

BLOOMFIELD SCHOOL DISTRICT

BLOOMFIELD HIGH SCHOOL
160 Broad Street Bloomfield NJ, 07003

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

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CHA PROJECT NO. 30040

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REPORT DISCLAIMER

This audit was conducted in accordance with the standards developed by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) for a Level II audit. Cost and savings calculations for a given measure were estimated to within $\pm 20\%$, 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 Bloomfield School District 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 are also identified during the study. This report details the results of the energy audit conducted for the building listed below:

Building Name	Address	Square Feet	Construction Date
Bloomfield High School	160 Broad Street Bloomfield NJ, 07003	435,150	1911

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)
Bloomfield High School	751,564	2,055	132,626	12.3

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

Each measure recommended by CHA typically has a stand-alone simple payback period of 15 years or less. However, if the owner chooses 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, based on the need to replace that piece(s) of equipment due to its age, such as a boiler for example.

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

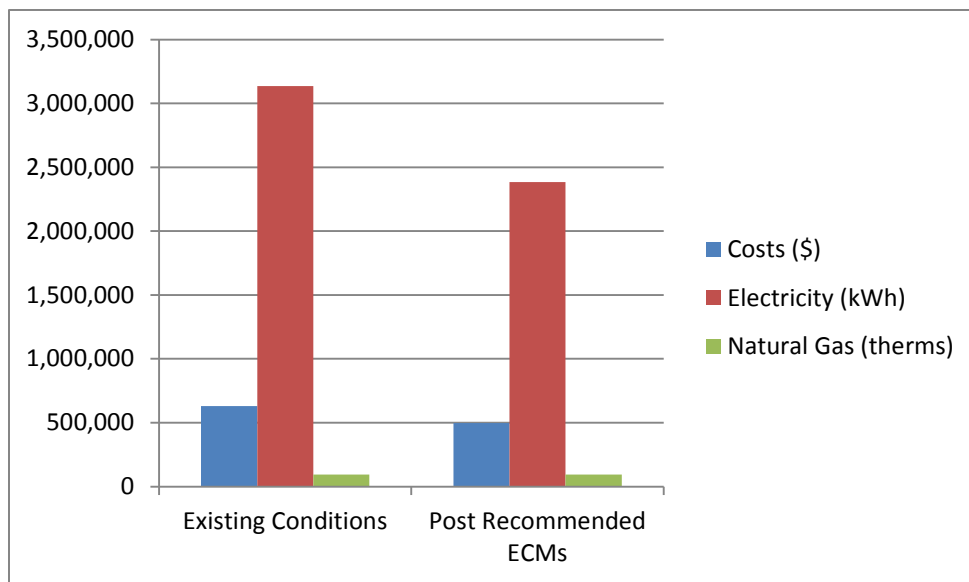
ECM #	Energy Conservation Measure	Est. Costs (\$)	Est. Savings (\$/year)	Payback w/o Incentive	Potential Incentive (\$)*	Payback w/ Incentive	Recommended
ECM-1	Attic Insulation	20,800	1,322	15.7	0	15.7	Y
ECM-2	Replace Electric Chillers	607,635	52,748	11.5	15,200	11.2	Y
ECM-3	Replace primary CHW pump motors with high efficiency motors and install VFD	40,307	3,489	11.6	0	11.6	Y
ECM-4	Upgrade DDC Controls	40,187	4,192	9.6	0	9.6	Y
ECM-5	Kitchen Hood Control	136,316	6,756	20.2	0	20.2	N
ECM-6	Walk-In Cooler Controls	27,617	1,636	16.9	0	16.9	N
ECM-L1**	Lighting Replacements / Upgrades	875,986	51,557	17.0	48,515	16.0	N
ECM-L2**	Install Lighting Controls (Add Occupancy Sensors)	49,761	33,349	1.5	7,760	1.3	N
ECM-L3	Lighting Replacements with Controls (Occupancy Sensors)	925,747	70,874	13.1	56,275	12.3	Y
Total**		1,798,609	141,018	12.8	71,475	12.2	
Total(Recommended)		1,634,676	132,626	12.3	71,475	11.8	

* Incentive shown, if available, is per the New Jersey SmartStart Program.

** These ECMs are not included in the Total, as they are alternate measures not recommended.

If Bloomfield School District implements the recommended ECMs, energy savings would be as follows:

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs (\$)	631,041	498,415	21%
Electricity (kWh)	3,135,590	2,384,026	24%
Natural Gas (therms)	95,217	93,162	2%
Site EUI (kbtu/SF/Yr)	46.5	40.1	



2.0 BUILDING INFORMATION AND EXISTING CONDITIONS

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

Building Name: Bloomfield High School
Address: 160 Broad Street Bloomfield NJ 07003
Gross Floor Area: 435,150 sq. ft.
Number of Floors: Basement and four floors
Year Built: 1911



General

Description of Spaces: The building is used as a high school and has classrooms, library, auditorium, gymnasiums, kitchen, cafeteria, computer classrooms, fitness center, offices, storage rooms, restrooms and mechanical equipment rooms.

Description of Occupancy: The facility has 254 permanent employees working during regular school hours.

Number of Computers: The building has approximately 350 desktop and laptop computers.

Building Usage: Normal operating hours for the school are from 8.30 AM to 3.30 PM. However, some of the employees like office staff, teaching staff and custodial staff work before and after the normal school operating hours.

Construction: Structural steel framing with concrete masonry unit walls. The façade of the original building built in 1911 is stone and the new addition is a mixture of stone and concrete. .

Roof: The building has several roofs due to additions to the original building built in 1911. The original building and the addition built in the '70s have sloped roofs. However, the two additions built in early 2000 have flat roofs. All flat roofs are believed to be insulated. Roofs have been redone in the last 10 years and are in good condition. The maintenance staff stated that the attics are either not insulated or the insulation has lost its effectiveness. An ECM related to providing attic insulation has been evaluated

Windows: All windows are double pane that are in good condition. No ECM related to window replacement has been evaluated.

