided by a Trane air cooled 155 ton chiller located on the roof. The chilled water is circulated by two CHW pumps driven by 20HP motors located in the penthouse mechanical room. In discussions with school staff, it is believed that the chilled water system serves the new wing and the gymnasiums AHUs. Apart from the central cooling system, the majority of the school is cooled by AHU/RTU equipped with direct expansion (DX) refrigerant cooling units. The details of these DX units are listed in the table below:

Name	Number	Heating Capacity	Location	Serving Area
2nd Floor Office RTU (RTU-3)	1	6 ton cooling capacity	Roof	2nd floor
RTU-Room 5&7	1	6 ton cooling capacity	Roof	Basement Classroom 5& 7
RTU- 1 Music Room	1	10 ton cooling capacity	Roof	Music Room
RTU- 2 Music Room	1	10 ton cooling capacity	Roof	Music Room
RTU-Library	1	15 ton cooling capacity	Roof	Library
RTU-TV	1	10 ton cooling capacity	Roof	TV Stadio

RTU-Library	1	4 ton cooling capacity	Roof	Dance Room
Dry Cooler - Server Room	1	N/A	Roof	Server Room
RTU-Campus Center	2	17.5 ton cooling capacity	Roof	Campus Center
RTU-Campus Center Auxiliary Room	2	4 ton cooling capacity	Roof	Campus Center Auxiliary Rooms
Science Lab RTU	5	~3-7.5 ton cooling capacity	Roof	Science Labs
RTU-Hallway	1	N/A	Roof	Hallway
AHU-Café	1	40 ton cooling capacity	Outside Ground 2 floor skid	Café
AHU-Kitchen	1	N/A	Outside Ground 2 floor skid	Kitchen
Main Office	8	Each one has a 4 ton cooling capacity	Outside Ground	Main Office
Guidance Office	7	Each one has a 4 ton cooling capacity	Outside Ground	Guidance Office
AHU-Theater	2	15 ton cooling each and HHW	Outside Ground	Theater
AHU-Stage	1	it is 5 ton cooling and HHW	Outside Ground	Stage
AHU-Theater Balcony	1	it is about 4 ton cooling and HHW fan on VFD	Outside Ground	Theater Balcony

Besides the central chilled water cooling system and packaged air handling units, there are many ductless split AC units and window AC units in the building to cool small offices and classrooms.

ECMs related to boiler replacement and installing variable frequency drives on HHW/CHW pump motors were evaluated.

Ventilation: Each of the AHUs/RTUs has an air intake to provide fresh air for the areas it serves. The amount of the outdoor air provided from each ventilation unit is unknown due to missing drawings/documents; however, it is believed that each unit provides minimum ventilation rate based on the discussions with school staff. The occupancy of gymnasium, theater, cafeteria and auditorium varies; therefore, an ECM related to installing CO2 sensors and program demand ventilation control for these AHUs/RTUs was evaluated.

Exhaust: This building has multiple fractional HP exhaust fans serving restrooms and general building exhaust, all located on the roof. The kitchen area has one big kitchen exhaust hood and one small exhaust hood which is not utilized as often. The fans are enclosed; therefore, the capacities of the fan motors are unknown. An ECM related to installing a various air volume system for the big kitchen hood exhaust was evaluated.

Controls Systems

This building has a hybrid control system which consists of an Automated Logic direct digital control (DDC) broad and pneumatic control devices. The compressed air of the pneumatic control devices are provided by an Ingersoll Rand air compressor powered by two 5HP motors. The pneumatic control signals were converted to electronic/digital signals by using transducers. The control system is monitored and maintained by Energy for America. According to the Energy for America operation manual, the cooling season occupied temperature is typically set between 74^{o}F and 78^{o}F and the unoccupied temperature is set at 85^{o}F. The heating season occupied temperature is typically set between 68^{o}F and 72^{o}F and the unoccupied temperature is set at 55^{o}F. During the site visit, it was noted that there are some leaks in the pneumatic control system; therefore, an ECM related to replace the pneumatic devices with digital control devices has been included.

Domestic Hot Water Systems

This building has an A.O.Smith gas fired DHW heater located in the mechanical room. This DHW heater is installed in October 2014 and appears to be in excellent condition. The heater has a rated 660 MBH heating input and a 528 MBH heating output, which results in a nameplate efficiency of 80%. The DHW is stored in two approximately 200 gallon tanks and circulated to the entire building. The DHW heating system is brand new; therefore, there no ECMs associated with DHW system were evaluated.

Kitchen Equipment

The kitchen equipment includes three reach-in refrigerators, two reach-in freezers, one walk-in refrigerator and one walk-in freezer. The kitchen also has ovens, stoves and a 2’ by 10’ kitchen hood. The kitchen equipment appears to be in good condition; however, it is suggested that Energy Star kitchen equipment be used to replace the current equipment when they reach the end of their useful lifespan. A walk-in refrigerator/freezer controller was evaluated in the ECM section.

Plug Load

This building has computers, residential appliances (microwave, refrigerator, etc.), and printers which contribute to the plug load in the building. The school usually turn off the appliances when leave the school; therefore, no ECMs are associated with plug load. However, replacing the appliances with Energy Star rated appliances when the old ones reach the end of its useful life span is included as an O&M.

Plumbing Systems

The plumbing system has been renovated and the restrooms contain new style toilets that are low volume plumbing fixtures and waterless urinals. The sink faucets appear to have low-flow type aerators; therefore, no ECMs associated with plumbing systems were evaluated.

Lighting Systems

This building has a mixture of 32W T-8 fluorescent lighting, metal halides and CFLs lights. The majority of lighting fixtures are T-8 fluorescent U-shape and linear fixtures. The gymnasium and campus center have high bay 400W metal halides and the media center has large amount of CFLs. The majority of the lights in the building are controlled by manual switches. We have provided three alternatives for lighting that include adding occupancy sensors to the existing lights, replacing the lights with LED lights and a third ECM that evaluates adding occupancy sensors to the proposed LED lights.

3.0 UTILITIES

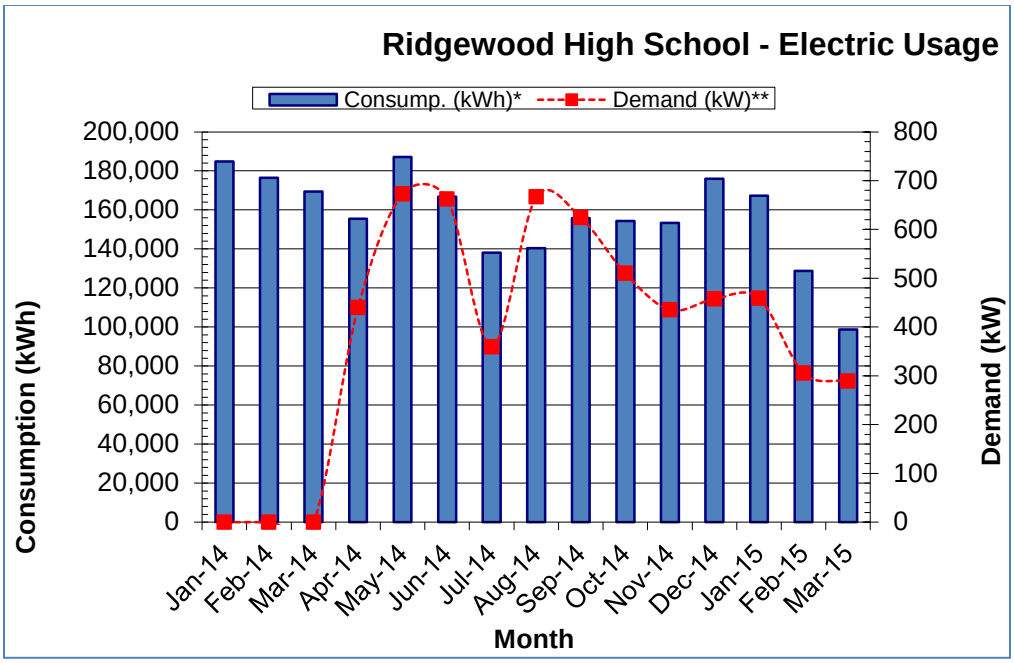
Natural gas, electricity and water are separately metered into this building. Utilities used by the building are delivered and supplied by the following utility companies:

	Electric	Natural Gas	Water
Deliverer	PSE&G	PSE&G	Ridgewood Water
Supplier	Direct Energy	Direct Energy/ South Jersey Energy/PSE&G	N/A

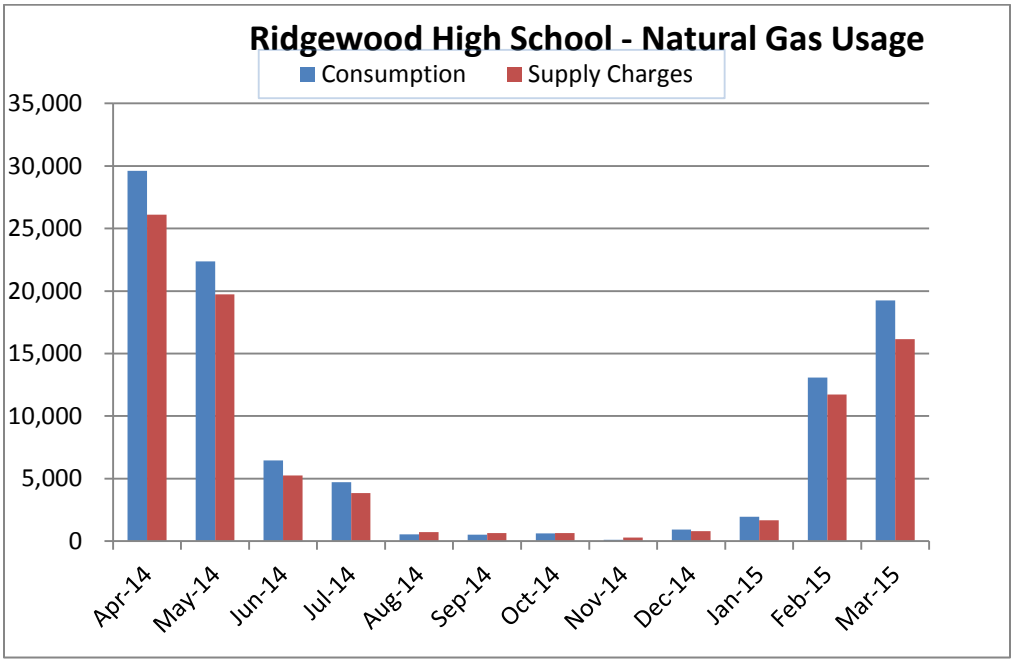
For the 12-month period ending in March 2015, the utilities usages and costs for the building were as follows:

Electric		
Annual Usage	1,822,033	kWh/yr
Annual Cost	295,169	$
Blended Rate	0.162	$/kWh
Peak Demand	672.8	kW
Min. Demand	289.1	kW
Avg. Demand	490.1	kW
Natural Gas		
Annual Usage	126,965	Therms/yr
Annual Cost	100,913	$
Rate	0.795	$/therm
Water		
Annual Usage	3,664,000	Gallons
Annual Cost	19,056	$
Rate	0.005	$/Gallon

Blended Rate: Average rate charged determined by the annual cost / annual usage
Supply Rate: Actual rate charged for electricity usage in kWh (based on most recent electric bill)
Demand Rate: Rate charged for actual electrical demand in kW (based on most recent electric bill)
*Some months that do not have utility data and the missing demand usage are estimated and highlighted in the utility spreadsheet



The electric usage is pretty consistent throughout the year and varies with the usage of the building.



The natural gas usage in this building is for heating and DHW production; therefore, the usage in summer months is relatively small compared with heating months. The gas usage during the heating season is correlated to winter weather conditions.

See Appendix A for utility analysis.

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

Comparison of Utility Rates to NJ State Average Rates*				Recommended to Shop for Third Party Supplier?
Utility	Units	School Average Rate	NJ Average Rate	
Electricity	$/kWh	$0.162	$0.13	Y
Natural Gas	$/Therm	$0.80	$0.96	N

* Per U.S. Energy Information Administration (2013 data – Electricity and Natural Gas, 2012 data – Fuel Oil)

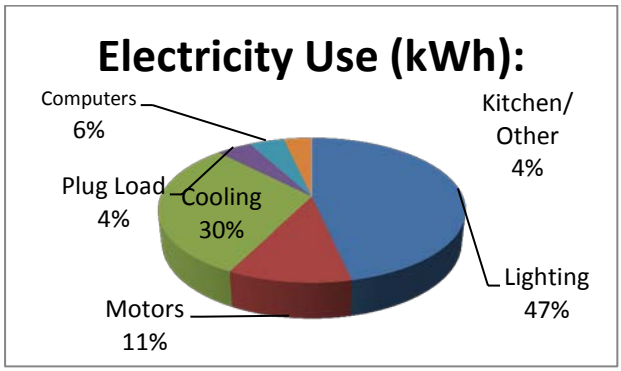
Additional information on selecting a third party energy supplier is available here:

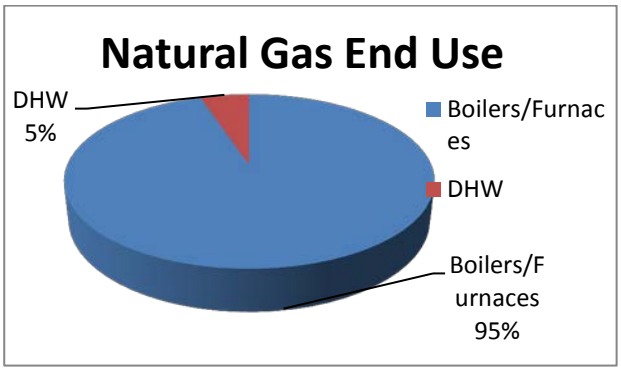
http://www.state.nj.us/bpu/commercial/shopping.html.

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.

The charts below represent estimated utility end-use utility profiles for the building. The values used within the charts were estimated from a review of the utility analysis and the energy savings calculations.

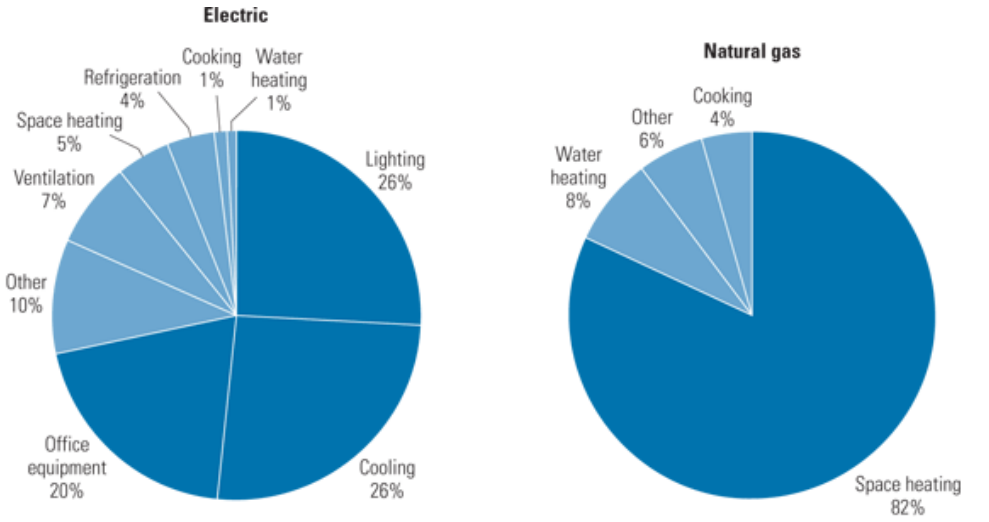
Site End-Use Utility Profile





Most of the electricity consumed by educational facilities is used to for lighting, cooling, and electric motors; most of the natural gas is used for space heating. Each school's energy profile is different, and the following charts represent typical utility profiles for K-12 schools per U.S. Department of Energy.

Typical End-Use Utility Profile for Educational Facilities



Courtesy: E SOURCE; from Commercial Building Energy Consumption Survey, 1999 data

4.0 BENCHMARKING

The EPA Portfolio Manager benchmarking tool 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/ft2/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 an Energy Star label, the energy benchmark rating must be at least 75. As energy use decreases from implementation of the proposed measures, the Energy Star rating will increase. However, the EPA does not have scores for all buildings types. The buildings that do not have energy ratings now are compared with national median EUI.

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

Site EUI kBtu/ft^2/yr	Source EUI (kBtu/ft^2/yr)	Energy Star Rating (1-100)
76.2	132.3	74

The school has an above average Energy Star Rating Score (50 being the median score). It is believed that the new AHUs and new high efficiency boilers contribute to the lower EUI and higher energy star rating. It should be also noted that the school has installed a roof mounted photovoltaic (PV) solar system which help reduce the electric peak and usage from the grid; However, the solar electric data is not available. The school is one point short to be qualified for energy star certification. It is expected that the EUI will be further increased by implementing the measures discussed in this report and the building be qualified for energy star certification.

5.0 ENERGY CONSERVATION MEASURES

The following types of energy savings opportunities are identified in this section of the report:

- Energy conservation measures (ECMs) are energy savings recommendations that typically require a financial investment. For these areas of opportunity, CHA prepared detailed calculations, as summarized in this section and in Appendix C. In general, additional savings may exist from reductions in maintenance activities associated with new equipment or better controls; however, for conservatism, maintenance savings are not accounted for in this report; instead the only savings which are reported are those derived directly from reductions in energy which can be tracked by the utility bills.

- Operational and Maintenance measures (O&M) consist of low-cost or no-cost operational opportunities, which if implemented would have positive impacts on overall building operation, comfort levels, and/or energy usage. There are no estimated savings, costs or paybacks associated with the O&M measures included as part of this study.

Energy savings were quantified in the form of:

- Electrical usage (kWh=Kilowatt-hour),
- Electrical demand (kW=kilowatts),
- Natural gas (therms=100,000 Btu),
- Propane gas (gallons=91,650 Btu),
- Fuel oil (gallons =138,700 Btu), and
- Water (kgal=1,000 gallons).

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

Another financial indicator of the performance of a particular ECM is the Return on Investment (ROI), which represents the benefit (annual savings over the life of a project) of an investment divided by the cost of the investment. The result is expressed as a percentage or ratio.

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

5.1 ECM-1 Added a Condensing Boiler to the Old Boiler Plant

The original building is heated by two A.L. Eastmond & Sons Inc. heating hot water (HHW) boilers located in the basement mechanical room. Each of the boilers has a rated energy input of 10,500MBH and an energy output of 8,369MBH; which results in a nameplate efficiency of 79.7%. These two boilers appear to be old; therefore, it is suggested that a new condensing boiler like the condensing boilers located in the penthouse mechanical room be added to the old HHW system and operate as the main boiler of the system. New modulating condensing gas boilers are available that minimally operate at 88%, and can operate as high as 96%.

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

ECM-1 Added a Condensing Boiler to the Old Boiler Plant

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
176,245	0	0	6,431	5,112	(0.1)	6,000	34.5	33.3

* Incentive shown is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is not recommended due to the long payback period.

5.2 ECM-2 Install VFDs on HHW Pump Motors

The heating hot water of the old HHW system is circulated to baseboard heaters and unit ventilators by two sets of pumps. One loop has three pumps driven by 5HP motors and the other loop is driven by three 3HP pump motors. The HHW of the new Aerco Benchmark 2.0 condensing boilers system is circulated by two pumps driven by 10HP motors. According to ASHRAE guideline, it is recommended that VFDs be installed on the pumps that have 5HP or above motors; therefore, it is recommended that VFDs be installed on the 5HP and 10HP HHW systems. This measure evaluates installing VFDs on the HHW pumps and two-way valves/pressure transducers in the two HHW loops to utilize the energy savings from the VFD pumps.

The savings of this measure are calculated from the motor speed reduction when the HHW system is only partially loaded. The load percentage of the pumps is calculated by estimating the percentage of two-way valves open in each temperature bin. Therefore, partial energy savings in each bin can be calculated as the difference between the energy drawn by the full-load old motors and the energy drawn by the VFD driven motors.

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

ECM-2 Install VFDs on HHW Pump Motors

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
86,385	0	28,636	0	5,441	0.6	4,650	15.9	15.0

* Incentive shown is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is recommended.

5.3 ECM-3 Install VFDs on CHW Pump Motors

There is a central chilled water (CHW) system in the school. The chilled water is provided by a Trane air cooled 155 ton chiller located on the roof. The chilled water is circulated by two CHW pumps driven by 20HP motors located in the penthouse mechanical room. This measure evaluates installing VFDs on the chilled water pumps and two-way valves/pressure transducers in the CHW loop to utilize the energy savings from the VFD pumps.

The savings of this measure are calculated from the motor speed reduction when the HHW system is only partially loaded. The load percentage of the pumps is calculated by estimating the percentage of two-way valves open in each temperature bin. Therefore, partial energy savings in each bin can be calculated as the difference between the energy drawn by the full-load old motors and the energy drawn by the VFD driven motors.

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

ECM-3 Install VFDs on CHW Pump Motors

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
68,540	0	29,844	0	5,670	0.7	2,400	12.1	11.7

* Incentive shown is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is recommended.

5.4 ECM-4 Replace Pneumatic Control Devices with DDC Devices

This building has a hybrid control system which consists of an Automated Logic direct digital control (DDC) broad and pneumatic control devices. The compressed air of the pneumatic control devices are provided by an Ingersoll Rand air compressor powered by two 5HP motors. The pneumatic control signals were converted to electronic/digital signals by using transducers. The control system is monitored and maintained by Energy for America. According to the Energy for America operation manual, the cooling season

occupied temperature is typically set between 74°F and 78°F and the unoccupied temperature is set at 85°F. The heating season occupied temperature is typically set between 68°F and 72°F and the unoccupied temperature is set at 55°F. During the site visit, it was noted that the facility has not conducted a compressed air survey for a long time and a few air leaks were identified; therefore, it is recommended that the school convert the pneumatic devices to digital control devices to eliminate the air leaks as well as provide more accurate temperature control.

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

ECM-4 Replace Pneumatic Control Devices with DDC Devices

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
306,855	0	18,570	1,205	4,486	(0.8)	0	68.4	68.4

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is not recommended due to the long payback period.

5.5 ECM-5 Install Demand Control Ventilation on AHUs

The AHUs that serve the gymnasiums, theater, cafeteria, and campus center utilize a fixed outdoor air damper position, providing minimum required amount of outdoor air into the space to meet ventilation code. The percentage of outdoor air is generally calculated based on maximum expected occupancy of the space, which results in more outside air being heated (or cooled) than necessary for typical space occupancy. This measure evaluates implementing demand control ventilation (DCV), which consists of installing Carbon Dioxide (CO2) sensors in the return duct. The sensors will monitor CO2 levels to determine the occupancy of the room. When this level is sufficiently low, the damper positions will change based on a preprogrammed algorithm to allow more return air to recirculate through the AHU. This will decrease the amount of heating needed for the outside air, resulting in energy savings.

The saving calculation for this measure quantifies the heating load of each AHU, based on estimated CFM of outdoor air along with an estimated averaged temperature differential between indoor air and outdoor air to determine existing energy usage on AHUs.

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

ECM-5 Install Demand Control Ventilation on AHUs

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
85,500	0	5,547	682	1,596	(0.7)	0	53.6	53.6

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is not recommended due to the long payback period.

5.6 ECM-6 Install Window A/C Units Controller

There are about 40 window A/C units which on occasion, are left on by the occupants when they leave the room.

This ECM evaluates the installation of programmable “smart” timers that interrupt the electrical supply to the window air conditioners when the room is unoccupied. The timers are configurable to operate as a standalone timer or they can be wirelessly interconnected to provide remote temperature control using software.

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

ECM-6 Install Window A/C Units Controller

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
8,300	0	19,677	0	3,739	8.0	0	2.2	2.2

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is recommended.

5.7 ECM-7 Kitchen Hood Control

The kitchen contains a kitchen hood with one exhaust fan that runs continuously when the kitchen is operational. Installing a control system was evaluated and upon activation, the hood lights turn on and the fans reach a preset minimum speed of between 10 and 50 percent. The exhaust fan speed increases based on exhaust air temperature when the cooking applications are on. 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 hood make-up air fan to modulate the speed on the make-up air fan drive based on exhaust air quantity.

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

ECM-7 Kitchen Hood Control

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
37,350	0	1,550	2,465	2,255	0.2	0	16.6	16.6

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is recommended.

5.8 ECM-8 Install Control on the Walk-in Fridges and Freezers

The cafeteria kitchen contains one walk-in cooler and one walk-in freezer. These units do not have controls and run continuously throughout the day. Installing a CoolTrol® Cooler Control System was assessed. The system will monitor both dry and wet-bulb temperature within the walk-in and allow evaporators and compressors to modulate up and down based on enthalpy set-points rather than by dry-bulb temperature alone. Savings is a result of reduced run time of evaporator fans, compressors and door heaters.

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

ECM-8 Install Control on the Walk-in Fridges and Freezers

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
22,275	0	6,225	0	1,183	(0.0)	0	18.8	18.8

* Does not qualify for Incentive from the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities

This measure is recommended.

5.9.1 ECM-L1 Lighting Replacement / Upgrades

The existing lighting system consists of mostly 32 watt T8 linear fluorescent fixtures, which until recently represented the most efficient lighting technology available. Recent technological improvements in light emitting diode (LED) technologies have driven down the initial costs making it a viable option for installation.

Overall energy consumption can be reduced by replacing inefficient bulbs and linear fluorescent bulbs with more efficient LED technology. To compute the annual savings for this ECM, the energy consumption of the current lighting fixtures was established and compared to the proposed fixture power requirement with the same annual hours of operation. The difference between the existing and proposed annual energy consumption was the energy savings. These calculations are based on 1 to 1 replacements of the fixtures, and do not take into account lumen output requirements for

a given space. A more comprehensive engineering study should be performed to determine correct lighting levels.

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

ECM-L1 Lighting Replacement / Upgrades

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
607,530	135	504,537	0	95,862	1.4	67,130	6.3	5.6

* LED new fixtures are still qualified for prescribed incentives, however, LED retrofits must go through the custom incentive which is not calculated in LGEA study therefore, the potential incentive shown in the table is the possible prescribed incentive.

This measure is not recommended in lieu of ECM L3.

5.9.2 ECM-L2 Install Lighting Controls (Occupancy Sensors)

Presently, the majority of the lighting in the building is controlled by manual switches. The review of the comprehensive lighting survey determined that lighting in some areas could benefit from installation of occupancy sensors to turn off lights when they are unoccupied.

This measure recommends installing occupancy sensors for the current lighting system. Using a process similar to that utilized in Section ECM-L1, the energy savings for this measure was calculated by applying the known fixture wattages in the space to the estimated existing and proposed times of operation for each fixture.

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

ECM-L2 Install Lighting Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
29,882	0	21,038	0	3,997	1.0	4,660	7.5	6.3

* Incentive shown is per the New Jersey SmartStart Program. See section 6.0 for other incentive opportunities.

This measure is not recommended in lieu of ECM L3.

5.9.3 ECM-L3 Lighting Replacements with Controls (Occupancy Sensors)

This measure is a combination of ECM-L1 and ECM-L2; recommending replace/upgrade the current lighting fixtures to more efficient ones and installing occupancy sensors on the new lights. The interactive effects of the higher efficiency lights and occupancy sensors lead the energy and cost savings for this measure to not be cumulative or

equivalent to the sum of replacing the lighting fixtures alone and installing occupancy sensors without the lighting upgrade.

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

ECM-L3 Lighting Replacements with Controls (Occupancy Sensors)

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
637,412	135	515,108	0	97,871	1.3	71,790	6.5	5.8

* LED new fixtures are still qualified for prescribed incentives, however, LED retrofits must go through the custom incentive which is not calculated in LGEA study therefore, the potential incentive shown in the table is the possible prescribed incentive.

This measure is recommended.

5.10 Additional O&M Opportunities

This list of operations and maintenance (O&M) type measures represent low-cost or no-cost opportunities; which if implemented will have a positive impact on the overall building operations, comfort, and/or energy consumption. The recommended O&M measures for this building are as follows:

- Purchase ENERGY STAR® appliances when needed
- Cover window AC units during winter season

6.0 PROJECT INCENTIVES

6.1 Incentives Overview

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

6.1.1 New Jersey Smart Start Program

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

- Electric Chillers
- Gas Chillers
- Gas Heating
- Unitary HVAC
- Ground Source Heat Pumps
- Variable Frequency Drives/Motors
- Refrigeration
- Prescriptive and Performance Lighting and Lighting Controls

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

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

6.1.2 Direct Install Program

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

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

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

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

The building does not qualify for this program because its electrical demand is more than the maximum peak electrical demand of 200 kW for the last 12 month period.

Refer to Appendix D for more information on this program.

6.1.3 New Jersey Pay For Performance Program (P4P)

This building may 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 to offset the cost of energy conservation projects for facilities that pay the Societal Benefits Charge (SBC) and whose demand (kW) in any of the preceding 12 months exceeds 100 kW. This demand minimum has been waived for buildings owned by local governments or municipalities and non-profit organizations and *is not applicable to public schools*. 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). Additionally, the overall return on investment (ROI) must exceed 10%. 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). The ERP must include a detailed energy audit of the desired ECMs, energy savings calculations (using building modeling software) and inputting of all utility bills into the EPA Portfolio Manager website.

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

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

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

Electric

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

Gas

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

Incentive cap: 25% of total project cost

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

Electric

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

Gas

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

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

For the purpose of demonstrating the eligibility of the ECM's to meet the minimum savings requirement of 15% annual savings and 10% ROI for the Pay for Performance Program, all ECM's identified in this report have been included in the incentive calculations. The results for the building are shown in Appendix C, with more detailed program information in Appendix D.

6.1.4 Energy Savings Improvement Plan

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" (ESO) to pay for the capital costs of energy improvements to their facilities. ESIP loans have a maximum loan term

of 15 year. ESOs are not considered “new general obligation debt” of a local unit and do not count against debt limits or require voter approval. They may be issued as refunding bonds or leases. Savings generated from the installation of energy conservation measures pay the principal of and interest on the bonds; for that reason, the debt service created by the ESOs is not paid from the debt service fund, but is paid from the general fund.

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

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

6.1.5 Renewable Energy Incentive Program

The Renewable Energy Incentive Program (REIP) is part of New Jersey's efforts to reach its Energy Master Plan goals of striving to use 30 percent of electricity from renewable sources by 2020.

Incentives for sustainable bio-power projects and for energy storage projects are currently under development, with competitive solicitations for each of those technologies expected to begin in the first quarter of 2014. The wind program is currently on hold.

New solar projects are no longer eligible for REIP incentives, but can register for Solar Renewable Energy Certificates (SRECs) through the SREC Registration Program (SRP).

7.0 ALTERNATIVE ENERGY SCREENING EVALUATION

7.1 Solar

7.1.1 Photovoltaic Rooftop Solar Power Generation

The school district has installed solar photovoltaic (PV) panels on most of the available roof space in the school buildings through power purchase agreement (PPA). In this school, the PV panels have been installed on the available roof space evaluated by solar PV Company; however, the capacity (kilo-watt) of the PV system in this school is unknown due to the missing of solar PV bills.

7.1.2 Solar Thermal Hot Water Generation

Active solar thermal systems use solar collectors to gather the sun's energy to heat a fluid. An absorber in the collector (usually black colored piping) converts the sun's energy into heat. The heat is transferred to circulating water, antifreeze, or air for immediate use or is storage for later utilization. Applications for active solar thermal energy include supplementing domestic hot water, heating swimming pools, space heating or 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 at the same angle as the site's latitude, to maximize the amount of solar radiation collected on a yearly basis.

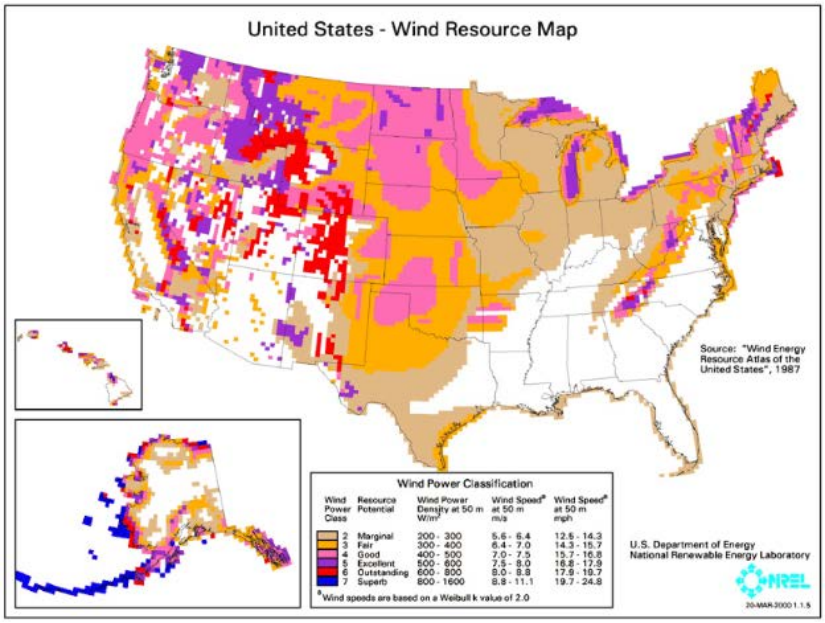
Several options exist for using active solar thermal systems for space heating. The most common method is called a passive solar hot water system involves using glazed collectors to heat a liquid held in a storage tank (similar to an active solar hot water system described above which requires pumping). The most practical system would transfer the heat from the panels to thermal storage tanks and then use the pre-heated water for domestic hot water production. DHW is presently produced by natural gas fired water heaters and, therefore, this measure would offer natural gas utility savings. Unfortunately, the amount of domestic hot water that is currently used by this school is very small. Installing a solar domestic hot water system is not recommended due to the limited amount of domestic hot water presently consumed by the school.

This measure is not recommended due to the relatively low domestic hot water usage.

7.2 Wind Powered Turbines

Wind power is the conversion of kinetic energy from wind into mechanical power that is used to drive a generator which creates electricity by means of a wind turbine. A wind turbine consists of rotor and blades connected to a gearbox and generator that are mounted onto a tower. Newer wind turbines also use advanced technology to generate electricity at a variety of frequencies depending on the wind speed, convert it to DC and then back to AC before sending it to the grid. Wind turbines range from 50 – 750 kW for

utility scale turbines down to below 50 kW for residential use. On a scale of 1 (the lowest) to 7 (the highest), Class 3 and above (wind speeds of 13 mph or greater) are generally considered “good wind resource” according to the Wind Energy Development Programmatic EIS Information Center hosted by the Bureau of Land Management. According to the map below, published by NREL, Newark, NJ is classified as Class 1 at 50m, meaning the city would not be a good candidate for wind power.



This measure is not recommended due to the location of the school.

7.3 Combined Heat and Power Plant

Combined heat and power (CHP), cogeneration, is self-production of electricity on-site with beneficial recovery of the heat byproduct from the electrical generator. Common CHP equipment includes reciprocating engine-driven, micro turbines, steam turbines, and fuel cells. Typical CHP customers include industrial, commercial, institutional, educational institutions, and multifamily residential facilities. CHP systems that are commercially viable at the present time are sized approximately 50 kW and above, with numerous options in blocks grouped around 300 kW, 800 kW, 1,200 kW and larger. Typically, CHP systems are used to produce a portion of the electricity needed by a facility some or all of the time, with the balance of electric needs satisfied by purchase from the grid.

Any proposed CHP project will need to consider many factors, such as existing system load, use of thermal energy produced, system size, natural gas fuel availability, and proposed plant location. This building has sufficient need for electrical generation and the ability to use most of the thermal byproduct during the winter; however thermal usage during the summer months does not exist. Thermal energy produced by the CHP plant in the warmer months will be wasted. An absorption chiller could be installed to utilize the heat to produce chilled water; however, there is no chilled water distribution

system in the building. CHP is not recommended due to the building's limited summer thermal demand.

This measure is not recommended due to the absence of year-round thermal loads which are needed for efficiency CHP operation. However, a mini-size CHP could be an option for the school to consider. The sizing and energy savings of the mini-size CHP require further study.

7.4 Demand Response Curtailment

Presently, electricity is delivered by PSE&G, which receives the electricity from regional power grid RFC. PSE&G is the regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia including the State of New Jersey.

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

A pre-approved CSP will require a minimum of 100 kW of load reduction to participate in any curtailment program. From January 2013 through June 2014 the following table summarizes the electricity load profile for the building.

Building Electric Load Profile

Peak Demand kW	Min Demand kW	Avg Demand kW	Onsite Generation Y/N	Eligible? Y/N
672.8	289.1	490.1	N	Y

*the demand is estimated from one month bill

This measure is not recommended due to the lack of enough onsite generation.

8.0 CONCLUSIONS & RECOMMENDATIONS

The following section summarizes the LGEA energy audit conducted by CHA for the Ridgewood High School.

The following projects should be considered for implementation:

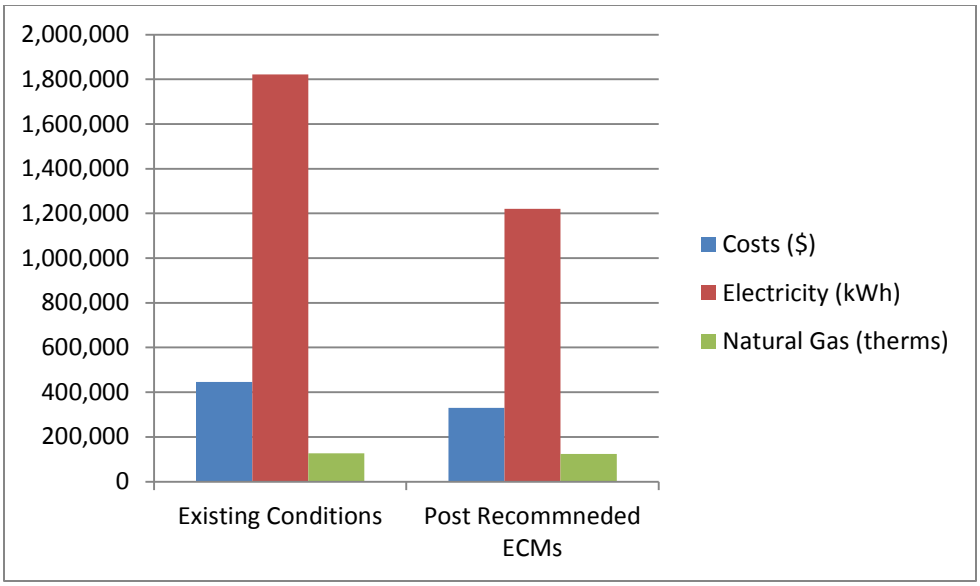
- Install VFDs on HHW Pump Motors
- Install VFDs on CHW Pump Motors
- Install Window AC Controller
- Kitchen Hood Control
- Walk-in Cooler & Freezer EC Motor Retrofits
- Lighting Replacements / Upgrades

The potential annual energy and cost savings for the recommended ECMs are shown in the following table.

Electric Savings (kWh)	Natural Gas Savings (therms)	Total Savings ($)	Payback (years)
601,040	2,465	$ 116,158	7.4

If the school implements the recommended ECMs, energy savings would be as follows:

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs ($)	396,082	330,109	26%
Electricity (kWh)	1,822,033	1,220,993	33%
Natural Gas (therms)	126,965	124,500	2%
Site EUI (kbtu/SF/Yr)	76.2	66.9	



Next Steps: This energy audit has identified several areas of potential energy savings. Ridgewood Board Of Education can use this information to pursue incentives offered by the NJBPU's NJ Clean Energy Program. Additional meetings will be scheduled with school staff members to review possible options.