Exterior Doors: Exterior man doors are steel with glass panels and are in good condition however the seals and sweeps did show wear. A recommendation has been included in the O&M section to replace door seals and sweeps.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating: The entire school is heated by a hot water system. Heating hot water is generated by 10 Aerco Benchmark 2.0 condensing boilers, each with a maximum input capacity of 2000 MBH. Heating hot water is circulated by two (one working and one standby) Taco centrifugal pump sets driven by 30 HP premium efficiency inverter duty motors equipped with VFDs. The boilers and pumps are installed in the penthouse mechanical room. Eleven air handling units manufactured by Ventrol and fifteen rooftop units manufactured by Aaon are equipped with hot water heating coils and provide heat and ventilation to all the spaces of the school. Spaces are zoned and provided with 206 VAV units with reheat coils. Air handling units and rooftop units associated with VAV units are equipped with VFDs for the supply and return fan motors.

Three electric unit heaters are provided in elevator machine rooms and rooftop storage.

Eleven hot water radiant panels are installed in the ceiling of science wing hallways that have large exposed window glass areas.

Cooling: The entire school is cooled by a chilled water system and fifteen rooftop units.

The chilled water system consists of two 200 ton capacity each air cooled Dunham Bush chillers, three Taco (two working and one standby), primary constant flow chilled water pump sets with 7.5 HP motors and two Taco (one working and one standby) secondary variable flow chilled water pump sets driven by 40 HP premium efficiency inverter duty motors equipped with VFDs. The chillers are installed on the roof and the pump sets in the penthouse mechanical room. The chilled water system has 30% propylene glycol. Chilled water is circulated to eleven air handling units manufactured by Ventrol that are provided with chilled water cooling coils. The air handling units serve large spaces like the auditorium, gymnasiums, wood shops, lecture theater, cafeteria, TV studio and some classrooms. The fifteen rooftop units, manufactured by Aaon, are with electric cooling and serve majority of the classrooms in addition to kitchen, auxiliary gymnasiums, media center, locker rooms, offices and science laboratories. Conditioned air is circulated to all the spaces by sheet metal ductwork and air outlets. Zoned spaces are provided with VAV boxes. Air handling units and rooftop units associated with VAV units are equipped with VFDs for the supply and return fan motors.

Two ductless split AC units cool the main elevator machine room and server room.

Heating and cooling equipment was installed in 2004. They are well maintained and are in good condition. However, during the walkthrough, the maintenance staff stated that they experience

issues with the air cooled chiller. We were also informed of a compressor burn out after the walkthrough. ECMs related to replacing the air cooled chillers with high efficiency variable flow chillers and replacing the primary chilled water pump motors with premium efficiency inverter duty motors and VFDs have been evaluated.

Details of the equipment are shown in the Table below.

Description	Manufacturer Name	Equipment Type / Utility	Capacity/Size /Efficiency	Location	Areas/Equipment Served
Air Cooled Chiller	Dunham Bush	Air Cooled Electric Chiller	205 tons @54.1/44 deg F water temp 95 deg F amb. And 30% propylene glycol	Roof	Cooling for entire school
Primary Chilled Water Pumps	Taco	Centrifugal base mounted end suction pump with direct drive electric mote	500 GPM @ 30 FT. HD. And 7.5 HP Motor	Penthouse Mechanical Room,	Chilled Water circulation at chiller
Secondary Chilled Water Pumps	Taco	Centrifugal base mounted end suction pump with direct drive electric mote	1100 GPM @ 110 FT. HD. And 40 HP Motor	Penthouse Mechanical Room,	Chilled Water for entire School
Hot Water Boilers	Aerco	Gas Fired Condensing Hot Water Boiler	2000 MBH Input Max/100 MBH Input Min	Penthouse Mechanical Room,	Heating Hot Water for entire School
Hot Water Pumps	Taco	Centrifugal base mounted end suction pump with direct drive electric mote	750 GPM @109 FT. HD. And 30 HP Motor	Penthouse Mechanical Room,	Heating Hot Water for entire School
Air Handling Unit AHU-1	Ventrol	Air Handling Unit with chilled water and hot water coils	8200 CFM capacity with 7.5 HP Supply Fan Motor	Attic	5th Floor Interior Building 'B'

Air Handling Unit AHU-2	Ventrol	Air Handling Unit with chilled water and hot water coils	22000 CFM capacity with 15.00 HP Supply Fan Motor	Attic	Auditorium Building 'B'
Air Handling Unit AHU-3	Ventrol	Air Handling Unit with chilled water and hot water coils	14600 CFM capacity with 7.5 HP Supply Fan Motor	Attic	4th Floor Building South 'B'
Air Handling Unit AHU-4	Ventrol	Air Handling Unit with chilled water and hot water coils	12540 CFM capacity with 7.5 HP Supply Fan Motor	Attic	4th Floor North Building 'B'
Air Handling Unit AHU-5	Ventrol	Air Handling Unit with chilled water and hot water coils	11000 CFM capacity with 10.0 HP Supply Fan Motor and 3.0 HP Return Fan Motor	Above Gymnasium Ceiling	Gymnasium
Air Handling Unit AHU-6	Ventrol	Air Handling Unit with chilled water and hot water coils	11000 CFM capacity with 10.0 HP Supply Fan Motor and 3.0 HP Return Fan Motor	Above Gymnasium Ceiling	Gymnasium
Air Handling Unit AHU-7	Ventrol	Air Handling Unit with chilled water and hot water coils	35715 CFM capacity with 30.0 HP Supply Fan Motor and 10.0 HP Return Fan Motor	Roof	Cafeteria
Air Handling Unit AHU-9	Ventrol	Air Handling Unit with chilled water and hot water coils	2600 CFM capacity with 2.0 HP Supply Fan Motor	Ceiling	TV Studios
Air Handling Unit AHU-10	Ventrol	Air Handling Unit with chilled water and	2600 CFM capacity with 2.0 HP Supply Fan Motor	Ceiling Mounted in Wood Shop	Wood Shop