APPENDIX A

Utility Usage Analysis and Alternate Utility Suppliers

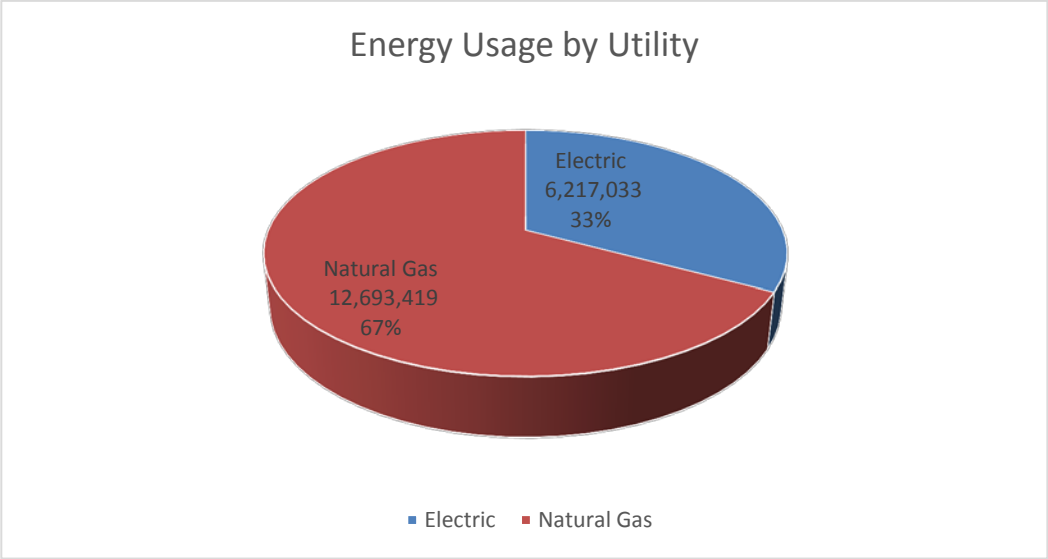
Ridgewood BOE NJBPU LGEA
Ridgewood High School
627 E. Ridgewood Ave, Ridgewood, NJ

Annual Utilities

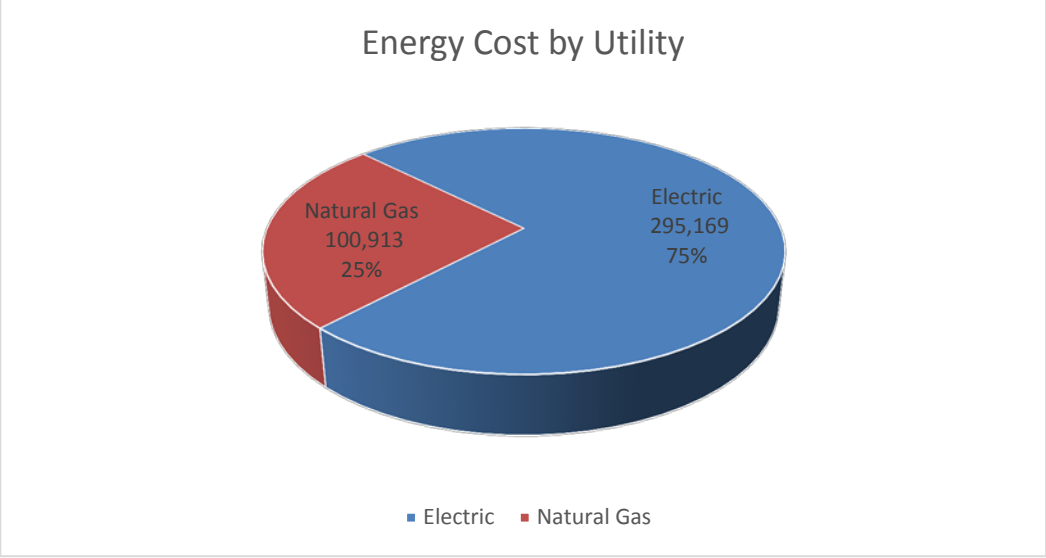
12-month Summary

Electric		
Annual Usage	1,822,033	kWh/yr
Annual Cost	295,169	$
Blended Rate	0.162	$/kWh
Peak Demand	672.8	kW
Min. Demand	289.1	kW
Avg. Demand	490.1	kW
Natural Gas		
Annual Usage	126,965	Therms/yr
Annual Cost	100,913	$
Rate	0.795	$/therm
Water		
Annual Usage	3,664,000	Gallons
Annual Cost	19,056	$
Rate	0.005	$/Gallon
Energy Summary		
Building Area	248,286	SF
Energy Usage Intensity (EUI)	76	KBtu/SF/yr
Energy Cost Index (ECI)	1.67	$/SF/yr
Total Annual Utility Costs	415,137	$

Utility	KBtu	%
Electric	6,217,033	33%
Natural Gas	12,693,419	67%
	18,910,453	100%



Utility	$	%
Electric	295,169	75%
Natural Gas	100,913	25%
	396,082	100%



Ridgewood BOE NJBPU LGEA
Ridgewood High School
627 E. Ridgewood Ave, Ridgewood, NJ

Electric Service

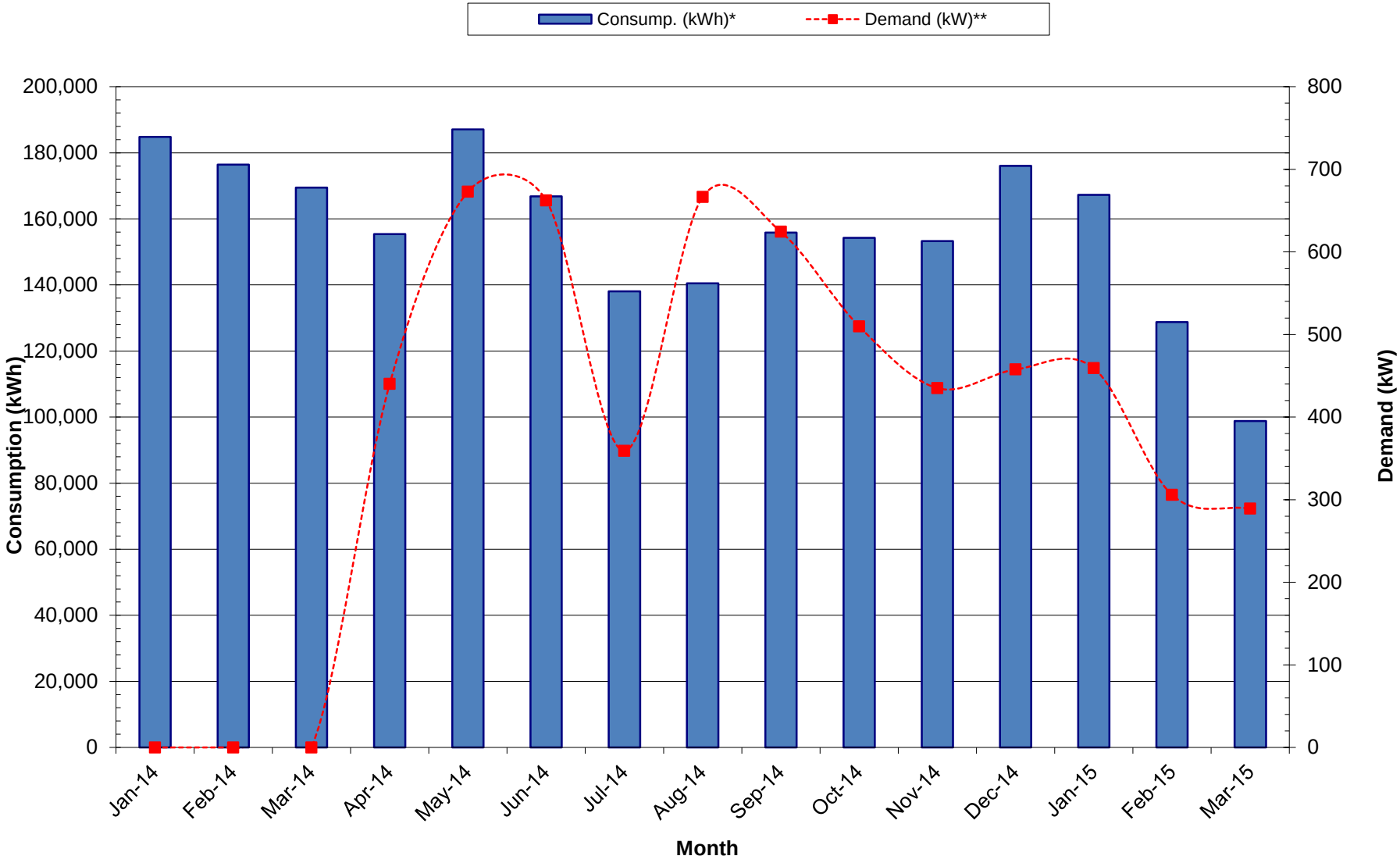
For Service at: **627 E. Ridgewood Ave, Ridgewood, NJ**
Account No.: **Combined Electric Accounts** **Delivery:** **PSE&G**
Meter No.: **Supply:** **Energy Direct**

			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs				
Month	**Consump. (kWh)***	**Demand (kW)****	**Delivery ($)***	**Supplier ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Delivery ($/kWh)**	**Supplier ($/kWh)**	**Consumption Rate ($/kWh)**	**Demand ($/kW)**	**Blended Rate ($/kWh)**
January-14	184,836	0	26,473		26,472.62	26472.62		0.143	0.000	0.143	#DIV/0!	0.143
February-14	176,434	0	25,733		25,732.55	25732.55		0.146	0.000	0.146	#DIV/0!	0.146
March-14	169,425	0	24,452		24,452.32	24452.32		0.144	0.000	0.144	#DIV/0!	0.144
April-14	155,410	440	22,747		22,746.96	22746.96		0.146	0.000	0.146	0.000	0.146
May-14	187,089	673	35,243		35,242.53	35242.53		0.188	0.000	0.188	0.000	0.188
June-14	166,786	662	30,410		30,410.35	30410.35		0.182	0.000	0.182	0.000	0.182
July-14	138,063	359	24,886		24,885.97	24885.97		0.180	0.000	0.180	0.000	0.180
August-14	140,450	667	26,993		26,992.61	26992.61		0.192	0.000	0.192	0.000	0.192
September-14	155,844	624	23,137		23,136.57	23136.57		0.148	0.000	0.148	0.000	0.148
October-14	154,276	510	25,923		25,923.22	25923.22		0.168	0.000	0.168	0.000	0.168
November-14	153,272	435	22,575		22,575.14	22575.14		0.147	0.000	0.147	0.000	0.147
December-14	176,045	458	25,896		25,896.29	25896.29		0.147	0.000	0.147	0.000	0.147
January-15	167,233	459	24,476		24,476.00	24476.00		0.146	0.000	0.146	0.000	0.146
February-15	128,758	306	18,520		18,520.00	18520.00		0.14	0.00	0.14	0.00	0.14
March-15	98,807	289	14,363		14,363.00	14363.00		0.145	0.000	0.145	0.000	0.145
Total (All)	###########	**672.80**	**$371,826.13**	**$0.00**	**$371,826.13**	**$371,826.13**	**$0.00**	**$0.16**	**$0.00**	**$0.16**	**$0.00**	**$0.16**
Total (last 12-months)	###########	**672.80**	**$295,168.64**	**$0.00**	**$295,168.64**	**$295,168.64**	**$0.00**	**$0.16**	**$0.00**	**$0.16**	**$0.00**	**$0.16**
Notes	1	2	3	4	5			6	7			8

1.) Number of kWh of electric energy used per month
2.) Number of kW of power measured
3.) Electric charges from Delivery provider
4.) Electric charges from Supply provider - note, includes 8.875% tax
5.) Total charges (Delivery + Supplier)
6.) Delivery Charges ($) / Consumption (kWh)
7.) Supplier Charges ($) / Consumption (kWh)
8.) Total Charges ($) / Consumption (kWh)

* Based on combined numbers provided by client
** Addition of two accounts provided by client

Ridgewood High School - Electric Usage

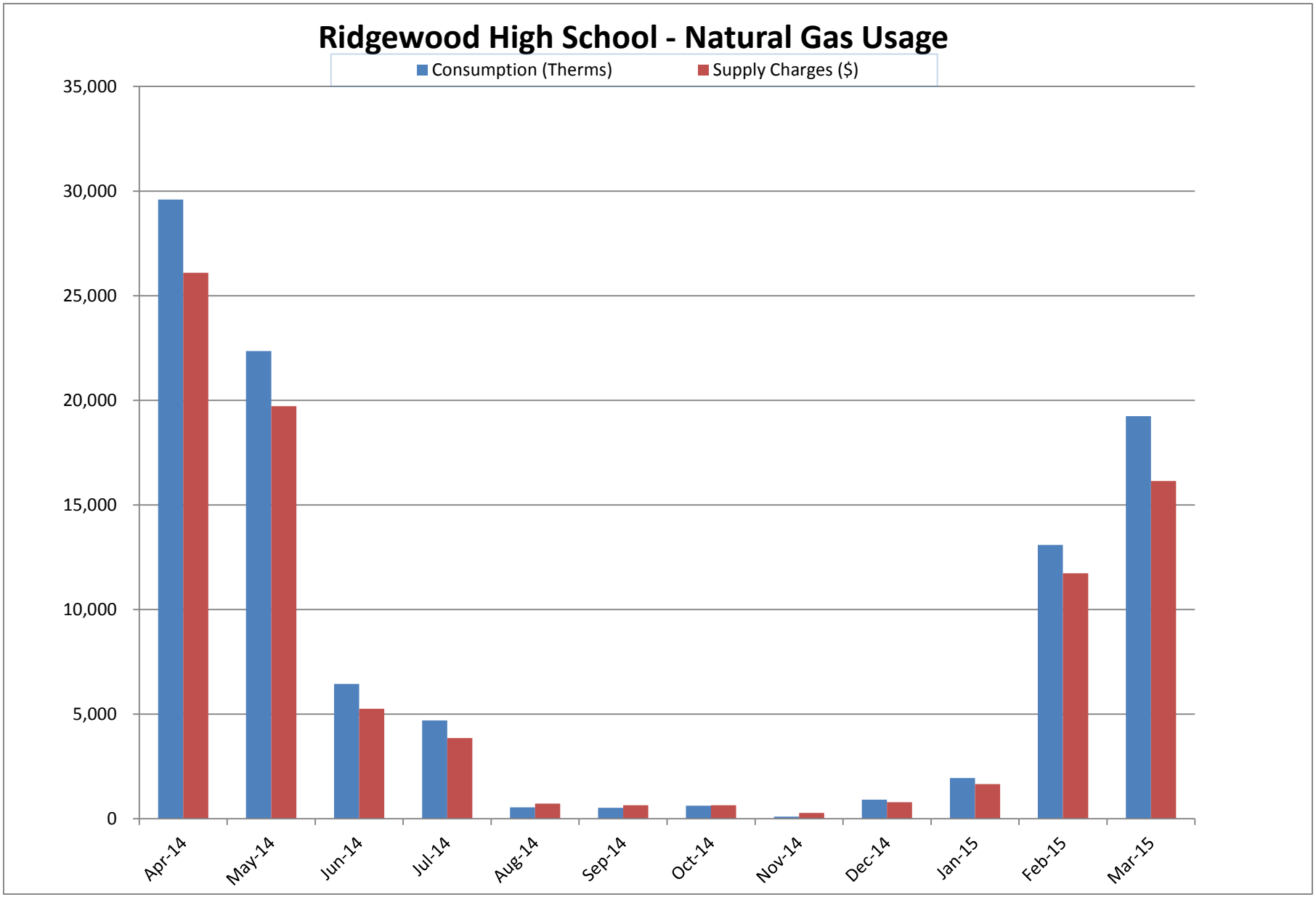


Ridgewood BOE NJBPU LGEA
Ridgewood High School
627 E. Ridgewood Ave, Ridgewood, NJ

Natural Gas Service

For Service at: 627 E. Ridgewood Ave, Ridgewood, NJ
Account No.: 0
Meter No:
Delivery: PSE&G
Supply: Direct Energy/South Jersey Energy/PSE&G

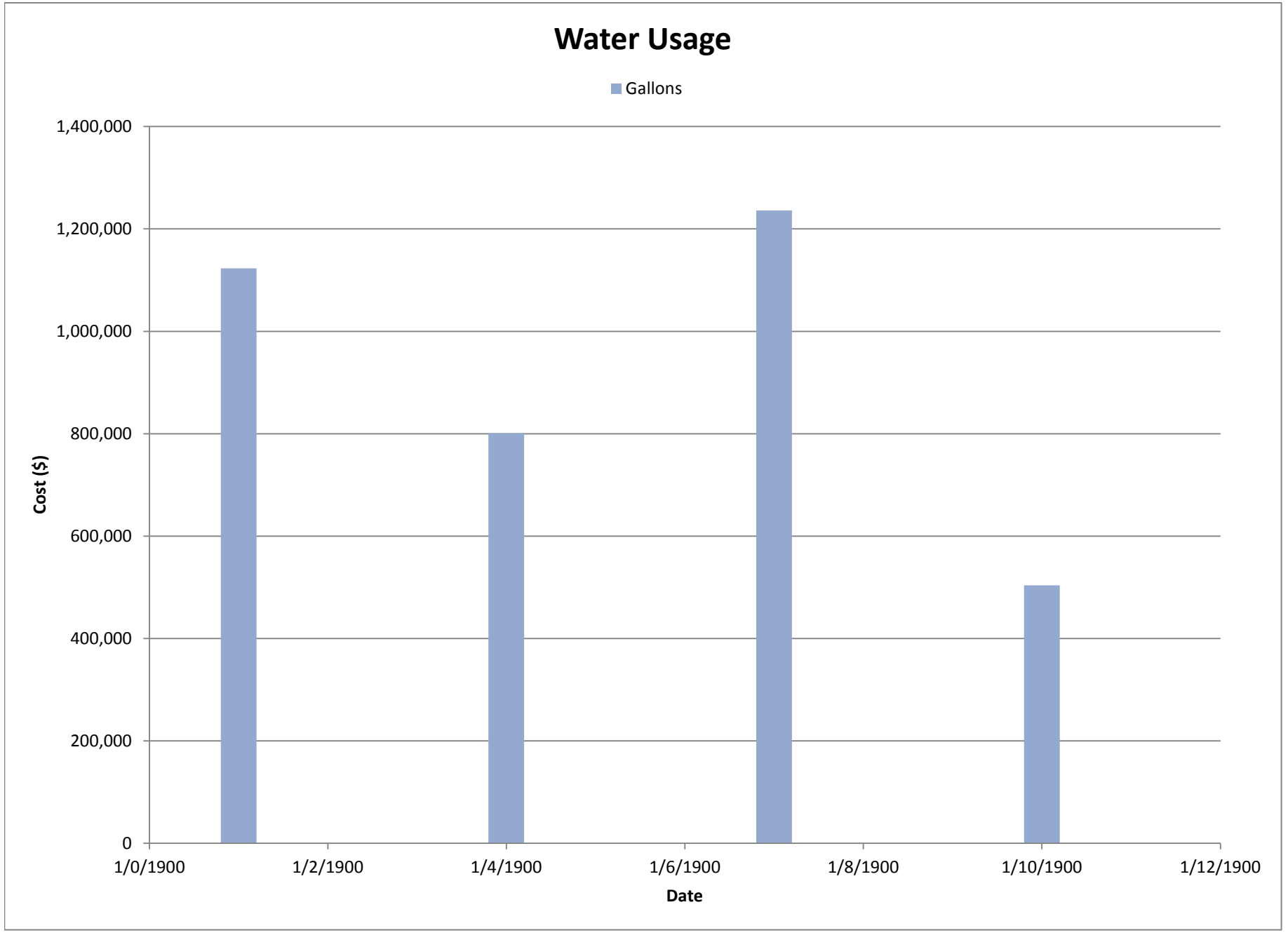
Month	Consumption (Therms)	Delivery Charges ($)	Supply Charges ($)	Total Charges ($)	Rate ($/Therm)
January-14	29,598.20	26,101.00		26,101.00	0.88
February-14	22,357.70	19,721.00		19,721.00	0.88
March-14	6,449.60	5,257.00		5,257.00	0.82
April-14	4,706.10	3,853.00		3,853.00	0.82
May-14	548.30	719.00		719.00	1.31
June-14	519.40	651.00		651.00	1.25
July-14	621.50	651.00		651.00	1.05
August-14	100.20	285.00		285.00	2.84
September-14	918.40	790.00		790.00	0.86
October-14	1,949.40	1,658.00		1,658.00	0.85
November-14	13,088.80	11,731.00		11,731.00	0.90
December-14	19,246.40	16,144.00		16,144.00	0.84
January-15	33,204.00	26,808.00		26,808.00	0.81
February-15	27,565.00	21,754.00		21,754.00	0.79
March-15	24,497.00	15,869.00		15,869.00	0.65
Total (12 Months)	**126,965**	**$ 100,913.00**	**$ 100,913.00**	**$ 100,913.00**	**$ 0.79**


Ridgewood High School - Natural Gas Usage
Consumption (Therms)
Supply Charges ($)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Apr-14
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15

Ridgewood BOE NJBPU LGEA
Ridgewood High School
627 E. Ridgewood Ave, Ridgewood, NJ

For Service at:
Account No.:
Meter No.:
Water & Sewer Service **Delivery -** **Ridgewood Water**
Supplier -

Month	Total ($)	Gallons	$/Gallon
March-14	$ 5,734.75	1,123,000	$ 0.01
June-14	$ 4,224.57	801,000	$ 0.01
September-14	$ 6,381.69	1,236,000	$ 0.01
December-14	$ 2,714.67	504,000	$ 0.01
Total	**$ 19,055.68**	**3,664,000**	**$ 0.01**


Water Usage
Gallons
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Cost ($)
1/0/1900
1/2/1900
1/4/1900
1/6/1900
1/8/1900
1/10/1900
1/12/1900
Date

PSE&G ELECTRIC SERVICE TERRITORY
Last Updated: 12/11/14

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

Supplier	Telephone & Web Site	*Customer Class
Abest Power & Gas of NJ, LLC 202 Smith Street Perth Amboy, NJ 08861	(888)987-6937 www.AbestPower.com	**R/C/I** **ACTIVE**
AEP Energy, Inc. f/k/a BlueStar Energy Services 309 Fellowship Road, Fl. 2 Mount Laurel, NJ 08054	(866) 258-3782 www.aepenergy.com	**R/C/I** **ACTIVE**
Alpha Gas and Electric, LLC 641 5th Street Lakewood, NJ 08701	(855) 553-6374 www.alphagasandelectric.com	**R/C** **ACTIVE**
Ambit Northeast, LLC d/b/a Ambit Energy 103 Carnegie Center Suite 300 Princeton, NJ 08540	877-282-6284 www.ambitenergy.com	**R/C** **ACTIVE**
American Powernet Management, LP 437 North Grove St. Berlin, NJ 08009	(877) 977-2636 www.americanpowernet.com	**C/I** **ACTIVE**
Amerigreen Energy, Inc. 333Sylvan Avenue Englewood Cliffs, NJ 07632	888-559-4567 www.amerigreen.com	**R/C** **ACTIVE**
AP Gas & Electric, (NJ) LLC 10 North Park Place, Suite 420 Morristown, NJ 07960	(855) 544-4895 www.apgellc.com	**R/C/I** **ACTIVE**
Astral Energy LLC 16 Tyson Place Bergenfield, NJ 07621	(888)850-1872 www.AstralEnergyLLC.com	**R/C/I** **ACTIVE**
Barclays Capital Services, Inc. 70 Hudson Street Jersey City, NJ 07302-4585	(800) 526-7000 www.barclays.com	**C** **ACTIVE**
BBPC, LLC d/b/a Great Eastern Energy	(888) 651-4121	**C**

116 Village Blvd. Suite 200 Princeton, NJ 08540	www.greateasternenergy.com	**ACTIVE**
Berkshire Energy Partners, LLC 9 Berkshire Road Landenberg, PA 19350 Attn: Dana A. LeSage, P.E.	(610) 255-5070 www.berkshireenergypartners.com	**C/I** **ACTIVE**
Blue Pilot Energy, LLC 197 State Rte. 18 South Ste. 3000 East Brunswick, NJ 08816	(800) 451-6356 www.bluepilotenergy.com	**R/C** **ACTIVE**
Brick Standard, LLC 235 Hudson Street Suite 1 Hoboken, NJ 07030	(201)706-8101 www.standardalternative.com	**C/I** **ACTIVE**
CCES LLC dba Clean Currents Energy Services 566 Terhune Street Teaneck, NJ 07666	(877) 933-2453 www.cleancurrents.com	**R/C** **ACTIVE**
Champion Energy Services, LLC 1200 Route 22 Bridgewater, NJ 08807	(888) 653-0093 www.championenergyservices.com	**R/C/I** **ACTIVE**
Choice Energy, LLC 4257 US Highway 9, Suite 6C Freehold, NJ 07728	(888) 565-4490 www.4choiceenergy.com	**R/C** **ACTIVE**
Clearview Electric, Inc. 1744 Lexington Avenue Pennsauken, NJ 08110	(888) CLR-VIEW (800) 746- 4702 www.clearviewenergy.com	**R/C/I** **ACTIVE**
Commerce Energy, Inc. 7 Cedar Terrace Ramsey, NJ 07446	1-866-587-8674 www.commerceenergy.com	**R/C** **ACTIVE**
Community Energy Inc. 51 Sandbrook Headquarters Road Stockton, NJ 08559	(866)946-3123 www.communityenergyinc.com	**R/C/I** **ACTIVE**
ConEdison Solutions Cherry Tree Corporate Center 535 State Highway Suite 180 Cherry Hill, NJ 08002	(888) 665-0955 www.conedsolutions.com	**C/I** **ACTIVE**

ConocoPhillips Company 224 Strawbridge Drive Suite 107 Moorestown, NJ 08057	(800) 646-4427 www.conocophillips.com	**C/I** **ACTIVE**
Constellation NewEnergy, Inc. 900A Lake Street, Suite 2 Ramsey, NJ 07446	(888) 635-0827 www.constellation.com	**R/C/I** **ACTIVE**
Constellation Energy 900A Lake Street, Suite 2 Ramsey, NJ 07446	(877) 997-9995 www.constellation.com	**R** **ACTIVE**
Credit Suisse, (USA) Inc. 700 College Road East Princeton, NJ 08450	(212) 538-3124 www.creditsuisse.com	**C** **ACTIVE**
Direct Energy Business, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	(888) 925-9115 http://www.business.directenergy.com/	**R** **ACTIVE**
Direct Energy Business Marketing, LLC (fka Hess Energy Marketing) 1 Hess Plaza Woodbridge, NJ 07095	(800) 437-7872 http://www.business.directenergy.com/	**C/I** **ACTIVE**
Direct Energy Services, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	(888) 925-9115 www.directenergy.com	**R** **ACTIVE**
Direct Energy Small Business, LLC (fka Hess Small Business Services, LLC) One Hess Plaza Woodbridge, NJ 07095	(888) 464-4377 http://www.business.directenergy.com/	**C/I** **ACTIVE**
Discount Energy Group, LLC 811 Church Road, Suite 149 Cherry Hill, New Jersey 08002	(800) 282-3331 www.discountenergygroup.com	**R/C** **ACTIVE**
DTE Energy Supply, Inc. One Gateway Center, Suite 2600 Newark, NJ 07102	(877) 332-2450 www.dtesupply.com	**C/I** **ACTIVE**

Energy.me Midwest LLC 90 Washington Blvd Bedminster, NJ 07921	(855) 243-7270 www.energy.me	**R/C/I** **ACTIVE**
Energy Plus Holdings LLC 309 Fellowship Road East Gate Center, Suite 200 Mt. Laurel, NJ 08054	(877) 866-9193 www.energypluscompany.com	**R/C** **ACTIVE**
Ethical Electric Benefit Co. d/b/a Ethical Electric 100 Overlook Center, 2nd Fl. Princeton, NJ 08540	(888) 444-9452 www.ethicalelectric.com	**R/C** **ACTIVE**
Energy Service Providers, Inc., d/b/a New Jersey Gas & Electric 1 Bridge Plaza fl. 2 Fort Lee, NJ 07024	(866) 568-0290 www.njgande.com	**R/C** **ACTIVE**
FirstEnergy Solutions 150 West State Street Trenton, NJ 08608	(866) 625-7318 www.fes.com	**C/I** **ACTIVE**
Gateway Energy Services Corp. 120 Wood Avenue Suite 611 Iselin, NJ 08830	(866)348-4193 www.directenergybusiness.com	**R/C** **ACTIVE**
GDF SUEZ Energy Resources NA, Inc. 333 Thornall Street Sixth Floor Edison, NJ 08837	(866) 999-8374 www.gdfsuezenergyresources.com	**C/I** **ACTIVE**
GDF Suez Retail Energy Solutions LLC d/b/a THINK ENERGY 333 Thornall St. Sixth Floor Edison, NJ 08819	1-866-252-0078 www.mythinkenergy.com	**R/C/I** **ACTIVE**
Glacial Energy of New Jersey, Inc. 21 Pine Street, Suite 237 Rockaway, NJ 07866	(888) 452-2425 www.glacialenergy.com	**C/I** **ACTIVE**
Global Energy Marketing LLC 129 Wentz Avenue Springfield, NJ 07081	(800) 542-0778 www.globalp.com	**R/C/I** **ACTIVE**

Green Mountain Energy Company 211 Carnegie Center Drive Princeton, NJ 08540	(866) 767-5818 www.greenmountain.com/commercial-home	**C/I** **ACTIVE**
Harborside Energy LLC 101 Hudson Street Suite 2100 Jersey City, NJ 07302	(877) 940-3835 www.harborsideenergynj.com	**R/C** **ACTIVE**
Hess Corporation 1 Hess Plaza Woodbridge, NJ 07095	(800) 437-7872 www.hess.com	**C/I** **ACTIVE**
HIKO Energy, LLC 655 Suffern Road Teaneck, NJ 07666	(888) 264-4908 www.hikoenergy.com	**R/C/I** **ACTIVE**
Hudson Energy Services, LLC 7 Cedar Street Ramsey, New Jersey 07446	(877) Hudson 9 www.hudsonenergyservices.com	**C** **ACTIVE**
IDT Energy, Inc. 550 Broad Street Newark, NJ 07102	(877) 887-6866 www.idtenergy.com	**R/C** **ACTIVE**
Independence Energy Group, LLC 211 Carnegie Center Princeton, NJ 08540	(877) 235-6708 www.chooseindependence.com	**R/C** **ACTIVE**
Inspire Energy Holdings LLC 923 Haddonfield Road 3rd Fl. Building B2 Cherry Hill, NJ 08002	(866) 403-2620 www.inspireenergy.com	**R/C/I**
Integrys Energy Services, Inc. 33 Wood Ave, South, Suite 610 Iselin, NJ 08830	(800) 536-0151 www.integrysenergy.com	**C/I** **ACTIVE**
Jsynergy, LLC 445 Central Ave. Suite 204 Cedarhurst, NY 11516	(516) 331-2020 Jsynergyllc.com	**R/C/I** **ACTIVE**
Kuehne Chemical Company, Inc. 86 North Hackensack Avenue South Kearney, NJ 07032	(973) 589-0700 kuehnechemical@comcast.net	**I**

Liberty Power Delaware, LLC 1973 Highway 34, Suite 211 Wall, NJ 07719	(866) 769-3799 www.libertypowercorp.com	**C/I** **ACTIVE**
Liberty Power Holdings, LLC 1973 Highway 34, Suite 211 Wall, NJ 07719	(866) 769-3799 www.libertypowercorp.com	**R/C/I** **ACTIVE**
Linde Energy Services 575 Mountain Avenue Murray Hill, NJ 07974	(800) 247-2644 www.linde.com	**C/I** **ACTIVE**
Marathon Power LLC 302 Main Street Paterson, NJ 07505	(888) 779-7255 www.mecny.com	**R/C/I** **ACTIVE**
MP2 Energy NJ, LLC 111 River Street, Suite 1204 Hoboken, NJ 07030	(877) 238-5343 www.mp2energy.com	**R/C/I** **ACTIVE**
Natures Current, LLC 95 Fairmount Avenue Philadelphia, Pennsylvania 19123	(215) 464-6000 www.naturescurrent.com	**R/C/I** **ACTIVE**
MPower Energy NJ LLC One University Plaza, Suite 507 Hackensack, NJ 07601	(877) 286-7693 www.mpowerenergy.com	**R/C/I** **ACTIVE**
NATGASCO, Inc. (Supreme Energy, Inc.) 532 Freeman St. Orange, NJ 07050	(800) 840-4427 www.supremeenergyinc.com	**R/C/I** **ACTIVE**
New Jersey Gas & Electric 10 North Park Place Suite 420 Morristown, NJ 07960	(866) 568-0290 www.njgande.com	**R/C/** **ACTIVE**
NextEra Energy Services New Jersey, LLC 651 Jernee Mill Road Sayreville, NJ 08872	(877) 528-2890 Commercial (800) 882-1276 Residential www.nexteraenergyservices.com	**R/C/I** **ACTIVE**
Noble Americas Energy Solutions The Mac-Cali Building 581 Main Street, 8th Floor Woodbridge, NJ 07095	(877) 273-6772 www.noblesolutions.com	**C/I** **ACTIVE**

Nordic Energy Services, LLC 50 Tice Boulevard, Suite 340 Woodcliff Lake, NJ 07677	(877) 808-1027 www.nordiceenergy.us.com	**R/C/I** **ACTIVE**
North American Power and Gas, LLC 222 Ridgedale Avenue Cedar Knolls, NJ 07927	(888) 313-9086 www.napower.com	**R/C/I** **ACTIVE**
North Eastern States, Inc. d/b/a Entrust Energy 90 Washington Valley Road Bedminster, NJ 07921	(888) 535-6340 www.entrustenergy.com	**R/C/I** **ACTIVE**
Oasis Power, LLC d/b/a Oasis Energy 11152 Westheimer, Suite 901 Houston, TX 77042	(800)324-3046 www.oasisenergy.com	**R/C** **ACTIVE**
Palmco Power NJ, LLC One Greentree Centre 10,000 Lincoln Drive East, Suite 201 Marlton, NJ 08053	(877) 726-5862 www.PalmcoEnergy.com	**R/C/I** **ACTIVE**
Park Power, LLC 1200 South Church St. Suite 23 Mount Laurel, NJ 08054	(856) 778-0079 www.parkpower.com	**R/C/I** **ACTIVE**
Plymouth Rock Energy, LLC 338 Maitland Avenue Teaneck, NJ 07666	(855) 32-POWER (76937) www.plymouthenergy.com	**R/C/I** **ACTIVE**
Power Management Co., LLC b/b/a PMC Lightsavers Limited Liability Company 1600 Moseley Road Victor, NY 14564	(585) 249-1360 www.powermanagementco.com	**C/I** **ACTIVE**
PPL Energy Plus, LLC 811 Church Road Cherry Hill, NJ 08002	(800) 281-2000 www.pplenergyplus.com	**C/I** **ACTIVE**
PPL EnergyPlus Retail, LLC 788 Shrewsbury Avenue, Suite 220 Tinton Falls, NJ 07724	(732) 741-0505 – 2000 www.pplenergyplus.com	**C/I** **ACTIVE**
Progressive Energy Consulting, LLC	(917) 837-7400	**R/C/I**

PO Box 4582 Wayne, New Jersey 07474	Progressivenrg@optionline.net	**ACTIVE**
Prospect Resources, Inc. 208 W. State Street Trenton, NJ 08608-1002	(847) 673-1959 www.prospectresources.com	**C** **ACTIVE**
Public Power & Utility of New Jersey, LLC One International Blvd, Suite 400 Mahwah, NJ 07495	(888) 354-4415 www.ppandu.com	**R/C/I** **ACTIVE**
Reliant Energy 211 Carnegie Center Princeton, NJ 08540	(877) 297-3795 (877) 297-3780 www.reliant.com	**R/C/I** **ACTIVE**
ResCom Energy LLC 18C Wave Crest Ave. Winfield Park, NJ 07036	(888) 238-4041 http://rescomenergy.com	**R/C/I** **ACTIVE**
Residents Energy, LLC 550 Broad Street Newark, NJ 07102	(888) 828-7374 www.residentsenergy.com	**R/C**
Respond Power LLC 1001 East Lawn Drive Teaneck, NJ 07666	(877) 973-7763 www.majorenergy.com	**R/C/I** **ACTIVE**
Save on Energy, LLC 1101 Red Ventures Drive Fort Mill, SC 29707	1 (877)-658-3183 www.saveonenergy.com	**R/C**
SFE Energy One Gateway Center Suite 2600 Newark, NJ 07012	1 (877) 316-6344 www.sfeenergy.com	**R/C/I** **ACTIVE**
S.J. Energy Partners, Inc. 208 White Horse Pike, Suite 4 Barrington, NJ 08007	(800) 695-0666 www.sjnaturalgas.com	**C** **ACTIVE**
SmartEnergy Holdings, LLC 100 Overlook Center 2nd Floor Princeton, NJ NJ 08540 United States of America	(800) 443-4440 www.smartenergy.com	**R/C/I** **ACTIVE**
South Jersey Energy Company 1 South Jersey Plaza, Route 54 Folsom, NJ 08037	(800) 266-6020 www.southjerseyenergy.com	**R/C/I** **ACTIVE**

Spark Energy Gas, LP/ Spark Energy 2105 City West Blvd. Suite 100 Houston, TX 77042	(713)600-2600 www.sparkenergy.com	**R/C/I** **ACTIVE**
Sperian Energy Corp. 1200 Route 22 East, Suite 2000 Bridgewater, NJ 08807	(888) 682-8082 www.sperianenergy.com	**R/C/I** **ACTIVE**
Starion Energy PA Inc. 101 Warburton Avenue Hawthorne, NJ 07506	(800) 600-3040 www.starionenergy.com	**R/C/I** **ACTIVE**
Stream Energy New Jersey, LLC 309 Fellowship Rd., Suite 200 Mt. Laurel, NJ 08054	(877) 369-8150 www.streamenergy.net	**R/C** **ACTIVE**
Summit Energy Services, Inc. 10350 Ormsby Park Place Suite 400 Louisville, KY 40223	1 (800) 90-SUMMIT www.summitenergy.com	**C/I** **ACTIVE**
Texas Retail Energy LLC Park 80 West Plaza II, Suite 200 Saddle Brook, NJ 07663 Attn: Chris Hendrix	(866) 532-0761 Texasretailenergy.com	**C/I** **ACTIVE**
TransCanada Power Marketing Ltd. 190 Middlesex Essex Turnpike, Suite 200 Iselin, NJ 08830	(877) MEGAWAT www.transcanada.com/powermarketing	**C/I** **ACTIVE**
TriEagle Energy, LP 90 Washington Valley Rd Bedminster, NJ 07921	(877) 933-2453 www.trieagleenergy.com	**R/C/I** **ACTIVE**
UGI Energy Services, Inc. dba UGI Energy Link 224 Strawbridge Drive Suite 107 Moorestown, NJ 08057	(800) 427-8545 www.ugienergylink.com	**C/I** **ACTIVE**
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza Suite 301 Parsippany, NJ 07054	(800) 388-3862 www.lowcostpower.com	**R/C** **ACTIVE**

Viridian Energy 2001 Route 46, Waterview Plaza Suite 310 Parsippany, NJ 07054	(866) 663-2508 www.viridian.com	**R/C/I** **ACTIVE**
XOOM Energy New Jersey, LLC 744 Broad Street. 16th Floor Newark, NJ 07102	(888) 997-8979 www.xoomenergy.com	**R/C/I** **ACTIVE**
YEP Energy 89 Headquarters Plaza North #1463 Morristown, NJ 07960	(855) 363-7736 www.yepenergyNJ.com	**R/C/I** **ACTIVE**
Your Energy Holdings, LLC One International Boulevard Suite 400 Mahwah, NJ 07495-0400	(855) 732-2493 www.thisisyourenergy.com	**R/C/I** **ACTIVE**

Back to the main supplier page

PSE&G GAS SERVICE TERRITORY
Last Updated: 12/11/14

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

Supplier	Telephone & Web Site	*Customer Class
Ambit Northeast, LLC d/b/a Ambit Energy 103 Carnegie Center Suite 300 Princeton, NJ 08540	877-282-6284 www.ambitenergy.com	**R/C** **ACTIVE**
Amerigreen Energy, Inc. **333 Sylvan Avenue Suite 206** **Englewood Cliffs, NJ 07632**	(888)559-4567 www.amerigreen.com	**R/C/I** **ACTIVE**
Astral Energy LLC 16 Tyson Place Bergenfield, NJ 07621	888-850-1872 www.AstralEnergyLLC.com	**R/C/I** **ACTIVE**
BBPC, LLC Great Eastern Energy 116 Village Blvd. Suite 200 Princeton, NJ 08540	888-651-4121 www.greateasternenergy.com	**C** **ACTIVE**
Choice Energy, LLC **4257 US Highway 9, Suite 6C** **Freehold, NJ 07728**	(888) 565-4490 www.4choiceenergy.com	**R/C/I**
Clearview Electric Inc. **d/b/a Clearview Gas** 1744 Lexington Ave. Pennsauken, NJ 08110	800-746-4720 www.clearviewenergy.com	**R/C** **ACTIVE**
Colonial Energy, Inc. 83 Harding Road Wyckoff, NJ 07481	845-429-3229 www.colonialgroupinc.com	**C/I** **ACTIVE**
Commerce Energy, Inc. 7 Cedar Terrace Ramsey, NJ 07746	888 817-8572 www.commerceenergy.com	**R** **ACTIVE**
Compass Energy Services, Inc. 33 Wood Avenue South, 610 Iselin, NJ 08830	866-867-8328 www.compassenergy.net	**C/I** **ACTIVE**

Compass Energy Gas Services, LLC 33 Wood Avenue South Suite 610 Iselin, NJ 08830	866-867-8328 www.compassenergy.net	**C/I** **ACTIVE**
ConocoPhillips Company 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	800-646-4427 www.conocophillips.com	**C/I** **ACTIVE**
Consolidated Edison Energy, Inc. **d/b/a Con Edison Solutions** 535 State Highway 38, Suite 140 Cherry Hill, NJ 08002	888-686-1383 x2130 www.conedenergy.com	
Consolidated Edison Solutions, Inc. Cherry Tree Corporate Center 535 State Highway 38, Suite 140 Cherry Hill, NJ 08002	888-665-0955 www.conedsolutions.com	**C/I** **ACTIVE**
Constellation NewEnergy-Gas Division, LLC 116 Village Boulevard, Suite 200 Princeton, NJ 08540	800-785-4373 www.constellation.com	**C/I** **ACTIVE**
Constellation Energy Gas Choice, Inc. 116 Village Blvd., Suite 200 Princeton, NJ 08540	800-785-4373 www.constellation.com	**R/C/I** **ACTIVE**
Direct Energy Business, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	888-925-9115 http://www.business.directenergy.com/	**R** **ACTIVE**
Direct Energy Business Marketing, LLC (fka Hess Energy Marketing) One Hess Plaza Woodbridge, NJ 07095	(800) 437-7872 http://www.business.directenergy.com/	**C/I** **ACTIVE**
Direct Energy Services, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	(888) 925-9115 www.directenergy.com	**R** **ACTIVE**

Direct Energy Small Business, LLC (fka Hess Small Business Services, LLC) One Hess Plaza Woodbridge, NJ 07095	(888) 464-4377 http://www.business.directenergy.com/	**C/I** **ACTIVE**
Gateway Energy Services Corp. 120 Wood Avenue Suite 611 Iselin, NJ 08830	(866) 348-4193 www.gesc.com	**R/C** **ACTIVE**
Glacial Energy of New Jersey, Inc. 21 Pine Street, Suite 237 Rockaway, NJ 07866	888-452-2425 www.glacialenergy.com	**C/I** **ACTIVE**
Global Energy Marketing, LLC 129 Wentz Avenue Springfield, NJ 07081	800-542-0778 www.globalp.com	**C/I** **ACTIVE**
Great Eastern Energy 116 Village Blvd., Suite 200 Princeton, NJ 08540	888-651-4121 www.greateastern.com	**C/I** **ACTIVE**
Greenlight Energy 330 Hudson Street, Suite 4 Hoboken, NJ 07030	718-204-7467 www.greenlightenergy.us	**C** **ACTIVE**
Harborside Energy LLC 101 Hudson Street, Suite 2100 Jersey City, NJ 07302	877-940-3835 www.harborsideenergynj.com	**R/C** **ACTIVE**
Hess Energy, Inc. One Hess Plaza Woodbridge, NJ 07095	800-437-7872 www.hess.com	**C/I** **ACTIVE**
HIKO Energy, LLC 655 Suffern Road Teaneck, NJ 07666	888 264-4908 www.hikoenergy.com	**R/C/I** **ACTIVE**
Hudson Energy Services, LLC 7 Cedar Street Ramsey, NJ 07446	877- Hudson 9 www.hudsonenergyservices.com	**C** **ACTIVE**
IDT Energy, Inc. 550 Broad Street Newark, NJ 07102	877-887-6866 www.idtenergy.com	**R/C** **ACTIVE**

Infinite Energy dba Intelligent Energy 1200 Route 22 East Suite 2000 Bridgewater, NJ 08807-2943	(800) 927-9794 www.InfiniteEnergy.com	**R/C/I** **ACTIVE**
Integrys Energy Services-Natural Gas, LLC 101 Eisenhower Parkway Suite 300 Roseland, NJ 07068	(800) 536-0151 www.integrysenergy.com	**C/I** **ACTIVE**
Jsynergy LLC 445 Cental Ave. Suite 204 Cedarhurst, NY 11516	(516) 331-2020 www.Jsnergyllc.com	**R/C/I** **ACTIVE**
Major Energy Services, LLC 1001 East Lawn Drive Teaneck NJ 07666	888-625-6760 www.majorenergy.com	**R/C/I** **ACTIVE**
Marathon Power LLC 302 Main Street Paterson, NJ 07505	888-779-7255 www.mecny.com	**R/C/I** **ACTIVE**
Metromedia Energy, Inc. 6 Industrial Way Eatontown, NJ 07724	1-877-750-7046 www.metromediaenergy.com	**C/I** **ACTIVE**
Metro Energy Group, LLC 14 Washington Place Hackensack, NJ 07601	888-53-Metro www.metroenergy.com	**R/C** **ACTIVE**
MPower Energy NJ LLC One University Plaza, Suite 507 Hackensack, NJ 07601	877-286-7693 www.mpowerenergy.com	**R/C/I** **ACTIVE**
NATGASCO (Supreme Energy, Inc.) 532 Freeman Street Orange, NJ 07050	800-840-4427 www.supremeenergyinc.com	**R/C/I** **ACTIVE**
New Energy Services LLC 101 Neptune Avenue Deal, New Jersey 07723	800-660-3643 www.newenergyservicesllc.com	**R/C/I** **ACTIVE**
New Jersey Gas & Electric 10 North Park Place Suite 420 Morristown, NJ 07960	866-568-0290 www.njgande.com	**R/C** **ACTIVE**

Noble Americas Energy Solutions The Mac-Cali Building 581 Main Street, 8th fl. Woodbridge, NJ 07095	877-273-6772 www.noblesolutions.com	**C/I** **ACTIVE**
North American Power & Gas, LLC d/b/a North American Power 197 Route 18 South Ste. 300 New Brunswick, NJ 08816	888- 313-8086 www.napower.com	**R/C/I** **ACTIVE**
North Eastern States, Inc. d/b/a Entrust Energy 90 Washington Valley Road Bedminster, NJ 07921	(888) 535-6340 www.entrustenergy.com	**R/C/I** **ACTIVE**
Oasis Power, LLC d/b/a Oasis Energy 11152 Westheimer, Suite 901 Houston, TX 77042	(800)324-3046 www.oasisenergy.com	**R/C** **ACTIVE**
Palmco Energy NJ, LLC One Greentree Centre 10,000 Lincoln Drive East, Suite 201 Marlton, NJ 08053	877-726-5862 www.PalmcoEnergy.com	**R/C/I** **ACTIVE**
Plymouth Rock Energy, LLC 338 Maitland Avenue Teaneck, NJ 07666	855-32-POWER (76937) www.plymouthenergy.com	**R/C/I** **ACTIVE**
PPL EnergyPlus, LLC Shrewsbury Executive Offices 788 Shrewsbury Avenue Suite 2200 Tinton Falls, NJ 07724	(732) 741-0505 www.pplenergyplus.com	**C/I** **ACTIVE**
PPL EnergyPlus Retail, LLC Shrewsbury Executive Offices 788 Shrewsbury Avenue, Suite 220 Tinton Falls, NJ 07724	(732) 741-0505 – 2000 www.pplenergyplus.com	**C/I** **ACTIVE**
Public Power & Utility of New Jersey, LLC One International Blvd, Suite 400 Mahwah, NJ 07495	(888) 354-4415 www.ppandu.com	**R/C/I** **ACTIVE**

Residents Energy, LLC 550 Broad Street Newark, NJ 07102	(888) 828-7374 www.residentsenergy.com	**R/C**
Respond Power LLC 1001 East Lawn Drive Teaneck, NJ 07666	(877) 973-7763 www.respondpower.com	**R/C/I** **ACTIVE**
Save on Energy, LLC 1101 Red Ventures Drive Fort Mill, SC 29707	1 (877) 658-3183 www.saveonenergy.com	**R/C** **ACTIVE**
SFE Energy One Gateway Center Suite 2600 Newark, NJ 07012	1 (877) 316-6344 www.sfeenergy.com	**R/C/I** **ACTIVE**
S.J. Energy Partners, Inc. 208 White Horse Pike, Suite 4 Barrington, NJ 08007	(800) 695-0666 www.sjnaturalgas.com	**C** **ACTIVE**
South Jersey Energy Company 1 South Jersey Plaza, Route 54 Folsom, NJ 08037	800-266-6020 www.southjerseyenergy.com	**R/C/I** **ACTIVE**
SouthStar Energy d/b/a New Jersey Energy 1085 Morris Avenue, Suite 155 Union, NJ 07083	(866) 477-8823 www.newjerseyenergy.com	**R/C** **ACTIVE**
Spark Energy Gas, LP/ Spark Energy 2105 City West Blvd. Suite 100 Houston, TX 77042	(713)600-2600 www.sparkenergy.com	**R/C/I** **ACTIVE**
Sperian Energy Corp. Bridgewater Center 1200 Route 22 East Bridgewater, NJ 08807	888-682-8082 www.sperianenergy.com	**R/C/I** **ACTIVE**
Sprague Energy Corp. 12 Ridge Road Chatham Township, NJ 07928	855-466-2842 www.spragueenergy.com	**C/I** **ACTIVE**
Stuyvesant Energy LLC 10 West Ivy Lane, Suite 4 Englewood, NJ 07631	800-640-6457 www.stuyfuel.com	**C** **ACTIVE**

Stream Energy New Jersey, LLC 309 Fellowship Road Suite 200 Mt. Laurel, NJ 08054	(877) 369-8150 www.streamenergy.net	**R/C** **ACTIVE**
Summit Energy Services, Inc. 10350 Ormsby Park Place Suite 400 Louisville, KY 40223	1 (800) 90-SUMMIT www.summitenergy.com	**C/I** **ACTIVE**
Systrum Energy 1 Bergen Blvd. Fairview, NJ 07022	877-797-8786 www.systrumenergy.com	**R/C/I** **ACTIVE**
Tiger Natural Gas, Inc. dba Tiger, Inc. 234 20th Avenue Brick, NJ 008724	888-875-6122 www.tigernaturalgas.com	**R/C/I** **ACTIVE**
UGI Energy Services, Inc. dba UGI Energy Link 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	800-427-8545 www.ugienergylink.com	**C/I** **ACTIVE**
UGI Energy Services, Inc. d/b/a GASMARK 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	856-273-9995 www.ugienergylink.com	**C/I** **ACTIVE**
Verde Energy USA, Inc. 2001 Route 46 Waterview Plaza, Suite 301 Parsippany, NJ 07054	800-388-3862 www.lowcostpower.com	**R/C** **ACTIVE**
Viridian Energy PA LLC 2001 Route 46, Waterview Plaza Suite 230 Parsippany, NJ 07054	866-663-2508 www.viridian.com	**R/C** **ACTIVE**
Vista Energy Marketing, L.P. 197 State Route 18 South, Suite 3000 South Wing East Brunswick, NJ 08816	888-508-4782 www.vistaenergymarketing.com	**R/C/I** **ACTIVE**
Woodruff Energy 73 Water Street Bridgeton, NJ 08302	800-557-1121 www.woodruffenergy.com	**R/C/I** **ACTIVE**

Woodruff Energy US LLC 73 Water Street, P.O. Box 777 Bridgeton, NJ 08302	856-455-1111 800-557-1121 www.woodruffenergy.com	**C/I** **ACTIVE**
XOOM Energy New Jersey, LLC 744 Broad Street. 16th Floor Newark, NJ 07102	888-997-8979 www.xoomenergy.com	**R/C/I** **ACTIVE**
Your Energy Holdings, LLC One International Boulevard Suite 400 Mahwah, NJ 07495-0400	855-732-2493 www.thisisyourenergy.com	**R/C/I** **ACTIVE**

Back to main supplier information page

APPENDIX B

Equipment Inventory

CHA Project # 30237
Ridgewood High School
Ridgewood Public Schools

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size /Efficiency	Efficiency	Location	Areas/Equipment Served	Date Installed	Remaining Useful Life (years)	Other Info.
Boiler	2	A.L. Eastmond& Sons Inc	FST-250HW	7392	HHW Boiler	10,500 MBH energy Input and 8,369MBH energy Output	79.7% Efficiency	Basement Mechanical Room	Whole Building except the new wing and gyms	1993	4	
Boiler	2	Aerco	Benchmark 2000	N/A	Condensing Boilers	2000 MBH energy input and max 1880 MBH energy ouput	up to 94% efficiency	Roof Mechanical Room	New wing and gyms	2010	21	
Chiller	1	Trane	RTAA155	U00F01022	Air Cooled Chiller	155 ton	EER is about 10.5	Roof	New wing and gyms	2010	21	
HHW Pump Motors	3	Dayton	4GYZ3	N/A	Premium Efficiency Inverter Rated Electric Motor	5HP	89.50%	Basement Mechanical Room	One Section of building except new wing and gyms	2000	6	
HHW Pump Motors	3	Reliance Electric	4GYZ3	N/A	Electric Motor	3HP	89.50%	Basement Mechanical Room	The other Section of building except new wing and gyms	2000	6	
HHW Pump Motors	2	Baldor Reliance	EM3313T	N/A	Electric Motor	10HP	91.70%	Roof Mechanical Room	new wing and gyms	2010	16	
CHW Pump Motors	2	Baldor	EM2515T	N/A	Electric Motor	20HP	93.00%	Roof Mechanical Room	new wing and gyms	2010	16	
HV-Fitness	1	Trane	MCCA006UB0S00000U	K00D59093	Heating and Ventilating Unit	1.5HP Supply Fan Motor	Unknown	Basement Mechanical Room	Fitness Center	2000	6	
AHU-Gym 1	2	Trane	Unknown	Unknown	AHU underneth the ceiling with Heating, Cooling and Ventilating. The Supply fan is equipped with VFD	Unknown	Unknown	ceiling in gym 1	gym 1	2007	13	
AHU-Gym 2	2	Trane	Unknown	Unknown	AHU underneth the ceiling with Heating, Cooling and Ventilating. The Supply fan is equipped with VFD	Unknown	Unknown	ceiling in gym 2	gym 2	2007	13	
AHU-Gym 3	2	Trane	Unknown	Unknown	AHU underneth the ceiling with Heating, Cooling and Ventilating. The Supply fan is equipped with VFD	Unknown	Unknown	ceiling in gym 3	gym 3	2007	13	
AHU-Theater	2	Trane	TTA180E400AA	N/A	AHU with DX Cooling and HHW Coil	15 ton cooling each and HHW	Unknown	Condensing Unit located on the outside ground and the AHUs are in the upstair control room area	Theator	2011	17	
AHU-Stage	1	Carrier	38AKS014	1408G20112	AHU with DX Cooling and HHW Coil	it is 5 ton cooling and HHW	Unknown	Condensing Unit located on the outside ground and the AHUs are on the wall	Stage and back cloth rooms	2011	17	
AHU-Theater Balcony	1	Trane	4TTB3024D10000A	1121247Y3F	AHU with DX Cooling and HHW Coil	it is about 4 ton cooling and HHW fan on VFD	EER of 13	Condensing Unit located on the outside ground and the AHUs are in the upstair control room area	Balcony	2011	17	
Main Office AHU	8	Trane	4TTB304BD1000AA	111957315F	AHU with DX Cooling	it is about 4 ton cooling and HHW	EER of 13	Condensing units are located on the outside ground and the ductwork is above drop ceiling	Offices	2011	17	
Guidance Office aHU	7	Trane	4TTB304BD1000AA	111957315F	AHU with DX Cooling	it is about 4 ton cooling and HHW	EER of 13	Condensing units are located on the outside ground and the ductwork is above drop ceiling	Offices	2011	17	
Classroom 118 AHU	1	Trane	4TTB304BD1000AA	N/A	AHU with DX Cooling	it is about 4 ton cooling and HHW	EER of 14	Condensing units are located on the outside ground and the ductwork is above drop ceiling	Classroms	2011	17	
2nd Floor Office RTU (RTU-3)	1	Trane	YHC072A3RX	7261000036L	RTU with DX cooling and gas fired funace heating	6 ton cooling capacity and 80MBH gas input, 64MBH heating energy output	80% heating capacity	Roof	2nd floor	2011	17	
RTU-Room 5&7	1	Trane	YHC072A3RX	N/A	RTU with DX cooling and gas fired funace heating	6 ton cooling capacity and 80MBH gas input, 64MBH heating energy output	80% heating capacity	Roof	Basement Classroom 5& 7	2011	17	
RTU- 1 Music Room	1	Trane	YHC120A3RYA	736100254L	RTU with DX cooling and gas fired funace heating	10 ton cooling capacity and 200MBH gas input, 160MBH heating energy output	80% heating capacity	Roof	Music Room	2011	17	
RTU- 2 Music Room	1	Trane	YHC120A3RYA	736100250L	RTU with DX cooling and gas fired funace heating	10 ton cooling capacity and 200MBH gas input, 160MBH heating energy output	80% heating capacity	Roof	Music Room	2011	17	
RTU-Library	1	Trane	YCH181C3HOCA	449100693D	RTU with DX cooling and gas fired funace heating	15 ton cooling capacity and 300MBH gas input, 240MBH heating energy output	80% heating capacity	Roof	Library	2011	17	
RTU-TV	1	Trane	YCH120C3	R02103425D	RTU with DX cooling and gas fired funace heating	10 ton cooling capacity and 205MBH gas input, 166MBH heating energy output	81% heating capacity	Roof	TV Stadio	2011	17	
RTU-Library	1	Trane	YCH048C3	R03100197D	RTU with DX cooling and gas fired funace heating	4 ton cooling capacity and 120MBH gas input, 96MBH heating energy output	80% heating capacity	Roof	Dance Room	2011	17	
Dry Cooler - Server Room	1	Liebert	TCDV205-Y	C13H2F8321	Air Cooled Condenser for Computer room AC units	N/A	N/A	Roof	Server Room	2011	17	
RTU- Campus Center	2	Trane	YCD210C3HGBB	R15102327D	RTU with DX cooling and gas fired funace heating	17.5 ton cooling capacity and 350MBH gas input, 284MBH heating energy output	81% heating capacity	Roof	Campus Center	2011	17	
RTU- Campus Center Auxiliary Room	2	Trane	N/A	N/A	RTU with DX cooling and gas fired funace heating	4 ton cooling capacity and 120MBH gas input, 96MBH heating energy output	80% heating capacity	Roof	Campus Center Auxiliary Rooms	2011	17	
Science Lab RTU	5	Trane	FGRDA30PDK	C00D10054	RTU with DX cooling and gas fired funace heating	~3-7.5 ton cooling capacity and 100-300MBH gas input, 79-237MBH heating energy output	79% heating capacity	Roof	Science Labs	2011	17	
RTU-Hallway	1	Trane	N/A	N/A	RTU with DX cooling and gas fired funace heating	N/A	N/A	Roof	Hallway	2000	6	
AHU-Café	1	Trane	SLHFC40E4UC6	C00D10180	AH with DX cooling	40 ton cooling capacity	N/A	Outside Ground 2 floor skid	Café	2011	17	
AHU-Kitchen	1	Trane	N/A	N/A	AH with DX cooling	N/A	N/A	Outside Ground 2 floor skid	Ktichen	2011	17	

APPENDIX C

ECM Calculations

Energy Audit of Ridgewood Board of Education - Ridgewood High School
CHA Project No.30237

ECM-L1 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
$607,530	**134.62**	**504,537**	**0**	**$95,862**	**0**	**$95,862**	**$67,130**	**6.3**	**5.6**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-L2 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
$29,882	**0.0**	**21,038**	**0**	**$3,997**	**0**	**$3,997**	**$4,660**	**7.5**	**6.3**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

ECM-L3 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
$637,412	**134.6**	**515,108**	**0**	**$97,871**	**0**	**$97,870**	**$71,790**	**6.5**	**5.8**

*Incentive based on New Jersey Smart Start Prescriptive Lighting Measures

Energy Audit of Ridgewood Board of Education - Ridgewood High School
CHA Project No.30237
Existing Lighting & Audit Input

Cost of Electricity: **$0.190** **$/kWh**
$/kW

			EXISTING CONDITIONS								Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
46LED	Basement - Office	Offices	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	3000	531	OCC	
46LED	Fitness Center	Gymnasium	61	W 32 P F 2 (ELE)	F42ILL	59	3.60	SW	4368	15,720	OCC	
46LED	Weight Room	Gymnasium	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	4368	773	OCC	
46LED	Fitness Center	Gymnasium	6	W 32 P F 2 (ELE)	F42ILL	59	0.35	SW	4368	1,546	OCC	
46LED	Recreation Room	Gymnasium	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	4368	773	OCC	
46LED	Boiler Room	Boiler Room	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	4368	2,062	NONE	
46LED	Boiler Room Closet	Boiler Room	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	4368	258	NONE	
46LED	Storage	Storage Areas	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2000	2,124	NONE	
5LED	Storage	Storage Areas	11	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.66	SW	2000	1,320	NONE	
20LED	Storage	Storage Areas	17	S 28 P F 1 (ELE)	F41ILL	31	0.53	SW	2000	1,054	NONE	
46LED	Room 18?	Classrooms	5	W 32 P F 2 (ELE)	F42ILL	59	0.30	SW	2500	738	OCC	
35LED	Room 16	Classrooms	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	2500	2,025	OCC	
46LED	Room 14	Classrooms	15	W 32 P F 2 (ELE)	F42ILL	59	0.89	SW	2500	2,213	OCC	
46LED	Room 12	Classrooms	15	W 32 P F 2 (ELE)	F42ILL	59	0.89	SW	2500	2,213	OCC	
46LED	Room 10	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
46LED	Room 10 Closet	Storage Areas	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	2000	118	NONE	
46LED	Room 8	Classrooms	15	W 32 P F 2 (ELE)	F42ILL	59	0.89	SW	2500	2,213	OCC	
46LED	Room 6	Classrooms	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	2500	148	OCC	
35LED	Room 6	Classrooms	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.17	SW	2500	2,925	OCC	
35LED	Room 4	Classrooms	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	2500	2,025	OCC	
46LED	Room 2 - Storage	Storage Areas	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	2000	944	NONE	
20LED	Room 2 - Storage	Storage Areas	4	S 28 P F 1 (ELE)	F41ILL	31	0.12	SW	2000	248	NONE	
46LED	Hallway	Hallways	14	W 32 P F 2 (ELE)	F42ILL	59	0.83	SW	8736	7,216	OCC	
46LED	Hallway	Hallways	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	8736	2,062	OCC	
46LED	Hallway	Hallways	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	8736	4,123	OCC	
41LED	Room 3 - Custodian Closet	Storage/Janitor	5	1B 40 R F 2 (MAG)	F42SS	94	0.47	SW	1250	588	NONE	
191	Room 3 - Custodian Closet	Storage/Janitor	1	S 60 C F 2 (ELE) 8'	F82EE	123	0.12	SW	1250	154	NONE	
46LED	Room 3 - Custodian Closet	Storage/Janitor	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	1250	295	NONE	
235	Room 3 - Custodian Closet	Storage/Janitor	2	SP 100 W I 2	i100/2	200	0.40	SW	1250	500	NONE	
35LED	Room 5	Classrooms	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	2500	2,025	OCC	
233	Room 5	Classrooms	1	R 100 C I 1	i100/1	100	0.10	SW	2500	250	OCC	
35LED	Room 7	Classrooms	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.17	SW	2500	2,925	OCC	
46LED	Room 7	Classrooms	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	2500	148	OCC	
46LED	Boys' Toilet	Restrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2142	379	OCC	
46LED	Girls' Toilet	Restrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2142	379	OCC	
46LED	Room 13	Classrooms	2	W 32 P F 2 (ELE)	F42ILL	59	0.12	SW	2500	295	OCC	
46LED	Power Room	Storage/Janitor	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	1250	74	OCC	
146LED	1st Floor - Gymnasium 1	Gymnasium	20	High Bay MH 400	MH400/1	458	9.16	SW	4368	40,011	OCC	
146LED	Gymnasium 3	Gymnasium	30	High Bay MH 400	MH400/1	458	13.74	SW	4368	60,016	OCC	
146LED	Gymnasium 2	Gymnasium	22	High Bay MH 400	MH400/1	458	10.08	SW	4368	44,012	OCC	
46LED	Room 118	Classrooms	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	2500	590	OCC	
46LED	Storage	Storage Areas	2	W 32 P F 2 (ELE)	F42ILL	59	0.12	SW	2000	236	NONE	
196LED	Office	Offices	6	W 32 C F 4 (ELE)	F44ILL	112	0.67	SW	3000	2,016	OCC	
5LED	Corridor	Hallways	18	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.08	SW	8736	9,435	NONE	
5LED	Toilet	Restrooms	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2142	129	OCC	
5LED	Toilet	Restrooms	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	2142	129	OCC	
5LED	Corridor	Hallways	18	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.08	SW	8736	9,435	NONE	
5LED	Corridor	Hallways	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.32	SW	8736	11,532	NONE	
35LED	Office	Offices	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	3000	270	OCC	
35LED	Office	Offices	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	3000	270	OCC	
35LED	Office	Offices	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	3000	270	OCC	
46LED	Train C	Offices	23	W 32 P F 2 (ELE)	F42ILL	59	1.36	SW	3000	4,071	OCC	
32LED	Boys' Toilet	Restrooms	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	2142	514	OCC	
32LED	Girls' Toilet	Restrooms	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	2142	514	OCC	
32LED	Office	Offices	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	3000	720	OCC	
32LED	Boy's Locker Room	Locker	16	1T 32 R F 2 (ELE)	F42LL	60	0.96	SW	2000	1,920	OCC	
32LED	Boy's Locker Room - Team Room 1	Locker	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	2000	480	OCC	
32LED	Boy's Locker Room - Team Room 2	Locker	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	2000	240	OCC	
32LED	Boy's Locker Room - Team Room 3	Locker	6	1T 32 R F 2 (ELE)	F42LL	60	0.36	SW	2000	720	OCC	
117	Boy's Locker Room - Unmarked	Locker	6	CF 23	CFS23/1	23	0.14	SW	2000	276	OCC	
32LED	Girls Locker Room	Locker	16	1T 32 R F 2 (ELE)	F42LL	60	0.96	SW	2000	1,920	OCC	
32LED	Girls Locker Room - Team Room 1	Locker	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	2000	480	OCC	
32LED	Girls Locker Room - Team Room 2	Locker	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	2000	240	OCC	
32LED	Girls Locker Room - Team Room 3	Locker	6	1T 32 R F 2 (ELE)	F42LL	60	0.36	SW	2000	720	OCC	
117	Girls Locker Room - Unmarked	Locker	6	CF 23	CFS23/1	23	0.14	SW	2000	276	OCC	
5LED	Corridor	Hallways	11	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.66	SW	8736	5,766	NONE	
5LED	Corridor	Hallways	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.30	SW	8736	2,621	NONE	
35LED	CR-199	Classrooms	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.62	SW	2500	4,050	OCC	
35LED	CR-193	Classrooms	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2500	2,700	OCC	
35LED	Office 197	Offices	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	3000	540	OCC	
35LED	Office 195	Offices	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	3000	540	OCC	
35LED	Prep Room	Offices	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	3000	540	OCC	
35LED	Prep Room	Offices	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	3000	540	OCC	

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CHA Project No.30237
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Cost of Electricity: $0.190 $/kWh
$/kW

			EXISTING CONDITIONS								Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
35LED	CR-191	Classrooms	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.62	SW	2500	4,050	OCC	
5LED	CR-191	Classrooms	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.24	SW	2500	600	OCC	
35LED	CR-192	Classrooms	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.53	SW	2500	3,825	OCC	
35LED	CR-192A	Classrooms	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2500	1,350	OCC	
35LED	CR-192A Closet	Classrooms	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	2500	450	OCC	
35LED	CR-194	Classrooms	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.35	SW	2500	3,375	OCC	
46LED	194A	Classrooms	12	W 32 P F 2 (ELE)	F42ILL	59	0.71	SW	2500	1,770	OCC	
46LED	194A Closet	Classrooms	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	2500	148	OCC	
35LED	CR-196	Classrooms	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	2500	675	OCC	
35LED	CR-198	Classrooms	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.89	SW	2500	4,725	OCC	
35LED	CR-198A	Classrooms	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.54	SW	2500	1,350	OCC	
5LED	Corridor	Hallways	13	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.78	SW	8736	6,814	NONE	
5LED	Corridor	Hallways	9	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.54	SW	8736	4,717	NONE	
5LED	Corridor	Hallways	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	8736	524	NONE	
196LED	Corridor	Hallways	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	8736	978	NONE	
35LED	Cafeteria	Cafeteria	57	T 32 R F 3 (ELE)	F43ILL/2	90	5.13	SW	3000	15,390	OCC	
46LED	Kitchen	Kitchen	19	W 32 P F 2 (ELE)	F42ILL	59	1.12	SW	2000	2,242	OCC	
32LED	Serving	Kitchen	14	1T 32 R F 2 (ELE)	F42LL	60	0.84	SW	2000	1,680	OCC	
32LED	Serving Adjacent	Kitchen	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	2000	480	OCC	
117	Faculty Lounge	Staff Lounge	31	CF 23	CFS23/1	23	0.71	SW	3000	2,139	OCC	
35LED	CR-115	Classrooms	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.90	SW	2500	2,250	OCC	
35LED	CR115 Corridor	Classrooms	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2500	900	OCC	
35LED	115A	Classrooms	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	2500	450	OCC	
32LED	Room 113	Offices	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	3000	720	OCC	
32LED	Office	Offices	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3000	360	OCC	
32LED	Office	Offices	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3000	360	OCC	
32LED	Office	Offices	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3000	360	OCC	
32LED	Room 111	Offices	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3000	360	OCC	
32LED	Room 109	Offices	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	3000	720	OCC	
32LED	Office	Offices	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3000	360	OCC	
32LED	Office	Offices	2	1T 32 R F 2 (ELE)	F42LL	60	0.12	SW	3000	360	OCC	
32LED	Room 105	Offices	14	1T 32 R F 2 (ELE)	F42LL	60	0.84	SW	3000	2,520	OCC	
196LED	Office	Offices	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	3000	336	OCC	
196LED	Office	Offices	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	3000	336	OCC	
196LED	Office	Offices	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	3000	336	OCC	
196LED	Office	Offices	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	3000	336	OCC	
196LED	Office	Offices	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	3000	336	OCC	
196LED	Office	Offices	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	3000	336	OCC	
5LED	Corridor	Hallways	14	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.84	SW	8736	7,338	NONE	
35LED	Corridor	Hallways	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.45	SW	8736	3,931	NONE	
35LED	Corridor	Hallways	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	8736	1,572	NONE	
46LED	Room 102	Offices	15	W 32 P F 2 (ELE)	F42ILL	59	0.89	SW	3000	2,655	OCC	
196LED	Room 104	Offices	4	W 32 C F 4 (ELE)	F44ILL	112	0.45	SW	3000	1,344	OCC	
46LED	Room 106 - General Office	Offices	30	W 32 P F 2 (ELE)	F42ILL	59	1.77	SW	3000	5,310	OCC	
46LED	Room 106A	Offices	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	3000	708	OCC	
46LED	Room 106B	Offices	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	3000	708	OCC	
46LED	Room 110 - Principal's Office	Offices	2	W 32 P F 2 (ELE)	F42ILL	59	0.12	SW	3000	354	OCC	
196LED	Room 112	Offices	5	W 32 C F 4 (ELE)	F44ILL	112	0.56	SW	3000	1,680	OCC	
196LED	Room 114	Offices	3	W 32 C F 4 (ELE)	F44ILL	112	0.34	SW	3000	1,008	OCC	
196LED	Room 114A	Offices	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	3000	336	OCC	
196LED	Room 114B	Offices	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	3000	336	OCC	
196LED	Room 114C	Offices	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	3000	336	OCC	
196LED	Room 114D	Offices	1	W 32 C F 4 (ELE)	F44ILL	112	0.11	SW	3000	336	OCC	
46LED	CR-116	Classrooms	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	2500	1,180	OCC	
46LED	Closet	Storage Areas	2	W 32 P F 2 (ELE)	F42ILL	59	0.12	SW	2000	236	NONE	
46LED	Closet	Storage Areas	2	W 32 P F 2 (ELE)	F42ILL	59	0.12	SW	2000	236	NONE	
146LED	Campus Center	General Common	12	High Bay MH 400	MH400/1	458	5.50	SW	8736	48,013	OCC	
117	Campus Center	General Common	18	CF 23	CFS23/1	23	0.41	SW	8736	3,617	OCC	
5LED	Campus Center Storage	Storage Areas	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2000	240	NONE	
5LED	Campus Center Storage	Storage Areas	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2000	240	NONE	
35LED	Campus Center Store	General Common	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.45	SW	8736	3,931	OCC	
46LED	Stage	Auditorium	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	4368	2,062	OCC	
233	Little Theater	Auditorium	48	R 100 C I 1	i100/1	100	4.80	SW	4368	20,966	OCC	
46LED	CR-150	Classrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2500	443	OCC	
5LED	CR-150	Classrooms	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.24	SW	2500	600	OCC	
35LED	CR-150	Classrooms	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.80	SW	2500	4,500	OCC	
5LED	CR-150 Closet	Storage Areas	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.18	SW	2000	360	NONE	
46LED	CR-152	Classrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2500	443	OCC	
5LED	CR-152	Classrooms	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.24	SW	2500	600	OCC	
35LED	CR-152	Classrooms	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.80	SW	2500	4,500	OCC	
5LED	CR-152 Closet	Storage Areas	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.18	SW	2000	360	NONE	
46LED	CR-136	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
46LED	CR-138	Classrooms	16	W 32 P F 2 (ELE)	F42ILL	59	0.94	SW	2500	2,360	OCC	

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			EXISTING CONDITIONS								Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
46LED	CR-140	Classrooms	6	W 32 P F 2 (ELE)	F42ILL	59	0.35	SW	2500	885	OCC	
46LED	Room 142 - Office	Offices	6	W 32 P F 2 (ELE)	F42ILL	59	0.35	SW	3000	1,062	OCC	
46LED	CR-144	Classrooms	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	2500	1,180	OCC	
46LED	Music Practice	Classrooms	2	W 32 P F 2 (ELE)	F42ILL	59	0.12	SW	2500	295	OCC	
46LED	Music Practice	Classrooms	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	2500	590	OCC	
46LED	Music Practice	Classrooms	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	2500	148	OCC	
46LED	Music Practice	Classrooms	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	2500	148	OCC	
46LED	Music Practice	Classrooms	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	2500	148	OCC	
5LED	CR-146	Classrooms	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.20	SW	2500	3,000	OCC	
46LED	Boys' Toilet	Restrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2142	379	OCC	
46LED	Girls' Toilet	Restrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2142	379	OCC	
46LED	Room 133 - Office	Offices	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	3000	708	OCC	
46LED	Room 135 - Office	Offices	6	W 32 P F 2 (ELE)	F42ILL	59	0.35	SW	3000	1,062	OCC	
5LED	CR-137	Classrooms	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.30	SW	2500	750	OCC	
46LED	CR-139	Classrooms	20	W 32 P F 2 (ELE)	F42ILL	59	1.18	SW	2500	2,950	OCC	
46LED	Room 141 - Office	Offices	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	3000	708	OCC	
46LED	CR-143	Classrooms	10	W 32 P F 2 (ELE)	F42ILL	59	0.59	SW	2500	1,475	OCC	
5LED	CR-143	Classrooms	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.30	SW	2500	750	OCC	
46LED	CR-145	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
5LED	Control	Media Center	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.24	SW	3000	720	OCC	
46LED	Storage	Storage Areas	2	W 32 P F 2 (ELE)	F42ILL	59	0.12	SW	2000	236	NONE	
35LED	2nd Floor - CR-292	Classrooms	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.71	SW	2500	4,275	OCC	
35LED	CR-294	Classrooms	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.71	SW	2500	4,275	OCC	
35LED	CR-296	Classrooms	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.62	SW	2500	4,050	OCC	
35LED	CR-298	Classrooms	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.71	SW	2500	4,275	OCC	
35LED	CR291	Classrooms	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.71	SW	2500	4,275	OCC	
35LED	CR-293	Classrooms	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.71	SW	2500	4,275	OCC	
35LED	Toilet	Restrooms	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	2142	193	OCC	
35LED	Toilet	Restrooms	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.09	SW	2142	193	OCC	
35LED	Room 295 - Office	Offices	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	3000	3,780	OCC	
35LED	Storage	Storage Areas	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.27	SW	2000	540	NONE	
35LED	Room 297 - Office	Offices	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	3000	3,780	OCC	
35LED	CR-299	Classrooms	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	2500	3,150	OCC	
5LED	Hallway	Hallways	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.14	SW	8736	9,959	NONE	
46LED	CR-222	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
35LED	Room 224 - Office	Offices	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	3000	1,080	OCC	
46LED	CR-226	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
35LED	CR-220	Classrooms	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	2500	2,025	OCC	
35LED	CR-218	Classrooms	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2500	2,700	OCC	
46LED	CR-218 Closet	Storage Areas	2	W 32 P F 2 (ELE)	F42ILL	59	0.12	SW	2000	236	NONE	
5LED	Hallway	Hallways	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.18	SW	8736	1,572	OCC	
196LED	Storage - 219	Storage Areas	6	W 32 C F 4 (ELE)	F44ILL	112	0.67	SW	2000	1,344	NONE	
5LED	CR-217	Classrooms	15	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.90	SW	2500	2,250	OCC	
46LED	CR-215	Classrooms	21	W 32 P F 2 (ELE)	F42ILL	59	1.24	SW	2500	3,098	OCC	
46LED	CR-213	Classrooms	9	W 32 P F 2 (ELE)	F42ILL	59	0.53	SW	2500	1,328	OCC	
35LED	Room 211 - Office	Offices	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	3000	1,080	OCC	
46LED	CR-211	Classrooms	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	2500	1,180	OCC	
196LED	CR-216	Classrooms	12	W 32 C F 4 (ELE)	F44ILL	112	1.34	SW	2500	3,360	OCC	
196LED	CR-214	Classrooms	18	W 32 C F 4 (ELE)	F44ILL	112	2.02	SW	2500	5,040	OCC	
196LED	CR-212	Classrooms	18	W 32 C F 4 (ELE)	F44ILL	112	2.02	SW	2500	5,040	OCC	
35LED	Room 210 - Office	Offices	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	3000	2,160	OCC	
46LED	CR-208	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
46LED	CR-206	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
46LED	CR-204	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
5LED	CR-202	Classrooms	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.32	SW	2500	3,300	OCC	
46LED	Room 200 - Office	Offices	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	3000	708	OCC	
46LED	Room 201	Offices	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	3000	1,416	OCC	
46LED	Room 201A	Offices	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	3000	1,416	OCC	
46LED	CR-203	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
46LED	CR-205	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
196LED	Room 207 - Office	Offices	4	W 32 C F 4 (ELE)	F44ILL	112	0.45	SW	3000	1,344	OCC	
46LED	Hallway	Hallways	30	W 32 P F 2 (ELE)	F42ILL	59	1.77	SW	8736	15,463	NONE	
46LED	Room 254	Offices	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	3000	708	OCC	
46LED	Room 252	Offices	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	3000	531	OCC	
46LED	Room 250	Offices	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	3000	531	OCC	
32LED	Hallway	Hallways	15	1T 32 R F 2 (ELE)	F42LL	60	0.90	SW	8736	7,862	NONE	
198LED	Media Center	Media Center	78	2T 17 R F 2 (ELE)	F22LL	31	2.42	SW	3000	7,254	OCC	
198LED	Media Center	Media Center	25	2T 17 R F 2 (ELE)	F22LL	31	0.78	SW	3000	2,325	OCC	
117	Media Center	Media Center	18	CF 23	CFS23/1	23	0.41	SW	3000	1,242	OCC	
35LED	Media Center	Media Center	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.72	SW	3000	2,160	OCC	
35LED	Office	Offices	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	3000	1,080	OCC	
35LED	CR-247	Classrooms	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2500	900	OCC	
5LED	Hallway	Hallways	30	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.80	SW	8736	15,725	NONE	

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CHA Project No.30237
Existing Lighting & Audit Input

Cost of Electricity: **$0.190** **$/kWh**
$/kW

			EXISTING CONDITIONS									Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Wattages Table of Standard Fixture	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
117	Hallway	Hallways	2	CF 23	CFS23/1	23	0.05	SW	8736	402	NONE	
46LED	Office 243	Offices	8	W 32 P F 2 (ELE)	F42ILL	59	0.47	SW	3000	1,416	OCC	
46LED	CR-241	Classrooms	21	W 32 P F 2 (ELE)	F42ILL	59	1.24	SW	2500	3,098	OCC	
46LED	CR-239	Classrooms	21	W 32 P F 2 (ELE)	F42ILL	59	1.24	SW	2500	3,098	OCC	
46LED	Storage 237	Storage Areas	7	W 32 P F 2 (ELE)	F42ILL	59	0.41	SW	2000	826	NONE	
46LED	Storage 235	Storage Areas	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	2000	472	NONE	
46LED	CR-236	Classrooms	20	W 32 P F 2 (ELE)	F42ILL	59	1.18	SW	2500	2,950	OCC	
46LED	CR-238	Classrooms	12	W 32 P F 2 (ELE)	F42ILL	59	0.71	SW	2500	1,770	OCC	
46LED	CR-240	Classrooms	20	W 32 P F 2 (ELE)	F42ILL	59	1.18	SW	2500	2,950	OCC	
46LED	Office 242	Offices	4	W 32 P F 2 (ELE)	F42ILL	59	0.24	SW	3000	708	OCC	
46LED	CR-244	Classrooms	20	W 32 P F 2 (ELE)	F42ILL	59	1.18	SW	2500	2,950	OCC	
46LED	Office 246	Offices	9	W 32 P F 2 (ELE)	F42ILL	59	0.53	SW	3000	1,593	OCC	
46LED	CR-248	Classrooms	20	W 32 P F 2 (ELE)	F42ILL	59	1.18	SW	2500	2,950	OCC	
46LED	Boys' Toilet	Restrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2142	379	OCC	
46LED	Girls' Toilet	Restrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2142	379	OCC	
46LED	CR-234	Classrooms	14	W 32 P F 2 (ELE)	F42ILL	59	0.83	SW	2500	2,065	OCC	
35LED	CR-232	Classrooms	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2500	2,700	OCC	
46LED	CR-230	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
46LED	CR-228	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
46LED	CR-229	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
46LED	CR-231	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
46LED	CR-233	Classrooms	18	W 32 P F 2 (ELE)	F42ILL	59	1.06	SW	2500	2,655	OCC	
46LED	Hallway	Hallways	20	W 32 P F 2 (ELE)	F42ILL	59	1.18	SW	8736	10,308	NONE	
46LED	Hallway	Hallways	30	W 32 P F 2 (ELE)	F42ILL	59	1.77	SW	8736	15,463	NONE	
35LED	3rd Floor - CR-392	Classrooms	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.71	SW	2500	4,275	OCC	
35LED	CR-394	Classrooms	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.53	SW	2500	3,825	OCC	
5LED	CR-394	Classrooms	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2500	300	OCC	
35LED	CR-396	Classrooms	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.71	SW	2500	4,275	OCC	
35LED	CR-398	Classrooms	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	2500	3,600	OCC	
5LED	Office 399	Offices	6	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.36	SW	3000	1,080	OCC	
35LED	CR-397	Classrooms	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.44	SW	2500	3,600	OCC	
35LED	CR-395	Classrooms	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.53	SW	2500	3,825	OCC	
5LED	CR-395	Classrooms	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	SW	2500	300	OCC	
35LED	CR-393	Classrooms	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.71	SW	2500	4,275	OCC	
35LED	CR-391	Classrooms	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.71	SW	2500	4,275	OCC	
35LED	Prep Room	Classrooms	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.18	SW	2500	450	OCC	
5LED	Hallway	Hallways	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.32	SW	8736	11,532	NONE	
35LED	CR-326	Classrooms	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.90	SW	2500	2,250	OCC	
35LED	CR-324	Classrooms	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	2500	3,150	OCC	
35LED	CR-322	Classrooms	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.90	SW	2500	2,250	OCC	
196LED	Office 320	Offices	2	W 32 C F 4 (ELE)	F44ILL	112	0.22	SW	3000	672	OCC	
196LED	Office 320 Closet	Storage Areas	3	W 32 C F 4 (ELE)	F44ILL	112	0.34	SW	2000	672	NONE	
35LED	Office 318	Offices	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	3000	1,080	OCC	
196LED	Office 316	Offices	4	W 32 C F 4 (ELE)	F44ILL	112	0.45	SW	3000	1,344	OCC	
46LED	Storage 319	Storage Areas	1	W 32 P F 2 (ELE)	F42ILL	59	0.06	SW	2000	118	NONE	
35LED	CR-317	Classrooms	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	2500	2,025	OCC	
5LED	CR-315	Classrooms	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.14	SW	2500	2,850	OCC	
5LED	CR-313	Classrooms	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.32	SW	2500	3,300	OCC	
35LED	CR-309	Classrooms	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.26	SW	2500	3,150	OCC	
5LED	CR-305	Classrooms	24	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.44	SW	2500	3,600	OCC	
5LED	CR-303	Classrooms	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.14	SW	2500	2,850	OCC	
5LED	CR-301	Classrooms	10	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.60	SW	2500	1,500	OCC	
46LED	CR-301	Classrooms	3	W 32 P F 2 (ELE)	F42ILL	59	0.18	SW	2500	443	OCC	
196LED	Office 300	Offices	4	W 32 C F 4 (ELE)	F44ILL	112	0.45	SW	3000	1,344	OCC	
46LED	CR-302	Classrooms	9	W 32 P F 2 (ELE)	F42ILL	59	0.53	SW	2500	1,328	OCC	
5LED	Hallway	Hallways	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.24	SW	8736	2,097	NONE	
46LED	Hallway	Hallways	13	W 32 P F 2 (ELE)	F42ILL	59	0.77	SW	8736	6,701	NONE	
46LED	Stairway	Stairway	16	W 32 P F 2 (ELE)	F42ILL	59	0.94	SW	8736	8,247	NONE	
35LED	CR-332	Classrooms	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2500	2,700	OCC	
35LED	CR-330	Classrooms	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.62	SW	2500	4,050	OCC	
35LED	CR-328	Classrooms	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2500	2,700	OCC	
196LED	Office 327	Offices	2	W 32 C F 4 (ELE)	F44ILL	112	0.22	SW	3000	672	OCC	
35LED	CR-329	Classrooms	24	T 32 R F 3 (ELE)	F43ILL/2	90	2.16	SW	2500	5,400	OCC	
35LED	CR-331	Classrooms	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.08	SW	2500	2,700	OCC	
46LED	Hallway	Hallways	20	W 32 P F 2 (ELE)	F42ILL	59	1.18	SW	8736	10,308	NONE	

Energy Audit of Ridgewood Board of Education - Ridgewood High School
CHA Project No.30237
Existing Lighting & Audit Input

Cost of Electricity:	$0.190	$/kWh
		$/kW

			EXISTING CONDITIONS								Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
	Total		2,907				232.38			847,437		