		hot water coils			
Air Handling Unit AHU-11	Ventrol	Air Handling Unit with chilled water and hot water coils	2600 CFM capacity with 2.0 HP Supply Fan Motor	Ceiling Mounted in Wood Shop	Wood Shop
Air Handling Unit AHU-12	Ventrol	Air Handling Unit with chilled water and hot water coils	7275 CFM capacity with 5.0 HP Supply Fan Motor and 5.0 HP Exhaust Fan Motor	Ceiling Mounted	Storages
Rooftop Unit RTU-1	Aaon	Rooftop Unit with electric cooling and hot water heating	24590 CFM capacity with 20.0 HP Supply Fan Motor and 10.0 HP Return Fan Motor	Roof	Science Wing Bldg. 'A'
Rooftop Unit RTU-2	Aaon	Rooftop Unit with electric cooling and hot water heating	12550 CFM capacity with 7.5 HP Supply Fan Motor	Roof	Science Wing Bldg. 'A'
Rooftop Unit RTU-3	Aaon	Rooftop Unit with electric cooling and hot water heating	13845 CFM capacity with 7.5 HP Supply Fan Motor	Roof	5th Floor North Building 'B'
Rooftop Unit RTU-4	Aaon	Rooftop Unit with electric cooling and hot water heating	11550 CFM with 7.5 HP Supply Fan Motor	Roof	5th Floor South Building 'B'
Rooftop Unit RTU-5	Aaon	Rooftop Unit with electric cooling and hot water heating	30415 CFM capacity with 15.0 HP Supply Fan Motor and 7.5 HP Return Fan Motor	Roof	3rd Floor Building 'B'

Rooftop Unit RTU-6	Aaon	Rooftop Unit with electric cooling and hot water heating	25660 CFM capacity with 20.0 HP Supply Fan Motor and 10.0 HP Return Fan Motor	Roof	2nd Floor Building 'B'
Rooftop Unit RTU-7	Aaon	Rooftop Unit with electric cooling and hot water heating	15650 CFM capacity with 7.5 HP Supply Fan Motor and 5.0 HP Exhaust Fan Motor	Roof	Aux. Basketball
Rooftop Unit RTU-8	Aaon	Rooftop Unit with electric cooling and hot water heating	6560 CFM capacity with 5.0 HP Supply Fan Motor	Roof	Aux. Gymnasium
Rooftop Unit RTU-9	Aaon	Rooftop Unit with electric cooling and hot water heating	12150 CFM capacity with 7.5 HP Supply Fan Motor and (2) 5.0 HP Exhaust Fan Motors	Roof	Locker Rooms and Storage
Rooftop Unit RTU-10	Aaon	Rooftop Unit with electric cooling and hot water heating	15000 CFM capacity with 15 HP Supply Fan Motor and (2) 5.0 HP Return Fan Motors	Roof	Offices and Classrooms
Rooftop Unit RTU-11	Aaon	Rooftop Unit with electric cooling and hot water heating	10900 CFM capacity with 5.0 HP Supply Fan Motor and 3.0 HP Return Fan Motor	Roof	Kitchen
Rooftop Unit RTU-12	Aaon	Rooftop Unit with electric cooling and hot water heating	13000 CFM capacity with 5.0 HP Supply Fan Motor and 3.0 HP Return Fan Motor	Roof	Existing Gymnasium Building 'C'
Rooftop Unit RTU-13	Aaon	Rooftop Unit with electric cooling and hot water heating	35775 CFM capacity with 15.0 HP Supply Fan Motor and (2) 7.5 HP Return	Roof	2nd and 3rd Floors Building 'C'

			Fan Motors		
Rooftop Unit RTU-14	Aaon	Rooftop Unit with electric cooling and hot water heating	7200 CFM capacity with 5.0 HP Supply Fan Motor	Roof	Media Center Building 'C'
Rooftop Unit RTU-15	Aaon	Rooftop Unit with electric cooling and hot water heating	16500 CFM capacity with 7.5 HP Supply Fan Motor	Roof	3rd Floor Building 'C'
Make-Up Air Unit	Rupp Air	Make-Up Air Unit with Gas Heating	4500 CFM Capacity with 5.0 HP Supply Fan Motor and 350 MBH Gas Input	Roof	Kitchen
Make-Up Air Unit	Rupp Air	Make-Up Air Unit with Gas Heating	4000 CFM Capacity with 3.0 HP Supply Fan Motor and 302 MBH Gas Input	Roof	Kitchen
Make-Up Air Unit	Rupp Air	Make-Up Air Unit with Gas Heating	3400 CFM Capacity with 3.0 HP Supply Fan Motor and 302 MBH Gas Input	Roof	Kitchen
DX Split AC Unit	Mitsubishi	DX Split AC Unit	30 MBH Cooling Capacity	Roof	Elevator Machine Room
DX Split AC Unit	Mitsubishi	DX Split AC Unit	12 MBH Cooling Capacity	Roof	Elevator Machine Room

Ventilation: All the air handling units are provided with ducted outside air intakes and control dampers. The rooftop units are provided with integral outside air intake with control dampers. Ventilation to the spaces is provided through the outside air intakes. As ventilation rates are assumed to be minimum there are no ECMs associated with the ventilation system.

Exhaust: This building has multiple fractional HP exhaust fans serving restrooms and general exhaust located on the roof. Science laboratories are provided with fume exhaust fans. The atrium is provided with two smoke exhaust fans. Smoke exhaust fans are powered by normal power as well as generator power. The fans are enclosed and therefore the capacities of fan motors are unknown. All fans were installed in 2004 and are believed to be in good condition. No ECMs were evaluated for the exhaust fans.

Controls Systems

The HVAC system is controlled and monitored by Johnson Controls' Metasys DDC control system. Heating system works on outdoor air reset and boilers are staged based on the heating load. The cooling system is activated by outside air temperature. The chillers' integral control systems maintain set chilled water temperatures and sequence the compressors during part load operation.