Energy Audit of Ridgewood Board of Education - Ridgewood High School
CHA Project No.30237
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46LED	Basement - Office	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	531	3	4 ft LED Tube	200732x2	30	0.1	SW	3,000	270	261	0.1	$ 49.59	$ 490.05	$0	9.9	9.9
46LED	Fitness Center	61	W 32 P F 2 (ELE)	F42ILL	59	3.6	SW	4368	15,720	61	4 ft LED Tube	200732x2	30	1.8	SW	4,368	7,993	7,727	1.8	$ 1,468.13	$ 9,964.35	$0	6.8	6.8
46LED	Weight Room	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	4368	773	3	4 ft LED Tube	200732x2	30	0.1	SW	4,368	393	380	0.1	$ 72.20	$ 490.05	$0	6.8	6.8
46LED	Fitness Center	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	SW	4368	1,546	6	4 ft LED Tube	200732x2	30	0.2	SW	4,368	786	760	0.2	$ 144.41	$ 980.10	$0	6.8	6.8
46LED	Recreation Room	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	4368	773	3	4 ft LED Tube	200732x2	30	0.1	SW	4,368	393	380	0.1	$ 72.20	$ 490.05	$0	6.8	6.8
46LED	Boiler Room	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	4368	2,062	8	4 ft LED Tube	200732x2	30	0.2	SW	4,368	1,048	1,013	0.2	$ 192.54	$ 1,306.80	$0	6.8	6.8
46LED	Boiler Room Closet	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	4368	258	1	4 ft LED Tube	200732x2	30	0.0	SW	4,368	131	127	0.0	$ 24.07	$ 163.35	$0	6.8	6.8
46LED	Storage	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2000	2,124	18	4 ft LED Tube	200732x2	30	0.5	SW	2,000	1,080	1,044	0.5	$ 198.36	$ 2,940.30	$0	14.8	14.8
5LED	Storage	11	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.7	SW	2000	1,320	11	2T XX R LED	2RTLED	25	0.3	SW	2,000	550	770	0.4	$ 146.30	$ 2,227.50	$550	15.2	11.5
20LED	Storage	17	S 28 P F 1 (ELE)	F41ILL	31	0.5	SW	2000	1,054	17	4 ft LED Tube	200732x1	15	0.3	SW	2,000	510	544	0.3	$ 103.36	$ 2,468.40	$85	23.9	23.1
46LED	Room 18?	5	W 32 P F 2 (ELE)	F42ILL	59	0.3	SW	2500	738	5	4 ft LED Tube	200732x2	30	0.2	SW	2,500	375	363	0.1	$ 68.88	$ 816.75	$0	11.9	11.9
35LED	Room 16	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2500	2,025	9	T 59 R LED	RTLED38	38	0.3	SW	2,500	855	1,170	0.5	$ 222.30	$ 2,126.25	$450	9.6	7.5
46LED	Room 14	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	2500	2,213	15	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,125	1,088	0.4	$ 206.63	$ 2,450.25	$0	11.9	11.9
46LED	Room 12	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	2500	2,213	15	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,125	1,088	0.4	$ 206.63	$ 2,450.25	$0	11.9	11.9
46LED	Room 10	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
46LED	Room 10 Closet	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	118	1	4 ft LED Tube	200732x2	30	0.0	SW	2,000	60	58	0.0	$ 11.02	$ 163.35	$0	14.8	14.8
46LED	Room 8	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	2500	2,213	15	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,125	1,088	0.4	$ 206.63	$ 2,450.25	$0	11.9	11.9
46LED	Room 6	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	SW	2,500	75	73	0.0	$ 13.78	$ 163.35	$0	11.9	11.9
35LED	Room 6	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	2500	2,925	13	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,235	1,690	0.7	$ 321.10	$ 3,071.25	$650	9.6	7.5
35LED	Room 4	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2500	2,025	9	T 59 R LED	RTLED38	38	0.3	SW	2,500	855	1,170	0.5	$ 222.30	$ 2,126.25	$450	9.6	7.5
46LED	Room 2 - Storage	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2000	944	8	4 ft LED Tube	200732x2	30	0.2	SW	2,000	480	464	0.2	$ 88.16	$ 1,306.80	$0	14.8	14.8
20LED	Room 2 - Storage	4	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	2000	248	4	4 ft LED Tube	200732x1	15	0.1	SW	2,000	120	128	0.1	$ 24.32	$ 580.80	$20	23.9	23.1
46LED	Hallway	14	W 32 P F 2 (ELE)	F42ILL	59	0.8	SW	8736	7,216	14	4 ft LED Tube	200732x2	30	0.4	SW	8,736	3,669	3,547	0.4	$ 673.90	$ 2,286.90	$0	3.4	3.4
46LED	Hallway	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	8736	2,062	4	4 ft LED Tube	200732x2	30	0.1	SW	8,736	1,048	1,013	0.1	$ 192.54	$ 653.40	$0	3.4	3.4
46LED	Hallway	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	8736	4,123	8	4 ft LED Tube	200732x2	30	0.2	SW	8,736	2,097	2,027	0.2	$ 385.08	$ 1,306.80	$0	3.4	3.4
41LED	Room 3 - Custodian Closet	5	1B 40 R F 2 (MAG)	F42SS	94	0.5	SW	1250	588	5	4 ft LED Tube	200732x2	30	0.2	SW	1,250	188	400	0.3	$ 76.00	$ 1,168.50	$250	15.4	12.1
191	Room 3 - Custodian Closet	1	S 60 C F 2 (ELE) 8'	F82EE	123	0.1	SW	1250	154	1	S 60 C F 2 (ELE) 8'	F82EE	123	0.1	SW	1,250	154	-	0.0	$ -	$ -	$0		#DIV/0!
46LED	Room 3 - Custodian Closet	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	1250	295	4	4 ft LED Tube	200732x2	30	0.1	SW	1,250	150	145	0.1	$ 27.55	$ 653.40	$0	23.7	23.7
235	Room 3 - Custodian Closet	2	SP 100 W I 2	i100/2	200	0.4	SW	1250	500	2	WP 42 1	CF42/2-L	100	0.2	SW	1,250	250	250	0.2	$ 47.50	$ 243.00	$0	5.1	5.1
35LED	Room 5	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2500	2,025	9	T 59 R LED	RTLED38	38	0.3	SW	2,500	855	1,170	0.5	$ 222.30	$ 2,126.25	$450	9.6	7.5
233	Room 5	1	R 100 C I 1	i100/1	100	0.1	SW	2500	250	1	CF 26	CFQ26/1-L	27	0.0	SW	2,500	68	183	0.1	$ 34.68	$ 20.25	$0	0.6	0.6
35LED	Room 7	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	2500	2,925	13	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,235	1,690	0.7	$ 321.10	$ 3,071.25	$650	9.6	7.5
46LED	Room 7	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	SW	2,500	75	73	0.0	$ 13.78	$ 163.35	$0	11.9	11.9
46LED	Boys' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	SW	2,142	193	186	0.1	$ 35.41	$ 490.05	$0	13.8	13.8
46LED	Girls' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	SW	2,142	193	186	0.1	$ 35.41	$ 490.05	$0	13.8	13.8
46LED	Room 13	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	295	2	4 ft LED Tube	200732x2	30	0.1	SW	2,500	150	145	0.1	$ 27.55	$ 326.70	$0	11.9	11.9
46LED	Power Room	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	1250	74	1	4 ft LED Tube	200732x2	30	0.0	SW	1,250	38	36	0.0	$ 6.89	$ 163.35	$0	23.7	23.7
146LED	1st Floor - Gymnasium 1	20	High Bay MH 400	MH400/1	458	9.2	SW	4368	40,011	20	BAYLED78W	BAYLED78W	93	1.9	SW	4,368	8,124	31,886	7.3	$ 6,058.42	$ 16,883.91	$0	2.8	2.8
146LED	Gymnasium 3	30	High Bay MH 400	MH400/1	458	13.7	SW	4368	60,016	30	BAYLED78W	BAYLED78W	93	2.8	SW	4,368	12,187	47,830	11.0	$ 9,087.62	$ 25,325.87	$0	2.8	2.8
146LED	Gymnasium 2	22	High Bay MH 400	MH400/1	458	10.1	SW	4368	44,012	22	BAYLED78W	BAYLED78W	93	2.0	SW	4,368	8,937	35,075	8.0	$ 6,664.26	$ 18,572.30	$0	2.8	2.8
46LED	Room 118	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2500	590	4	4 ft LED Tube	200732x2	30	0.1	SW	2,500	300	290	0.1	$ 55.10	$ 653.40	$0	11.9	11.9
46LED	Storage	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	236	2	4 ft LED Tube	200732x2	30	0.1	SW	2,000	120	116	0.1	$ 22.04	$ 326.70	$0	14.8	14.8
196LED	Office	6	W 32 C F 4 (ELE)	F44ILL	112	0.7	SW	3000	2,016	6	T 74 R LED	RTLED50	50	0.3	SW	3,000	900	1,116	0.4	$ 212.04	$ 1,417.50	$0	6.7	6.7
5LED	Corridor	18	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	SW	8736	9,435	18	2T XX R LED	2RTLED	25	0.5	SW	8,736	3,931	5,504	0.6	$ 1,045.70	$ 3,645.00	$900	3.5	2.6
5LED	Toilet	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2142	129	1	2T XX R LED	2RTLED	25	0.0	SW	2,142	54	75	0.0	$ 14.24	$ 202.50	$50	14.2	10.7
5LED	Toilet	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2142	129	1	2T XX R LED	2RTLED	25	0.0	SW	2,142	54	75	0.0	$ 14.24	$ 202.50	$50	14.2	10.7
5LED	Corridor	18	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	SW	8736	9,435	18	2T XX R LED	2RTLED	25	0.5	SW	8,736	3,931	5,504	0.6	$ 1,045.70	$ 3,645.00	$900	3.5	2.6
5LED	Corridor	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	SW	8736	11,532	22	2T XX R LED	2RTLED	25	0.6	SW	8,736	4,805	6,727	0.8	$ 1,278.08	$ 4,455.00	$1,100	3.5	2.6
35LED	Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	3000	270	1	T 59 R LED	RTLED38	38	0.0	SW	3,000	114	156	0.1	$ 29.64	$ 236.25	$50	8.0	6.3
35LED	Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	3000	270	1	T 59 R LED	RTLED38	38	0.0	SW	3,000	114	156	0.1	$ 29.64	$ 236.25	$50	8.0	6.3
35LED	Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	3000	270	1	T 59 R LED	RTLED38	38	0.0	SW	3,000	114	156	0.1	$ 29.64	$ 236.25	$50	8.0	6.3
46LED	Train C	23	W 32 P F 2 (ELE)	F42ILL	59	1.4	SW	3000	4,071	23	4 ft LED Tube	200732x2	30	0.7	SW	3,000	2,070	2,001	0.7	$ 380.19	$ 3,757.05	$0	9.9	9.9
32LED	Boys' Toilet	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2142	514	4	4 ft LED Tube	200732x2	30	0.1	SW	2,142	257	257	0.1	$ 48.84	$ 934.80	$180	19.1	15.5
32LED	Girls' Toilet	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2142	514	4	4 ft LED Tube	200732x2	30	0.1	SW	2,142	257	257	0.1	$ 48.84	$ 934.80	$180	19.1	15.5
32LED	Office	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3000	720	4	4 ft LED Tube	200732x2	30	0.1	SW	3,000	360	360	0.1	$ 68.40	$ 934.80	$180	13.7	11.0
32LED	Boy's Locker Room	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	2000	1,920	16	4 ft LED Tube	200732x2	30	0.5	SW	2,000	960	960	0.5	$ 182.40	$ 3,739.20	$720	20.5	16.6
32LED	Boy's Locker Room - Team Room 1	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2000	480	4	4 ft LED Tube	200732x2	30	0.1	SW	2,000	240	240	0.1	$ 45.60	$ 934.80	$180	20.5	16.6
32LED	Boy's Locker Room - Team Room 2	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	4 ft LED Tube	200732x2	30	0.1	SW	2,000	120	120	0.1	$ 22.80	$ 467.40	$90	20.5	16.6
32LED	Boy's Locker Room - Team Room 3	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	2000	720	6	4 ft LED Tube	200732x2	30	0.2	SW	2,000	360	360	0.2	$ 68.40	$ 1,402.20	$270	20.5	16.6
117	Boy's Locker Room - Unmarked	6	CF 23	CFS23/1	23	0.1	SW	2000	276	6	CF 23	CFS23/1	23	0.1	SW	2,000	276	-	0.0	$ -	$ -	$0		#DIV/0!
32LED	Girls Locker Room	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	2000	1,920	16	4 ft LED Tube	200732x2	30	0.5	SW	2,000	960	960	0.5	$ 182.40	$ 3,739.20	$720	20.5	16.6
32LED	Girls Locker Room - Team Room 1	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2000	480	4	4 ft LED Tube	200732x2	30	0.1	SW	2,000	240	240	0.1	$ 45.60	$ 934.80	$180	20.5	16.6
32LED	Girls Locker Room - Team Room 2	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	4 ft LED Tube	200732x2	30	0.1	SW	2,000	120	120	0.1	$ 22.80	$ 467.40	$90	20.5	16.6
32LED	Girls Locker Room - Team Room 3	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	2000	720	6	4 ft LED Tube	200732x2	30	0.2	SW	2,000	360	360	0.2	$ 68.40	$ 1,402.20	$270	20.5	16.6
117	Girls Locker Room - Unmarked	6	CF 23	CFS23/1	23	0.1	SW	2000	276	6	CF 23	CFS23/1	23	0.1	SW	2,000	276	-	0.0	$ -	$ -	$0		#DIV/0!
5LED	Corridor	11	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.7	SW	8736	5,766	11	2T XX R LED	2RTLED	25	0.3	SW	8,736	2,402	3,363	0.4	$ 639.04	$ 2,227.50	$550	3.5	2.6
5LED	Corridor	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	SW	8736	2,621	5	2T XX R LED	2RTLED	25	0.1	SW	8,736	1,092	1,529	0.2	$ 290.47	$ 1,012.50	$250	3.5	2.6
35LED	CR-199	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	2500	4,050	18	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,710	2,340	0.9	$ 444.60	$ 4,252.50	$900	9.6	7.5
35LED	CR-193	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,140	1,560	0.6	$ 296.40	$ 2,835.00	$600	9.6	7.5
35LED	Office 197	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3000	540	2	T 59 R LED	RTLED38	38	0.1	SW	3,000	228	312	0.1	$ 59.28	$ 472.50	$100	8.0	6.3
35LED	Office 195	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3000	540	2	T 59 R LED	RTLED38	38	0.1	SW	3,000	228	312	0.1	$ 59.28	$ 472.50	$100	8.0	6.3
35LED	Prep Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3000	540	2	T 59 R LED	RTLED38	38	0.1	SW	3,000	228	312	0.1	$ 59.28	$ 472.50	$100	8.0	6.3
35LED	Prep Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3000	540	2	T 59 R LED	RTLED38	38	0.1	SW	3,000	228	312	0.1	$ 59.28	$ 472.50	$100	8.0	6.3
35LED	CR-191	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	2500	4,050	18	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,710	2,340	0.9	$ 444.60	$ 4,252.50	$900	9.6	7.5
5LED	CR-191	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	2500	600	4	2T XX R LED	2RTLED	25	0.1	SW	2,500	250	350	0.1	$ 66.50	$ 810.00	$200	12.2	9.2
35LED	CR-192	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2500	3,825	17	T 59 R LED	RTLED38	38	0.6	SW	2,500	1,615	2,210	0.9	$ 419.90	$ 4,016.25	$850	9.6	7.5
35LED	CR-192A	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2500	1,350	6	T 59 R LED	RTLED38	38	0.2	SW	2,500	570	780	0.3	$ 148.20	$ 1,417.50	$300	9.6	7.5
35LED	CR-192A Closet	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2500	450	2	T 59 R LED	RTLED38	38	0.1	SW	2,500	190	260	0.1	$ 49.40	$ 472.50	$100	9.6	7.5
35LED	CR-194	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2500	3,375	15	T 59 R LED	RTLED38	38	0.6	SW	2,500	1,425	1,950	0.8	$ 370.50	$ 3,543.75	$750	9.6	7.5
46LED	194A	12	W 32 P F 2 (ELE)	F42ILL	59	0.7	SW	2500	1,770	12	4 ft LED Tube	200732x2	30	0.4	SW	2,500	900	870	0.3	$ 165.30	$ 1,960.20	$0	11.9	11.9
46LED	194A Closet	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	SW	2,500	75	73	0.0	$ 13.78	$ 163.35	$0	11.9	11.9
35LED	CR-196	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2500	675	3	T 59 R LED	RTLED38	38	0.1	SW	2,500	285	390	0.2	$ 74.10	$ 708.75	$150	9.6	7.5
35LED	CR-198	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	2500	4,725	21	T 59 R LED	RTLED38	38	0.8	SW	2,500	1,995	2,730	1.1	$ 518.70	$ 4,961.25	$1,050	9.6	7.5
35LED	CR-198A	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2500	1,350	6	T 59 R LED	RTLED38	38	0.2	SW	2,500	570	780	0.3	$ 148.20	$ 1,417.50	$300	9.6	7.5
5LED	Corridor	13	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.8	SW	8736	6,814	13	2T XX R LED	2RTLED	25	0.3	SW	8,736	2,839	3,975	0.5	$ 755.23	$ 2,632.50	$650	3.5	2.6
5LED	Corridor	9	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.5	SW	8736	4,717	9	2T XX R LED	2RTLED	25	0.2	SW	8,736	1,966	2,752	0.3	$ 522.85	$ 1,822.50	$450	3.5	2.6
5LED	Corridor	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	8736	524	1	2T XX R LED	2RTLED	25	0.0	SW	8,736	218	306	0.0	$ 58.09	$ 202.50	$50	3.5	2.6
196LED	Corridor	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	8736	978	1	T 74 R LED	RTLED50	50	0.1	SW	8,736	437	542	0.1	$ 102.91	$ 236.25	$0	2.3	2.3
35LED	Cafeteria	57	T 32 R F 3 (ELE)	F43ILL/2	90	5.1	SW	3000	15,390	57	T 59 R LED	RTLED38	38	2.2	SW	3,000	6,498	8,892	3.0	$ 1,689.48	$ 13,466.25	$2,850	8.0	6.3
46LED	Kitchen	19	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2000	2,242	19	4 ft LED Tube	200732x2	30	0.6	SW	2,000	1,140	1,102	0.6	$ 209.38	$ 3,103.65	$0	14.8	14.8
32LED	Serving	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	2000	1,680	14	4 ft LED Tube	200732x2	30	0.4	SW	2,000	840	840	0.4	$ 159.60	$ 3,271.80	$630	20.5	16.6
32LED	Serving Adjacent	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2000	480	4	4 ft LED Tube	200732x2	30	0.1	SW	2,000	240	240	0.1	$ 45.60	$ 934.80	$180	20.5	16.6
117	Faculty Lounge	31	CF 23	CFS23/1	23	0.7	SW	3000	2,139	31	CF 23	CFS23/1	23	0.7	SW	3,000	2,139	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	CR-115	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	SW	2500	2,250	10	T 59 R LED	RTLED38	38	0.4	SW	2,500	950	1,300	0.5	$ 247.00	$ 2,362.50	$500	9.6	7.5
35LED	CR115 Corridor	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2500	900	4	T 59 R LED	RTLED38	38	0.2	SW	2,500	380	520	0.2	$ 98.80	$ 945.00	$200	9.6	7.5
35LED	115A	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2500	450	2	T 59 R LED	RTLED38	38	0.1	SW	2,500	190	260	0.1	$ 49.40	$ 472.50	$100	9.6	7.5
32LED	Room 113	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3000	720	4	4 ft LED Tube	200732x2	30	0.1	SW	3,000	360	360	0.1	$ 68.40	$ 934.80	$180	13.7	11.0
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	SW	3,000	180	180	0.1	$ 34.20	$ 467.40	$90	13.7	11.0
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	SW	3,000	180	180	0.1	$ 34.20	$ 467.40	$90	13.7	11.0
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	SW	3,000	180	180	0.1	$ 34.20	$ 467.40	$90	13.7	11.0
32LED	Room 111	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	SW	3,000	180	180	0.1	$ 34.20	$ 467.40	$90	13.7	11.0
32LED	Room 109	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3000	720	4	4 ft LED Tube	200732x2	30	0.1	SW	3,000	360	360	0.1	$ 68.40	$ 934.80	$180	13.7	11.0
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	SW	3,000	180	180	0.1	$ 34.20	$ 467.40	$90	13.7	11.0
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	SW	3,000	180	180	0.1	$ 34.20	$ 467.40	$90	13.7	11.0
32LED	Room 105	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3000	2,520	14	4 ft LED Tube	200732x2	30	0.4	SW	3,000	1,260	1,260	0.4	$ 239.40	$ 3,271.80	$630	13.7	11.0
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	SW	3,000	150	186	0.1	$ 35.34	$ 236.25	$0	6.7	6.7
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	SW	3,000	150	186	0.1	$ 35.34	$ 236.25	$0	6.7	6.7
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	SW	3,000	150	186	0.1	$ 35.34	$ 236.25	$0	6.7	6.7
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	SW	3,000	150	186	0.1	$ 35.34	$ 236.25	$0	6.7	6.7
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	SW	3,000	150	186	0.1	$ 35.34	$ 236.25	$0	6.7	6.7
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	SW	3,000	150	186	0.1	$ 35.34	$ 236.25	$0	6.7	6.7
5LED	Corridor	14	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.8	SW	8736	7,338	14	2T XX R LED	2RTLED	25	0.4	SW	8,736	3,058	4,281	0.5	$ 813.32	$ 2,835.00	$700	3.5	2.6
35LED	Corridor	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	8736	3,931	5	T 59 R LED	RTLED38	38	0.2	SW	8,736	1,660	2,271	0.3	$ 431.56	$ 1,181.25	$250	2.7	2.2
35LED	Corridor	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	8736	1,572	2	T 59 R LED	RTLED38	38	0.1	SW	8,736	664	909	0.1	$ 172.62	$ 472.50	$100	2.7	2.2
46LED	Room 102	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	3000	2,655	15	4 ft LED Tube	200732x2	30	0.5	SW	3,000	1,350	1,305	0.4	$ 247.95	$ 2,450.25	$0	9.9	9.9
196LED	Room 104	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	SW	3000	1,344	4	T 74 R LED	RTLED50	50	0.2	SW	3,000	600	744	0.2	$ 141.36	$ 945.00	$0	6.7	6.7
46LED	Room 106 - General Office	30	W 32 P F 2 (ELE)	F42ILL	59	1.8	SW	3000	5,310	30	4 ft LED Tube	200732x2	30	0.9	SW	3,000	2,700	2,610	0.9	$ 495.90	$ 4,900.50	$0	9.9	9.9
46LED	Room 106A	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	SW	3,000	360	348	0.1	$ 66.12	$ 653.40	$0	9.9	9.9
46LED	Room 106B	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	SW	3,000	360	348	0.1	$ 66.12	$ 653.40	$0	9.9	9.9
46LED	Room 110 - Principal's Office	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	3000	354	2	4 ft LED Tube	200732x2	30	0.1	SW	3,000	180	174	0.1	$ 33.06	$ 326.70	$0	9.9	9.9
196LED	Room 112	5	W 32 C F 4 (ELE)	F44ILL	112	0.6	SW	3000	1,680	5	T 74 R LED	RTLED50	50	0.3	SW	3,000	750	930	0.3	$ 176.70	$ 1,181.25	$0	6.7	6.7
196LED	Room 114	3	W 32 C F 4 (ELE)	F44ILL	112	0.3	SW	3000	1,008	3	T 74 R LED	RTLED50	50	0.2	SW	3,000	450	558	0.2	$ 106.02	$ 708.75	$0	6.7	6.7

Energy Audit of Ridgewood Board of Education - Ridgewood High School
CHA Project No.30237
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
196LED	Room 114A	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	SW	3,000	150	186	0.1	$ 35.34	$ 236.25	$0	6.7	6.7
196LED	Room 114B	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	SW	3,000	150	186	0.1	$ 35.34	$ 236.25	$0	6.7	6.7
196LED	Room 114C	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	SW	3,000	150	186	0.1	$ 35.34	$ 236.25	$0	6.7	6.7
196LED	Room 114D	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	SW	3,000	150	186	0.1	$ 35.34	$ 236.25	$0	6.7	6.7
46LED	CR-116	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2500	1,180	8	4 ft LED Tube	200732x2	30	0.2	SW	2,500	600	580	0.2	$ 110.20	$ 1,306.80	$0	11.9	11.9
46LED	Closet	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	236	2	4 ft LED Tube	200732x2	30	0.1	SW	2,000	120	116	0.1	$ 22.04	$ 326.70	$0	14.8	14.8
46LED	Closet	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	236	2	4 ft LED Tube	200732x2	30	0.1	SW	2,000	120	116	0.1	$ 22.04	$ 326.70	$0	14.8	14.8
146LED	Campus Center	12	High Bay MH 400	MH400/1	458	5.5	SW	8736	48,013	12	BAYLED78W	BAYLED78W	93	1.1	SW	8,736	9,749	38,264	4.4	$ 7,270.10	$ 10,130.35	$0	1.4	1.4
117	Campus Center	18	CF 23	CFS23/1	23	0.4	SW	8736	3,617	18	CF 23	CFS23/1	23	0.4	SW	8,736	3,617	-	0.0	$ -	$ -	$0		#DIV/0!
5LED	Campus Center Storage	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	240	2	2T XX R LED	2RTLED	25	0.1	SW	2,000	100	140	0.1	$ 26.60	$ 405.00	$100	15.2	11.5
5LED	Campus Center Storage	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	240	2	2T XX R LED	2RTLED	25	0.1	SW	2,000	100	140	0.1	$ 26.60	$ 405.00	$100	15.2	11.5
35LED	Campus Center Store	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	8736	3,931	5	T 59 R LED	RTLED38	38	0.2	SW	8,736	1,660	2,271	0.3	$ 431.56	$ 1,181.25	$250	2.7	2.2
46LED	Stage	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	4368	2,062	8	4 ft LED Tube	200732x2	30	0.2	SW	4,368	1,048	1,013	0.2	$ 192.54	$ 1,306.80	$0	6.8	6.8
233	Little Theater	48	R 100 C I 1	i100/1	100	4.8	SW	4368	20,966	48	CF 26	CFQ26/1-L	27	1.3	SW	4,368	5,661	15,305	3.5	$ 2,908.04	$ 972.00	$0	0.3	0.3
46LED	CR-150	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2500	443	3	4 ft LED Tube	200732x2	30	0.1	SW	2,500	225	218	0.1	$ 41.33	$ 490.05	$0	11.9	11.9
5LED	CR-150	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	2500	600	4	2T XX R LED	2RTLED	25	0.1	SW	2,500	250	350	0.1	$ 66.50	$ 810.00	$200	12.2	9.2
35LED	CR-150	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	2500	4,500	20	T 59 R LED	RTLED38	38	0.8	SW	2,500	1,900	2,600	1.0	$ 494.00	$ 4,725.00	$1,000	9.6	7.5
5LED	CR-150 Closet	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	2000	360	3	2T XX R LED	2RTLED	25	0.1	SW	2,000	150	210	0.1	$ 39.90	$ 607.50	$150	15.2	11.5
46LED	CR-152	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2500	443	3	4 ft LED Tube	200732x2	30	0.1	SW	2,500	225	218	0.1	$ 41.33	$ 490.05	$0	11.9	11.9
5LED	CR-152	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	2500	600	4	2T XX R LED	2RTLED	25	0.1	SW	2,500	250	350	0.1	$ 66.50	$ 810.00	$200	12.2	9.2
35LED	CR-152	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	2500	4,500	20	T 59 R LED	RTLED38	38	0.8	SW	2,500	1,900	2,600	1.0	$ 494.00	$ 4,725.00	$1,000	9.6	7.5
5LED	CR-152 Closet	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	2000	360	3	2T XX R LED	2RTLED	25	0.1	SW	2,000	150	210	0.1	$ 39.90	$ 607.50	$150	15.2	11.5
46LED	CR-136	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
46LED	CR-138	16	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	2500	2,360	16	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,200	1,160	0.5	$ 220.40	$ 2,613.60	$0	11.9	11.9
46LED	CR-140	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	SW	2500	885	6	4 ft LED Tube	200732x2	30	0.2	SW	2,500	450	435	0.2	$ 82.65	$ 980.10	$0	11.9	11.9
46LED	Room 142 - Office	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	SW	3000	1,062	6	4 ft LED Tube	200732x2	30	0.2	SW	3,000	540	522	0.2	$ 99.18	$ 980.10	$0	9.9	9.9
46LED	CR-144	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2500	1,180	8	4 ft LED Tube	200732x2	30	0.2	SW	2,500	600	580	0.2	$ 110.20	$ 1,306.80	$0	11.9	11.9
46LED	Music Practice	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	295	2	4 ft LED Tube	200732x2	30	0.1	SW	2,500	150	145	0.1	$ 27.55	$ 326.70	$0	11.9	11.9
46LED	Music Practice	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2500	590	4	4 ft LED Tube	200732x2	30	0.1	SW	2,500	300	290	0.1	$ 55.10	$ 653.40	$0	11.9	11.9
46LED	Music Practice	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	SW	2,500	75	73	0.0	$ 13.78	$ 163.35	$0	11.9	11.9
46LED	Music Practice	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	SW	2,500	75	73	0.0	$ 13.78	$ 163.35	$0	11.9	11.9
46LED	Music Practice	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	SW	2,500	75	73	0.0	$ 13.78	$ 163.35	$0	11.9	11.9
5LED	CR-146	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	2500	3,000	20	2T XX R LED	2RTLED	25	0.5	SW	2,500	1,250	1,750	0.7	$ 332.50	$ 4,050.00	$1,000	12.2	9.2
46LED	Boys' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	SW	2,142	193	186	0.1	$ 35.41	$ 490.05	$0	13.8	13.8
46LED	Girls' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	SW	2,142	193	186	0.1	$ 35.41	$ 490.05	$0	13.8	13.8
46LED	Room 133 - Office	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	SW	3,000	360	348	0.1	$ 66.12	$ 653.40	$0	9.9	9.9
46LED	Room 135 - Office	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	SW	3000	1,062	6	4 ft LED Tube	200732x2	30	0.2	SW	3,000	540	522	0.2	$ 99.18	$ 980.10	$0	9.9	9.9
5LED	CR-137	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	SW	2500	750	5	2T XX R LED	2RTLED	25	0.1	SW	2,500	313	438	0.2	$ 83.13	$ 1,012.50	$250	12.2	9.2
46LED	CR-139	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	2,950	20	4 ft LED Tube	200732x2	30	0.6	SW	2,500	1,500	1,450	0.6	$ 275.50	$ 3,267.00	$0	11.9	11.9
46LED	Room 141 - Office	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	SW	3,000	360	348	0.1	$ 66.12	$ 653.40	$0	9.9	9.9
46LED	CR-143	10	W 32 P F 2 (ELE)	F42ILL	59	0.6	SW	2500	1,475	10	4 ft LED Tube	200732x2	30	0.3	SW	2,500	750	725	0.3	$ 137.75	$ 1,633.50	$0	11.9	11.9
5LED	CR-143	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	SW	2500	750	5	2T XX R LED	2RTLED	25	0.1	SW	2,500	313	438	0.2	$ 83.13	$ 1,012.50	$250	12.2	9.2
46LED	CR-145	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
5LED	Control	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3000	720	4	2T XX R LED	2RTLED	25	0.1	SW	3,000	300	420	0.1	$ 79.80	$ 810.00	$200	10.2	7.6
46LED	Storage	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	236	2	4 ft LED Tube	200732x2	30	0.1	SW	2,000	120	116	0.1	$ 22.04	$ 326.70	$0	14.8	14.8
35LED	2nd Floor - CR-292	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,805	2,470	1.0	$ 469.30	$ 4,488.75	$950	9.6	7.5
35LED	CR-294	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,805	2,470	1.0	$ 469.30	$ 4,488.75	$950	9.6	7.5
35LED	CR-296	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	2500	4,050	18	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,710	2,340	0.9	$ 444.60	$ 4,252.50	$900	9.6	7.5
35LED	CR-298	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,805	2,470	1.0	$ 469.30	$ 4,488.75	$950	9.6	7.5
35LED	CR291	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,805	2,470	1.0	$ 469.30	$ 4,488.75	$950	9.6	7.5
35LED	CR-293	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,805	2,470	1.0	$ 469.30	$ 4,488.75	$950	9.6	7.5
35LED	Toilet	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	2142	193	1	T 59 R LED	RTLED38	38	0.0	SW	2,142	81	111	0.1	$ 21.16	$ 236.25	$50	11.2	8.8
35LED	Toilet	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	2142	193	1	T 59 R LED	RTLED38	38	0.0	SW	2,142	81	111	0.1	$ 21.16	$ 236.25	$50	11.2	8.8
35LED	Room 295 - Office	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	3000	3,780	14	T 59 R LED	RTLED38	38	0.5	SW	3,000	1,596	2,184	0.7	$ 414.96	$ 3,307.50	$700	8.0	6.3
35LED	Storage	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2000	540	3	T 59 R LED	RTLED38	38	0.1	SW	2,000	228	312	0.2	$ 59.28	$ 708.75	$150	12.0	9.4
35LED	Room 297 - Office	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	3000	3,780	14	T 59 R LED	RTLED38	38	0.5	SW	3,000	1,596	2,184	0.7	$ 414.96	$ 3,307.50	$700	8.0	6.3
35LED	CR-299	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	2500	3,150	14	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,330	1,820	0.7	$ 345.80	$ 3,307.50	$700	9.6	7.5
5LED	Hallway	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	SW	8736	9,959	19	2T XX R LED	2RTLED	25	0.5	SW	8,736	4,150	5,809	0.7	$ 1,103.79	$ 3,847.50	$950	3.5	2.6
46LED	CR-222	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
35LED	Room 224 - Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3000	1,080	4	T 59 R LED	RTLED38	38	0.2	SW	3,000	456	624	0.2	$ 118.56	$ 945.00	$200	8.0	6.3
46LED	CR-226	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
35LED	CR-220	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2500	2,025	9	T 59 R LED	RTLED38	38	0.3	SW	2,500	855	1,170	0.5	$ 222.30	$ 2,126.25	$450	9.6	7.5
35LED	CR-218	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,140	1,560	0.6	$ 296.40	$ 2,835.00	$600	9.6	7.5
46LED	CR-218 Closet	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	236	2	4 ft LED Tube	200732x2	30	0.1	SW	2,000	120	116	0.1	$ 22.04	$ 326.70	$0	14.8	14.8
5LED	Hallway	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	8736	1,572	3	2T XX R LED	2RTLED	25	0.1	SW	8,736	655	917	0.1	$ 174.28	$ 607.50	$150	3.5	2.6
196LED	Storage - 219	6	W 32 C F 4 (ELE)	F44ILL	112	0.7	SW	2000	1,344	6	T 74 R LED	RTLED50	50	0.3	SW	2,000	600	744	0.4	$ 141.36	$ 1,417.50	$0	10.0	10.0
5LED	CR-217	15	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.9	SW	2500	2,250	15	2T XX R LED	2RTLED	25	0.4	SW	2,500	938	1,313	0.5	$ 249.38	$ 3,037.50	$750	12.2	9.2
46LED	CR-215	21	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	3,098	21	4 ft LED Tube	200732x2	30	0.6	SW	2,500	1,575	1,523	0.6	$ 289.28	$ 3,430.35	$0	11.9	11.9
46LED	CR-213	9	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2500	1,328	9	4 ft LED Tube	200732x2	30	0.3	SW	2,500	675	653	0.3	$ 123.98	$ 1,470.15	$0	11.9	11.9
35LED	Room 211 - Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3000	1,080	4	T 59 R LED	RTLED38	38	0.2	SW	3,000	456	624	0.2	$ 118.56	$ 945.00	$200	8.0	6.3
46LED	CR-211	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2500	1,180	8	4 ft LED Tube	200732x2	30	0.2	SW	2,500	600	580	0.2	$ 110.20	$ 1,306.80	$0	11.9	11.9
196LED	CR-216	12	W 32 C F 4 (ELE)	F44ILL	112	1.3	SW	2500	3,360	12	T 74 R LED	RTLED50	50	0.6	SW	2,500	1,500	1,860	0.7	$ 353.40	$ 2,835.00	$0	8.0	8.0
196LED	CR-214	18	W 32 C F 4 (ELE)	F44ILL	112	2.0	SW	2500	5,040	18	T 74 R LED	RTLED50	50	0.9	SW	2,500	2,250	2,790	1.1	$ 530.10	$ 4,252.50	$0	8.0	8.0
196LED	CR-212	18	W 32 C F 4 (ELE)	F44ILL	112	2.0	SW	2500	5,040	18	T 74 R LED	RTLED50	50	0.9	SW	2,500	2,250	2,790	1.1	$ 530.10	$ 4,252.50	$0	8.0	8.0
35LED	Room 210 - Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3000	2,160	8	T 59 R LED	RTLED38	38	0.3	SW	3,000	912	1,248	0.4	$ 237.12	$ 1,890.00	$400	8.0	6.3
46LED	CR-208	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
46LED	CR-206	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
46LED	CR-204	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
5LED	CR-202	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	SW	2500	3,300	22	2T XX R LED	2RTLED	25	0.6	SW	2,500	1,375	1,925	0.8	$ 365.75	$ 4,455.00	$1,100	12.2	9.2
46LED	Room 200 - Office	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	SW	3,000	360	348	0.1	$ 66.12	$ 653.40	$0	9.9	9.9
46LED	Room 201	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	3000	1,416	8	4 ft LED Tube	200732x2	30	0.2	SW	3,000	720	696	0.2	$ 132.24	$ 1,306.80	$0	9.9	9.9
46LED	Room 201A	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	3000	1,416	8	4 ft LED Tube	200732x2	30	0.2	SW	3,000	720	696	0.2	$ 132.24	$ 1,306.80	$0	9.9	9.9
46LED	CR-203	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
46LED	CR-205	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
196LED	Room 207 - Office	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	SW	3000	1,344	4	T 74 R LED	RTLED50	50	0.2	SW	3,000	600	744	0.2	$ 141.36	$ 945.00	$0	6.7	6.7
46LED	Hallway	30	W 32 P F 2 (ELE)	F42ILL	59	1.8	SW	8736	15,463	30	4 ft LED Tube	200732x2	30	0.9	SW	8,736	7,862	7,600	0.9	$ 1,444.06	$ 4,900.50	$0	3.4	3.4
46LED	Room 254	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	SW	3,000	360	348	0.1	$ 66.12	$ 653.40	$0	9.9	9.9
46LED	Room 252	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	531	3	4 ft LED Tube	200732x2	30	0.1	SW	3,000	270	261	0.1	$ 49.59	$ 490.05	$0	9.9	9.9
46LED	Room 250	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	531	3	4 ft LED Tube	200732x2	30	0.1	SW	3,000	270	261	0.1	$ 49.59	$ 490.05	$0	9.9	9.9
32LED	Hallway	15	1T 32 R F 2 (ELE)	F42LL	60	0.9	SW	8736	7,862	15	4 ft LED Tube	200732x2	30	0.5	SW	8,736	3,931	3,931	0.5	$ 746.93	$ 3,505.50	$675	4.7	3.8
198LED	Media Center	78	2T 17 R F 2 (ELE)	F22LL	31	2.4	SW	3000	7,254	78	2T 25 R LED	2RTLED	25	2.0	SW	3,000	5,850	1,404	0.5	$ 266.76	$ 15,795.00	$0	59.2	59.2
198LED	Media Center	25	2T 17 R F 2 (ELE)	F22LL	31	0.8	SW	3000	2,325	25	2T 25 R LED	2RTLED	25	0.6	SW	3,000	1,875	450	0.2	$ 85.50	$ 5,062.50	$0	59.2	59.2
117	Media Center	18	CF 23	CFS23/1	23	0.4	SW	3000	1,242	18	CF 23	CFS23/1	23	0.4	SW	3,000	1,242	-	0.0	$ -	$ -	$0		#DIV/0!
35LED	Media Center	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3000	2,160	8	T 59 R LED	RTLED38	38	0.3	SW	3,000	912	1,248	0.4	$ 237.12	$ 1,890.00	$400	8.0	6.3
35LED	Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3000	1,080	4	T 59 R LED	RTLED38	38	0.2	SW	3,000	456	624	0.2	$ 118.56	$ 945.00	$200	8.0	6.3
35LED	CR-247	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2500	900	4	T 59 R LED	RTLED38	38	0.2	SW	2,500	380	520	0.2	$ 98.80	$ 945.00	$200	9.6	7.5
5LED	Hallway	30	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.8	SW	8736	15,725	30	2T XX R LED	2RTLED	25	0.8	SW	8,736	6,552	9,173	1.1	$ 1,742.83	$ 6,075.00	$1,500	3.5	2.6
117	Hallway	2	CF 23	CFS23/1	23	0.0	SW	8736	402	2	CF 23	CFS23/1	23	0.0	SW	8,736	402	-	0.0	$ -	$ -	$0		#DIV/0!
46LED	Office 243	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	3000	1,416	8	4 ft LED Tube	200732x2	30	0.2	SW	3,000	720	696	0.2	$ 132.24	$ 1,306.80	$0	9.9	9.9
46LED	CR-241	21	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	3,098	21	4 ft LED Tube	200732x2	30	0.6	SW	2,500	1,575	1,523	0.6	$ 289.28	$ 3,430.35	$0	11.9	11.9
46LED	CR-239	21	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	3,098	21	4 ft LED Tube	200732x2	30	0.6	SW	2,500	1,575	1,523	0.6	$ 289.28	$ 3,430.35	$0	11.9	11.9
46LED	Storage 237	7	W 32 P F 2 (ELE)	F42ILL	59	0.4	SW	2000	826	7	4 ft LED Tube	200732x2	30	0.2	SW	2,000	420	406	0.2	$ 77.14	$ 1,143.45	$0	14.8	14.8
46LED	Storage 235	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2000	472	4	4 ft LED Tube	200732x2	30	0.1	SW	2,000	240	232	0.1	$ 44.08	$ 653.40	$0	14.8	14.8
46LED	CR-236	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	2,950	20	4 ft LED Tube	200732x2	30	0.6	SW	2,500	1,500	1,450	0.6	$ 275.50	$ 3,267.00	$0	11.9	11.9
46LED	CR-238	12	W 32 P F 2 (ELE)	F42ILL	59	0.7	SW	2500	1,770	12	4 ft LED Tube	200732x2	30	0.4	SW	2,500	900	870	0.3	$ 165.30	$ 1,960.20	$0	11.9	11.9
46LED	CR-240	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	2,950	20	4 ft LED Tube	200732x2	30	0.6	SW	2,500	1,500	1,450	0.6	$ 275.50	$ 3,267.00	$0	11.9	11.9
46LED	Office 242	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	SW	3,000	360	348	0.1	$ 66.12	$ 653.40	$0	9.9	9.9
46LED	CR-244	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	2,950	20	4 ft LED Tube	200732x2	30	0.6	SW	2,500	1,500	1,450	0.6	$ 275.50	$ 3,267.00	$0	11.9	11.9
46LED	Office 246	9	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	3000	1,593	9	4 ft LED Tube	200732x2	30	0.3	SW	3,000	810	783	0.3	$ 148.77	$ 1,470.15	$0	9.9	9.9
46LED	CR-248	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	2,950	20	4 ft LED Tube	200732x2	30	0.6	SW	2,500	1,500	1,450	0.6	$ 275.50	$ 3,267.00	$0	11.9	11.9
46LED	Boys' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	SW	2,142	193	186	0.1	$ 35.41	$ 490.05	$0	13.8	13.8
46LED	Girls' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	SW	2,142	193	186	0.1	$ 35.41	$ 490.05	$0	13.8	13.8
46LED	CR-234	14	W 32 P F 2 (ELE)	F42ILL	59	0.8	SW	2500	2,065	14	4 ft LED Tube	200732x2	30	0.4	SW	2,500	1,050	1,015	0.4	$ 192.85	$ 2,286.90	$0	11.9	11.9
35LED	CR-232	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,140	1,560	0.6	$ 296.40	$ 2,835.00	$600	9.6	7.5
46LED	CR-230	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
46LED	CR-228	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
46LED	CR-229	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
46LED	CR-231	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
46LED	CR-233	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	SW	2,500	1,350	1,305	0.5	$ 247.95	$ 2,940.30	$0	11.9	11.9
46LED	Hallway	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	8736	10,308	20	4 ft LED Tube	200732x2	30	0.6	SW	8,736	5,242	5,067	0.6	$ 962.71	$ 3,267.00	$0	3.4	3.4
46LED	Hallway	30	W 32 P F 2 (ELE)	F42ILL	59	1.8	SW	8736	15,463	30	4 ft LED Tube	200732x2	30	0.9	SW	8,736	7,862	7,600	0.9	$ 1,444.06	$ 4,900.50	$0	3.4	3.4
35LED	3rd Floor - CR-392	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,805	2,470	1.0	$ 469.30	$ 4,488.75	$950	9.6	7.5

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
35LED	CR-394	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2500	3,825	17	T 59 R LED	RTLED38	38	0.6	SW	2,500	1,615	2,210	0.9	$ 419.90	$ 4,016.25	$850	9.6	7.5
5LED	CR-394	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2500	300	2	2T XX R LED	2RTLED	25	0.1	SW	2,500	125	175	0.1	$ 33.25	$ 405.00	$100	12.2	9.2
35LED	CR-396	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,805	2,470	1.0	$ 469.30	$ 4,488.75	$950	9.6	7.5
35LED	CR-398	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2500	3,600	16	T 59 R LED	RTLED38	38	0.6	SW	2,500	1,520	2,080	0.8	$ 395.20	$ 3,780.00	$800	9.6	7.5
5LED	Office 399	6	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.4	SW	3000	1,080	6	2T XX R LED	2RTLED	25	0.2	SW	3,000	450	630	0.2	$ 119.70	$ 1,215.00	$300	10.2	7.6
35LED	CR-397	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2500	3,600	16	T 59 R LED	RTLED38	38	0.6	SW	2,500	1,520	2,080	0.8	$ 395.20	$ 3,780.00	$800	9.6	7.5
35LED	CR-395	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2500	3,825	17	T 59 R LED	RTLED38	38	0.6	SW	2,500	1,615	2,210	0.9	$ 419.90	$ 4,016.25	$850	9.6	7.5
5LED	CR-395	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2500	300	2	2T XX R LED	2RTLED	25	0.1	SW	2,500	125	175	0.1	$ 33.25	$ 405.00	$100	12.2	9.2
35LED	CR-393	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,805	2,470	1.0	$ 469.30	$ 4,488.75	$950	9.6	7.5
35LED	CR-391	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,805	2,470	1.0	$ 469.30	$ 4,488.75	$950	9.6	7.5
35LED	Prep Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2500	450	2	T 59 R LED	RTLED38	38	0.1	SW	2,500	190	260	0.1	$ 49.40	$ 472.50	$100	9.6	7.5
5LED	Hallway	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	SW	8736	11,532	22	2T XX R LED	2RTLED	25	0.6	SW	8,736	4,805	6,727	0.8	$ 1,278.08	$ 4,455.00	$1,100	3.5	2.6
35LED	CR-326	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	SW	2500	2,250	10	T 59 R LED	RTLED38	38	0.4	SW	2,500	950	1,300	0.5	$ 247.00	$ 2,362.50	$500	9.6	7.5
35LED	CR-324	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	2500	3,150	14	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,330	1,820	0.7	$ 345.80	$ 3,307.50	$700	9.6	7.5
35LED	CR-322	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	SW	2500	2,250	10	T 59 R LED	RTLED38	38	0.4	SW	2,500	950	1,300	0.5	$ 247.00	$ 2,362.50	$500	9.6	7.5
196LED	Office 320	2	W 32 C F 4 (ELE)	F44ILL	112	0.2	SW	3000	672	2	T 74 R LED	RTLED50	50	0.1	SW	3,000	300	372	0.1	$ 70.68	$ 472.50	$0	6.7	6.7
196LED	Office 320 Closet	3	W 32 C F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	T 74 R LED	RTLED50	50	0.2	SW	2,000	300	372	0.2	$ 70.68	$ 708.75	$0	10.0	10.0
35LED	Office 318	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3000	1,080	4	T 59 R LED	RTLED38	38	0.2	SW	3,000	456	624	0.2	$ 118.56	$ 945.00	$200	8.0	6.3
196LED	Office 316	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	SW	3000	1,344	4	T 74 R LED	RTLED50	50	0.2	SW	3,000	600	744	0.2	$ 141.36	$ 945.00	$0	6.7	6.7
46LED	Storage 319	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	118	1	4 ft LED Tube	200732x2	30	0.0	SW	2,000	60	58	0.0	$ 11.02	$ 163.35	$0	14.8	14.8
35LED	CR-317	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2500	2,025	9	T 59 R LED	RTLED38	38	0.3	SW	2,500	855	1,170	0.5	$ 222.30	$ 2,126.25	$450	9.6	7.5
5LED	CR-315	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	SW	2500	2,850	19	2T XX R LED	2RTLED	25	0.5	SW	2,500	1,188	1,663	0.7	$ 315.88	$ 3,847.50	$950	12.2	9.2
5LED	CR-313	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	SW	2500	3,300	22	2T XX R LED	2RTLED	25	0.6	SW	2,500	1,375	1,925	0.8	$ 365.75	$ 4,455.00	$1,100	12.2	9.2
35LED	CR-309	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	2500	3,150	14	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,330	1,820	0.7	$ 345.80	$ 3,307.50	$700	9.6	7.5
5LED	CR-305	24	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.4	SW	2500	3,600	24	2T XX R LED	2RTLED	25	0.6	SW	2,500	1,500	2,100	0.8	$ 399.00	$ 4,860.00	$1,200	12.2	9.2
5LED	CR-303	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	SW	2500	2,850	19	2T XX R LED	2RTLED	25	0.5	SW	2,500	1,188	1,663	0.7	$ 315.88	$ 3,847.50	$950	12.2	9.2
5LED	CR-301	10	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.6	SW	2500	1,500	10	2T XX R LED	2RTLED	25	0.3	SW	2,500	625	875	0.4	$ 166.25	$ 2,025.00	$500	12.2	9.2
46LED	CR-301	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2500	443	3	4 ft LED Tube	200732x2	30	0.1	SW	2,500	225	218	0.1	$ 41.33	$ 490.05	$0	11.9	11.9
196LED	Office 300	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	SW	3000	1,344	4	T 74 R LED	RTLED50	50	0.2	SW	3,000	600	744	0.2	$ 141.36	$ 945.00	$0	6.7	6.7
46LED	CR-302	9	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2500	1,328	9	4 ft LED Tube	200732x2	30	0.3	SW	2,500	675	653	0.3	$ 123.98	$ 1,470.15	$0	11.9	11.9
5LED	Hallway	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	8736	2,097	4	2T XX R LED	2RTLED	25	0.1	SW	8,736	874	1,223	0.1	$ 232.38	$ 810.00	$200	3.5	2.6
46LED	Hallway	13	W 32 P F 2 (ELE)	F42ILL	59	0.8	SW	8736	6,701	13	4 ft LED Tube	200732x2	30	0.4	SW	8,736	3,407	3,293	0.4	$ 625.76	$ 2,123.55	$0	3.4	3.4
46LED	Stairway	16	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	8736	8,247	16	4 ft LED Tube	200732x2	30	0.5	SW	8,736	4,193	4,054	0.5	$ 770.17	$ 2,613.60	$0	3.4	3.4
35LED	CR-332	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,140	1,560	0.6	$ 296.40	$ 2,835.00	$600	9.6	7.5
35LED	CR-330	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	2500	4,050	18	T 59 R LED	RTLED38	38	0.7	SW	2,500	1,710	2,340	0.9	$ 444.60	$ 4,252.50	$900	9.6	7.5
35LED	CR-328	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,140	1,560	0.6	$ 296.40	$ 2,835.00	$600	9.6	7.5
196LED	Office 327	2	W 32 C F 4 (ELE)	F44ILL	112	0.2	SW	3000	672	2	T 74 R LED	RTLED50	50	0.1	SW	3,000	300	372	0.1	$ 70.68	$ 472.50	$0	6.7	6.7
35LED	CR-329	24	T 32 R F 3 (ELE)	F43ILL/2	90	2.2	SW	2500	5,400	24	T 59 R LED	RTLED38	38	0.9	SW	2,500	2,280	3,120	1.2	$ 592.80	$ 5,670.00	$1,200	9.6	7.5
35LED	CR-331	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	SW	2,500	1,140	1,560	0.6	$ 296.40	$ 2,835.00	$600	9.6	7.5
46LED	Hallway	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	8736	10,308	20	4 ft LED Tube	200732x2	30	0.6	SW	8,736	5,242	5,067	0.6	$ 962.71	$ 3,267.00	$0	3.4	3.4
	Total	**2,907**				**232.4**			**847,437**	**2,907**			**9,733**	**97.8**			**342,900**	**504,537**	**134.6**	**$95,862**	**$607,530**	**$67,130**		
																	Demand Savings			**134.6**	**$0**			

Energy Audit of Ridgewood Board of Education - Ridgewood High School
CHA Project No.30237
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS					RETROFIT CONDITIONS				COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46LED	Basement - Office	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	424.8	106.2	0.0	$20.18	$128.25	$20.00	6.4	5.4
46LED	Fitness Center	61	W 32 P F 2 (ELE)	F42ILL	59	3.6	3.6	OCC	4368	15,720.4	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Weight Room	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	4368	773.1	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Fitness Center	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	4368	1,546.3	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Recreation Room	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	4368	773.1	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Boiler Room	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	NONE	4368	2,061.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Boiler Room Closet	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	4368	257.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Storage	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	NONE	2000	2,124.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
5LED	Storage	11	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.7	0.7	NONE	2000	1,320.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
20LED	Storage	17	S 28 P F 1 (ELE)	F41ILL	31	0.5	0.5	NONE	2000	1,054.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Room 18?	5	W 32 P F 2 (ELE)	F42ILL	59	0.3	0.3	OCC	2500	737.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	Room 16	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	0.8	OCC	2500	2,025.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 14	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	0.9	OCC	2500	2,212.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 12	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	0.9	OCC	2500	2,212.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 10	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 10 Closet	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2000	118.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Room 8	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	0.9	OCC	2500	2,212.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 6	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2500	147.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	Room 6	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	1.2	OCC	2500	2,925.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	Room 4	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	0.8	OCC	2500	2,025.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 2 - Storage	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	NONE	2000	944.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
20LED	Room 2 - Storage	4	S 28 P F 1 (ELE)	F41ILL	31	0.1	0.1	NONE	2000	248.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Hallway	14	W 32 P F 2 (ELE)	F42ILL	59	0.8	0.8	OCC	8736	7,215.9	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Hallway	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	8736	2,061.7	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Hallway	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	8736	4,123.4	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
41LED	Room 3 - Custodian Closet	5	1B 40 R F 2 (MAG)	F42SS	94	0.5	0.5	NONE	1250	587.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
191	Room 3 - Custodian Closet	1	S 60 C F 2 (ELE) 8'	F82EE	123	0.1	0.1	NONE	1250	153.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Room 3 - Custodian Closet	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	NONE	1250	295.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
235	Room 3 - Custodian Closet	2	SP 100 W I 2	i100/2	200	0.4	0.4	NONE	1250	500.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 5	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	0.8	OCC	2500	2,025.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
233	Room 5	1	R 100 C I 1	i100/1	100	0.1	0.1	OCC	2500	250.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	Room 7	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	1.2	OCC	2500	2,925.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 7	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2500	147.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Boys' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1713.6	303.3	75.8	0.0	$14.41	$128.25	$20.00	8.9	7.5
46LED	Girls' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1713.6	303.3	75.8	0.0	$14.41	$128.25	$20.00	8.9	7.5
46LED	Room 13	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2500	295.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Power Room	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1250	73.8	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
146LED	1st Floor - Gymnasium 1	20	High Bay MH 400	MH400/1	458	9.2	9.2	OCC	4368	40,010.9	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
146LED	Gymnasium 3	30	High Bay MH 400	MH400/1	458	13.7	13.7	OCC	4368	60,016.3	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
146LED	Gymnasium 2	22	High Bay MH 400	MH400/1	458	10.1	10.1	OCC	4368	44,012.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 118	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2500	590.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Storage	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2000	236.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
196LED	Office	6	W 32 C F 4 (ELE)	F44ILL	112	0.7	0.7	OCC	2400	1,612.8	403.2	0.0	$76.61	$128.25	$20.00	1.7	1.4
5LED	Corridor	18	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	1.1	NONE	8736	9,434.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
5LED	Toilet	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	OCC	1713.6	102.8	25.7	0.0	$4.88	$128.25	$20.00	26.3	22.2
5LED	Toilet	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	OCC	1713.6	102.8	25.7	0.0	$4.88	$128.25	$20.00	26.3	22.2
5LED	Corridor	18	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	1.1	NONE	8736	9,434.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
5LED	Corridor	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	1.3	NONE	8736	11,531.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	0.1	OCC	2400	216.0	54.0	0.0	$10.26	$128.25	$20.00	12.5	10.6
35LED	Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	0.1	OCC	2400	216.0	54.0	0.0	$10.26	$128.25	$20.00	12.5	10.6
35LED	Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	0.1	OCC	2400	216.0	54.0	0.0	$10.26	$128.25	$20.00	12.5	10.6
46LED	Train C	23	W 32 P F 2 (ELE)	F42ILL	59	1.4	1.4	OCC	2400	3,256.8	814.2	0.0	$154.70	$128.25	$20.00	0.8	0.7
32LED	Boys' Toilet	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	1713.6	411.3	102.8	0.0	$19.54	$128.25	$20.00	6.6	5.5
32LED	Girls' Toilet	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	1713.6	411.3	102.8	0.0	$19.54	$128.25	$20.00	6.6	5.5
32LED	Office	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	2400	576.0	144.0	0.0	$27.36	$128.25	$20.00	4.7	4.0
32LED	Boy's Locker Room	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	1.0	OCC	1600	1,536.0	384.0	0.0	$72.96	$128.25	$20.00	1.8	1.5
32LED	Boy's Locker Room - Team Room 1	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	1600	384.0	96.0	0.0	$18.24	$128.25	$20.00	7.0	5.9
32LED	Boy's Locker Room - Team Room 2	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	1600	192.0	48.0	0.0	$9.12	$128.25	$20.00	14.1	11.9
32LED	Boy's Locker Room - Team Room 3	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	0.4	OCC	1600	576.0	144.0	0.0	$27.36	$128.25	$20.00	4.7	4.0
117	Boy's Locker Room - Unmarked	6	CF 23	CFS23/1	23	0.1	0.1	OCC	1600	220.8	55.2	0.0	$10.49	$128.25	$20.00	12.2	10.3
32LED	Girls Locker Room	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	1.0	OCC	1600	1,536.0	384.0	0.0	$72.96	$128.25	$20.00	1.8	1.5
32LED	Girls Locker Room - Team Room 1	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	1600	384.0	96.0	0.0	$18.24	$128.25	$20.00	7.0	5.9
32LED	Girls Locker Room - Team Room 2	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	1600	192.0	48.0	0.0	$9.12	$128.25	$20.00	14.1	11.9
32LED	Girls Locker Room - Team Room 3	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	0.4	OCC	1600	576.0	144.0	0.0	$27.36	$128.25	$20.00	4.7	4.0
117	Girls Locker Room - Unmarked	6	CF 23	CFS23/1	23	0.1	0.1	OCC	1600	220.8	55.2	0.0	$10.49	$128.25	$20.00	12.2	10.3
5LED	Corridor	11	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.7	0.7	NONE	8736	5,765.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
5LED	Corridor	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	0.3	NONE	8736	2,620.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	CR-199	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	1.6	OCC	2500	4,050.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-193	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	2500	2,700.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	Office 197	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2400	432.0	108.0	0.0	$20.52	$128.25	$20.00	6.3	5.3
35LED	Office 195	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2400	432.0	108.0	0.0	$20.52	$128.25	$20.00	6.3	5.3
35LED	Prep Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2400	432.0	108.0	0.0	$20.52	$128.25	$20.00	6.3	5.3
35LED	Prep Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2400	432.0	108.0	0.0	$20.52	$128.25	$20.00	6.3	5.3
35LED	CR-191	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	1.6	OCC	2500	4,050.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-191	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	0.2	OCC	2500	600.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-192	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	1.5	OCC	2500	3,825.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-192A	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	2500	1,350.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-192A Closet	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2500	450.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-194	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	1.4	OCC	2500	3,375.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	194A	12	W 32 P F 2 (ELE)	F42ILL	59	0.7	0.7	OCC	2500	1,770.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	194A Closet	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2500	147.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-196	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	0.3	OCC	2500	675.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-198	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	1.9	OCC	2500	4,725.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-198A	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	2500	1,350.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!

		EXISTING CONDITIONS					RETROFIT CONDITIONS				COST & SAVINGS ANALYSIS						
	Area Description	**No. of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**kW/Space**	**Retrofit Control**	**Annual Hours**	**Annual kWh**	**Annual kWh Saved**	**Annual kW Saved**	**Annual $ Saved**	**Retrofit Cost**	**NJ Smart Start Lighting Incentive**	**Simple Payback With Out Incentive**	**Simple Payback**
Field Code	**Unique description of the location - Room number/Room name: Floor number (if applicable)**	**No. of fixtures before the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Fixt No.)**	**(Watts/Fixt) * (Number of Fixtures)**	**Retrofit control device**	**Estimated annual hours for the usage group**	**(kW/space) * (Annual Hours)**	**(Original Annual kWh) - (Retrofit Annual kWh)**	**(Original Annual kW) - (Retrofit Annual kW)**	**(kW Saved) * ($/kWh)**	**Cost for renovations to lighting system**		**Length of time for renovations cost to be recovered**	**Length of time for renovations cost to be recovered**
5LED	Corridor	13	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.8	0.8	NONE	8736	6,814.1	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
5LED	Corridor	9	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.5	0.5	NONE	8736	4,717.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
5LED	Corridor	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	NONE	8736	524.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
196LED	Corridor	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	NONE	8736	978.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Cafeteria	57	T 32 R F 3 (ELE)	F43ILL/2	90	5.1	5.1	OCC	3000	15,390.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Kitchen	19	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2000	2,242.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
32LED	Serving	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	0.8	OCC	2000	1,680.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
32LED	Serving Adjacent	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	2000	480.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
117	Faculty Lounge	31	CF 23	CFS23/1	23	0.7	0.7	OCC	2400	1,711.2	427.8	0.0	$81.28	$128.25	$20.00	1.6	1.3
35LED	CR-115	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	0.9	OCC	2500	2,250.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR115 Corridor	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	0.4	OCC	2500	900.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	115A	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2500	450.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
32LED	Room 113	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	2400	576.0	144.0	0.0	$27.36	$128.25	$20.00	4.7	4.0
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	2400	288.0	72.0	0.0	$13.68	$128.25	$20.00	9.4	7.9
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	2400	288.0	72.0	0.0	$13.68	$128.25	$20.00	9.4	7.9
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	2400	288.0	72.0	0.0	$13.68	$128.25	$20.00	9.4	7.9
32LED	Room 111	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	2400	288.0	72.0	0.0	$13.68	$128.25	$20.00	9.4	7.9
32LED	Room 109	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	2400	576.0	144.0	0.0	$27.36	$128.25	$20.00	4.7	4.0
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	2400	288.0	72.0	0.0	$13.68	$128.25	$20.00	9.4	7.9
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	2400	288.0	72.0	0.0	$13.68	$128.25	$20.00	9.4	7.9
32LED	Room 105	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	0.8	OCC	2400	2,016.0	504.0	0.0	$95.76	$128.25	$20.00	1.3	1.1
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	2400	268.8	67.2	0.0	$12.77	$128.25	$20.00	10.0	8.5
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	2400	268.8	67.2	0.0	$12.77	$128.25	$20.00	10.0	8.5
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	2400	268.8	67.2	0.0	$12.77	$128.25	$20.00	10.0	8.5
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	2400	268.8	67.2	0.0	$12.77	$128.25	$20.00	10.0	8.5
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	2400	268.8	67.2	0.0	$12.77	$128.25	$20.00	10.0	8.5
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	2400	268.8	67.2	0.0	$12.77	$128.25	$20.00	10.0	8.5
5LED	Corridor	14	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.8	0.8	NONE	8736	7,338.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Corridor	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	0.5	NONE	8736	3,931.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Corridor	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	0.2	NONE	8736	1,572.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Room 102	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	0.9	OCC	2400	2,124.0	531.0	0.0	$100.89	$128.25	$20.00	1.3	1.1
196LED	Room 104	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	0.4	OCC	2400	1,075.2	268.8	0.0	$51.07	$128.25	$20.00	2.5	2.1
46LED	Room 106 - General Office	30	W 32 P F 2 (ELE)	F42ILL	59	1.8	1.8	OCC	2400	4,248.0	1,062.0	0.0	$201.78	$128.25	$20.00	0.6	0.5
46LED	Room 106A	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	566.4	141.6	0.0	$26.90	$128.25	$20.00	4.8	4.0
46LED	Room 106B	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	566.4	141.6	0.0	$26.90	$128.25	$20.00	4.8	4.0
46LED	Room 110 - Principal's Office	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2400	283.2	70.8	0.0	$13.45	$128.25	$20.00	9.5	8.0
196LED	Room 112	5	W 32 C F 4 (ELE)	F44ILL	112	0.6	0.6	OCC	2400	1,344.0	336.0	0.0	$63.84	$128.25	$20.00	2.0	1.7
196LED	Room 114	3	W 32 C F 4 (ELE)	F44ILL	112	0.3	0.3	OCC	2400	806.4	201.6	0.0	$38.30	$128.25	$20.00	3.3	2.8
196LED	Room 114A	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	2400	268.8	67.2	0.0	$12.77	$128.25	$20.00	10.0	8.5
196LED	Room 114B	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	2400	268.8	67.2	0.0	$12.77	$128.25	$20.00	10.0	8.5
196LED	Room 114C	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	2400	268.8	67.2	0.0	$12.77	$128.25	$20.00	10.0	8.5
196LED	Room 114D	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	0.1	OCC	2400	268.8	67.2	0.0	$12.77	$128.25	$20.00	10.0	8.5
46LED	CR-116	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2500	1,180.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Closet	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2000	236.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Closet	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2000	236.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
146LED	Campus Center	12	High Bay MH 400	MH400/1	458	5.5	5.5	OCC	8736	48,013.1	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
117	Campus Center	18	CF 23	CFS23/1	23	0.4	0.4	OCC	8736	3,616.7	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	Campus Center Storage	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	NONE	2000	240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
5LED	Campus Center Storage	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	NONE	2000	240.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Campus Center Store	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	8736	3,931.2	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Stage	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	3931.2	1,855.5	206.2	0.0	$39.17	$128.25	$20.00	3.3	2.8
233	Little Theater	48	R 100 C I 1	i100/1	100	4.8	4.8	OCC	3931.2	18,869.8	2,096.6	0.0	$398.36	$128.25	$20.00	0.3	0.3
46LED	CR-150	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2500	442.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-150	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	0.2	OCC	2500	600.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-150	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	1.8	OCC	2500	4,500.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-150 Closet	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	0.2	NONE	2000	360.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	CR-152	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2500	442.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-152	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	0.2	OCC	2500	600.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-152	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	1.8	OCC	2500	4,500.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-152 Closet	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	0.2	NONE	2000	360.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	CR-136	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-138	16	W 32 P F 2 (ELE)	F42ILL	59	0.9	0.9	OCC	2500	2,360.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-140	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	2500	885.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 142 - Office	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	2400	849.6	212.4	0.0	$40.36	$128.25	$20.00	3.2	2.7
46LED	CR-144	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2500	1,180.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Music Practice	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2500	295.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Music Practice	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2500	590.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Music Practice	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2500	147.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Music Practice	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2500	147.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Music Practice	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2500	147.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-146	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	1.2	OCC	2500	3,000.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Boys' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1713.6	303.3	75.8	0.0	$14.41	$128.25	$20.00	8.9	7.5
46LED	Girls' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1713.6	303.3	75.8	0.0	$14.41	$128.25	$20.00	8.9	7.5
46LED	Room 133 - Office	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	566.4	141.6	0.0	$26.90	$128.25	$20.00	4.8	4.0
46LED	Room 135 - Office	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	2400	849.6	212.4	0.0	$40.36	$128.25	$20.00	3.2	2.7
5LED	CR-137	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	0.3	OCC	2500	750.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-139	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	2500	2,950.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 141 - Office	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	566.4	141.6	0.0	$26.90	$128.25	$20.00	4.8	4.0
46LED	CR-143	10	W 32 P F 2 (ELE)	F42ILL	59	0.6	0.6	OCC	2500	1,475.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-143	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	0.3	OCC	2500	750.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-145	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	Control	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	0.2	OCC	2400	576.0	144.0	0.0	$27.36	$128.25	$20.00	4.7	4.0
46LED	Storage	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2000	236.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	2nd Floor - CR-292	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	1.7	OCC	2500	4,275.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!

		EXISTING CONDITIONS					RETROFIT CONDITIONS				COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
35LED	CR-294	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	1.7	OCC	2500	4,275.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-296	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	1.6	OCC	2500	4,050.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-298	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	1.7	OCC	2500	4,275.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR291	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	1.7	OCC	2500	4,275.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-293	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	1.7	OCC	2500	4,275.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	Toilet	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	0.1	OCC	1713.6	154.2	38.6	0.0	$7.33	$128.25	$20.00	17.5	14.8
35LED	Toilet	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	0.1	OCC	1713.6	154.2	38.6	0.0	$7.33	$128.25	$20.00	17.5	14.8
35LED	Room 295 - Office	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	1.3	OCC	2400	3,024.0	756.0	0.0	$143.64	$128.25	$20.00	0.9	0.8
35LED	Storage	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	0.3	NONE	2000	540.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Room 297 - Office	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	1.3	OCC	2400	3,024.0	756.0	0.0	$143.64	$128.25	$20.00	0.9	0.8
35LED	CR-299	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	1.3	OCC	2500	3,150.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	Hallway	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	1.1	NONE	8736	9,959.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	CR-222	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	Room 224 - Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	0.4	OCC	2400	864.0	216.0	0.0	$41.04	$128.25	$20.00	3.1	2.6
46LED	CR-226	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-220	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	0.8	OCC	2500	2,025.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-218	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	2500	2,700.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-218 Closet	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2000	236.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
5LED	Hallway	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	0.2	OCC	8736	1,572.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
196LED	Storage - 219	6	W 32 C F 4 (ELE)	F44ILL	112	0.7	0.7	NONE	2000	1,344.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
5LED	CR-217	15	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.9	0.9	OCC	2500	2,250.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-215	21	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	2500	3,097.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-213	9	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2500	1,327.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	Room 211 - Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	0.4	OCC	2400	864.0	216.0	0.0	$41.04	$128.25	$20.00	3.1	2.6
46LED	CR-211	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2500	1,180.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
196LED	CR-216	12	W 32 C F 4 (ELE)	F44ILL	112	1.3	1.3	OCC	2500	3,360.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
196LED	CR-214	18	W 32 C F 4 (ELE)	F44ILL	112	2.0	2.0	OCC	2500	5,040.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
196LED	CR-212	18	W 32 C F 4 (ELE)	F44ILL	112	2.0	2.0	OCC	2500	5,040.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	Room 210 - Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	0.7	OCC	2400	1,728.0	432.0	0.0	$82.08	$128.25	$20.00	1.6	1.3
46LED	CR-208	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-206	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-204	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-202	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	1.3	OCC	2500	3,300.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Room 200 - Office	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	566.4	141.6	0.0	$26.90	$128.25	$20.00	4.8	4.0
46LED	Room 201	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2400	1,132.8	283.2	0.0	$53.81	$128.25	$20.00	2.4	2.0
46LED	Room 201A	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2400	1,132.8	283.2	0.0	$53.81	$128.25	$20.00	2.4	2.0
46LED	CR-203	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-205	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
196LED	Room 207 - Office	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	0.4	OCC	2400	1,075.2	268.8	0.0	$51.07	$128.25	$20.00	2.5	2.1
46LED	Hallway	30	W 32 P F 2 (ELE)	F42ILL	59	1.8	1.8	NONE	8736	15,462.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Room 254	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	566.4	141.6	0.0	$26.90	$128.25	$20.00	4.8	4.0
46LED	Room 252	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	424.8	106.2	0.0	$20.18	$128.25	$20.00	6.4	5.4
46LED	Room 250	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	424.8	106.2	0.0	$20.18	$128.25	$20.00	6.4	5.4
32LED	Hallway	15	1T 32 R F 2 (ELE)	F42LL	60	0.9	0.9	NONE	8736	7,862.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
198LED	Media Center	78	2T 17 R F 2 (ELE)	F22LL	31	2.4	2.4	OCC	2400	5,803.2	1,450.8	0.0	$275.65	$128.25	$20.00	0.5	0.4
198LED	Media Center	25	2T 17 R F 2 (ELE)	F22LL	31	0.8	0.8	OCC	2400	1,860.0	465.0	0.0	$88.35	$128.25	$20.00	1.5	1.2
117	Media Center	18	CF 23	CFS23/1	23	0.4	0.4	OCC	2400	993.6	248.4	0.0	$47.20	$128.25	$20.00	2.7	2.3
35LED	Media Center	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	0.7	OCC	2400	1,728.0	432.0	0.0	$82.08	$128.25	$20.00	1.6	1.3
35LED	Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	0.4	OCC	2400	864.0	216.0	0.0	$41.04	$128.25	$20.00	3.1	2.6
35LED	CR-247	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	0.4	OCC	2500	900.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	Hallway	30	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.8	1.8	NONE	8736	15,724.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
117	Hallway	2	CF 23	CFS23/1	23	0.0	0.0	NONE	8736	401.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Office 243	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2400	1,132.8	283.2	0.0	$53.81	$128.25	$20.00	2.4	2.0
46LED	CR-241	21	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	2500	3,097.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-239	21	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	2500	3,097.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Storage 237	7	W 32 P F 2 (ELE)	F42ILL	59	0.4	0.4	NONE	2000	826.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Storage 235	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	NONE	2000	472.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	CR-236	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	2500	2,950.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-238	12	W 32 P F 2 (ELE)	F42ILL	59	0.7	0.7	OCC	2500	1,770.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-240	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	2500	2,950.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Office 242	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	566.4	141.6	0.0	$26.90	$128.25	$20.00	4.8	4.0
46LED	CR-244	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	2500	2,950.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Office 246	9	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2400	1,274.4	318.6	0.0	$60.53	$128.25	$20.00	2.1	1.8
46LED	CR-248	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	OCC	2500	2,950.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Boys' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1713.6	303.3	75.8	0.0	$14.41	$128.25	$20.00	8.9	7.5
46LED	Girls' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1713.6	303.3	75.8	0.0	$14.41	$128.25	$20.00	8.9	7.5
46LED	CR-234	14	W 32 P F 2 (ELE)	F42ILL	59	0.8	0.8	OCC	2500	2,065.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-232	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	2500	2,700.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-230	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-228	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-229	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-231	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-233	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	1.1	OCC	2500	2,655.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Hallway	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	NONE	8736	10,308.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Hallway	30	W 32 P F 2 (ELE)	F42ILL	59	1.8	1.8	NONE	8736	15,462.7	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	3rd Floor - CR-392	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	1.7	OCC	2500	4,275.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-394	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	1.5	OCC	2500	3,825.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-394	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	OCC	2500	300.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-396	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	1.7	OCC	2500	4,275.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-398	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	1.4	OCC	2500	3,600.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	Office 399	6	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.4	0.4	OCC	2400	864.0	216.0	0.0	$41.04	$128.25	$20.00	3.1	2.6
35LED	CR-397	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	1.4	OCC	2500	3,600.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-395	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	1.5	OCC	2500	3,825.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-395	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	0.1	OCC	2500	300.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!

Energy Audit of Ridgewood Board of Education - Ridgewood High School
CHA Project No.30237
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS					RETROFIT CONDITIONS				COST & SAVINGS ANALYSIS						
	Area Description	**No. of Fixtures**	**Standard Fixture Code**	**Fixture Code**	**Watts per Fixture**	**kW/Space**	**kW/Space**	**Retrofit Control**	**Annual Hours**	**Annual kWh**	**Annual kWh Saved**	**Annual kW Saved**	**Annual $ Saved**	**Retrofit Cost**	**NJ Smart Start Lighting Incentive**	**Simple Payback With Out Incentive**	**Simple Payback**
Field Code	**Unique description of the location - Room number/Room name: Floor number (if applicable)**	**No. of fixtures before the retrofit**	**Lighting Fixture Code**	**Code from Table of Standard Fixture Wattages**	**Value from Table of Standard Fixture Wattages**	**(Watts/Fixt) * (Fixt No.)**	**(Watts/Fixt) * (Number of Fixtures)**	**Retrofit control device**	**Estimated annual hours for the usage group**	**(kW/space) * (Annual Hours)**	**(Original Annual kWh) - (Retrofit Annual kWh)**	**(Original Annual kW) - (Retrofit Annual kW)**	**(kW Saved) * ($/kWh)**	**Cost for renovations to lighting system**		**Length of time for renovations cost to be recovered**	**Length of time for renovations cost to be recovered**
35LED	CR-393	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	1.7	OCC	2500	4,275.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-391	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	1.7	OCC	2500	4,275.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	Prep Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2500	450.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	Hallway	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	1.3	NONE	8736	11,531.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	CR-326	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	0.9	OCC	2500	2,250.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-324	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	1.3	OCC	2500	3,150.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-322	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	0.9	OCC	2500	2,250.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
196LED	Office 320	2	W 32 C F 4 (ELE)	F44ILL	112	0.2	0.2	OCC	2400	537.6	134.4	0.0	$25.54	$128.25	$20.00	5.0	4.2
196LED	Office 320 Closet	3	W 32 C F 4 (ELE)	F44ILL	112	0.3	0.3	NONE	2000	672.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	Office 318	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	0.4	OCC	2400	864.0	216.0	0.0	$41.04	$128.25	$20.00	3.1	2.6
196LED	Office 316	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	0.4	OCC	2400	1,075.2	268.8	0.0	$51.07	$128.25	$20.00	2.5	2.1
46LED	Storage 319	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	2000	118.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	CR-317	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	0.8	OCC	2500	2,025.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-315	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	1.1	OCC	2500	2,850.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-313	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	1.3	OCC	2500	3,300.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-309	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	1.3	OCC	2500	3,150.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-305	24	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.4	1.4	OCC	2500	3,600.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-303	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	1.1	OCC	2500	2,850.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	CR-301	10	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.6	0.6	OCC	2500	1,500.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	CR-301	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2500	442.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
196LED	Office 300	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	0.4	OCC	2400	1,075.2	268.8	0.0	$51.07	$128.25	$20.00	2.5	2.1
46LED	CR-302	9	W 32 P F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2500	1,327.5	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
5LED	Hallway	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	0.2	NONE	8736	2,096.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Hallway	13	W 32 P F 2 (ELE)	F42ILL	59	0.8	0.8	NONE	8736	6,700.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Stairway	16	W 32 P F 2 (ELE)	F42ILL	59	0.9	0.9	NONE	8736	8,246.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
35LED	CR-332	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	2500	2,700.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-330	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	1.6	OCC	2500	4,050.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-328	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	2500	2,700.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
196LED	Office 327	2	W 32 C F 4 (ELE)	F44ILL	112	0.2	0.2	OCC	2400	537.6	134.4	0.0	$25.54	$128.25	$20.00	5.0	4.2
35LED	CR-329	24	T 32 R F 3 (ELE)	F43ILL/2	90	2.2	2.2	OCC	2500	5,400.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
35LED	CR-331	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	1.1	OCC	2500	2,700.0	0.0	0.0	$0.00	$128.25	$20.00		#DIV/0!
46LED	Hallway	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	1.2	NONE	8736	10,308.5	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
								0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
								0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
								0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
								0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
								0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
								0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
								0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
								0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
								0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
								0	#N/A	#VALUE!	#VALUE!	#N/A	#VALUE!			#VALUE!	#VALUE!
	Total	**2,907**				**232.4**	**232.4**			**826,398.58**	**21,037.92**	**0.0**	**3997.2**	**29882.3**	**4660.0**		
										Demand Savings			0.0	$0			