Air handling units and rooftop units are set to provide economizer operation during favorable outside air conditions. Units serving large spaces are provided with CO2 sensors that modulate the outside air dampers in response to occupancy levels in the spaces. All spaces in the school except Cafeteria and Gymnasium have the cooling and heating set points set between 72 deg F and 74 deg F. Cafeteria cooling and heating set points are between 70 deg F and 72 deg F. and Gymnasium cooling and heating set points are at 72 deg F. The maintenance staff stated during the walkthrough that occasional adjustments are made due to weather or usage of spaces. These adjustments are made from the front end. Night set back is programmed in the DDC system but the units are switched off after school hours to save energy. The front end graphics have been damaged and cannot be utilized. Also, the control system cannot be accessed remotely nor can it alert maintenance personnel in events of emergencies. Hence, considerable time is lost in addressing issues resulting in energy loss as well. An ECM related to upgrading the existing control system has been evaluated.

Domestic Hot Water Systems

Domestic hot water to the entire school except kitchen is generated by two PVI condensing gas fired water heaters. The water heaters each have a storage capacity of 250 gallon and 1400 GPH recovery rate with maximum input of 1000 MBH. Both the water heaters are installed in the penthouse mechanical room. Domestic hot water is circulated by a Bell and Gossett fractional HP in line pump. A third water heater of the same size and capacity as above, serves the kitchen. The water heater is installed on the first floor close to the kitchen. Domestic hot water is circulated by a Bell and Gossett fractional HP in line pump. All equipment was installed in 2004, is maintained well and in good condition. No ECM related to domestic hot water system has been evaluated.

Kitchen Equipment

The school has a kitchen and food is prepared daily. Kitchen equipment consists of gas ranges, three compartment sinks and a dish washer. There are three walk in cooler units, three commercial refrigerators, two electric ovens and one gas oven. There are three kitchen make up air units installed on the roof that provide outside air for the three kitchen hoods. Kitchen exhaust hoods with associated exhaust fans are provided for the gas ranges. All the equipment is in good working condition. However, to improve energy savings two ECMs have been evaluated – one for kitchen hood control and another for walk in cooler control. Also, a recommendation is made to replace kitchen equipment with energy star rated equipment when needed.

Plug Load

This building has computers, printers/copiers fitness and exercise equipment which contribute to the plug load in the building. We have calculated the plug load to have minimal impact

compared to other electric consuming devices. An O&M recommendation has been included to purchase Energy Star rated equipment when the old ones need replacement.

Plumbing Systems

The urinals and toilets appear to be high flow plumbing fixtures. The sink faucets do not appear to have low-flow type aerators. An analysis for reducing the water consumption was not performed since the school informed us that water is provided to them at no cost. Although the cost of water usage in most facilities is relatively small compared with costs of electric and gas usage, reducing water usage helps conserve and protect vital water supply sources. Hence, a recommendation has been included in the O&M section to install low-flow plumbing fixtures and aerators when fixture replacement is planned.

Lighting Systems

The school has a mixture of T-5 and T-8 fluorescent lighting fixtures with a few T-12 fixtures as well. The North Gymnasium has twenty four (24) 250 watt metal halide lights and the South Gymnasium has thirty five (35) 250 watt metal halide lights. Some spaces like restrooms, janitor's closets, hallways and storage rooms are provided with compact fluorescent light fixtures. Exterior lights are metal halide lights. All the lights in this building are controlled by occupancy sensors except exterior lights which are controlled by timer. LED lights are recommended in this study. We have provided three alternatives for the observed 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 and electricity are separately metered into this building. Utilities used by the building are delivered and supplied by the following utility companies:

	Electric	Natural Gas
Deliverer	PSE&G	PSE&G
Supplier	Direct Energy	PSE&G

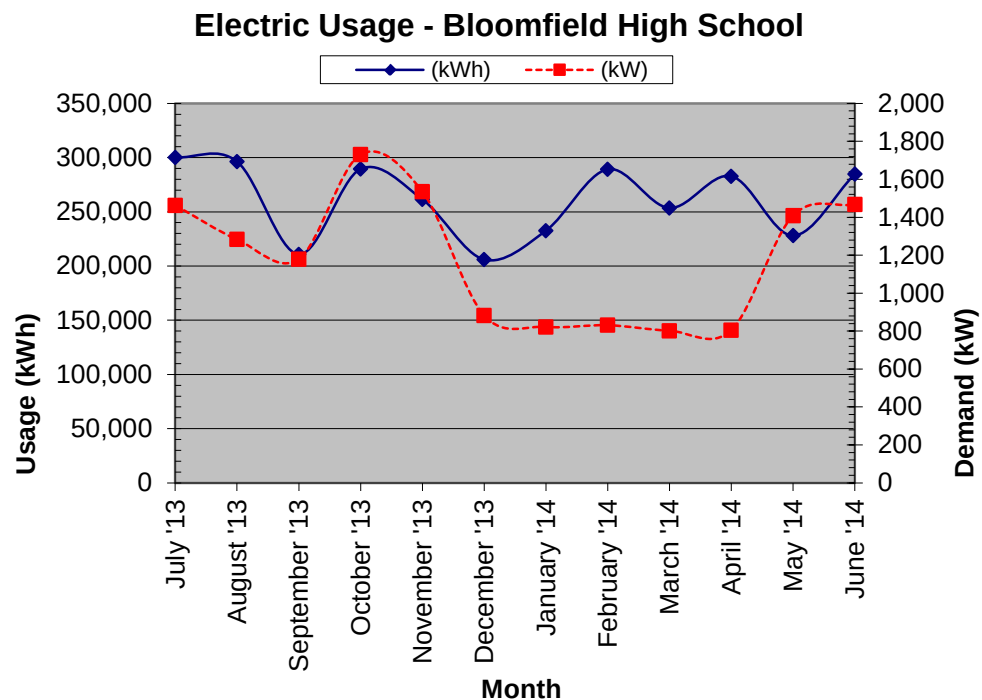
For the 12-month period ending in June 2014, the utilities usages and costs for the building were as follows:

Electric		
Annual Consumption	3,135,590	kWh
Annual Cost	534,608	\$
Blended Unit Rate	0.17	\$/kWh
Supply Rate	0.146	\$/kWh
Demand Rate	5.32	\$/kW
Peak Demand	1730.9	kW
Natural Gas		
Annual Consumption	95,217	Therms
Annual Cost	96,433	\$
Unit Rate	1.013	\$/therm

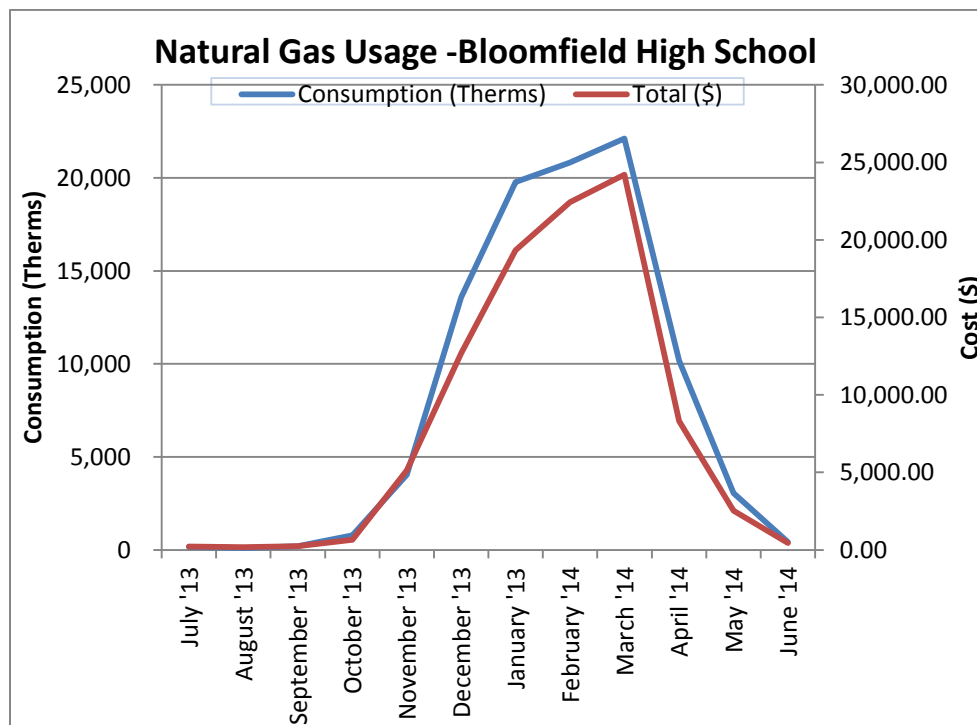
Blended Rate: Average rate charged determined by the annual cost / annual usage

Supply Rate: Estimated

Demand Rate: Rate charged for actual electrical demand in kW (based on most recent electric bill)



The electric usage fluctuates with the building usage. The consumption during September, and December months is lower due to minimal school activities during these two months. Also, electric consumptions vary with outside weather conditions when cooling and heating may not be required.



The natural gas consumption in this building is by the hot water boilers, domestic hot water heaters (DHW) and kitchen equipment. The gas usage in non-heating season is small and only for DHW heating and kitchen. 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	Average Rate	NJ Average Rate	
Electricity	\$/kWh	\$0.170	\$0.13	Y
Natural Gas	\$/Therm	\$1.013	\$0.96	Y

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

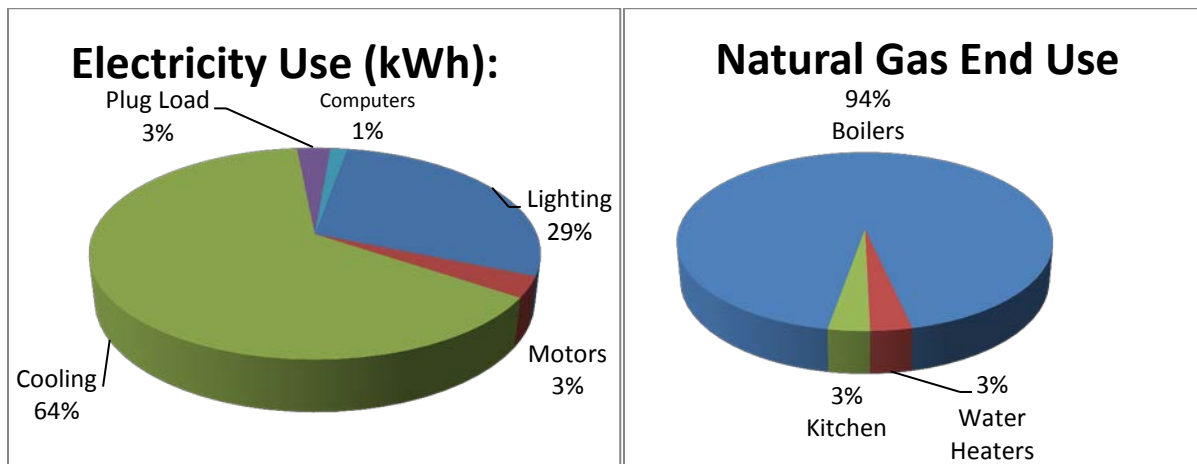
Additional information on selecting a third party energy supplier is available here:

<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



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 score for all types of buildings. The buildings that do not have energy rating now are compared with national median EUI.

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

Site EUI kBtu/ft ² /yr	Source EUI (kBtu/ft ² /yr)	Energy Star Rating (1-100)
46.5	100.2	85

The school building's Energy Star score is 85. The score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide. A score of 50 represents median energy performance and a score of 75 or higher indicates that the building is a top performer. The site EUI of the school building is 46.5 and source EUI is 100.2. The building has lower EUIs than the national median EUIs (national median site EUI is 69.2 kBtu/ft² and national median source EUI is 149.1 kBtu/ft²). The EUI of this building is (-)33% lower than national median. The EUI could be further reduced after implementing some of the proposed energy conservation measures.

EPA Portfolio Manager can be accessed with the following.