Energy Audit of Ridgewood Board of Education - Ridgewood High School
CHA Project No.30237
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
46LED	Basement - Office	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	531	3	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	216	315	0.1	$ 59.85	$ 618.30	$ 20	10.3	10.0
46LED	Fitness Center	61	W 32 P F 2 (ELE)	F42ILL	59	3.6	SW	4368	15,720	61	4 ft LED Tube	200732x2	30	1.8	OCC	4,368	7,993	7,727	1.8	$ 1,468.13	$ 10,092.60	$ 20	6.9	6.9
46LED	Weight Room	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	4368	773	3	4 ft LED Tube	200732x2	30	0.1	OCC	4,368	393	380	0.1	$ 72.20	$ 618.30	$ 20	8.6	8.3
46LED	Fitness Center	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	SW	4368	1,546	6	4 ft LED Tube	200732x2	30	0.2	OCC	4,368	786	760	0.2	$ 144.41	$ 1,108.35	$ 20	7.7	7.5
46LED	Recreation Room	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	4368	773	3	4 ft LED Tube	200732x2	30	0.1	OCC	4,368	393	380	0.1	$ 72.20	$ 618.30	$ 20	8.6	8.3
46LED	Boiler Room	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	4368	2,062	8	4 ft LED Tube	200732x2	30	0.2	NONE	4,368	1,048	1,013	0.2	$ 192.54	$ 1,306.80	$ -	6.8	6.8
46LED	Boiler Room Closet	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	4368	258	1	4 ft LED Tube	200732x2	30	0.0	NONE	4,368	131	127	0.0	$ 24.07	$ 163.35	$ -	6.8	6.8
46LED	Storage	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2000	2,124	18	4 ft LED Tube	200732x2	30	0.5	NONE	2,000	1,080	1,044	0.5	$ 198.36	$ 2,940.30	$ -	14.8	14.8
5LED	Storage	11	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.7	SW	2000	1,320	11	2T XX R LED	2RTLED	25	0.3	NONE	2,000	550	770	0.4	$ 146.30	$ 2,227.50	$ 550	15.2	11.5
20LED	Storage	17	S 28 P F 1 (ELE)	F41ILL	31	0.5	SW	2000	1,054	17	4 ft LED Tube	200732x1	15	0.3	NONE	2,000	510	544	0.3	$ 103.36	$ 2,468.40	$ 85	23.9	23.1
46LED	Room 18?	5	W 32 P F 2 (ELE)	F42ILL	59	0.3	SW	2500	738	5	4 ft LED Tube	200732x2	30	0.2	OCC	2,500	375	363	0.1	$ 68.88	$ 945.00	$ 20	13.7	13.4
35LED	Room 16	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2500	2,025	9	T 59 R LED	RTLED38	38	0.3	OCC	2,500	855	1,170	0.5	$ 222.30	$ 2,254.50	$ 470	10.1	8.0
46LED	Room 14	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	2500	2,213	15	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,125	1,088	0.4	$ 206.63	$ 2,578.50	$ 20	12.5	12.4
46LED	Room 12	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	2500	2,213	15	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,125	1,088	0.4	$ 206.63	$ 2,578.50	$ 20	12.5	12.4
46LED	Room 10	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
46LED	Room 10 Closet	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	118	1	4 ft LED Tube	200732x2	30	0.0	NONE	2,000	60	58	0.0	$ 11.02	$ 163.35	$ -	14.8	14.8
46LED	Room 8	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	2500	2,213	15	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,125	1,088	0.4	$ 206.63	$ 2,578.50	$ 20	12.5	12.4
46LED	Room 6	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	OCC	2,500	75	73	0.0	$ 13.78	$ 291.60	$ 20	21.2	19.7
35LED	Room 6	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	2500	2,925	13	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,235	1,690	0.7	$ 321.10	$ 3,199.50	$ 670	10.0	7.9
35LED	Room 4	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2500	2,025	9	T 59 R LED	RTLED38	38	0.3	OCC	2,500	855	1,170	0.5	$ 222.30	$ 2,254.50	$ 470	10.1	8.0
46LED	Room 2 - Storage	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2000	944	8	4 ft LED Tube	200732x2	30	0.2	NONE	2,000	480	464	0.2	$ 88.16	$ 1,306.80	$ -	14.8	14.8
20LED	Room 2 - Storage	4	S 28 P F 1 (ELE)	F41ILL	31	0.1	SW	2000	248	4	4 ft LED Tube	200732x1	15	0.1	NONE	2,000	120	128	0.1	$ 24.32	$ 580.80	$ 20	23.9	23.1
46LED	Hallway	14	W 32 P F 2 (ELE)	F42ILL	59	0.8	SW	8736	7,216	14	4 ft LED Tube	200732x2	30	0.4	OCC	8,736	3,669	3,547	0.4	$ 673.90	$ 2,415.15	$ 20	3.6	3.6
46LED	Hallway	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	8736	2,062	4	4 ft LED Tube	200732x2	30	0.1	OCC	8,736	1,048	1,013	0.1	$ 192.54	$ 781.65	$ 20	4.1	4.0
46LED	Hallway	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	8736	4,123	8	4 ft LED Tube	200732x2	30	0.2	OCC	8,736	2,097	2,027	0.2	$ 385.08	$ 1,435.05	$ 20	3.7	3.7
41LED	Room 3 - Custodian Closet	5	1B 40 R F 2 (MAG)	F42SS	94	0.5	SW	1250	588	5	4 ft LED Tube	200732x2	30	0.2	NONE	1,250	188	400	0.3	$ 76.00	$ 1,168.50	$ 250	15.4	12.1
191	Room 3 - Custodian Closet	1	S 60 C F 2 (ELE) 8'	F82EE	123	0.1	SW	1250	154	1	S 60 C F 2 (ELE) 8'	F82EE	123	0.1	NONE	1,250	154	-	0.0	$ -	$ -	$ -		
46LED	Room 3 - Custodian Closet	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	1250	295	4	4 ft LED Tube	200732x2	30	0.1	NONE	1,250	150	145	0.1	$ 27.55	$ 653.40	$ -	23.7	23.7
235	Room 3 - Custodian Closet	2	SP 100 W I 2	i100/2	200	0.4	SW	1250	500	2	WP 42 1	CF42/2-L	100	0.2	NONE	1,250	250	250	0.2	$ 47.50	$ 243.00	$ -	5.1	5.1
35LED	Room 5	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2500	2,025	9	T 59 R LED	RTLED38	38	0.3	OCC	2,500	855	1,170	0.5	$ 222.30	$ 2,254.50	$ 470	10.1	8.0
233	Room 5	1	R 100 C I 1	i100/1	100	0.1	SW	2500	250	1	CF 26	CFQ26/1-L	27	0.0	OCC	2,500	68	183	0.1	$ 34.68	$ 148.50	$ 20	4.3	3.7
35LED	Room 7	13	T 32 R F 3 (ELE)	F43ILL/2	90	1.2	SW	2500	2,925	13	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,235	1,690	0.7	$ 321.10	$ 3,199.50	$ 670	10.0	7.9
46LED	Room 7	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	OCC	2,500	75	73	0.0	$ 13.78	$ 291.60	$ 20	21.2	19.7
46LED	Boys' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	OCC	1,714	154	225	0.1	$ 42.73	$ 618.30	$ 20	14.5	14.0
46LED	Girls' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	OCC	1,714	154	225	0.1	$ 42.73	$ 618.30	$ 20	14.5	14.0
46LED	Room 13	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	295	2	4 ft LED Tube	200732x2	30	0.1	OCC	2,500	150	145	0.1	$ 27.55	$ 454.95	$ 20	16.5	15.8
46LED	Power Room	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	1250	74	1	4 ft LED Tube	200732x2	30	0.0	OCC	1,250	38	36	0.0	$ 6.89	$ 291.60	$ 20	42.3	39.4
146LED	1st Floor - Gymnasium 1	20	High Bay MH 400	MH400/1	458	9.2	SW	4368	40,011	20	BAYLED78W	BAYLED78W	93	1.9	OCC	4,368	8,124	31,886	7.3	$ 6,058.42	$ 17,012.16	$ 20	2.8	2.8
146LED	Gymnasium 3	30	High Bay MH 400	MH400/1	458	13.7	SW	4368	60,016	30	BAYLED78W	BAYLED78W	93	2.8	OCC	4,368	12,187	47,830	11.0	$ 9,087.62	$ 25,454.12	$ 20	2.8	2.8
146LED	Gymnasium 2	22	High Bay MH 400	MH400/1	458	10.1	SW	4368	44,012	22	BAYLED78W	BAYLED78W	93	2.0	OCC	4,368	8,937	35,075	8.0	$ 6,664.26	$ 18,700.55	$ 20	2.8	2.8
46LED	Room 118	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2500	590	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,500	300	290	0.1	$ 55.10	$ 781.65	$ 20	14.2	13.8
46LED	Storage	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	236	2	4 ft LED Tube	200732x2	30	0.1	NONE	2,000	120	116	0.1	$ 22.04	$ 326.70	$ -	14.8	14.8
196LED	Office	6	W 32 C F 4 (ELE)	F44ILL	112	0.7	SW	3000	2,016	6	T 74 R LED	RTLED50	50	0.3	OCC	2,400	720	1,296	0.4	$ 246.24	$ 1,545.75	$ 20	6.3	6.2
5LED	Corridor	18	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	SW	8736	9,435	18	2T XX R LED	2RTLED	25	0.5	NONE	8,736	3,931	5,504	0.6	$ 1,045.70	$ 3,645.00	$ 900	3.5	2.6
5LED	Toilet	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2142	129	1	2T XX R LED	2RTLED	25	0.0	OCC	1,714	43	86	0.0	$ 16.28	$ 330.75	$ 70	20.3	16.0
5LED	Toilet	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2142	129	1	2T XX R LED	2RTLED	25	0.0	OCC	1,714	43	86	0.0	$ 16.28	$ 330.75	$ 70	20.3	16.0
5LED	Corridor	18	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	SW	8736	9,435	18	2T XX R LED	2RTLED	25	0.5	NONE	8,736	3,931	5,504	0.6	$ 1,045.70	$ 3,645.00	$ 900	3.5	2.6
5LED	Corridor	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	SW	8736	11,532	22	2T XX R LED	2RTLED	25	0.6	NONE	8,736	4,805	6,727	0.8	$ 1,278.08	$ 4,455.00	$ 1,100	3.5	2.6
35LED	Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	3000	270	1	T 59 R LED	RTLED38	38	0.0	OCC	2,400	91	179	0.1	$ 33.97	$ 364.50	$ 70	10.7	8.7
35LED	Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	3000	270	1	T 59 R LED	RTLED38	38	0.0	OCC	2,400	91	179	0.1	$ 33.97	$ 364.50	$ 70	10.7	8.7
35LED	Office	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	3000	270	1	T 59 R LED	RTLED38	38	0.0	OCC	2,400	91	179	0.1	$ 33.97	$ 364.50	$ 70	10.7	8.7
46LED	Train C	23	W 32 P F 2 (ELE)	F42ILL	59	1.4	SW	3000	4,071	23	4 ft LED Tube	200732x2	30	0.7	OCC	2,400	1,656	2,415	0.7	$ 458.85	$ 3,885.30	$ 20	8.5	8.4
32LED	Boys' Toilet	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2142	514	4	4 ft LED Tube	200732x2	30	0.1	OCC	1,714	206	308	0.1	$ 58.61	$ 1,063.05	$ 200	18.1	14.7
32LED	Girls' Toilet	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2142	514	4	4 ft LED Tube	200732x2	30	0.1	OCC	1,714	206	308	0.1	$ 58.61	$ 1,063.05	$ 200	18.1	14.7
32LED	Office	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3000	720	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	288	432	0.1	$ 82.08	$ 1,063.05	$ 200	13.0	10.5
32LED	Boy's Locker Room	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	2000	1,920	16	4 ft LED Tube	200732x2	30	0.5	OCC	1,600	768	1,152	0.5	$ 218.88	$ 3,867.45	$ 740	17.7	14.3
32LED	Boy's Locker Room - Team Room 1	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2000	480	4	4 ft LED Tube	200732x2	30	0.1	OCC	1,600	192	288	0.1	$ 54.72	$ 1,063.05	$ 200	19.4	15.8
32LED	Boy's Locker Room - Team Room 2	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	4 ft LED Tube	200732x2	30	0.1	OCC	1,600	96	144	0.1	$ 27.36	$ 595.65	$ 110	21.8	17.8
32LED	Boy's Locker Room - Team Room 3	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	2000	720	6	4 ft LED Tube	200732x2	30	0.2	OCC	1,600	288	432	0.2	$ 82.08	$ 1,530.45	$ 290	18.6	15.1
117	Boy's Locker Room - Unmarked	6	CF 23	CFS23/1	23	0.1	SW	2000	276	6	CF 23	CFS23/1	23	0.1	OCC	1,600	221	55	0.0	$ 10.49	$ 128.25	$ 20	12.2	10.3
32LED	Girls Locker Room	16	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	2000	1,920	16	4 ft LED Tube	200732x2	30	0.5	OCC	1,600	768	1,152	0.5	$ 218.88	$ 3,867.45	$ 740	17.7	14.3
32LED	Girls Locker Room - Team Room 1	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2000	480	4	4 ft LED Tube	200732x2	30	0.1	OCC	1,600	192	288	0.1	$ 54.72	$ 1,063.05	$ 200	19.4	15.8
32LED	Girls Locker Room - Team Room 2	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	2000	240	2	4 ft LED Tube	200732x2	30	0.1	OCC	1,600	96	144	0.1	$ 27.36	$ 595.65	$ 110	21.8	17.8
32LED	Girls Locker Room - Team Room 3	6	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	2000	720	6	4 ft LED Tube	200732x2	30	0.2	OCC	1,600	288	432	0.2	$ 82.08	$ 1,530.45	$ 290	18.6	15.1
117	Girls Locker Room - Unmarked	6	CF 23	CFS23/1	23	0.1	SW	2000	276	6	CF 23	CFS23/1	23	0.1	OCC	1,600	221	55	0.0	$ 10.49	$ 128.25	$ 20	12.2	10.3
5LED	Corridor	11	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.7	SW	8736	5,766	11	2T XX R LED	2RTLED	25	0.3	NONE	8,736	2,402	3,363	0.4	$ 639.04	$ 2,227.50	$ 550	3.5	2.6
5LED	Corridor	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	SW	8736	2,621	5	2T XX R LED	2RTLED	25	0.1	NONE	8,736	1,092	1,529	0.2	$ 290.47	$ 1,012.50	$ 250	3.5	2.6
35LED	CR-199	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	2500	4,050	18	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,710	2,340	0.9	$ 444.60	$ 4,380.75	$ 920	9.9	7.8
35LED	CR-193	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,140	1,560	0.6	$ 296.40	$ 2,963.25	$ 620	10.0	7.9
35LED	Office 197	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3000	540	2	T 59 R LED	RTLED38	38	0.1	OCC	2,400	182	358	0.1	$ 67.94	$ 600.75	$ 120	8.8	7.1
35LED	Office 195	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3000	540	2	T 59 R LED	RTLED38	38	0.1	OCC	2,400	182	358	0.1	$ 67.94	$ 600.75	$ 120	8.8	7.1
35LED	Prep Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3000	540	2	T 59 R LED	RTLED38	38	0.1	OCC	2,400	182	358	0.1	$ 67.94	$ 600.75	$ 120	8.8	7.1
35LED	Prep Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	3000	540	2	T 59 R LED	RTLED38	38	0.1	OCC	2,400	182	358	0.1	$ 67.94	$ 600.75	$ 120	8.8	7.1
35LED	CR-191	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	2500	4,050	18	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,710	2,340	0.9	$ 444.60	$ 4,380.75	$ 920	9.9	7.8
5LED	CR-191	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	2500	600	4	2T XX R LED	2RTLED	25	0.1	OCC	2,500	250	350	0.1	$ 66.50	$ 938.25	$ 220	14.1	10.8
35LED	CR-192	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2500	3,825	17	T 59 R LED	RTLED38	38	0.6	OCC	2,500	1,615	2,210	0.9	$ 419.90	$ 4,144.50	$ 870	9.9	7.8
35LED	CR-192A	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2500	1,350	6	T 59 R LED	RTLED38	38	0.2	OCC	2,500	570	780	0.3	$ 148.20	$ 1,545.75	$ 320	10.4	8.3
35LED	CR-192A Closet	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2500	450	2	T 59 R LED	RTLED38	38	0.1	OCC	2,500	190	260	0.1	$ 49.40	$ 600.75	$ 120	12.2	9.7
35LED	CR-194	15	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2500	3,375	15	T 59 R LED	RTLED38	38	0.6	OCC	2,500	1,425	1,950	0.8	$ 370.50	$ 3,672.00	$ 770	9.9	7.8
46LED	194A	12	W 32 P F 2 (ELE)	F42ILL	59	0.7	SW	2500	1,770	12	4 ft LED Tube	200732x2	30	0.4	OCC	2,500	900	870	0.3	$ 165.30	$ 2,088.45	$ 20	12.6	12.5
46LED	194A Closet	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	OCC	2,500	75	73	0.0	$ 13.78	$ 291.60	$ 20	21.2	19.7
35LED	CR-196	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2500	675	3	T 59 R LED	RTLED38	38	0.1	OCC	2,500	285	390	0.2	$ 74.10	$ 837.00	$ 170	11.3	9.0
35LED	CR-198	21	T 32 R F 3 (ELE)	F43ILL/2	90	1.9	SW	2500	4,725	21	T 59 R LED	RTLED38	38	0.8	OCC	2,500	1,995	2,730	1.1	$ 518.70	$ 5,089.50	$ 1,070	9.8	7.7
35LED	CR-198A	6	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	2500	1,350	6	T 59 R LED	RTLED38	38	0.2	OCC	2,500	570	780	0.3	$ 148.20	$ 1,545.75	$ 320	10.4	8.3
5LED	Corridor	13	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.8	SW	8736	6,814	13	2T XX R LED	2RTLED	25	0.3	NONE	8,736	2,839	3,975	0.5	$ 755.23	$ 2,632.50	$ 650	3.5	2.6
5LED	Corridor	9	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.5	SW	8736	4,717	9	2T XX R LED	2RTLED	25	0.2	NONE	8,736	1,966	2,752	0.3	$ 522.85	$ 1,822.50	$ 450	3.5	2.6
5LED	Corridor	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	8736	524	1	2T XX R LED	2RTLED	25	0.0	NONE	8,736	218	306	0.0	$ 58.09	$ 202.50	$ 50	3.5	2.6
196LED	Corridor	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	8736	978	1	T 74 R LED	RTLED50	50	0.1	NONE	8,736	437	542	0.1	$ 102.91	$ 236.25	$ -	2.3	2.3
35LED	Cafeteria	57	T 32 R F 3 (ELE)	F43ILL/2	90	5.1	SW	3000	15,390	57	T 59 R LED	RTLED38	38	2.2	OCC	3,000	6,498	8,892	3.0	$ 1,689.48	$ 13,594.50	$ 2,870	8.0	6.3
46LED	Kitchen	19	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2000	2,242	19	4 ft LED Tube	200732x2	30	0.6	OCC	2,000	1,140	1,102	0.6	$ 209.38	$ 3,231.90	$ 20	15.4	15.3
32LED	Serving	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	2000	1,680	14	4 ft LED Tube	200732x2	30	0.4	OCC	2,000	840	840	0.4	$ 159.60	$ 3,400.05	$ 650	21.3	17.2
32LED	Serving Adjacent	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2000	480	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,000	240	240	0.1	$ 45.60	$ 1,063.05	$ 200	23.3	18.9
117	Faculty Lounge	31	CF 23	CFS23/1	23	0.7	SW	3000	2,139	31	CF 23	CFS23/1	23	0.7	OCC	2,400	1,711	428	0.0	$ 81.28	$ 128.25	$ 20	1.6	1.3
35LED	CR-115	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	SW	2500	2,250	10	T 59 R LED	RTLED38	38	0.4	OCC	2,500	950	1,300	0.5	$ 247.00	$ 2,490.75	$ 520	10.1	8.0
35LED	CR115 Corridor	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2500	900	4	T 59 R LED	RTLED38	38	0.2	OCC	2,500	380	520	0.2	$ 98.80	$ 1,073.25	$ 220	10.9	8.6
35LED	115A	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2500	450	2	T 59 R LED	RTLED38	38	0.1	OCC	2,500	190	260	0.1	$ 49.40	$ 600.75	$ 120	12.2	9.7
32LED	Room 113	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3000	720	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	288	432	0.1	$ 82.08	$ 1,063.05	$ 200	13.0	10.5
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	144	216	0.1	$ 41.04	$ 595.65	$ 110	14.5	11.8
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	144	216	0.1	$ 41.04	$ 595.65	$ 110	14.5	11.8
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	144	216	0.1	$ 41.04	$ 595.65	$ 110	14.5	11.8
32LED	Room 111	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	144	216	0.1	$ 41.04	$ 595.65	$ 110	14.5	11.8
32LED	Room 109	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3000	720	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	288	432	0.1	$ 82.08	$ 1,063.05	$ 200	13.0	10.5
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	144	216	0.1	$ 41.04	$ 595.65	$ 110	14.5	11.8
32LED	Office	2	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3000	360	2	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	144	216	0.1	$ 41.04	$ 595.65	$ 110	14.5	11.8
32LED	Room 105	14	1T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3000	2,520	14	4 ft LED Tube	200732x2	30	0.4	OCC	2,400	1,008	1,512	0.4	$ 287.28	$ 3,400.05	$ 650	11.8	9.6
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	OCC	2,400	120	216	0.1	$ 41.04	$ 364.50	$ 20	8.9	8.4
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	OCC	2,400	120	216	0.1	$ 41.04	$ 364.50	$ 20	8.9	8.4
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	OCC	2,400	120	216	0.1	$ 41.04	$ 364.50	$ 20	8.9	8.4
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	OCC	2,400	120	216	0.1	$ 41.04	$ 364.50	$ 20	8.9	8.4
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	OCC	2,400	120	216	0.1	$ 41.04	$ 364.50	$ 20	8.9	8.4
196LED	Office	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	OCC	2,400	120	216	0.1	$ 41.04	$ 364.50	$ 20	8.9	8.4
5LED	Corridor	14	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.8	SW	8736	7,338	14	2T XX R LED	2RTLED	25	0.4	NONE	8,736	3,058	4,281	0.5	$ 813.32	$ 2,835.00	$ 700	3.5	2.6
35LED	Corridor	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	8736	3,931	5	T 59 R LED	RTLED38	38	0.2	NONE	8,736	1,660	2,271	0.3	$ 431.56	$ 1,181.25	$ 250	2.7	2.2
35LED	Corridor	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	8736	1,572	2	T 59 R LED	RTLED38	38	0.1	NONE	8,736	664	909	0.1	$ 172.62	$ 472.50	$ 100	2.7	2.2
46LED	Room 102	15	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	3000	2,655	15	4 ft LED Tube	200732x2	30	0.5	OCC	2,400	1,080	1,575	0.4	$ 299.25	$ 2,578.50	$ 20	8.6	8.5
196LED	Room 104	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	SW	3000	1,344	4	T 74 R LED	RTLED50	50	0.2	OCC	2,400	480	864	0.2	$ 164.16	$ 1,073.25	$ 20	6.5	6.4
46LED	Room 106 - General Office	30	W 32 P F 2 (ELE)	F42ILL	59	1.8	SW	3000	5,310	30	4 ft LED Tube	200732x2	30	0.9	OCC	2,400	2,160	3,150	0.9	$ 598.50	$ 5,028.75	$ 20	8.4	8.4
46LED	Room 106A	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	288	420	0.1	$ 79.80	$ 781.65	$ 20	9.8	9.5
46LED	Room 106B	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	288	420	0.1	$ 79.80	$ 781.65	$ 20	9.8	9.5
46LED	Room 110 - Principal's Office	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	3000	354	2	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	144	210	0.1	$ 39.90	$ 454.95	$ 20	11.4	10.9
196LED	Room 112	5	W 32 C F 4 (ELE)	F44ILL	112	0.6	SW	3000	1,680	5	T 74 R LED	RTLED50	50	0.3	OCC	2,400	600	1,080	0.3	$ 205.20	$ 1,309.50	$ 20	6.4	6.3
196LED	Room 114	3	W 32 C F 4 (ELE)	F44ILL	112	0.3	SW	3000	1,008	3	T 74 R LED	RTLED50	50	0.2	OCC	2,400	360	648	0.2	$ 123.12	$ 837.00	$ 20	6.8	6.6
196LED	Room 114A	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	OCC	2,400	120	216	0.1	$ 41.04	$ 364.50	$ 20	8.9	8.4
196LED	Room 114B	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	OCC	2,400	120	216	0.1	$ 41.04	$ 364.50	$ 20	8.9	8.4
196LED	Room 114C	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	OCC	2,400	120	216	0.1	$ 41.04	$ 364.50	$ 20	8.9	8.4

Energy Audit of Ridgewood Board of Education - Ridgewood High School
CHA Project No.30237
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
196LED	Room 114D	1	W 32 C F 4 (ELE)	F44ILL	112	0.1	SW	3000	336	1	T 74 R LED	RTLED50	50	0.1	OCC	2,400	120	216	0.1	$ 41.04	$ 364.50	$ 20	8.9	8.4
46LED	CR-116	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2500	1,180	8	4 ft LED Tube	200732x2	30	0.2	OCC	2,500	600	580	0.2	$ 110.20	$ 1,435.05	$ 20	13.0	12.8
46LED	Closet	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	236	2	4 ft LED Tube	200732x2	30	0.1	NONE	2,000	120	116	0.1	$ 22.04	$ 326.70	$ -	14.8	14.8
46LED	Closet	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	236	2	4 ft LED Tube	200732x2	30	0.1	NONE	2,000	120	116	0.1	$ 22.04	$ 326.70	$ -	14.8	14.8
146LED	Campus Center	12	High Bay MH 400	MH400/1	458	5.5	SW	8736	48,013	12	BAYLED78W	BAYLED78W	93	1.1	OCC	8,736	9,749	38,264	4.4	$ 7,270.10	$ 10,258.60	$ 20	1.4	1.4
117	Campus Center	18	CF 23	CFS23/1	23	0.4	SW	8736	3,617	18	CF 23	CFS23/1	23	0.4	OCC	8,736	3,617	-	0.0	$ -	$ 128.25	$ 20		
5LED	Campus Center Storage	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	240	2	2T XX R LED	2RTLED	25	0.1	NONE	2,000	100	140	0.1	$ 26.60	$ 405.00	$ 100	15.2	11.5
5LED	Campus Center Storage	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2000	240	2	2T XX R LED	2RTLED	25	0.1	NONE	2,000	100	140	0.1	$ 26.60	$ 405.00	$ 100	15.2	11.5
35LED	Campus Center Store	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	8736	3,931	5	T 59 R LED	RTLED38	38	0.2	OCC	8,736	1,660	2,271	0.3	$ 431.56	$ 1,309.50	$ 270	3.0	2.4
46LED	Stage	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	4368	2,062	8	4 ft LED Tube	200732x2	30	0.2	OCC	3,931	943	1,118	0.2	$ 212.46	$ 1,435.05	$ 20	6.8	6.7
233	Little Theater	48	R 100 C I 1	i100/1	100	4.8	SW	4368	20,966	48	CF 26	CFQ26/1-L	27	1.3	OCC	3,931	5,095	15,872	3.5	$ 3,015.60	$ 1,100.25	$ 20	0.4	0.4
46LED	CR-150	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2500	443	3	4 ft LED Tube	200732x2	30	0.1	OCC	2,500	225	218	0.1	$ 41.33	$ 618.30	$ 20	15.0	14.5
5LED	CR-150	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	2500	600	4	2T XX R LED	2RTLED	25	0.1	OCC	2,500	250	350	0.1	$ 66.50	$ 938.25	$ 220	14.1	10.8
35LED	CR-150	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	2500	4,500	20	T 59 R LED	RTLED38	38	0.8	OCC	2,500	1,900	2,600	1.0	$ 494.00	$ 4,853.25	$ 1,020	9.8	7.8
5LED	CR-150 Closet	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	2000	360	3	2T XX R LED	2RTLED	25	0.1	NONE	2,000	150	210	0.1	$ 39.90	$ 607.50	$ 150	15.2	11.5
46LED	CR-152	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2500	443	3	4 ft LED Tube	200732x2	30	0.1	OCC	2,500	225	218	0.1	$ 41.33	$ 618.30	$ 20	15.0	14.5
5LED	CR-152	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	2500	600	4	2T XX R LED	2RTLED	25	0.1	OCC	2,500	250	350	0.1	$ 66.50	$ 938.25	$ 220	14.1	10.8
35LED	CR-152	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	2500	4,500	20	T 59 R LED	RTLED38	38	0.8	OCC	2,500	1,900	2,600	1.0	$ 494.00	$ 4,853.25	$ 1,020	9.8	7.8
5LED	CR-152 Closet	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	2000	360	3	2T XX R LED	2RTLED	25	0.1	NONE	2,000	150	210	0.1	$ 39.90	$ 607.50	$ 150	15.2	11.5
46LED	CR-136	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
46LED	CR-138	16	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	2500	2,360	16	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,200	1,160	0.5	$ 220.40	$ 2,741.85	$ 20	12.4	12.3
46LED	CR-140	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	SW	2500	885	6	4 ft LED Tube	200732x2	30	0.2	OCC	2,500	450	435	0.2	$ 82.65	$ 1,108.35	$ 20	13.4	13.2
46LED	Room 142 - Office	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	SW	3000	1,062	6	4 ft LED Tube	200732x2	30	0.2	OCC	2,400	432	630	0.2	$ 119.70	$ 1,108.35	$ 20	9.3	9.1
46LED	CR-144	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2500	1,180	8	4 ft LED Tube	200732x2	30	0.2	OCC	2,500	600	580	0.2	$ 110.20	$ 1,435.05	$ 20	13.0	12.8
46LED	Music Practice	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	295	2	4 ft LED Tube	200732x2	30	0.1	OCC	2,500	150	145	0.1	$ 27.55	$ 454.95	$ 20	16.5	15.8
46LED	Music Practice	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2500	590	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,500	300	290	0.1	$ 55.10	$ 781.65	$ 20	14.2	13.8
46LED	Music Practice	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	OCC	2,500	75	73	0.0	$ 13.78	$ 291.60	$ 20	21.2	19.7
46LED	Music Practice	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	OCC	2,500	75	73	0.0	$ 13.78	$ 291.60	$ 20	21.2	19.7
46LED	Music Practice	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2500	148	1	4 ft LED Tube	200732x2	30	0.0	OCC	2,500	75	73	0.0	$ 13.78	$ 291.60	$ 20	21.2	19.7
5LED	CR-146	20	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.2	SW	2500	3,000	20	2T XX R LED	2RTLED	25	0.5	OCC	2,500	1,250	1,750	0.7	$ 332.50	$ 4,178.25	$ 1,020	12.6	9.5
46LED	Boys' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	OCC	1,714	154	225	0.1	$ 42.73	$ 618.30	$ 20	14.5	14.0
46LED	Girls' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	OCC	1,714	154	225	0.1	$ 42.73	$ 618.30	$ 20	14.5	14.0
46LED	Room 133 - Office	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	288	420	0.1	$ 79.80	$ 781.65	$ 20	9.8	9.5
46LED	Room 135 - Office	6	W 32 P F 2 (ELE)	F42ILL	59	0.4	SW	3000	1,062	6	4 ft LED Tube	200732x2	30	0.2	OCC	2,400	432	630	0.2	$ 119.70	$ 1,108.35	$ 20	9.3	9.1
5LED	CR-137	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	SW	2500	750	5	2T XX R LED	2RTLED	25	0.1	OCC	2,500	313	438	0.2	$ 83.13	$ 1,140.75	$ 270	13.7	10.5
46LED	CR-139	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	2,950	20	4 ft LED Tube	200732x2	30	0.6	OCC	2,500	1,500	1,450	0.6	$ 275.50	$ 3,395.25	$ 20	12.3	12.3
46LED	Room 141 - Office	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	288	420	0.1	$ 79.80	$ 781.65	$ 20	9.8	9.5
46LED	CR-143	10	W 32 P F 2 (ELE)	F42ILL	59	0.6	SW	2500	1,475	10	4 ft LED Tube	200732x2	30	0.3	OCC	2,500	750	725	0.3	$ 137.75	$ 1,761.75	$ 20	12.8	12.6
5LED	CR-143	5	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.3	SW	2500	750	5	2T XX R LED	2RTLED	25	0.1	OCC	2,500	313	438	0.2	$ 83.13	$ 1,140.75	$ 270	13.7	10.5
46LED	CR-145	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
5LED	Control	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	3000	720	4	2T XX R LED	2RTLED	25	0.1	OCC	2,400	240	480	0.1	$ 91.20	$ 938.25	$ 220	10.3	7.9
46LED	Storage	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	236	2	4 ft LED Tube	200732x2	30	0.1	NONE	2,000	120	116	0.1	$ 22.04	$ 326.70	$ -	14.8	14.8
35LED	2nd Floor - CR-292	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,805	2,470	1.0	$ 469.30	$ 4,617.00	$ 970	9.8	7.8
35LED	CR-294	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,805	2,470	1.0	$ 469.30	$ 4,617.00	$ 970	9.8	7.8
35LED	CR-296	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	2500	4,050	18	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,710	2,340	0.9	$ 444.60	$ 4,380.75	$ 920	9.9	7.8
35LED	CR-298	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,805	2,470	1.0	$ 469.30	$ 4,617.00	$ 970	9.8	7.8
35LED	CR291	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,805	2,470	1.0	$ 469.30	$ 4,617.00	$ 970	9.8	7.8
35LED	CR-293	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,805	2,470	1.0	$ 469.30	$ 4,617.00	$ 970	9.8	7.8
35LED	Toilet	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	2142	193	1	T 59 R LED	RTLED38	38	0.0	OCC	1,714	65	128	0.1	$ 24.26	$ 364.50	$ 70	15.0	12.1
35LED	Toilet	1	T 32 R F 3 (ELE)	F43ILL/2	90	0.1	SW	2142	193	1	T 59 R LED	RTLED38	38	0.0	OCC	1,714	65	128	0.1	$ 24.26	$ 364.50	$ 70	15.0	12.1
35LED	Room 295 - Office	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	3000	3,780	14	T 59 R LED	RTLED38	38	0.5	OCC	2,400	1,277	2,503	0.7	$ 475.61	$ 3,435.75	$ 720	7.2	5.7
35LED	Storage	3	T 32 R F 3 (ELE)	F43ILL/2	90	0.3	SW	2000	540	3	T 59 R LED	RTLED38	38	0.1	NONE	2,000	228	312	0.2	$ 59.28	$ 708.75	$ 150	12.0	9.4
35LED	Room 297 - Office	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	3000	3,780	14	T 59 R LED	RTLED38	38	0.5	OCC	2,400	1,277	2,503	0.7	$ 475.61	$ 3,435.75	$ 720	7.2	5.7
35LED	CR-299	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	2500	3,150	14	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,330	1,820	0.7	$ 345.80	$ 3,435.75	$ 720	9.9	7.9
5LED	Hallway	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	SW	8736	9,959	19	2T XX R LED	2RTLED	25	0.5	NONE	8,736	4,150	5,809	0.7	$ 1,103.79	$ 3,847.50	$ 950	3.5	2.6
46LED	CR-222	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
35LED	Room 224 - Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3000	1,080	4	T 59 R LED	RTLED38	38	0.2	OCC	2,400	365	715	0.2	$ 135.89	$ 1,073.25	$ 220	7.9	6.3
46LED	CR-226	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
35LED	CR-220	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2500	2,025	9	T 59 R LED	RTLED38	38	0.3	OCC	2,500	855	1,170	0.5	$ 222.30	$ 2,254.50	$ 470	10.1	8.0
35LED	CR-218	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,140	1,560	0.6	$ 296.40	$ 2,963.25	$ 620	10.0	7.9
46LED	CR-218 Closet	2	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	236	2	4 ft LED Tube	200732x2	30	0.1	NONE	2,000	120	116	0.1	$ 22.04	$ 326.70	$ -	14.8	14.8
5LED	Hallway	3	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	8736	1,572	3	2T XX R LED	2RTLED	25	0.1	OCC	8,736	655	917	0.1	$ 174.28	$ 735.75	$ 170	4.2	3.2
196LED	Storage - 219	6	W 32 C F 4 (ELE)	F44ILL	112	0.7	SW	2000	1,344	6	T 74 R LED	RTLED50	50	0.3	NONE	2,000	600	744	0.4	$ 141.36	$ 1,417.50	$ -	10.0	10.0
5LED	CR-217	15	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.9	SW	2500	2,250	15	2T XX R LED	2RTLED	25	0.4	OCC	2,500	938	1,313	0.5	$ 249.38	$ 3,165.75	$ 770	12.7	9.6
46LED	CR-215	21	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	3,098	21	4 ft LED Tube	200732x2	30	0.6	OCC	2,500	1,575	1,523	0.6	$ 289.28	$ 3,558.60	$ 20	12.3	12.2
46LED	CR-213	9	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2500	1,328	9	4 ft LED Tube	200732x2	30	0.3	OCC	2,500	675	653	0.3	$ 123.98	$ 1,598.40	$ 20	12.9	12.7
35LED	Room 211 - Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3000	1,080	4	T 59 R LED	RTLED38	38	0.2	OCC	2,400	365	715	0.2	$ 135.89	$ 1,073.25	$ 220	7.9	6.3
46LED	CR-211	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2500	1,180	8	4 ft LED Tube	200732x2	30	0.2	OCC	2,500	600	580	0.2	$ 110.20	$ 1,435.05	$ 20	13.0	12.8
196LED	CR-216	12	W 32 C F 4 (ELE)	F44ILL	112	1.3	SW	2500	3,360	12	T 74 R LED	RTLED50	50	0.6	OCC	2,500	1,500	1,860	0.7	$ 353.40	$ 2,963.25	$ 20	8.4	8.3
196LED	CR-214	18	W 32 C F 4 (ELE)	F44ILL	112	2.0	SW	2500	5,040	18	T 74 R LED	RTLED50	50	0.9	OCC	2,500	2,250	2,790	1.1	$ 530.10	$ 4,380.75	$ 20	8.3	8.2
196LED	CR-212	18	W 32 C F 4 (ELE)	F44ILL	112	2.0	SW	2500	5,040	18	T 74 R LED	RTLED50	50	0.9	OCC	2,500	2,250	2,790	1.1	$ 530.10	$ 4,380.75	$ 20	8.3	8.2
35LED	Room 210 - Office	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3000	2,160	8	T 59 R LED	RTLED38	38	0.3	OCC	2,400	730	1,430	0.4	$ 271.78	$ 2,018.25	$ 420	7.4	5.9
46LED	CR-208	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
46LED	CR-206	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
46LED	CR-204	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
5LED	CR-202	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	SW	2500	3,300	22	2T XX R LED	2RTLED	25	0.6	OCC	2,500	1,375	1,925	0.8	$ 365.75	$ 4,583.25	$ 1,120	12.5	9.5
46LED	Room 200 - Office	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	288	420	0.1	$ 79.80	$ 781.65	$ 20	9.8	9.5
46LED	Room 201	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	3000	1,416	8	4 ft LED Tube	200732x2	30	0.2	OCC	2,400	576	840	0.2	$ 159.60	$ 1,435.05	$ 20	9.0	8.9
46LED	Room 201A	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	3000	1,416	8	4 ft LED Tube	200732x2	30	0.2	OCC	2,400	576	840	0.2	$ 159.60	$ 1,435.05	$ 20	9.0	8.9
46LED	CR-203	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
46LED	CR-205	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
196LED	Room 207 - Office	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	SW	3000	1,344	4	T 74 R LED	RTLED50	50	0.2	OCC	2,400	480	864	0.2	$ 164.16	$ 1,073.25	$ 20	6.5	6.4
46LED	Hallway	30	W 32 P F 2 (ELE)	F42ILL	59	1.8	SW	8736	15,463	30	4 ft LED Tube	200732x2	30	0.9	NONE	8,736	7,862	7,600	0.9	$ 1,444.06	$ 4,900.50	$ -	3.4	3.4
46LED	Room 254	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	288	420	0.1	$ 79.80	$ 781.65	$ 20	9.8	9.5
46LED	Room 252	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	531	3	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	216	315	0.1	$ 59.85	$ 618.30	$ 20	10.3	10.0
46LED	Room 250	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	531	3	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	216	315	0.1	$ 59.85	$ 618.30	$ 20	10.3	10.0
32LED	Hallway	15	1T 32 R F 2 (ELE)	F42LL	60	0.9	SW	8736	7,862	15	4 ft LED Tube	200732x2	30	0.5	NONE	8,736	3,931	3,931	0.5	$ 746.93	$ 3,505.50	$ 675	4.7	3.8
198LED	Media Center	78	2T 17 R F 2 (ELE)	F22LL	31	2.4	SW	3000	7,254	78	2T 25 R LED	2RTLED	25	2.0	OCC	2,400	4,680	2,574	0.5	$ 489.06	$ 15,923.25	$ 20	32.6	32.5
198LED	Media Center	25	2T 17 R F 2 (ELE)	F22LL	31	0.8	SW	3000	2,325	25	2T 25 R LED	2RTLED	25	0.6	OCC	2,400	1,500	825	0.2	$ 156.75	$ 5,190.75	$ 20	33.1	33.0
117	Media Center	18	CF 23	CFS23/1	23	0.4	SW	3000	1,242	18	CF 23	CFS23/1	23	0.4	OCC	2,400	994	248	0.0	$ 47.20	$ 128.25	$ 20	2.7	2.3
35LED	Media Center	8	T 32 R F 3 (ELE)	F43ILL/2	90	0.7	SW	3000	2,160	8	T 59 R LED	RTLED38	38	0.3	OCC	2,400	730	1,430	0.4	$ 271.78	$ 2,018.25	$ 420	7.4	5.9
35LED	Office	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3000	1,080	4	T 59 R LED	RTLED38	38	0.2	OCC	2,400	365	715	0.2	$ 135.89	$ 1,073.25	$ 220	7.9	6.3
35LED	CR-247	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2500	900	4	T 59 R LED	RTLED38	38	0.2	OCC	2,500	380	520	0.2	$ 98.80	$ 1,073.25	$ 220	10.9	8.6
5LED	Hallway	30	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.8	SW	8736	15,725	30	2T XX R LED	2RTLED	25	0.8	NONE	8,736	6,552	9,173	1.1	$ 1,742.83	$ 6,075.00	$ 1,500	3.5	2.6
117	Hallway	2	CF 23	CFS23/1	23	0.0	SW	8736	402	2	CF 23	CFS23/1	23	0.0	NONE	8,736	402	-	0.0	$ -	$ -	$ -		
46LED	Office 243	8	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	3000	1,416	8	4 ft LED Tube	200732x2	30	0.2	OCC	2,400	576	840	0.2	$ 159.60	$ 1,435.05	$ 20	9.0	8.9
46LED	CR-241	21	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	3,098	21	4 ft LED Tube	200732x2	30	0.6	OCC	2,500	1,575	1,523	0.6	$ 289.28	$ 3,558.60	$ 20	12.3	12.2
46LED	CR-239	21	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	3,098	21	4 ft LED Tube	200732x2	30	0.6	OCC	2,500	1,575	1,523	0.6	$ 289.28	$ 3,558.60	$ 20	12.3	12.2
46LED	Storage 237	7	W 32 P F 2 (ELE)	F42ILL	59	0.4	SW	2000	826	7	4 ft LED Tube	200732x2	30	0.2	NONE	2,000	420	406	0.2	$ 77.14	$ 1,143.45	$ -	14.8	14.8
46LED	Storage 235	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2000	472	4	4 ft LED Tube	200732x2	30	0.1	NONE	2,000	240	232	0.1	$ 44.08	$ 653.40	$ -	14.8	14.8
46LED	CR-236	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	2,950	20	4 ft LED Tube	200732x2	30	0.6	OCC	2,500	1,500	1,450	0.6	$ 275.50	$ 3,395.25	$ 20	12.3	12.3
46LED	CR-238	12	W 32 P F 2 (ELE)	F42ILL	59	0.7	SW	2500	1,770	12	4 ft LED Tube	200732x2	30	0.4	OCC	2,500	900	870	0.3	$ 165.30	$ 2,088.45	$ 20	12.6	12.5
46LED	CR-240	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	2,950	20	4 ft LED Tube	200732x2	30	0.6	OCC	2,500	1,500	1,450	0.6	$ 275.50	$ 3,395.25	$ 20	12.3	12.3
46LED	Office 242	4	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	3000	708	4	4 ft LED Tube	200732x2	30	0.1	OCC	2,400	288	420	0.1	$ 79.80	$ 781.65	$ 20	9.8	9.5
46LED	CR-244	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	2,950	20	4 ft LED Tube	200732x2	30	0.6	OCC	2,500	1,500	1,450	0.6	$ 275.50	$ 3,395.25	$ 20	12.3	12.3
46LED	Office 246	9	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	3000	1,593	9	4 ft LED Tube	200732x2	30	0.3	OCC	2,400	648	945	0.3	$ 179.55	$ 1,598.40	$ 20	8.9	8.8
46LED	CR-248	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	2500	2,950	20	4 ft LED Tube	200732x2	30	0.6	OCC	2,500	1,500	1,450	0.6	$ 275.50	$ 3,395.25	$ 20	12.3	12.3
46LED	Boys' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	OCC	1,714	154	225	0.1	$ 42.73	$ 618.30	$ 20	14.5	14.0
46LED	Girls' Toilet	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2142	379	3	4 ft LED Tube	200732x2	30	0.1	OCC	1,714	154	225	0.1	$ 42.73	$ 618.30	$ 20	14.5	14.0
46LED	CR-234	14	W 32 P F 2 (ELE)	F42ILL	59	0.8	SW	2500	2,065	14	4 ft LED Tube	200732x2	30	0.4	OCC	2,500	1,050	1,015	0.4	$ 192.85	$ 2,415.15	$ 20	12.5	12.4
35LED	CR-232	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,140	1,560	0.6	$ 296.40	$ 2,963.25	$ 620	10.0	7.9
46LED	CR-230	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
46LED	CR-228	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
46LED	CR-229	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
46LED	CR-231	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
46LED	CR-233	18	W 32 P F 2 (ELE)	F42ILL	59	1.1	SW	2500	2,655	18	4 ft LED Tube	200732x2	30	0.5	OCC	2,500	1,350	1,305	0.5	$ 247.95	$ 3,068.55	$ 20	12.4	12.3
46LED	Hallway	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	8736	10,308	20	4 ft LED Tube	200732x2	30	0.6	NONE	8,736	5,242	5,067	0.6	$ 962.71	$ 3,267.00	$ -	3.4	3.4
46LED	Hallway	30	W 32 P F 2 (ELE)	F42ILL	59	1.8	SW	8736	15,463	30	4 ft LED Tube	200732x2	30	0.9	NONE	8,736	7,862	7,600	0.9	$ 1,444.06	$ 4,900.50	$ -	3.4	3.4
35LED	3rd Floor - CR-392	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,805	2,470	1.0	$ 469.30	$ 4,617.00	$ 970	9.8	7.8
35LED	CR-394	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2500	3,825	17	T 59 R LED	RTLED38	38	0.6	OCC	2,500	1,615	2,210	0.9	$ 419.90	$ 4,144.50	$ 870	9.9	7.8
5LED	CR-394	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2500	300	2	2T XX R LED	2RTLED	25	0.1	OCC	2,500	125	175	0.1	$ 33.25	$ 533.25	$ 120	16.0	12.4
35LED	CR-396	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,805	2,470	1.0	$ 469.30	$ 4,617.00	$ 970	9.8	7.8
35LED	CR-398	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2500	3,600	16	T 59 R LED	RTLED38	38	0.6	OCC	2,500	1,520	2,080	0.8	$ 395.20	$ 3,908.25	$ 820	9.9	7.8
5LED	Office 399	6	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.4	SW	3000	1,080	6	2T XX R LED	2RTLED	25	0.2	OCC	2,400	360	720	0.2	$ 136.80	$ 1,343.25	$ 320	9.8	7.5
35LED	CR-397	16	T 32 R F 3 (ELE)	F43ILL/2	90	1.4	SW	2500	3,600	16	T 59 R LED	RTLED38	38	0.6	OCC	2,500	1,520	2,080	0.8	$ 395.20	$ 3,908.25	$ 820	9.9	7.8

Energy Audit of Ridgewood Board of Education - Ridgewood High School
CHA Project No.30237
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
35LED	CR-395	17	T 32 R F 3 (ELE)	F43ILL/2	90	1.5	SW	2500	3,825	17	T 59 R LED	RTLED38	38	0.6	OCC	2,500	1,615	2,210	0.9	$ 419.90	$ 4,144.50	$ 870	9.9	7.8
5LED	CR-395	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.1	SW	2500	300	2	2T XX R LED	2RTLED	25	0.1	OCC	2,500	125	175	0.1	$ 33.25	$ 533.25	$ 120	16.0	12.4
35LED	CR-393	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,805	2,470	1.0	$ 469.30	$ 4,617.00	$ 970	9.8	7.8
35LED	CR-391	19	T 32 R F 3 (ELE)	F43ILL/2	90	1.7	SW	2500	4,275	19	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,805	2,470	1.0	$ 469.30	$ 4,617.00	$ 970	9.8	7.8
35LED	Prep Room	2	T 32 R F 3 (ELE)	F43ILL/2	90	0.2	SW	2500	450	2	T 59 R LED	RTLED38	38	0.1	OCC	2,500	190	260	0.1	$ 49.40	$ 600.75	$ 120	12.2	9.7
5LED	Hallway	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	SW	8736	11,532	22	2T XX R LED	2RTLED	25	0.6	NONE	8,736	4,805	6,727	0.8	$ 1,278.08	$ 4,455.00	$ 1,100	3.5	2.6
35LED	CR-326	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	SW	2500	2,250	10	T 59 R LED	RTLED38	38	0.4	OCC	2,500	950	1,300	0.5	$ 247.00	$ 2,490.75	$ 520	10.1	8.0
35LED	CR-324	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	2500	3,150	14	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,330	1,820	0.7	$ 345.80	$ 3,435.75	$ 720	9.9	7.9
35LED	CR-322	10	T 32 R F 3 (ELE)	F43ILL/2	90	0.9	SW	2500	2,250	10	T 59 R LED	RTLED38	38	0.4	OCC	2,500	950	1,300	0.5	$ 247.00	$ 2,490.75	$ 520	10.1	8.0
196LED	Office 320	2	W 32 C F 4 (ELE)	F44ILL	112	0.2	SW	3000	672	2	T 74 R LED	RTLED50	50	0.1	OCC	2,400	240	432	0.1	$ 82.08	$ 600.75	$ 20	7.3	7.1
196LED	Office 320 Closet	3	W 32 C F 4 (ELE)	F44ILL	112	0.3	SW	2000	672	3	T 74 R LED	RTLED50	50	0.2	NONE	2,000	300	372	0.2	$ 70.68	$ 708.75	$ -	10.0	10.0
35LED	Office 318	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	3000	1,080	4	T 59 R LED	RTLED38	38	0.2	OCC	2,400	365	715	0.2	$ 135.89	$ 1,073.25	$ 220	7.9	6.3
196LED	Office 316	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	SW	3000	1,344	4	T 74 R LED	RTLED50	50	0.2	OCC	2,400	480	864	0.2	$ 164.16	$ 1,073.25	$ 20	6.5	6.4
46LED	Storage 319	1	W 32 P F 2 (ELE)	F42ILL	59	0.1	SW	2000	118	1	4 ft LED Tube	200732x2	30	0.0	NONE	2,000	60	58	0.0	$ 11.02	$ 163.35	$ -	14.8	14.8
35LED	CR-317	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2500	2,025	9	T 59 R LED	RTLED38	38	0.3	OCC	2,500	855	1,170	0.5	$ 222.30	$ 2,254.50	$ 470	10.1	8.0
5LED	CR-315	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	SW	2500	2,850	19	2T XX R LED	2RTLED	25	0.5	OCC	2,500	1,188	1,663	0.7	$ 315.88	$ 3,975.75	$ 970	12.6	9.5
5LED	CR-313	22	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.3	SW	2500	3,300	22	2T XX R LED	2RTLED	25	0.6	OCC	2,500	1,375	1,925	0.8	$ 365.75	$ 4,583.25	$ 1,120	12.5	9.5
35LED	CR-309	14	T 32 R F 3 (ELE)	F43ILL/2	90	1.3	SW	2500	3,150	14	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,330	1,820	0.7	$ 345.80	$ 3,435.75	$ 720	9.9	7.9
5LED	CR-305	24	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.4	SW	2500	3,600	24	2T XX R LED	2RTLED	25	0.6	OCC	2,500	1,500	2,100	0.8	$ 399.00	$ 4,988.25	$ 1,220	12.5	9.4
5LED	CR-303	19	2T 32 R F 2 (u) (ELE)	FU2LL	60	1.1	SW	2500	2,850	19	2T XX R LED	2RTLED	25	0.5	OCC	2,500	1,188	1,663	0.7	$ 315.88	$ 3,975.75	$ 970	12.6	9.5
5LED	CR-301	10	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.6	SW	2500	1,500	10	2T XX R LED	2RTLED	25	0.3	OCC	2,500	625	875	0.4	$ 166.25	$ 2,153.25	$ 520	13.0	9.8
46LED	CR-301	3	W 32 P F 2 (ELE)	F42ILL	59	0.2	SW	2500	443	3	4 ft LED Tube	200732x2	30	0.1	OCC	2,500	225	218	0.1	$ 41.33	$ 618.30	$ 20	15.0	14.5
196LED	Office 300	4	W 32 C F 4 (ELE)	F44ILL	112	0.4	SW	3000	1,344	4	T 74 R LED	RTLED50	50	0.2	OCC	2,400	480	864	0.2	$ 164.16	$ 1,073.25	$ 20	6.5	6.4
46LED	CR-302	9	W 32 P F 2 (ELE)	F42ILL	59	0.5	SW	2500	1,328	9	4 ft LED Tube	200732x2	30	0.3	OCC	2,500	675	653	0.3	$ 123.98	$ 1,598.40	$ 20	12.9	12.7
5LED	Hallway	4	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.2	SW	8736	2,097	4	2T XX R LED	2RTLED	25	0.1	NONE	8,736	874	1,223	0.1	$ 232.38	$ 810.00	$ 200	3.5	2.6
46LED	Hallway	13	W 32 P F 2 (ELE)	F42ILL	59	0.8	SW	8736	6,701	13	4 ft LED Tube	200732x2	30	0.4	NONE	8,736	3,407	3,293	0.4	$ 625.76	$ 2,123.55	$ -	3.4	3.4
46LED	Stairway	16	W 32 P F 2 (ELE)	F42ILL	59	0.9	SW	8736	8,247	16	4 ft LED Tube	200732x2	30	0.5	NONE	8,736	4,193	4,054	0.5	$ 770.17	$ 2,613.60	$ -	3.4	3.4
35LED	CR-332	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,140	1,560	0.6	$ 296.40	$ 2,963.25	$ 620	10.0	7.9
35LED	CR-330	18	T 32 R F 3 (ELE)	F43ILL/2	90	1.6	SW	2500	4,050	18	T 59 R LED	RTLED38	38	0.7	OCC	2,500	1,710	2,340	0.9	$ 444.60	$ 4,380.75	$ 920	9.9	7.8
35LED	CR-328	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,140	1,560	0.6	$ 296.40	$ 2,963.25	$ 620	10.0	7.9
196LED	Office 327	2	W 32 C F 4 (ELE)	F44ILL	112	0.2	SW	3000	672	2	T 74 R LED	RTLED50	50	0.1	OCC	2,400	240	432	0.1	$ 82.08	$ 600.75	$ 20	7.3	7.1
35LED	CR-329	24	T 32 R F 3 (ELE)	F43ILL/2	90	2.2	SW	2500	5,400	24	T 59 R LED	RTLED38	38	0.9	OCC	2,500	2,280	3,120	1.2	$ 592.80	$ 5,798.25	$ 1,220	9.8	7.7
35LED	CR-331	12	T 32 R F 3 (ELE)	F43ILL/2	90	1.1	SW	2500	2,700	12	T 59 R LED	RTLED38	38	0.5	OCC	2,500	1,140	1,560	0.6	$ 296.40	$ 2,963.25	$ 620	10.0	7.9
46LED	Hallway	20	W 32 P F 2 (ELE)	F42ILL	59	1.2	SW	8736	10,308	20	4 ft LED Tube	200732x2	30	0.6	NONE	8,736	5,242	5,067	0.6	$ 962.71	$ 3,267.00	$ -	3.4	3.4
															0	#N/A								#VALUE!
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															0	#N/A								#VALUE!
															0	#N/A								#VALUE!
S	Total	2,907				232.4			847,437	2,907				97.8			332,328		134.6	97,871	637,412	$71,790		
S																	Demand Savings			134.6	$0			
S																	kWh Savings			515,108	$97,871			

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237

Rate of Discount (used for NPV) 3.0%

Utility Costs		Yearly Usage	Metric Ton Carbon Dioxide Equivalent	Building Area	Annual Utility Cost		
$ 0.190	$/kWh blended		0.000420205	248,286	Electric	Natural Gas	Fuel Oil
$ 0.190	$/kWh supply	1,822,033	0.000420205		$ 345,354	$ 100,913	
$ -	$/kW	672.8	0				
$ 0.80	$/Therm	126,965	0.00533471				
$ 5.00	$/kgals	3,664	0				
	$/Gal						

water

Ridgewood High School

Recommend? Y or N		Item	Savings kW	kWh	therms	No. 2 Oil gal	Water kgal	$	Cost	Simple Payback	Life Expectancy	GHG Reduction (Metric tons)	NJ Smart Start Incentives	Direct Install Eligible (Y/N)	Payback w/ Incentives	Simple Projected Lifetime Savings kW	kWh	therms	kgal/yr	$	ROI	NPV	IRR
N	ECM-1	Added a Condensing Boiler to the Old Boiler Plant	0.0	0	6,410	0	0	5,096	$ 176,245	34.6	30	34.2	$ 6,000	N	33.4	0.0	0	192,294	0	$ 152,873	(0.1)	($70,365)	-0.7%
Y	ECM-2	Install VFDs on HHW Pump Motors	0.4	28,636	0	0	0	5,441	$ 86,385	15.9	25	12.0	$ 4,650	N	15.0	9.7	715,899	0	0	$ 136,021	0.6	$13,007	4.4%
Y	ECM-3	Install VFDs on CHW Pump Motors	0.4	29,844	0	0	0	5,670	$ 68,540	12.1	20	12.5	$ 2,400	N	11.7	8.6	596,875	0	0	$ 113,406	0.7	$18,220	5.8%
N	ECM-4	Replace Pneumatic Control Devices with DDC Devices	0.0	18,570	1,205	0	0	4,486	$ 306,855	68.4	15	14.2	$ -	N	68.4	0.0	278,549	18,070	0	$ 67,290	(0.8)	($253,302)	-14.9%
N	ECM-5	Install Demand Control Ventilation on AHUs	0.0	5,547	682	0	0	1,596	$ 85,500	53.6	15	6.0	$ -	N	53.6	0.0	83,212	10,226	0	$ 23,940	(0.7)	($66,447)	-12.9%
Y	ECM-6	Install Window AC Controller	0.0	19,677	0	0	0	3,739	$ 8,300	2.2	20	8.3	$ -	N	2.2	0.0	393,532	0	0	$ 74,771	8.0	$47,320	45.0%
Y	ECM-7	Kitchen Hood Control	0.0	1,550	2,465	0	0	2,255	$ 37,350	16.6	20	13.8	$ -	N	16.6	0.0	31,005	49,308	0	$ 45,091	0.2	($3,808)	1.9%
Y	ECM-8	Walk-in Cooler & Freezer EC Motor Retrofits	0.0	6,225	0	0	0	1,183	$ 22,275	18.8	18	2.6	$ -	N	18.8	0.0	112,054	0	0	$ 21,290	(0.0)	($6,007)	-0.5%
N	ECM-L1	Lighting Replacements / Upgrades	134.6	504,537	0	0	0	95,862	$ 607,530	6.3	15	212.0	$ 67,130	N	5.6	2,019.3	7,568,055	0	0	$ 1,437,930	1.4	$603,995	15.8%
N	ECM-L2	Install Lighting Controls (Add Occupancy Sensors)	0.0	21,038	0	0	0	3,997	$ 29,882	7.5	15	8.8	$ 4,660	N	6.3	0.0	315,570	0	0	$ 59,958	1.0	$22,497	13.5%
Y	ECM-L3	Lighting Replacements with Controls (Occupancy Sensors)	134.6	515,108	0	0	0	97,871	$ 637,412	6.5	15	216.5	$ 71,790	N	5.8	2,019.0	7,726,620	0	0	$ 1,468,058	1.3	$602,750	15.2%
		Total (Does Not Include ECM-L1 & ECM-L2)	**135.4**	**625,157**	**10,762**	**0**	**0**	**$ 127,335**	**$ 1,428,862**	**11.2**	**19.8**	**320**	**$ 84,840**		**10.6**	**2,037**	**9,937,746**	**269,898**	-	**$ 2,102,741**	**0.5**	**281,367**	**6.7%**
		Recommended Measures (highlighted green above)	**135.4**	**601,040**	**2,465**	**0**	**0**	**$ 116,158**	**$ 860,263**	**7.4**	**19.7**	**266**	**$ 78,840**	**0**	**6.7**	**2,037**	**9,575,985**	**49,308**	-	**$ 1,858,637**	**1.2**	**671,481**	**13.5%**
		% of Existing	**20%**	**33%**	**2%**	**0**	**0**																

		City:	Newark, NJ				
		Occupied Hours/Week	75				
			Building Operating	Auditorium Occupied	Gymnasium Occupied	Library Occupied	Classrooms Occupied
Temp	Enthalpy h (Btu/lb)	Bin Hours	Hours	Hours	Hours	Hours	Hours
102.5							
97.5	35.4	6	3	0	0	0	0
92.5	37.4	31	14	0	0	0	0
87.5	35.0	131	58	0	0	0	0
82.5	33.0	500	223	0	0	0	0
77.5	31.5	620	277	0	0	0	0
72.5	29.9	664	296	0	0	0	0
67.5	27.2	854	381	0	0	0	0
62.5	24.0	927	414	0	0	0	0
57.5	20.3	600	268	0	0	0	0
52.5	18.2	730	326	0	0	0	0
47.5	16.0	491	219	0	0	0	0
42.5	14.5	656	293	0	0	0	0
37.5	12.5	1,023	457	0	0	0	0
32.5	10.5	734	328	0	0	0	0
27.5	8.7	334	149	0	0	0	0
22.5	7.0	252	113	0	0	0	0
17.5	5.4	125	56	0	0	0	0
12.5	3.7	47	21	0	0	0	0
7.5	2.1	34	15	0	0	0	0
2.5	1.3	1	0	0	0	0	0
-2.5							
-7.5							

Multipliers	
Material:	1.027
Labor:	1.246
Equipment:	1.124

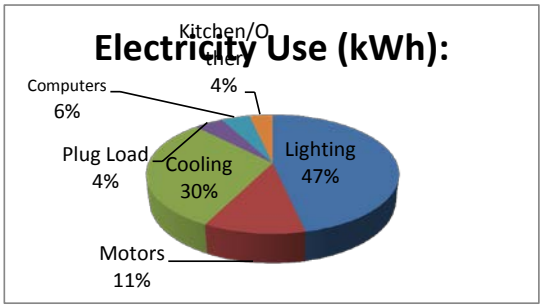
Heating System Efficiency	78%
Cooling Eff (kW/ton)	1.2

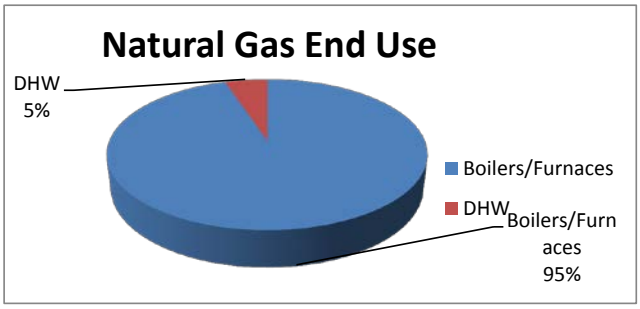
Heating		
Hours	4,427	Hrs
Weighted Avg	40	F
Avg	28	F

Cooling		
Hours	4,333	Hrs
Weighted Avg	68	F
Avg	78	F

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

Utility End Use Analysis			
Electricity Use (kWh):		**Notes/Comments:**	
1,822,033	Total	Based on utility analysis	
847,437	Lighting	From Lighting Calculations	47%
200,000	Motors	Estimated	11%
550,000	Cooling	Calculated from Cooling Capacity	30%
80,000	Plug Load	Estimated	4%
80,000	Computers	Estimated	4%
64,596	Kitchen/Other	Remaining	4%
Natural Gas Use (Therms):		**Notes/Comments:**	
126,965	Total	Based on utility analysis	
120,465	Boilers/Furnaces	Therms/SF x Square Feet Served	95%
6,500	DHW	Based on utility analysis	5%





Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-1 Added a Condensing Boiler to the Old Boiler Plant

Description: This ECM evaluates adding a high efficiency condensing gas boiler to the old boiler plant. The existing boiler efficiency is 80% (per NJBPU protocals) and the proposed boiler efficiency is 90% (average seasonal efficiency). Electrical power consumption due to pumps is considered to be the same for both the proposed system and the baseline system.

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 0.80	/ Therm	Natural Gas
Baseline Fuel Cost		/ Gal	No. 2 Oil
FORMULA CONSTANTS			
Oversize Factor	0.8		
Hours per Day	24		
Infrared Conversion Factor	1.0		1.0 if Boiler, 0.8 if Infrared Heater
EXISTING			
Capacity	4,000,000	btu/hr	Estimated Boiler Load % and Capacity
Heating Combustion Efficiency	78%		Estimated averaged Efficiency
Heating Degree-Day	2,783	Degree-day	
Design Temperature Difference	57	F	
Fuel Conversion	100,000	btu/therm	
PROPOSED			
Capacity	4,000,000	btu/hr	
Efficiency	90%		
SAVINGS			
Fuel Savings	6,410	therms	NJ Protocols Calculation
Fuel Cost Savings	$ 5,096		

Savings calculation formulas are taken from NJ Protocols document for Occupancy Controlled Thermostats

Algorithms

$$Gas\ Savings\ (Therms) = \frac{OF \times ((CAPY_{Bi} \times EFF_Q) - (CAPY_{Qi} \times EFF_B \times ICF)) \times HDD_{mod} \times 24}{\Delta T \times HC_{fuel} \times EFF_B \times ICF \times EFF_Q}$$

Definition of Variables

OF = Oversize factor of standard boiler or furnace (OF=0.8)

$CAPY_{Bi}$ = Total input capacity of the baseline furnace, boiler or heater in Btu/hour

$CAPY_{Qi}$ = Total input capacity of the qualifying furnace, boiler or heater in Btu/hour

HDD_{mod} = HDD by zone and building type

24 = Hours/Day

ΔT = design temperature difference

HC_{fuel} = Conversion from Btu to therms of gas or gallons of oil or propane (100,000 btu/therm; 138,700 btu/gal of #2 oil; 92,000 btu/gal of propane)

EFF_Q = Efficiency of qualifying heater(s) (AFUE %)

EFF_B = Efficiency of baseline heaters (AFUE %)

ICF = Infrared Compensation Factor (ICF = 0.8 for IR Heaters, 1.0 for furnaces/boilers)[2]

Furnaces and Boilers

Component	Type	Value	Source
$AFUE_q$	Variable		Application
$AFUE_b$	Fixed	Furnaces: 78% Boilers: 80% Infrared: 78%	EPACT Standard for furnaces and boilers
$CAPY_{in}$	Variable		Application
ΔT	Variable	See Table Below	1
HDD_{mod}	Fixed	See Table Below	1

Sources:

1. KEMA, *Smartstart Program Protocol Review*. 2009.
2. http://www.spaceray.com/1_space-ray_faqs.php

Adjusted Heating Degree Days by Building Type

Building Type	Heating Energy Density (kBtu/sf)	Degree Day Adjustment Factor	Atlantic City (HDD)	Newark (HDD)	Philadelphia (HDD)	Monticello (HDD)
Education	29.5	0.55	2792	2783	2655	3886
Food Sales	35.6	0.66	3369	3359	3204	4689
Food Service	39.0	0.73	3691	3680	3510	5137
Health Care	53.6	1.00	5073	5057	4824	7060
Lodging	15.0	0.28	1420	1415	1350	1976
Retail	29.3	0.55	2773	2764	2637	3859
Office	28.1	0.52	2660	2651	2529	3701
Public Assembly	33.8	0.63	3199	3189	3042	4452
Public Order/Safety	24.1	0.45	2281	2274	2169	3174
Religious Worship	29.1	0.54	2754	2745	2619	3833
Service	47.8	0.89	4524	4510	4302	6296
Warehouse/Storage	20.2	0.38	1912	1906	1818	2661

Heating Degree Days and Outdoor Design Temperature by Zone

Weather Station	HDD	Outdoor Design Temperature (F)
Atlantic City	5073	13
Newark	5057	14
Philadelphia, PA	4824	15
Monticello, NY	7060	8

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-1 Added a Condensing Boiler to the Old Boiler Plant - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
6,000 MBH NG Condensing Boiler	1	EA	$ 87,700	$ 13,100		$ 90,068	$ 16,323	$ -	$ 106,391	Vendor Estimate
Flue Installation	1	LS	$2,500.0	$2,500.00		$ 2,568	$ 3,115	$ -	$ 5,683	Vendor Estimate
controls	1	EA	$2,000.0	$2,000.00		$ 2,054	$ 2,492	$ -	$ 4,546	Estimated
Miscellaneous Electrical	1	LS	$ 2,000	$ 2,500		$ 2,054	$ 3,115	$ -	$ 5,169	Estimated
Miscellaneous HW Piping	1	LS	$ 2,000	$ 1,000		$ 2,054	$ 1,246	$ -	$ 3,300	Estimated
Pumps	1	EA	$ 3,500	$ 1,500		$ 3,595	$ 1,869	$ -	$ 5,464	Estimated
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

$ 130,552	Subtotal
$ 45,693	35% Contingency
$ 176,245	**Total**

New Providence Board of Education - NJBPU
CHA Project #25129
Allen W. Roberts Elementary School

ECM-2 Install VFDs on HHW Pump Motors

Variable Inputs

Supply Electric Rate	$0.190
Demand Rate	$0.000
Heating System "On" Point	55
VFD Efficiency	98.5%

Electric Savings		**28,636**
Demand Savings		**0.4**
Cost Savings	**$**	**5,441**

This measure looks at replacing the 5HP and 10HP HHW pumps (2 different loops) which are running at constant speed and install variable frequency drives/ 2 way valves to reduce speed when the heating load is reduced. It should be noted that there is another HHW loop which has 3 HP pumps motors which is not included in this study. According to ASHRAE stardards, only the 5HP and above are considered for the VFDs in this study.

PUMP SCHEDULE

Pump ID	Qty	HP	Total HP	Existing Motor Motor Eff.	New Motor Motor Eff.	Exist. Motor kW Note 1	New Motor kW Note 2	
HHWP-loop 1	**1**	**5.0**	**5.0**	**87.5%**	**89.5%**	**3.41**	**3.33**	*two pumps run at lead/lag
HHWP - loop 3	**1**	**10.0**	**10.0**	**87.5%**	**91.7%**	**6.82**	**6.51**	*two pumps run at lead/lag
					Total:	**10.23**	**9.84**	

SAVINGS ANALYSIS

OAT - DB Avg Temp F	Annual Hours in Bin	Heating Hours Bin	Pump Load %	Existing Pump kWh	Proposed Pump kW	Speed efficiency %	Proposed Pump kWh	Proposed Savings kWh
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**
See Note 3	**See Note 3**	**=IF(A>TP,0,C)**	**=0.5+0.5* (55-A)/(55-12)) See Note 4**	**=D*AA**	**=BB*E^3.0/CC See Note 5**		**=C*F/G**	**=E-H**
102.5	0	0	0%	0	0.0	0.0%	0	0
97.5	6	0	0%	0	0.0	0.0%	0	0
92.5	31	0	0%	0	0.0	0.0%	0	0
87.5	131	0	0%	0	0.0	0.0%	0	0
82.5	500	0	0%	0	0.0	0.0%	0	0
77.5	620	0	0%	0	0.0	0.0%	0	0
72.5	664	0	0%	0	0.0	0.0%	0	0
67.5	854	0	0%	0	0.0	0.0%	0	0
62.5	927	0	0%	0	0.0	0.0%	0	0
57.5	600	0	0%	0	0.0	0.0%	0	0
52.5	730	730	53%	7,469	1.5	84.3%	1,282	6,186
47.5	491	491	59%	5,023	2.0	89.1%	1,115	3,909
42.5	656	656	65%	6,711	2.7	93.1%	1,892	4,820
37.5	1,023	1,023	70%	10,466	3.5	96.3%	3,696	6,770
32.5	734	734	76%	7,509	4.4	98.6%	3,287	4,223
27.5	334	334	82%	3,417	5.5	100.0%	1,839	1,579
22.5	252	252	88%	2,578	6.8	100.0%	1,704	874
17.5	125	125	94%	1,279	8.2	100.0%	1,024	254
12.5	47	47	99%	481	9.8	99.2%	465	16
7.5	34	34	100%	348	10.0	99.0%	343	5
2.5	1	1	100%	10	10.0	99.0%	10	0
-2.5	0	0	0%	0	0.0	0.0%	0	0
-7.5	0	0	0%	0	0.0	0.0%	0	0
	8,760	**4,427**		**45,292**			**16,656**	**28,636**

Notes:
1) Existing motor power was determined using motor nameplate data. Formula: Motor HP x 0.746 x 0.8 / Exist. Motor Eff.
2) New motor power is the same as existing motor power adjusted for the new efficiency, if a new motor is proposed.
3) Weather data from NOAA for Newark, NJ
4) The pump load is estimated at 100% at 12 deg. OAT and 50% at 55 deg. OAT and varies linearly in between.
5) The required VFD motor draw is based on a 3 power relationship to load.

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-2 Install VFDs on HHW Pump Motors - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.00

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
VFD	2	ea	$ 1,706	$ 431		$ 3,505	$ 1,073	$ -	$ 4,577	RS Means 2012
Motor	2	ea	$ 373	$ 79		$ 766	$ 196	$ -	$ 962	RS Means 2012
VFD	2	ea	$ 2,021	$ 509		$ 4,151	$ 1,268	$ -	$ 5,420	RS Means 2012
Motor	2	ea	$ 861	$ 110		$ 1,768	$ 274	$ -	$ 2,043	RS Means 2012
Electrical - misc.	1	ls	$ 4,000	$ 4,000		$ 4,108	$ 4,984	$ -	$ 9,092	RS Means 2012
2-Way Valves	30	ea	$ 200	$ 500		$ 6,162	$ 18,690	$ -	$ 24,852	Estimated
Pressure sensor installation	2	ea	$ 200	$ 500		$ 411	$ 1,246	$ -	$ 1,657	RS Means 2012
Pumps	2	ea	$ 2,850	$ 395		$ 5,854	$ 984	$ -	$ 6,838	RS Means 2012
Pumps	2	ea	$ 3,525	$ 525		$ 7,240	$ 1,308	$ -	$ 8,549	RS Means 2012
						$ -	$ -	$ -	$ -	

$ 63,989	Subtotal
$ 22,396	35% Contingency
$ 86,385	**Total**

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-3 Install VFDs on CHW Pump Motors

Variable Inputs

Supply Electric Rate	$0.190
Demand Rate	
Cooling System "On" Point	65
VFD Efficiency	98.5%

Electric Savings		**29,844**
Demand Savings		**0.4**
Cost Savings	**$**	**5,670**

ECM-3 Install VFDs on CHW Pump Motors

This measure evaluates the potential energy savings for installing variable frequency drives on the two 20HP chilled water pump motors. A more detailed hydraulic calculation should be carried out to size the pump and motor properly if this measure is approved by Ridgewood BOE.

PUMP SCHEDULE

Pump ID	Qty	HP	Total HP	Existing Motor Motor Eff.	New Motor Motor Eff.	Exist. Motor kW Note 1	New Motor kW Note 2
CHWP	**1**	**20.0**	**20.0**	**90.0%**	**93.0%**	**13.26**	**12.83**
CHWP	**0**	**0.0**	**0.0**	**93.6%**	**93.6%**	**0.00**	**0.00**
					Total:	**13.26**	**12.83**

*two pumps run at lead/lag

SAVINGS ANALYSIS

OAT - DB Avg Temp F	Annual Hours in Bin	Cooling Hours Bin	Pump Load %	Existing Pump kWh	Proposed Pump kW	Speed efficiency %	Proposed Pump kWh	Proposed Savings kWh
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**
See Note 3	**See Note 3**	**=IF(A>TP,0,C)**		**=D*AA**	**=BB*E^3.0/CC**		**=C*F/G**	**=E-H**
					See Note 5			
102.5	0	0	0%	0	0.0	0.0%	0	0
97.5	6	6	100%	80	13.0	100.0%	78	1
92.5	31	31	93%	411	10.4	100.0%	323	88
87.5	131	131	79%	1,737	6.3	99.3%	834	903
82.5	500	500	64%	6,631	3.5	93.0%	1,861	4,770
77.5	620	620	50%	8,223	1.6	81.5%	1,239	6,983
72.5	664	664	50%	8,806	1.6	81.5%	1,327	7,479
67.5	854	854	50%	11,326	1.6	81.5%	1,707	9,619
62.5	927	0	0%	0	0.0	0.0%	0	0
57.5	600	0	0%	0	0.0	0.0%	0	0
52.5	730	0	0%	0	0.0	0.0%	0	0
47.5	491	0	0%	0	0.0	0.0%	0	0
42.5	656	0	0%	0	0.0	0.0%	0	0
37.5	1,023	0	0%	0	0.0	0.0%	0	0
32.5	734	0	0%	0	0.0	0.0%	0	0
27.5	334	0	0%	0	0.0	0.0%	0	0
22.5	252	0	0%	0	0.0	0.0%	0	0
17.5	125	0	0%	0	0.0	0.0%	0	0
12.5	47	0	0%	0	0.0	0.0%	0	0
7.5	34	0	0%	0	0.0	0.0%	0	0
2.5	1	0	0%	0	0.0	0.0%	0	0
-2.5	0	0	0%	0	0.0	0.0%	0	0
-7.5	0	0	0%	0	0.0	0.0%	0	0
	8,760	**2,806**		**37,214**			**7,370**	**29,844**

Notes:
1) Existing motor power was determined using motor nameplate data. Formula: Motor HP x 0.746 x 0.8 / Exist. Motor Eff.
2) New motor power is the same as existing motor power adjusted for the new efficiency, if a new motor is proposed.
3) Weather data from NOAA for Newark, NJ
4) The pump load is estimated at 100% at 95 deg. OAT and 0% at 60 deg. OAT and varies linearly in between.
5) The required VFD motor draw is based on a 3 power relationship to load.

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-3 Install VFDs on CHW Pump Motors - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
VFD	2	ea	$ 3,465	$ 772		$ 7,117	$ 1,924	$ -	$ 9,041	RS Means 2012
Motor	2	ls	$ 1,050	$ 135		$ 2,157	$ 336	$ -	$ 2,493	RS Means 2012
Electrical - misc.	1	ls	$ 4,000	$ 4,000		$ 4,108	$ 4,984	$ -	$ 9,092	RS Means 2012
2-Way Valves	16	ea	$ 200	$ 500		$ 3,286	$ 9,968	$ -	$ 13,254	Estimated based on Uvs
Pressure sensor installation	1	ea	$ 200	$ 500		$ 205	$ 623	$ -	$ 828	RS Means 2012
Pumps	2	ea	$ 7,025	$ 655		$ 14,429	$ 1,632	$ -	$ 16,062	RS Means 2012
						$ -	$ -	$ -	$ -	

$ 50,770	Subtotal
$ 17,770	35% Contingency
$ 68,540	**Total**

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-4 Replace Pneumatic Control Devices with DDC Devices

Description: This ECM evaluates the energy savings associated with replacing the existing pneumatic devices including the air compressor with digital control devices. The full DDC system will have better control on the building temperature settings since it eliminates the air leaks in the pneumatic system. the building already has a temperature setback program. therefore, the savings are from better temp control and the air compressor energy usage reduction

Building Information:

248,286	Sq Footage	$0.190	$/kWh Blended
Y	Cooling	$0.80	$/Therm
Y	Heating		

Hybrid to Full DDC Savings

EXISTING CONDITIONS			
Existing Facility Total Electric usage		1,822,033	kWh
Existing Facility Total Gas usage		126,965	Therms
Existing Facility Cooling Electric usage		550,000.0	kWh[1]
Existing Facility Heating Natural		120,465	Therms[2]
PROPOSED SAVINGS			
Proposed Facility Cooling Electric Savings		5,500	kWh
Proposed Facility Natural Gas Savings		1,205	Therms
Air Compressor Electric Savings		13,070	kWh
SAVINGS			
Electric Savings		18,570	**kWh**
Natural Gas Savings		1,205	**Therms**

Air Compressor

Motor Capacity	Load	Run Hours	Electric Usage
HP	%	hr/yr	kWh/yr
5	80%	4,380	13,070

Assumptions

1	30%	of facility total electricity dedicated to Cooling; based on utility information
2	95%	of facility total natural gas dedicated to Heating; based on utility information
3	1%	Estimated savings of eliminating the air leaks
4	$ 4,380	Annual air compresser run hours

COMBINED SAVINGS		
Natural Gas Savings	1,205	Therms
Cooling Electricity Savings	18,570	kWh
Total Cost Savings	$ 4,486	
Estimated Total Project Cost	$ 306,855	
Simple Payback	68.4	Yrs

Savings calculation formulas for setback are taken from NJ Protocols document for Occupancy Controlled Thermostats
Savings calculations for additional controls are estimated based on the level of control to be added and prior experience

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.00

ECM-4 Replace Pneumatic Control Devices with DDC Devices - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Calibrating & Programming	1	ls	$100,000	$100,000		$ 102,700	$ 124,600	$ -	$ 227,300	Estimated
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

$ 227,300	Subtotal
$ 79,555	35% Contingency
$ 306,855	**Total**

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-5 Install Demand Control Ventilation on AHUs

AIR HANDLER	AREA SERVED	CFM	OA CFM	% OA	
Two Trane AHUs	Gymnasium 1	3,000	900	30%	<<Estimated CFM and %OA
Two Trane AHUs	Gymnasium 2	3,000	900	30%	<<Estimated CFM and %OA
Two Trane AHUs	Gymnasium 3	3,000	900	30%	<<Estimated CFM and %OA
Two Trane AHUs	Theater	3,000	900	30%	<<Estimated CFM and %OA
Two Trane AHUs	Campus Center	6,000	1,800	30%	<<Estimated CFM and %OA
Two Trane AHUs	Campus Center Auxillary Rooms	1,000	300	30%	<<Estimated CFM and %OA
One Trane AHU	Cafeteria	3,000	900	30%	<<Estimated CFM and %OA
			6,600	*CFM*	

ECM Description: This ECM evaluates the energy savings associated with reducing the quantity of outdoor air being introduced to large space(s) such as gymnasiums, cafeterias and auditoriums. The reduction in outdoor air ventilation is achieved using carbon dioxide sensors installed within the space(s) that monitor the amount of CO2 being expelled by the occupants. The CO2 level threshold is measured against the CO2 level in the outdoor air and is maintianed at 700 parts per million(ppm) in accordance with ASHRAE guidelines.

Electric Cost	$ 0.19	/kWh
Natural Gas Cost	$ 0.80	/therm
Facility Ventilation Heating Load	249,480	BTU/Hour[1,2,3]
Facility Ventilation Cooling Load	71,280	BTU/Hour[1,2,3]
Existing Ventilation Heating Usage	13,635	Therms[2]
Existing Ventilation Cooling Usage	110,949	kWh[3]
Proposed Ventilation Heating Usage	12,953	Therms[7]
Proposed Ventilation Cooling Usage	105,401	kWh[7]
Total heating savings	682	**Therms**
Total cooling savings	5,547	**kWh**
Total cost savings	$ 1,596	
Estimated Total Project Cost	$85,500	[8]
Simple Payback	53.6	**years**

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

Assumptions

1	6,600	OA AHU airflow based exsiting equipment model numbers
2	35	°F, Assumed average heating Δt (mixed air and supply)
3	10	°F, Assumed average cooling Δt (mixed air and supply)
4	81%	Heating Efficiency - %
5	1.2	Cooling Efficiency - kW/Ton
6	4,427	AHU run time per heating/cooling season bin data
7	5%	Estimated savings for DCV based on NJ Protocols
8	$ 85,500	estimated measure cost for installation of sensors and associated controls

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-5 Install Demand Control Ventilation on AHUs - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
Re-Program HVAC Controls to allow DCV	13	EA	$ -	$ 2,500		$ -	$ 40,495	$ -	$ 40,495	RS Means 2012
CO2 Sensor and Damper Adjustment	13	EA	$ 500	$ 1,000		$ 6,676	$ 16,198	$ -	$ 22,874	RS Means 2012/Estimateion
						$ -	$ -	$ -	$ -	

$ 63,369	Subtotal
$ 22,179	35% Contingency
$ 85,500	**Total**

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

EQUIPMENT	AREA/EQUIPMENT SERVED	COOLING CAPACITY (btu/h)	
Window AC	Classrooms	400,000	<estimated 40 units

Total btu/h of all window A/C Units: *400,000* *btu/h*

ECM-6 Install Window AC Controller

ECM Description : Window A/C units are currently controlled manually by the occupants and are not turned off when the room is unoccupied. This ECM evaluates implementation of a digital timer device that will automatically turn the window A/C unit off at a preset time .

ASSUMPTIONS			Comments
Electric Cost	$0.190	/ kWh	
Average run hours per Week	75	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	65	deg F	Setpoint.
BTU/Hr Rating of existing DX equipment	400,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	12.0		
Existing Annual Electric Usage	41,756	kWh	

Item	Value	Units	Comments
Proposed Annual Electric Usage	22,079	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	19,677	kWh
Annual Cost Savings	$3,739	
Total Project Cost	$8,300	
Simple Payback	2	years

OAT - DB Bin Temp F	Annual Hours	**Existing Hours of Operation**	Proposed % of time of operation	**Proposed hrs of Operation**
102.5	0	0	100%	0
97.5	6	3	100%	3
92.5	31	14	100%	14
87.5	131	58	87%	51
82.5	500	223	73%	164
77.5	620	277	60%	166
72.5	664	296	47%	138
67.5	854	381	33%	127
62.5	927	0	0%	0
57.5	600	0	0%	0
52.5	730	0	0%	0
47.5	491	0	0%	0
42.5	656	0	0%	0
37.5	1,023	0	0%	0
32.5	734	0	0%	0
27.5	334	0	0%	0
22.5	252	0	0%	0
17.5	125	0	0%	0
12.5	47	0	0%	0
7.5	34	0	0%	0
2.5	1	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	**1,253**	53%	**662**

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-6 Install Window AC Controller - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						0	$ -	$ -	$ -	
Window AC Controller	40	EA	$ 150	$ -	$ -	6162	$ -	$ -	$ 6,162	Estimated
						$ -	$ -	$ -	$ -	

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

$	6,162	Subtotal
$	2,157	35% Contingency
$	**8,300**	**Total**

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-7 Kitchen Hood Control

Description: This ECM evaluates the thermal and electrical energy savings associated with the implementation of a variable flow controlled exhaust hood (Fan) and make-up air unit. The Hood controller uses infrared heat sensors to detect the level of smoke produced by the cooking operations and automatically adjsustes the exhasut fan and make-up air fan to provide the proper amount of air flow needed to remove the particulate from the hood. The system uses a default minimum air flow value to ensure that smoke particulate is removed at all times during cooking operations.

Item	Value	Units	Formula/Comments	
Fuel Cost	$ 0.80	/ Therm		
Electricity Cost	$ 0.19	/kWh		
		FORMULA CONSTANTS		
Conversion	0.746	HP/kW		
Constant	24	hrs/day		
Constant	1.08	(btu/hr)/CFM·F		
Conversion	3,412	btu/kWh		
		ELECTRIC FAN SAVINGS		
Facility Type	School			
Quantity of Kitchen Hood Fan Motors	1			Q
Kitchen Hood Fan Motor HP	1.0	HP	Estimated	HP
Motor Load Factor	0.90		NJ Protocols	LF
Efficiency of Fan Motor(s)	87.5%			FEFF
Kitchen Hood Fan Run Hours	2,080			RH
Fan Motor Power Reduction (From VFD)	0.584			PR
Fan Electricity Savings	932	kWh		
		HEATING SAVINGS		
Kitchen is Heated?	Y			
Square Footage of Kitchen	900	ft^2	Estimated	SF
Code Required Ventilation Rate	0.70	CFM/ft^2	NJ Protocols	CFM/SF
Ventilation Oversize Factor	1.40		NJ Protocols	OF
Flow Reductuion (from VFD/Control)	0.310			FR
Heating Degree Day	2,783		NJ Protocols Table	HDD
Heating System Efficiency	80%		AFUE (%)	HEFF
Heating Savings	247	MMbtu		
Heating Savings	2,465	Therms		
		COOLING SAVINGS		
Kitchen is Cooled?	Y			
Cooling Degree Day	893		NJ Protocols Table	CDD
Cooling System Efficiency	3.00		COP	CEFF
Cooling Savings	618	kWh		
		TOTAL SAVINGS		
Electricity Savings	1,550	kWh		
Fuel Savings	2,465	Therms		
Cost Savings	$ 2,255			

Savings calculation formulas are taken from NJ Protocols document for Kitchen Hood

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-7 Kitchen Hood Control - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
MeLink Kitchen Hood Control System	1	ea	$ 15,000	$ 5,000		$ 15,405	$ 6,230	$ -	$ 21,635	Vendor Est
						$ -		$ -		
1.0 HP Motor	1	ea	$ 245	$ 79		$ 251	$ 98	$ -	$ 349	RS Means 2012
						$ -	$ -	$ -	$ -	
Electrical - misc.	1	ls	$ 2,500	$ 2,500		$ 2,568	$ 3,115	$ -	$ 5,683	RS Means 2012
						$ -	$ -	$ -	$ -	
						$ -	$ -	$ -	$ -	

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

$ 27,667	Subtotal
$ 9,683	35% Contingency
$ 37,350	**Total**

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-8 Walk-in Cooler & Freezer EC Motor Retrofits

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

Utility Cost

$0.19 $/kWh Blended

EXISTING CONDITIONS			
Walk-In Freezer(s)			
Existing Freezer Controls?	N		
Quantity of Walk-In Freezers	1		
Nameplate Amps of Freezer Evaporator Fan	3.3		AmpsEF
Nameplate Volts of Freezer Evaporator Fan	208		VoltsEF
Phase of Evaporator Fan	1		PhaseEF
Power Factor of Evaporator Fan	0.55		PFEF
Operating Hours	8,760	hrs	
Load Reduction	65%		LR
Electricity Savings (Evaporator Fan)	2,150	kWh	kWhEF
Electricity Savings (Evaporator Fan Reduced Heat)	963	kWh	kWhRH
Total Walk-In Freezer(s) Electricity Savings	3,113	kWh	
Walk-In Cooler(s)			
Existing Cooler Controls?	N		
Quantity of Walk-In Coolers	1		
Nameplate Amps of Cooler Evaporator Fan	3.3		
Nameplate Volts of Cooler Evaporator Fan	208		
Phase of Evaporator Fan	1		
Power Factor of Evaporator Fan	0.55		
Operating Hours	8,760	hrs	
Load Reduction	65%		
Electricity Savings (Evaporator Fan)	2,150	kWh	
Electricity Savings (Evaporator Fan Reduced Heat)	963	kWh	
Total Walk-In Cooler(s) Electricity Savings	3,113	kWh	
SAVINGS			
Total Electricity Savings	**6,225**	**kWh**	
Total Cost Savings	**$ 1,183**		
Estimated Cost	$ 22,275		
Simple Payback	18.8	**years**	

Savings calculation formulas are taken from NJ Protocols document for Walk-in Controller

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

ECM-8 Walk-in Cooler & Freezer EC Motor Retrofits - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
									$ -	
Turnkey Walk-In Controller & Equipment	1	EA	$ 10,000	$ 5,000	$ -	$ 10,270	$ 6,230	$ -	$ 16,500	Vendor Estimate
						$ -	$ -	$ -	$ -	

**Cost Estimates are for Energy Savings calculations only, do not use for procurement

$ 16,500	Subtotal
$ 5,775	35% Contingency
$ 22,275	**Total**

Ridgewood Board Of Education – Ridgewood High School
CHA Project Number: 30237
Ridgewood High School

New Jersey Pay For Performance Incentive Program

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

At a minimum, all recommended measures were used for this calculation. To qualify for P4P incentives, the following P4P requirements must be met:

- At least 15% source energy savings
- No more than 50% savings from lighting measures
- Scope includes more than one measure
- Project has at least a 10% internal rate of return
- At least 50% of the source energy savings must come from investor-owned electricity and/or natural gas (note: exemption for fuel conversions)

Total Building Area (Square Feet)	248,286
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)	$345,354	$100,913
Existing Usage (from utility)	1,822,033	126,965
Proposed Savings	601,040	2,465
Existing Total MMBtus	18,915	
Proposed Savings MMBtus	2,298	
% Energy Reduction	**12.1%**	
Proposed Annual Savings	$116,158	

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

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

Total Project Cost	$860,263

		Allowable Incentive
% Incentives #1 of Utility Cost*	0.0%	$0
% Incentives #2 of Project Cost**	0.0%	$0
% Incentives #3 of Project Cost**	0.0%	$0
Total Eligible Incentives***	**$0**	
Project Cost w/ Incentives	$860,263	

Project Payback (years)	
w/o Incentives	w/ Incentives
7.4	7.4

* 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 D

New Jersey Board of Public Utilities Incentives

i. **Smart Start**

ii. **Direct Install**

iii. **Pay for Performance (P4P)**

iv. **Energy Savings Improvement Plan (ESIP)**

I. SMART START

NJ SmartStart Buildings

Program Overview

With New Jersey SmartStart Buildings ...