[REDACTED]

[REDACTED]

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- 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 or 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 Attic Insulation

The original building and the old gymnasium have attics. The maintenance staff informed that the attics may not have any insulation or the insulation may have lost its effectiveness. This measure looks at adding R-38 insulation on the attics of the original building and the old gymnasium. Presently there is minimal loose-fill insulation in the attic which results in excessive heat loss. The addition of insulation materials of blown in fiberglass or cellulose insulation throughout the attic will reduce heating fuel consumption. The savings for this ECM are calculated by taking an R-value (R-10) for the existing attic and an R-value (R-38) for the attic with the added insulation.

The savings for this ECM is calculated by estimating the internal heat load of the building using BIN data and establishing a typical R-value (R-10) of an existing attic; this is compared to a new R-value (R-38) for the proposed scenario. The difference in R-values results in a difference of energy lost through the walls and ceiling. The difference multiplied by the annual hours is the energy savings.

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

ECM-1 Attic Insulation

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
\$	kW	kWh	Therms	\$		\$	Years	Years
20,800	0	849	1,163	1,322	0.3	0	15.7	15.7

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

This measure is recommended.

5.2 ECM-2 Replace Electric Chillers

Presently, chilled water is generated by two Dunham Bush air cooled chillers each of 200 ton capacity. The chiller design requires the design water flow to be maintained at all times during chiller operation. Modern chillers allow for variable flow thus providing considerable energy savings during part load conditions. This ECM evaluates the electrical energy savings associated with replacing older, less efficient air cooled chillers with high efficiency chillers that allow variable flow.

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

ECM-2 Replace Electric Chillers

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
\$	kW	kWh	Therms	\$		\$	Years	Years
607,635	195	276,024	0	52,748	1.0	15,200	11.5	11.2

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

This measure is recommended.

5.3 ECM-3 Replace primary CHW pump motors with high efficiency motors and install VFDs

This measure evaluates the potential energy savings for replacing the existing 7.5 HP chilled water primary pump motors with high efficiency inverter-duty motors and adding variable frequency drives (VFD). A more detailed hydraulic calculation should be carried out to size the pump and motor properly if this measure is approved by Bloomfield School District. There are three pumps installed, one for each chiller and one as a backup for both pumps. Calculations, therefore, are made for two pumps. Also, this measure should be considered in conjunction with ECM-2 - Replace Electric Chiller.

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

ECM-3 Replace primary CHW pump motors with high efficiency motors and install VFDs

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
\$	kW	kWh	Therms	\$		\$	Years	Years
40,307	1	23,667	0	3,489	1.0	0	11.6	11.6

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

This measure is recommended.

5.4 ECM-4 Upgrade DDC Control System

Currently, the school has a DDC system. However, the front end graphics have been damaged. Also, the system lacks some critical features like access from remote location and ability to send alerts to maintenance personnel. These features enable the maintenance personnel to monitor and control the systems from remote locations and also help to resolve issues faster reducing down time and save energy. This ECM evaluates savings by upgrading the existing system.

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

ECM-4 Upgrade DDC Control System

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
\$	kW	kWh	Therms	\$		\$	Years	Years
40,187	0	19,345	892	4,192	1.1	0	9.6	9.6

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

This measure is recommended.

5.5 ECM-5 Kitchen Hood Control

The school's kitchen has three kitchen hoods. 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 adjusts the exhaust 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.

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

ECM-5 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
136,316	0	7,096	5,479	6,756	(0.1)	0	20.2	20.2

* Incentive shown, if available, 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.

5.6 ECM-6 Walk In Cooler Controls

For kitchens that contain walk-in coolers and freezers, CoolTrol is a controller that reduces energy consumption by controlling off of dew point 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.

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

ECM-6 Walk In Cooler Controls

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without)	Payback (with)
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	Electricity		Natural Gas	Total			incentive)	incentive)
\$	kW	kWh	Therms	\$		\$	Years	Years
27,617	0	9,621	0	1,636	0.1	0	16.9	16.9

* Incentive shown, if available, 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.

5.7.1 ECM-L1 Lighting Replacement / Upgrades

The school has a mixture of T-12 and T-8 fluorescent lighting fixtures. The All Purpose room has twenty eight (28) 400 watt metal halide lights and the stage has six (6) 400 watt metal halide lights. Some spaces like the boiler room, restrooms, janitor's closets and storage rooms are provided with incandescent lights. Exterior lights are a mixture of incandescent and compact fluorescent lights. All the lights in this building are controlled by manual switches except exterior lights which are controlled by timer.

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
875,986	123	299,367	0	51,557	0.0	48,515	17.0	16.0

* LED retrofits must go through the "custom" measures incentive option under New Jersey SmartStart Program. There are no "prescriptive" incentives for LED retrofits. Projects must achieve a minimum of 75,000 kWh annual savings to qualify for "custom" incentives. See section 6.0 for other incentive opportunities

This measure is not recommended in lieu of ECM L3.

5.7.2 ECM-L2 Install Lighting Controls (Occupancy Sensors)

The majority of the interior lights are controlled by wall mounted switches. 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
49,761	0	196,171	620	33,349	9.1	7,760	1.5	1.3

* 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.

5.7.3 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. 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
925,747	123	431,679	0	70,874	0.3	56,275	13.1	12.3

* LED retrofits must go through the "custom" measures incentive option under New Jersey SmartStart Program. There are no "prescriptive" incentives for LED retrofits. Projects must achieve a minimum of 75,000 kWh annual savings to qualify for "custom" incentives. See section 6.0 for other incentive opportunities

This measure is recommended.

5.8 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:

- Replace door seals and sweeps.
- Purchase Energy Star rated equipment when old ones need replacement.
- Upgrade the plumbing fixtures to low flow plumbing fixtures and aerators, when needed

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 city wishes to and is eligible to participate in the Energy Savings Improvement Plan (ESIP) program and/or the Pay for Performance Incentive Program (P4P), it cannot participate in either the Smart Start or Direct Install Programs. Refer to Appendix D for more information on the Smart Start program.

6.1.1 New Jersey Smart Start Program

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

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

The equipment is procured using a typical bid- build method, installed and paid for and then the incentives are reimbursed to the 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 is funded through New Jersey's Clean Energy Program and is designed to provide capital for building energy upgrade projects to fast track implementation. The

program will pay up to 70% of the costs for lighting, HVAC, motors, refrigeration, and other equipment upgrades with higher efficiency alternatives. If a building is eligible for this funding, the Direct Install Program can reduce the implementation cost of energy conservation projects.

The Direct Install program has specific HVAC equipment and lighting requirements and 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.

Bloomfield High School does not qualify for the Direct Install Program since the peak electrical demand during the evaluated 12 month period was higher than 200 KW.

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

Available Roof Area (Ft ²)	Potential PV Array Size (kW)
14,440	115

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

Installation of (PV) arrays in the state New Jersey will allow the owner to participate in the New Jersey Solar Renewable Energy Certificates Program (SREC). This is a program that has been set up to allow entities with large amounts of environmentally unfriendly emissions to purchase credits from zero emission (PV) solar-producers. An alternative compliance penalty (ACP) is paid for by the high emission producers and is set each year on a declining scale of 3% per year. One SREC credit is equivalent to 1000 kilowatt hours of PV electrical production; these credits can be traded for period of 15 years from the date of installation. Payments that will be received by the PV producer will change from year to year dependent upon supply and demand. There is no definitive way to calculate an exact price that will be received by the PV producer for SREC credits over the next 15 years. Renewable Energy Consultants estimates an average of \$200/SREC for 2015 and this number was utilized in the cash flow for this report.

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

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

Photovoltaic (PV) Rooftop Solar Power Generation – 115 kW System

Budgetary Cost	Annual Utility Savings			Total Savings	New Jersey Renewable SREC	Payback (without SREC)	Payback (with SREC)	Recommended
	Electricity		Natural Gas					
\$	kW	kWh	Therms	\$	\$	Years	Years	Y/N
\$460,000	115	146,612	0	\$24,924	\$29,322	18.5	8.5	FS

Note: CHA typically recommends a more detailed evaluation be conducted for the installation of PV Solar arrays when the screening evaluation shows a payback of less than 20 years. Therefore, this ECM is recommended for further study. Before implementation is pursued, the school should consult with a certified solar PV contractor.

7.1.2 Solar Thermal Hot Water Generation

Active solar thermal systems use solar collectors to gather the sun's energy to heat 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.

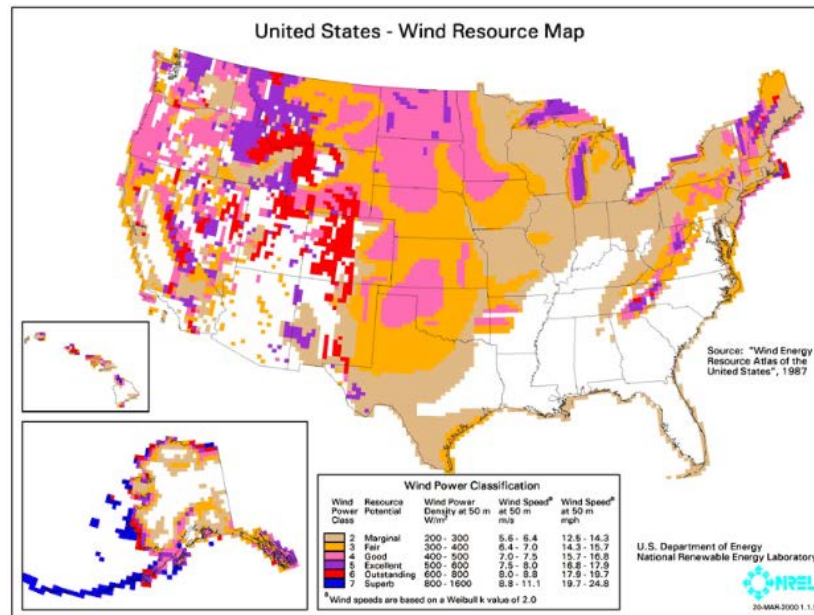
Several options exist for using active solar thermal systems for space heating. The most common method is called a passive solar hot water system involves using glazed collectors to heat a liquid held in a storage tank (similar to an active solar hot water system described above which requires pumping). 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 building 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 building.

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 building.

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. The 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 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 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 2014 through December 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
1730.9	802.1	1133.4	Y	Y

*the demand is estimated from one month bill

This measure is recommended.

8.0 CONCLUSIONS & RECOMMENDATIONS

The following section summarizes the LGEA energy audit conducted by CHA for the Bloomfield School District at Bloomfield High School.

The following projects should be considered for implementation:

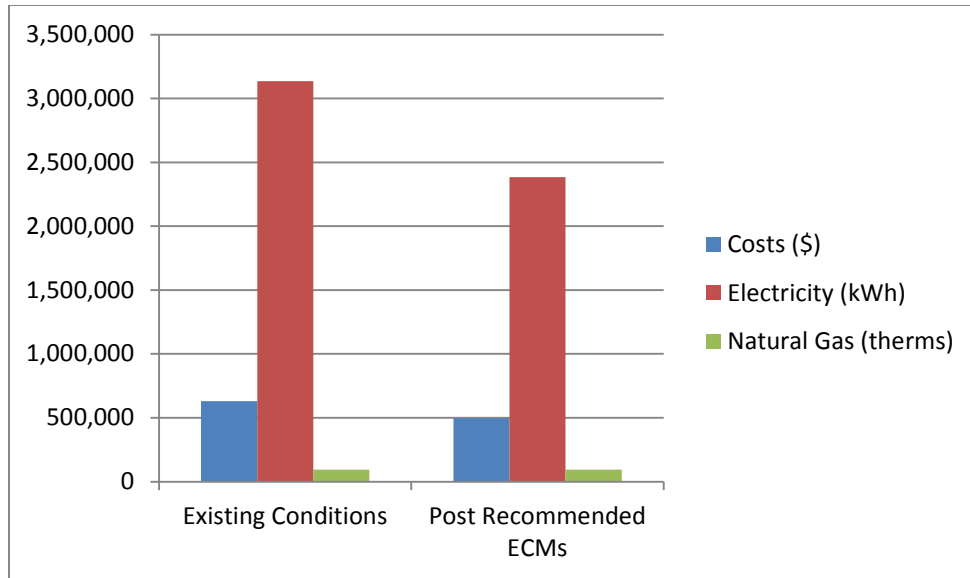
- Attic Insulation
- Replace Electric Chiller
- Replace Primary CHW Pump Motors with High Efficiency Motors and Install VFDs
- Upgrade DDC Controls
- Lighting Replacements with Controls (Occupancy Sensors)