... A smart start now means better performance later! Whether you're starting a commer industrial project from the ground up, renovating existing space, or upgrading equipmen unique opportunities to upgrade the energy efficiency of the project.

Special Notice

Enhanced incentives are available for NJ SmartStart Building upgrades in buildings im Hurricane Sandy. Eligible projects receive an additional 50% and new incentives have added for high efficiency food service equipment.

Visit the Sandy web page for details and important links.

New Jersey SmartStart Buildings can provide a range of support — at no cost to you — substantial energy savings, both now and for the future. Learn more about:

- Project Categories
- Custom Measures
- Incentives for Qualifying Equipment and Projects
- Program Terms and Conditions
- Find a Trade Ally

Please note: pre-approval is required for almost all energy efficiency incentives. T you must submit an application form (and applicable worksheets) and receive an approv from the program before any equipment is installed (click here for complete Terms and Upon receipt of an approval letter, you may proceed to install the equipment listed on yc approved application. Equipment installed prior to the date of the approval letter is not e an incentive. **Any customer and/or agent who purchases equipment prior to the re incentive approval letter does so at his/her own risk.**

Getting Started

Submit your project application form as soon as you know you will be doing a constructi or replacing/adding equipment.

PAST PROGRAMS

TOOLS AND RESOURCES

PROGRAM UPDATES

CONTACT US

Apply for pre-approval by submitting an application for the type of equipment you have c install. The application should be accompanied by a related worksheet, where applicabl manufacturer's specification sheet (refer to the specific program requirements on the ba application for specs needed for your project) for the equipment you are planning to inst (Program representatives will review your application package and approve it, reject it, a advise you of upgrades in equipment that will save energy costs and/or increase your in

Support for Custom Energy-Efficiency Measures

Custom measures allows program participants the opportunity to receive an incentive fo energy-efficiency measures that are not on the prescriptive equipment Incentive list, but project/facility specific.

Incentives for Qualifying Equipment and Projects

Financial incentives are available for large and small projects. These incentives offset s maybe even all! — of the added cost to purchase qualifying energy-efficient equipment, provides significant long-term energy savings. Ranges of incentives are available for qu equipment (depending on type, size, and efficiency) in several categories.

Find out more about equipment incentives

For specific details on equipment requirements and financial incentives, including ince equipment not listed here, contact a program representative. Fiscal year financial incent be limited to a maximum of $500,000 per customer utility account and are available as f permits.

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COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

HURRICANE SANDY

PROGRAMS

NJ SMARTSTART BUILDINGS

EQUIPMENT INCENTIVES

FOOD SERVICE EQUIPMENT

APPLICATION FORMS

TOOLS AND RESOURCES

PAY FOR PERFORMANCE

COMBINED HEAT & POWER AND FUEL CELLS

LOCAL GOVERNMENT ENERGY AUDIT

LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT PROGRAM

DIRECT INSTALL

ENERGY BENCHMARKING

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM

Home » Commercial & Industrial » Programs » NJ SmartStart Buildings

Equipment Incentives

Special Notice

Enhanced incentives are available for NJ SmartStart Building upgrades in buildings im Hurricane Sandy. Eligible projects receive an additional 50% and new incentives have added for high efficiency food service equipment.

Visit the Sandy web page for details and important links.

More reasons for a smart start on your next project!

New Jersey SmartStart Buildings provides **financial incentives for qualifying equipment**. These incentives were developed to help our customers offset some of the added cost to purchase qualifying energy-efficient equipment, which provides significant long-term energy savings. A wide range of incentives are available for qualifying equipment (depending on type, size and efficiency).

Listed below are the types of qualifying equipment and ranges of incentives. For details on equipment requirements and full listings of incentives, refer to the **online application forms**.

Please note that almost all equipment incentives require pre-approval before equipment is installed. (**click for exceptions**)To start the pre-approval process, submit an Equipment Application, and appropriate Equipment Worksheets, for the type types of equipment you are planning to install along with equipment specification sheets (refer to the specific program requirements on the back of the application for specificatic needed for your project) and a current utility bill(s).

In order to be eligible to receive financial incentives under this Program, Applicants mus receive electric and/or gas service from one of the regulated electric and/or gas utilities the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

Electric Chillers

Water-cooled chillers ($12 - $170 per ton)
Air-cooled chillers ($8 - $52 per ton)

Gas Cooling

Gas absorption chillers ($185-$450 per ton)
Gas Engine-Driven Chillers (Calculated through Custom Measure F

PAST PROGRAMS

TOOLS AND RESOURCES

PROGRAM UPDATES

CONTACT US

Desiccant Systems ($1.00 per cfm - gas or electric)

Electric Unitary HVAC

Unitary AC and split systems ($73 - $92 per ton)
Air-to-air heat pumps ($73 - $92 per ton)
Water-source heat pumps ($81 per ton)
Packaged terminal AC & HP ($65 per ton)
Central DX AC Systems ($40 - $72 per ton)
Dual Enthalpy Economizer Controls ($250)
Occupancy Controlled Thermostats ($75 each)
A/C Economizing Controls ($85 - $170 each)

Ground Source Heat Pumps

Closed Loop ($450-750 per ton)

Gas Heating

Gas-fired boilers < 300 MBH ($300 per unit)
Gas-fired boilers ≥ 300 MBH - 1500 MBH ($1.75 per MBH)
Gas-fired boilers ≥ 1500 MBH - ≤ 4000 MBH ($1.00 per MBH)
Gas-fired boilers > 4000 MBH (Calculated through Custom Measur
Gas furnaces ($300-$400 per unit)
Gas infrared heaters - indoor only ($300 - $500 per unit)
Boiler economizing controls ($1,200 - $2,700 per unit)

Variable Frequency Drives

Variable air volume ($65 - $155 per hp)
Chilled-water pumps ($60 per hp)
Compressors ($5,250 to $12,500 per drive)

Natural Gas Water Heating

Gas water heaters ≤ 50 gallons ($50 per unit)
Gas-fired water heaters > 50 gallons ($1.00 - $2.00 per MBH)
Tankless water heaters replacing a free standing water heater > 82 energy factor ($300 per heater)
Gas-fired booster water heaters ($17 - $35 per MBH)

Premium Motors

Three-phase motors ($45 - $700 per motor) **(Incentive was discor effective March 1, 2013 except for buildings impacted by Hurri Sandy. Approved applications will have the standard timefram year from the program commitment date to complete the instal**

Refrigerator/Freezer Case Premium Efficiency Motors (ECM)

Fractional (< 1 HP) Electronic Commutated Motors (ECM) ($40 per for replacement of existing shaded-pole motor in refrigerated/freeze

Prescriptive Lighting

New Linear Fluorescent

- T-12, HID and Incandescent to T-5 and T-8 ($25 - $200 p fixture) **(Note: T12 replacements are only available for buildings impacted by Hurricane Sandy)**
- New Induction ($70 per replaced HID fixture)
- New LED
  - Screw-in/Plug-in ($10 - $20 per lamp)
  - Refrigerator/Freezer Case ($30 - $65 per fixture)
  - Outdoor pole/arm/wall-mounted luminaires ($100 - $175 p fixture)
  - Display case ($30 per case)
  - Shelf-mounted display and task ($15 per linear foot)
  - Wall-wash, desk, recessed ($20 - $35 per fixture)
  - Parking garage luminaires ($100 per fixture)
  - Track or Mono-Point directional ($50 per fixture)
  - Stairwell and Passageway luminaires ($40 per fixture)
  - High-Bay, Low-Bay ($150 per fixture)
  - Bollard ($50 per fixture)
  - luminaires for Ambient Lighting of Interior Commercial Spa *Linear panels ($50 per fixture)*
  - Fuel pump canopy ($100 per fixture)
  - LED retrofit kits (custom measures)
- New Pulse-Start Metal Hallide ($25 per fixture)
- Linear Fluorescent Retrofit ($10 - $20 per fixture)
- Induction Retrofit ($50 per retrofitted HID fixture)
- New Construction/Complete Renovation (performance-based)

Note: Incentives for T-12 to T-5 and T-8 lamps with electronic ballast in facilities ($10 per fixture, 1-4 lamps) and T-5/T-8 high bay fixtures ($16 - per fixture) were discontinued effective March 1, 2013 for T-12 retrofits replacements except for buildings impacted by Hurricane Sandy. Appr applications will have the standard timeframe of one year from the pro commitment date to complete the installation

Lighting Controls

- Occupancy Sensors
  - Wall mounted ($20 per control)
  - Remote mounted ($35 per control)
  - Daylight dimmers ($25 per fixture controlled, $50 per fixtu office applications only)
  - Occupancy controlled hi-low fluorescent controls ($25 per controlled)
- HID or Fluorescent Hi-Bay Controls
  - Occupancy hi-low ($35 per fixture controlled)
  - Daylight dimming ($45 per fixture controlled)

Refrigeration

- Covers and Doors
  - Energy-Efficient doors for open refrigerated doors/covers per door)
  - Aluminum Night Curtains for open refrigerated cases ($3.5 linear foot)
- Controls
  - Door Heater Control ($50 per control)
  - Electric Defrost Control ($50 per control)
  - Evaporator Fan Control ($75 per control)
  - Novelty Cooler Shutoff ($50 per control)

Food Service Equipment

Cooking
- Combination Electric Oven/Steamer ($1,000 per oven)
- Combination Gas Oven/Steamer ($750 per oven)
- Electric Convection Oven ($350 per oven)
- Gas Convection Oven ($500 per oven)
- Gas Rack Oven ($1,000 single, $2,000 double)
- Gas Conveyor Oven ($500 small deck, $750 large deck)
- Electric Fryer ($200 per vat)
- Gas Fryer ($749 per vat)
- Electric Large Vat Fryer ($200 per vat)
- Gas Large Vat Fryer ($500 per vat)
- Electric Griddle ($300 per griddle)
- Gas Griddle ($125 per griddle)
- Electric Steam Cooker ($1,250 per steamer)
- Gas Steam Cooker ($2,000 per steamer)

Holding
- Full Size Insulated Cabinets ($300 per cabinet)
- Three Quarter Size Insulated Cabinets ($250 per cabinet)
- Half Size Insulated Cabinets ($200 per cabinet)

Cooling
- Glass Door Refrigerators ($75 - $150 per unit)
- Solid Door Refrigerators ($50 - $200 per unit)
- Glass Door Freezers ($200 - $1,000 per unit)
- Solid Door Freezers ($100 - $600 per unit)
- Ice Machines ($50 - $500 per unit)

Cleaning
- Dishwashers ($400 - $1,500 per unit)

Other Equipment Incentives*

- Performance Lighting ($1.00 per watt per square foot below progra incentive threshold, currently 5% more energy efficient than ASHR/ 2007 for New Construction only.)
- Custom electric and gas equipment incentives (not prescriptive)

*Equipment incentives are calculated based on type, efficiency, size, and ap and are evaluated on a case-by-case basis. Contact us for details.

II. DIRECT INSTALL

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

HURRICANE SANDY

PROGRAMS

NJ SMARTSTART BUILDINGS

PAY FOR PERFORMANCE

COMBINED HEAT & POWER AND FUEL CELLS

LOCAL GOVERNMENT ENERGY AUDIT

LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT PROGRAM

DIRECT INSTALL

PARTICIPATION STEPS

PARTICIPATING CONTRACTORS

SUSTAINABLE JERSEY

ENERGY BENCHMARKING

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM

Direct Install

NEW JERSEY'S CLEAN ENERGY PROGRAM
DIRECT Install

Let us pay up to 70% of your energy efficiency upgrade.

Sometimes, the biggest challenge to improving energy efficiency is knowing where t and how to get through the process. Created specifically for existing small to mediun facilities, Direct Install is a turnkey solution that makes it easy and affordable to upgr high efficiency equipment. Direct Install is designed to cut your facility's energy costs replacing lighting, HVAC and other outdated operational equipment with energy effic alternatives. The program pays up to 70% of retrofit costs, dramatically improving yo payback on the project. There is a $125,000 incentive cap on each project.

ELIGIBILITY

Existing small to mid-sized commercial and industrial f with a peak electric demand that did not exceed 200 k any of the preceding 12 months are eligible to participa Direct Install. Applicants will submit the last 12 months electric utility bills indicating that they are below the de threshold and have occupied the building during that ti Buildings must be located in New Jersey and served b the state's public, regulated electric or natural gas utilit companies.

SYSTEMS & EQUIPMENT ADDRESSED BY THE PROGRAM

- Lighting
- Heating, Cooling & Ventilation (HVAC)
- Refrigeration
- Motors
- Natural Gas
- Variable Frequency Drives

Measures eligible for Direct Install are limited to specific equipment categories, type capacities. Boilers may not exceed 500,000 Btuh and furnaces may not exceed 140,

III. PAY FOR PERFORMANCE (P4P)

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

HURRICANE SANDY

PROGRAMS

NJ SMARTSTART BUILDINGS

PAY FOR PERFORMANCE

EXISTING BUILDINGS

PARTICIPATION STEPS

APPLICATIONS AND FORMS

APPROVED PARTNERS

NEW CONSTRUCTION

FAQS

BECOME A PARTNER

COMBINED HEAT & POWER AND FUEL CELLS

LOCAL GOVERNMENT ENERGY AUDIT

LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT PROGRAM

DIRECT INSTALL

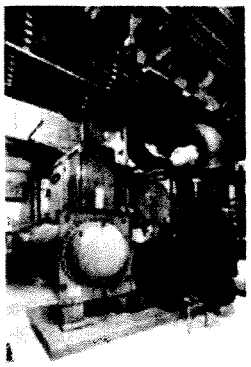
ENERGY BENCHMARKING

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 facilit earn incentives that are directly linked to your savings. Pay for Performance relies on a program partners who provide technical services under direct you. Acting as your energy expert, your partner will develop a reduction plan for each project with a whole-building technica component of a traditional energy audit, a financial plan for fu energy efficient measures and a construction schedule for ins



Eligibility

Existing commercial, industrial and institutional buildings with demand over 100 kW for any of the preceding twelve months to participate including hotels and casinos, large office buildir family buildings, supermarkets, manufacturing facilities, scho shopping malls and restaurants. Buildings that fall into the fol customer classes are not required to meet the 100 kW dema to participate in the program: hospitals, public colleges and universities, 501(c)(3) non-p affordable multifamily housing, and local governmental entities. Your energy reduction p 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, manuf water treatment and datacenter building types whose annual energy consumption is hea weighted on process loads. Details are available in the high energy intensity section of t 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 ir facilities and comparing it to similar buildings. That can be a big help in locating opportu cost-justified energy efficiency upgrades. And, based on our findings, you may be invite participate in the Building Performance with ENERGY STAR initiative and receive speci recognition as an industry leader in energy efficiency.

Incentives

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM

PAST PROGRAMS

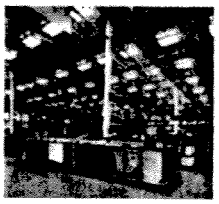
TOOLS AND RESOURCES

PROGRAM UPDATES

CONTACT US

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

Incentive #1 - Submittal of complete energy reduction plan prepared by an app program partner - Contingent on moving forward, incentives will be between $5 $50,000 based on approximately $.10 per square foot, not to exceed 50% of th 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 based on actual savings, provided that the minimum performance threshold of savings has been achieved.

A detailed Incentive Structure document is available on the applications and form

Steps to Participation

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

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New Jersey's cleanenergy program™ njcleanenergy.com

NEW JERSEY'S CLEAN ENERGY PROGRAM P4P PAY FOR PERFORMANCE

How did you learn about this Energy Efficiency Program?
☐ Advertisement ☐ Internet Search ☐ Mailer ☐ Video
☐ Tradeshow/Event ☐ Word of Mouth ☐ Radio ☐ Contractor
☐ Other _____

PAY FOR PERFORMANCE APPLICATION FORM

July 1, 2015 – June 30, 2016

Utility Serving Applicant: ☐ Atlantic City Electric ☐ Jersey Central Power & Light ☐ PSE&G
☐ New Jersey Natural Gas ☐ Elizabethtown Gas ☐ Rockland Electric Co. ☐ South Jersey Gas
☐ Other Electric Service Provider (please specify): _____
☐ Other Fuel Provider:_____ ☐ Oil:_____ ☐ Other (Please specify):_____

Instructions

1. Read the Participation Agreement (pages 3,4) and sign where indicated.
2. Fill out all applicable spaces on this form. Note Customer/Owner Information must be listed for the utility rate payer of the Project facility.
3. Provide a copy of the customer's company W-9 form.
4. Provide the most recent (within 2 years) consecutive 12 month period of utility bills for the project for all accounts, organized in chronological order and separated by account. Utilize Utility Tool for applications with multiple accounts to organize data.
5. Provide brief description of facility, noting any special or unusual circumstances and/or site conditions.
6. Partner must submit the application package via e-mail, mail or fax DIRECTLY to the Market Manager – see back of this form.

Approval of this Application is not an approval of the project's scope of work. Scope of work is only approved upon approval of the Energy Reduction Plan. See application and program guidelines for more information.

Customer/Owner Information (payment will be made to entity entered here)

Company Name		Project Contact/Title	
Company Address	City	State	Zip
Phone/Fax	E-mail	Federal ID/SSN	NAICS Code

Partner Information

Company Name		Project Contact/Title	
Company Address	City	State	Zip
Phone	Fax	E-mail	

Project Information

Project Name			
Building Address	City	State	Zip
Utility Account Number(s): Electric		Gas	
* Note: Please use the back of this page for additional utility accounts if quantity exceeds space allotment.			
Annual Peak kW Demand	Building Type		Number of Buildings
Size of Building(s) (gross sq/ft)	Direct, Master or Sub Metered		

Funding

❑ Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

Do you expect to receive funding under any other efficiency programs? ☐ No ☐ Yes If Yes, please specify below:

Utility Program – Utility:_____ Program Name: _____

Federal Program – Organization: _____ Program Name: _____

Other Program – Organization: _____ Program Name: _____

Additional Project information

Additional Utility Account(s)

Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number
Account type	Account number

Additional Comments:

Complete this application form and send it directly to the Commercial/Industrial Market Manager by e-mail, mail or fax.

New Jersey's Clean Energy Program
c/o TRC Energy Services-P4P
900 Route 9 North, Suite 404 • Woodbridge, NJ 07095

Phone: 866-657-6278 • Fax: 732-855-0422
E-mail: P4P@NJCleanEnergy.com

Visit our website: NJCleanEnergy.com/P4P

Pay For Performance-Existing Buildings

Participation Agreement

Definitions:

ADMINISTRATOR – New Jersey Board of Public Utilities (NJBPU)

APPLICATION PROCESS – The Program pays incentives in phases upon satisfactory completion of each of three Program milestones - approval of a complete Energy Reduction Plan, installation of all recommended measures per the Energy Reduction Plan, completion of Post-Construction Benchmarking Report (for incentive amounts, please refer to Incentive Amounts). In order to be eligible for Program Incentives, a Participating Customer or an agent authorized by a Customer, must submit to the Market Manager a properly completed application package – application form, Participating Customer's company W-9, twelve consecutive months of the project's utility bills and executed Participation Agreement. All components of the application package must be filled out completely, truthfully and accurately. This application package must be received on or before June 30, 2016 in order to be eligible for the Fiscal Year 2016 Incentives. The Market Manager will review the application package to determine if the project is eligible for a Program Incentive. When approved, the Participating Customer will receive an approval letter from their Case Manager with the estimated authorized first incentive amount and the date by which the Energy Reduction Plan must be submitted. Upon receipt of the approval letter, the Participating Customer and Partner may proceed with work on the Energy Reduction Plan. The Market Manager or agent thereof reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the Energy Reduction Plan approval letter. Approval of this Application is not an approval of the project's scope of work. Scope of work is only approved upon approval of the Energy Reduction Plan. See application and program guidelines for more information.

CHANGES TO THE PROGRAM – The Program and Participation Agreements may be changed by the Market Manager at any time without notice. Approved applications, however, will be processed to completion under the agreements in effect at the time of the Market Manager's approval.

ELIGIBILITY - Program Incentives are available to existing commercial and industrial buildings with peak kilowatt demand usage of more than 200 kW in any of the most recent preceding twelve months of utility bills, 100 kW for multifamily buildings, and a customer of the New Jersey Utilities. Market Manager has the discretion to approve applications that fall below the 200 kW minimum, 100 kW for multifamily, by no more than 10%. If the Participant is a municipal electric company customer, and a customer of an investor-owned gas New Jersey Utility, only gas measures will be eligible for incentives under the Program. Similarly, if the Participant is an oil/propane customer and a customer of an investor-owned electric New Jersey Utility, only electricity measures will be eligible for incentives under the Program.

Projects may not participate or apply for incentives for energy efficient measures through other New Jersey's Clean Energy Programs while participating in this Program. Equipment procured by participating Customer through another program offered by New Jersey Utilities, as applicable, is not eligible for incentives through this Program. Customers who, from July 1, 2014 - June 30, 2015, have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility, may not be eligible for incentives offered through this program.

ENDORSEMENT – The Market Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

ENERGY-EFFICIENT MEASURES – Any device eligible to receive a Program Incentive payment through the New Jersey's Clean Energy Commercial and Industrial Program

ENERGY REDUCTION PLAN – A document created by the Participating Customer's selected Partner that defines several key aspects of the project including (but not limited to) existing conditions as a result of a whole-building technical analysis, benchmarking summaries, recommended measures, financing plan and implementation schedule.

ENERGY REDUCTION PLAN APPROVAL – After application approval, the Participating Customer and Partner must work together to finalize and submit an Energy Reduction Plan which incorporates a work scope that will achieve the minimum 15% reduction in source energy performance target in accordance with the Program rules and policies along with the Benchmarking Tool, modeling software file, a copy of the executed Partner and Participating Customer contract, a copy of the executed Installation Agreement and a Request for Incentive #1 Payment form. All components of the submittal package must be filled out completely, truthfully and accurately. The Market Manager, agents thereof and/or the selected Partner must be provided reasonable access to the Participating Customer's facility, staff, tenants and/or others necessary to develop an Energy Reduction Plan that will achieve the minimum 15% performance target as well as the necessary utility billing data as dictated by the Program. The Energy Reduction Plan submittal package will be reviewed and must be approved by the Market Manager prior to payment of Incentive #1. Upon approval of the submittal package, the Customer will receive an Incentive #1 approval letter indicating the date by which all measures in the Energy Reduction Plan must be installed (no later than twelve months following the Energy Reduction Plan submittal approval date, up to twenty four months with extension approvals).

INCENTIVE AMOUNTS – Incentive #1 - $0.10 per square foot of the project with a maximum amount of $50,000 and minimum of $5,000, not to exceed 50% of the project's annual energy cost and contingent on installation of measures in the Energy Reduction Plan and receipt of a signed Installation Agreement. If installation does not commence within the required timeframe, Incentive #1 may be required to be returned to the program. In the event the project is cancelled and Incentive #1 is not returned, the project may reapply to the program in the future but another Incentive #1 will not be paid. Incentive #2 – 50% of the total performance-based incentive (combination of Incentives #2 and #3) calculated per Program's incentive structure; Incentive #3 – remaining amount based on the realized energy savings of the project. For customers that have successfully participated in the Local Government Energy Audit Program, Incentive #1 will be reduced by 50% to $0.05 per square foot up to $25,000. Actual Incentive #1 paid shall not be higher than 5% over the committed amount. Actual Incentive #2 paid shall not be higher than the committed amount, unless the Energy Reduction Plan has been resubmitted due to changes in the work scope. Actual Incentive #3 paid shall be higher or lower than the committed amount based on actual energy savings but shall not be greater than program Incentive Caps.

The Market Manager will provide incentives according to those described in this section or as modified upon notice to Participating Customer. All incentive payments are paid directly to the Participating Customer as indicated on the application form. The Program is not bound to pay any incentive unless the submittal package associated with the incentive payment is approved by the Market Manager who reserves the sole discretion of approving or disapproving the submittal packages.

INCENTIVE CAP – Program Incentives #2 and #3 will be capped not to exceed 50% of the total project cost, lesser of estimated or actual. Incentive #1 will be capped not to exceed 50% of the project's annual energy cost. Program Incentives (Incentive #1, #2 and #3) are restricted to $1M per gas and electric account (limited to $2M per project) in a program year. Campus style facilities, which are mastered-metered, are subject to the annual incentive cap of $1 million per gas and electric account. The Participating Customer will also be subject to an annual Entity Cap of $4M or $5M if a Combined Heat and Power/Fuel Cell Application is approved for the same facility (Definition of an Entity can be found in the Board Order Docket No. EO07030203).

INSTALLATION AGREEMENT – The Participating Customer must submit an executed Installation Agreement as part of the Request for Incentive #1 Form. By executing the Installation Agreement, the Customer agrees to install all of the measures in the Energy Reduction Plan, which are estimated to result in meeting or exceeding the minimum 15% performance target. The Customer agrees to the performance-based incentives (Incentives #2 & #3) as indicated in the document which are based on the results of the Energy Reduction Plan. Implementation of the measures must commence in the time period twelve months following the approval date of the Energy Reduction Plan, up to twenty four months with extension approvals. Failure to complete the installation of the measures in the Energy Reduction Plan may result in the repayment of Incentive #1, and the forfeiting of Incentives #2 and #3. In the event the project is cancelled and Incentive #1 is not returned, the project may reapply to the program in the future but another Incentive #1 will not be paid.

LIMITATION OF LIABILITY – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against TRC Energy Services, the Market Manager, and the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Market Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Market Manager, its representatives, or subcontractors, or the Administrator be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Market Manager under this Program shall be individual, and not joint and/or several.

The Market Manager's review and approval of the Energy Reduction Plan cannot be construed to be a determination as to performance, applicability, dollar savings, energy savings, or any other aspect of the proposed project. The Market Manager and Administrator offer no guarantee or warranty of performance of the project's equipment or system. The participant assumes full responsibility and liability for the installation of all equipment, including but not limited to design, specification, all permits, installation, maintenance, performance and financing. By participating in the program and accepting incentive dollars, you agree to hold harmless the Market Manager and Administrator and their respective staffs with respect to the Project

MARKET MANAGER – TRC Energy Services is responsible for managing the New Jersey Clean Energy Commercial & Industrial Programs.

MEASUREMENT & VERIFICATION APPROVAL – Twelve months subsequent to the Incentive #2 Payment Submittal package approval date, measurement and verification of the projected energy reduction will be conducted by the Participating Customer's Partner using the project's post-installation utility data (supplied by the Customer). The Participating Customer must work with their Partner to submit the Incentive #3 Payment Submittal, consisting of the Post-Construction Benchmarking Report, Benchmarking Tool, and Request for Incentive #3 form. All components of the submittal package must be filled out completely, truthfully and accurately.

Upon review of the submittal package (by the Market Manager or agent thereof), the remaining 50% of the total performance-based incentive (Incentives #2 & #3) will be released to the Participating Customer. If the Post-Construction Benchmarking Report indicates that the project did not meet the minimum performance target, the post-installation completion period may be extended to up to twenty-four months subsequent to the Incentive Payment #2 package approval date. If after this time the minimum performance target is still not met, the final Incentive #3 will not be paid.

NEW JERSEY UTILITIES – The investor-owned electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

PARTICIPATING CUSTOMERS – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

PARTICIPATING CUSTOMER'S CERTIFICATION – Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements per the Program Guidelines. Participating Customer certifies that he/she purchased and installed the equipment listed in the Energy Reduction Plan at their defined New Jersey project location.

PARTNER– An approved professional who provides technical building performance services to Participating Customers, acting as their "energy efficiency expert". Participating Customers are required to hire an approved Pay for Performance Partner to develop the Energy Reduction Plan and facilitate installation of the recommended package of Energy-Efficient Measures. Participants are required to enter into a contractual agreement with a selected Partner which outlines the set of minimum services the Partner will provide to the Participating Customer throughout the life of the project. It is strongly recommended that Participating Customers perform due diligence in selecting a Pay for Performance Partner. Fees charged by the Partner are not regulated by the Program and could vary between Partners. Incentives may cover some, or potentially all, of the Partner fees.

PERFORMANCE-BASED INCENTIVES – The combination of Incentives #2 and #3, which are based on the projected and actual energy reduction performance of the project.

PERFORMANCE TARGET – A minimum of a 15% annual source energy savings must be achieved in order to participate. The performance target is based on reducing the total energy consumption for the facility. No more than 50% of the total source energy savings may be derived from lighting measures; up to 70% lighting savings may be considered but performance target will increase by 1% for each percent over 50% (e.g. project with 60% savings from lighting will have a minimum performance target of 25%). A 4% performance target may be offered to customers whose annual energy consumption is heavily weighted to manufacturing and process loads, as well as hospitals. This approach will be reviewed on a case-by-case basis and must be pre-approved by the Market Manager. In order to be considered, the project must involve: A manufacturing facility, including such industries as plastics and packaging, chemicals, petrochemicals, metals, paper and pulp, transportation, biotechnology, pharmaceutical, food and beverage, mining and mineral processing, general manufacturing, equipment manufacturers and data centers; and manufacturing and/or process-related loads, including data center consumption, consume 50% or more of total facility energy consumption. For hospitals, 50% or more of the gross floor area must be used for general medical and surgical services and 50% or more of the licensed beds must provide acute care services. The total energy savings may not come from a single measure. No more than 50% of the total source energy savings may be derived from non-investor owned utilities or fuels.

POST-INSTALLATION APPROVAL – After the complete installation of all measures in the Energy Reduction Plan, the Customer and their Partner must finalize and submit the Incentive #2 Payment Submittal, consisting of the Installation Report, invoices, and Request for Incentive #2 Payment form. All components of the submittal package must be filled out completely, truthfully and accurately. Upon review of the submittal package and verification of the complete installation of all measures in the Energy Reduction Plan (via inspection by the Market Manager or agent thereof), 50% of the total performance based incentive (Incentives #2 & #3) will be released to the Participating Customer. Upon approval of the submittal package, the Customer will receive an Incentive #2 approval letter indicating the date by which the post-installation Measurement & Verification phase began and will end (twelve to twenty four months in length).

The Market Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing products or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time. Energy-Efficient Measures must be installed in buildings located within the service territory of one of the New Jersey Utilities (as defined by the Program) as designated on the Participating Customer's Pay for Performance application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program Guidelines. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease.

PRE-INSTALLED MEASURES - An Energy Reduction Plan must be approved by the program and an approval letter sent to the customer in order for incentives to be committed. Upon receipt of an Energy Reduction Plan, all project facilities must be pre-inspected. Measures installed prior to pre-inspection of the facility shall not be included as part of the ERP scope of work and will not be eligible for incentive

Measure installation undertaken prior to ERP approval, but after pre-inspection, is done at the customer's own risk. In the event that an Energy Reduction Plan is rejected by the program, the customer will not receive any incentives.

PRODUCT INSTALLATION OR EQUIPMENT INSTALLATION – Installation of the Energy-Efficient Measures. Projects with a contract threshold of $15,444 are required to pay no less than prevailing wage rate to workers employed in the performance of any construction undertaken in connection with Board of Public Utilities financial assistance, or undertaken to fulfill any condition of receiving Board of Public Utilities financial assistance, including the performance of any contract to construct, renovate or otherwise prepare a facility, the operations of which are necessary for the receipt of Board of Public Utilities financial assistance. By submitting an application, or accepting program incentives, applicant agrees to adhere to New Jersey Prevailing Wage requirements, as applicable.

PROGRAM – New Jersey's Clean Energy Pay for Performance Program offered herein by the New Jersey Board of Public Utilities pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

PROGRAM GUIDELINES – See Pay for Performance Program Guidelines available from your Partner.

PROGRAM INCENTIVES – Refers to the amount or level of incentive that the Program provides to participating customers pursuant to the Program offered herein (see the description under "Incentive Amount" heading).

PROGRAM OFFER – The Program covers products purchased and/or services rendered on or after July 1, 2015.

PROJECT – A commercial or industrial existing building with peak demand in excess of 200 kW in any of the most recent preceding twelve months of electric usage, 100 kW for multifamily buildings. Multifamily building(s) must be four (4) stories or greater or three (3) stories and under having central heating, cooling, or metering serving more than one building. Refer to Multifamily Decision Tree.

TAX CLEARANCE CERTIFICATION – Businesses must apply for and receive a Tax Clearance Certificate from the New Jersey Division of Taxation before they can receive any incentive, grant or other financial assistance from the Program.

TAX LIABILITY – The Market Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number on the application form in addition to providing a copy of their W-9 form as part of the application package in order to receive a Program Incentive.

TERMINATION – New Jersey's Clean Energy Program reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

WARRANTIES – THE MARKET MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/ SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

ACKNOWLEDGEMENT – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Market Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the Pay For Performance Program, including the release of electric and natural gas utility billing information, as well as make available to the public non-sensitive information. I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program. This arrangement supersedes all other communications and representations.

CUSTOMER'S SIGNATURE

PARTNER SIGNATURE

By signing, I certify that I have read, understand and agree to the Participation Agreement listed above.

IV. ENERGY SAVINGS IMPROVEMENT PLAN (ESIP)

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

HURRICANE SANDY

PROGRAMS

NJ SMARTSTART BUILDINGS

PAY FOR PERFORMANCE

COMBINED HEAT & POWER AND FUEL CELLS

LOCAL GOVERNMENT ENERGY AUDIT

LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT PROGRAM

DIRECT INSTALL

ENERGY BENCHMARKING

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM

PAST PROGRAMS

TOOLS AND RESOURCES

PROGRAM UPDATES

CONTACT US

Home » Commercial & Industrial » Programs

Energy Savings Improvement Program

A new State law allows government agencies to make energy related improvements to t facilities and pay for the costs using the value of energy savings that result from the imp Under 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 and reduce energy usage with minimal expenditure of new financial resources.

This Local Finance Notice outlines how local governments can develop and implement a their facilities. Below are two sample RFPs:

Local Government
School Districts (K-12)

All RFPs must be submitted to the Board for approval at ESIP@bpu.state.nj.us.

The Board also adopted protocols to measure energy savings:

Measuring Energy Savings
Procedures for Implementation

The ESIP approach may not be appropriate for all energy conservation and energy effic improvements. Local units should carefully consider all alternatives to develop an appro best meets their needs. Local units considering an ESIP should carefully review the Loc Notice, the law, and consult with qualified professionals to determine how they should a task.

The NJ Board of Public Utilities sponsored Sustainable Jersey in the creation of an ESIF Guidebook that explains how to implement the program. The guidebook also includes ca of successful projects and a list of helpful resources.

FIRST STEP – ENERGY AUDIT

For local governments interested in pursuing an ESIP, the first step is to perform an ene as prescribed in P.L.2012 c.55.

ENERGY REDUCTION PLANS

If you have an ESIP plan that needs to be submitted to the Board of Public Utilities, plea 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)*

ESIP PROGRAM

Final version 42413

BPU RULES

1. Public Entity must decide if they will use an ESCO or DIY method or Hybrid thereof prior to issuing the RFP and the RFP must state the intended method. A change in the project procurement model after the RFP closing date will be cause for immediate rejection and disqualification of potential Clean Energy program incentives.

2. RFP procedures shall be adhered to as per the legislation, including the use of BPU approved forms. Any alteration of the forms, without prior approval from the BPU shall be grounds for rejection.

3. RFP must include copy of an audit (ASHRAE Level II w/Level III for lighting) and audit must be prepared by a firm classified by DPMC in the 036 discipline.

4. All firms, including professional services, whether using ESCO or DIY model, must be DPMC classified.

5. If an Architect is engaged by the public entity, the architectural fees are the responsibility of the public entity and must be paid directly to the firm. These fees may be included in the energy cost savings analysis and payback.

   ESCO's may contract directly with an architectural firm, in which case the architectural firm serves as a subcontractor to the ESCO and the project related service costs may be included within the project's economic model.

6. Public entity shall conduct pre-bid meetings and site visits per existing statutes.

   In the interest of open public bidding transparency, it is a requirement of the BPU that all proposers must attend the pre-proposal bid meeting.

7. There shall be no negative cash flow in any year of the program.
   section 7 (1)(a)
   > "the energy savings resulting from the program will be sufficient to cover the cost of the program's energy conservation measures."

8. SREC values are not permitted to be used in the energy cost savings calculations.

9. Capital cost avoidance values are not to be used in the energy savings calculations.

10. Operational and Maintenance (O&M) cost savings may be permitted in the cost savings calculations, but only with supporting documentation.

11. Blended utility rates shall not be permitted. Use the actual utility tariff or local contracted rates if there is a third party supplier.

    For the RFP proposals, the public entity shall define the utility rates in the RFP

12. Contracted third party utility rates may only be used for the term of the contract (5 yr. maximum) Subsequent years are to be projected at the utility tariff rates plus the annual BPU escalation rates.

13. Public entity shall conduct M&V (measurement and verification) at the one (1) year operational date and shall provide a copy of the M&V report to the Board of Public Utilities.

    For the RFP proposals, the ESCO shall provide the cost for the one (1) year M&V only. For comparative purposes, the one year M&V pricing shall be indicated on the proposal Form VI, under the "Annual Service Costs" column. Additional M&V costs are at the discretion of the local unit and are not to be included in the proposal.

14. The decisions made by BPU staff regarding compliance or other issues that arise in connection with the RFP procurement process shall be considered a final decision of the BPU. Any appeal will need to be through the New Jersey Superior Court, Appellate Division.

15. For the RFP proposals only, Demand Response (DR) revenues claimed by ESCO's can only be projected for a maximum period of three (3) years. DR revenue projections beyond three years will not be permitted. DR revenues must be included and presented under the "Energy Rebates/Incentives" column of FORM VI.

16. ESCO "fees" proposed during the RFP phase of the project cannot increase post-award. ESCO's are required to maintain the fee percentages through final contract negotiations and construction of the Board approved Energy Savings Plan

17. Public Bid openings shall be held on the due date of the proposal submissions. The public entity shall announce the name of the bidder and the total dollar amount. After award of a contract, all proposals received will be made available by the owner for public inspection

18. Rejection of bids by the public entity shall be conducted in accordance with the appropriate sections of the applicable legislation, as stated in Title 40A:11-13.2. Additionally all proposals must be returned to the respective ESCO's upon rejection.

19. Field changes that exceed 5% of the project cost require BPU approval.

20. Energy Savings Plans (ESP) that is dependent upon incentives from the Clean Energy Program must review the current program requirements, at the time of application, for each incentive to insure eligibility. If any program incentive is denied, resubmission of all ESIP related forms will be necessary to remain ESIP qualified.

APPENDIX E

Photovoltaic Analysis

APPENDIX F

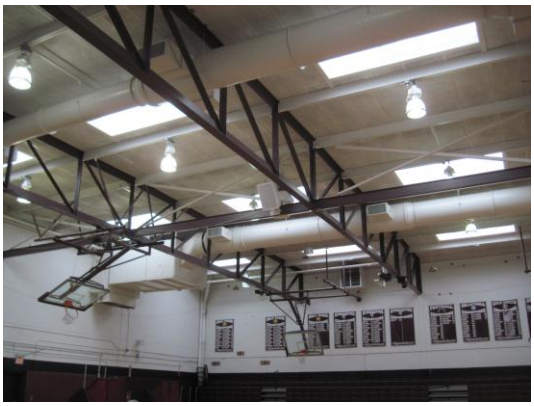
Photos

HHW Pumps

Existing Kitchen Hood

CHW Pumps

No Picture Available
Existing Cooler/Freezer



Existing Lights

Existing Window ACs

APPENDIX G

EPA Benchmarking Report

ENERGY STAR® Statement of Energy Performance

74

ENERGY STAR® Score[1]

RIDGEWOOD HIGH SCHOOL

Primary Property Function: K-12 School
Gross Floor Area (ft²): 248,286
Built: 1919

For Year Ending: March 31, 2015
Date Generated: July 08, 2015

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
RIDGEWOOD HIGH SCHOOL 627 E Ridgewood Ave Ridgewood, New Jersey 07450	_____ , (____)____-_____	____ _____ , (____)____-_____ _____

Property ID: 4458896

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
76.2 kBtu/ft²

Source EUI
132.3 kBtu/ft²

Annual Energy by Fuel	
Natural Gas (kBtu)	12,696,451 (67%)
Electric - Grid (kBtu)	6,216,776 (33%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	96.6
National Median Source EUI (kBtu/ft²)	167.7
% Diff from National Median Source EUI	-21%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,507

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer Stamp (if applicable)