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)
751,564	2,055	\$132,626	12.3

If the Bloomfield School District implements the recommended ECMs, energy savings would be as follows:

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs (\$)	631,041	498,415	21%
Electricity (kWh)	3,135,590	2,384,026	24%
Natural Gas (therms)	95,217	93,162	2%
Site EUI (kbtu/SF/Yr)	46.5	40.1	



Next Steps: This energy audit has identified several areas of potential energy savings. Bloomfield School District can use this information to pursue incentives offered by the NJBPU's NJ Clean Energy Program. A close out meeting will be scheduled with school staff members to review the ECMs and possible incentive options.

APPENDIX A

Utility Usage Analysis and Alternate Utility Suppliers

Bloomfield High School
160 Broad Street Bloomfield, NJ 07003

Bloomfield High School

Annual Utilities
12-month Summary

Electric		
Annual Usage	3,135,590	kWh/yr
Annual Cost	534,608	\$
Blended Rate	0.170	\$/kWh
Consumption Rate	0.146	\$/kWh
Demand Rate	5.32	\$/kW
Peak Demand	1,730.9	kW
Min. Demand	802.1	kW
Avg. Demand	1,133.4	kW
Natural Gas		
Annual Usage	95,217	Therms/yr
Annual Cost	96,433	\$
Rate	1.013	\$/Therm

Bloomfield High School
160 Broad Street Bloomfield, NJ 07003

Utility Bills: Account Numbers

<u>Account Number</u>	<u>Building</u>	<u>Location</u>	<u>Type</u>	<u>Notes</u>
4200304007	Bloomfield High School	160 Broad Street Bloomfield, NJ 07003	Electricity	
4200657007	Bloomfield High School	160 Broad Street Bloomfield, NJ 07003	Natural Gas	

Berrkeley Elementary School
331 Bloomfield Avenue Bloomfield, NJ 07003

For Service at: Bloomfield High School
Account No.: 4200304007
Meter No.: 778017748
Electric Service

Delivery - PSE&G
Supplier - DIRECT ENERGY

Month			Provider Charges			Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
	Consumption (kWh)	Demand (kW)	Delivery (\$)	Supplier (\$)	Total (\$)	Consumption (\$)	Demand (\$)	Blended Rate (\$/kWh)	Consumption Rate (\$/kWh)	Demand (\$/kW)
July '13	300,205	1,463.0	\$ 25,498.63	\$ 34,713.55	\$60,212.18	\$ 44,098.69	\$ 16,113.49	\$ 0.20	\$ 0.15	\$ 11.01
August '13	296,328	1,283.0	\$ 23,399.74	\$ 34,052.58	\$57,452.32	\$ 43,321.36	\$ 14,130.96	\$ 0.19	\$ 0.15	\$ 11.01
September '13	210,737	1,179.4	\$ 19,689.67	\$ 24,569.29	\$44,258.96	\$ 31,269.05	\$ 12,989.91	\$ 0.21	\$ 0.15	\$ 11.01
October '13	289,526	1,730.9	\$ 28,128.75	\$ 33,901.03	\$62,029.78	\$ 42,965.65	\$ 19,064.13	\$ 0.21	\$ 0.15	\$ 11.01
November '13	261,526	1,535.0	\$ 10,831.77	\$ 31,076.04	\$41,907.81	\$ 39,327.17	\$ 2,580.64	\$ 0.16	\$ 0.15	\$ 1.68
December '13	206,011	882.7	\$ 8,063.13	\$ 23,944.03	\$32,007.16	\$ 30,523.16	\$ 1,484.00	\$ 0.16	\$ 0.15	\$ 1.68
January '14	232,654	822.2	\$ 8,763.85	\$ 27,099.55	\$35,863.40	\$ 34,481.12	\$ 1,382.28	\$ 0.15	\$ 0.15	\$ 1.68
February '14	289,266	830.9	\$ 10,082.59	\$ 33,606.93	\$43,689.52	\$ 42,292.61	\$ 1,396.91	\$ 0.15	\$ 0.15	\$ 1.68
March '14	253,565	802.1	\$ 9,008.40	\$ 28,652.85	\$37,661.25	\$ 37,340.21	\$ 321.04	\$ 0.15	\$ 0.15	\$ 0.40
April '14	282,872	805.0	\$ 9,849.96	\$ 31,766.53	\$41,616.49	\$ 40,263.13	\$ 1,353.36	\$ 0.15	\$ 0.14	\$ 1.68
May '14	228,049	1,408.3	\$ 9,290.10	\$ 25,609.90	\$34,900.00	\$ 32,532.37	\$ 2,367.63	\$ 0.15	\$ 0.14	\$ 1.68
June '14	284,851	1,467.4	\$ 11,020.40	\$ 31,988.77	\$43,009.17	\$ 40,542.18	\$ 2,466.99	\$ 0.15	\$ 0.14	\$ 1.68
Total (last 12-months)	3,135,590	1,730.90	\$173,626.99	\$360,981.03	\$534,608.02	\$458,956.68	\$75,651.34	\$ 0.170	\$ 0.146	\$ 5.324
Notes	1	2	3	4	5	6	7	8	9	10

1.) Based on Direct Energy bills, amounts for Supplier \$ are calculated as follows:

July '13 thru Oct '13 - \$0.1092/KWH + KW Demand x \$1.32

Nov '13 and Dec '13 - \$0.1092/KWH + KW Demand x \$1.64

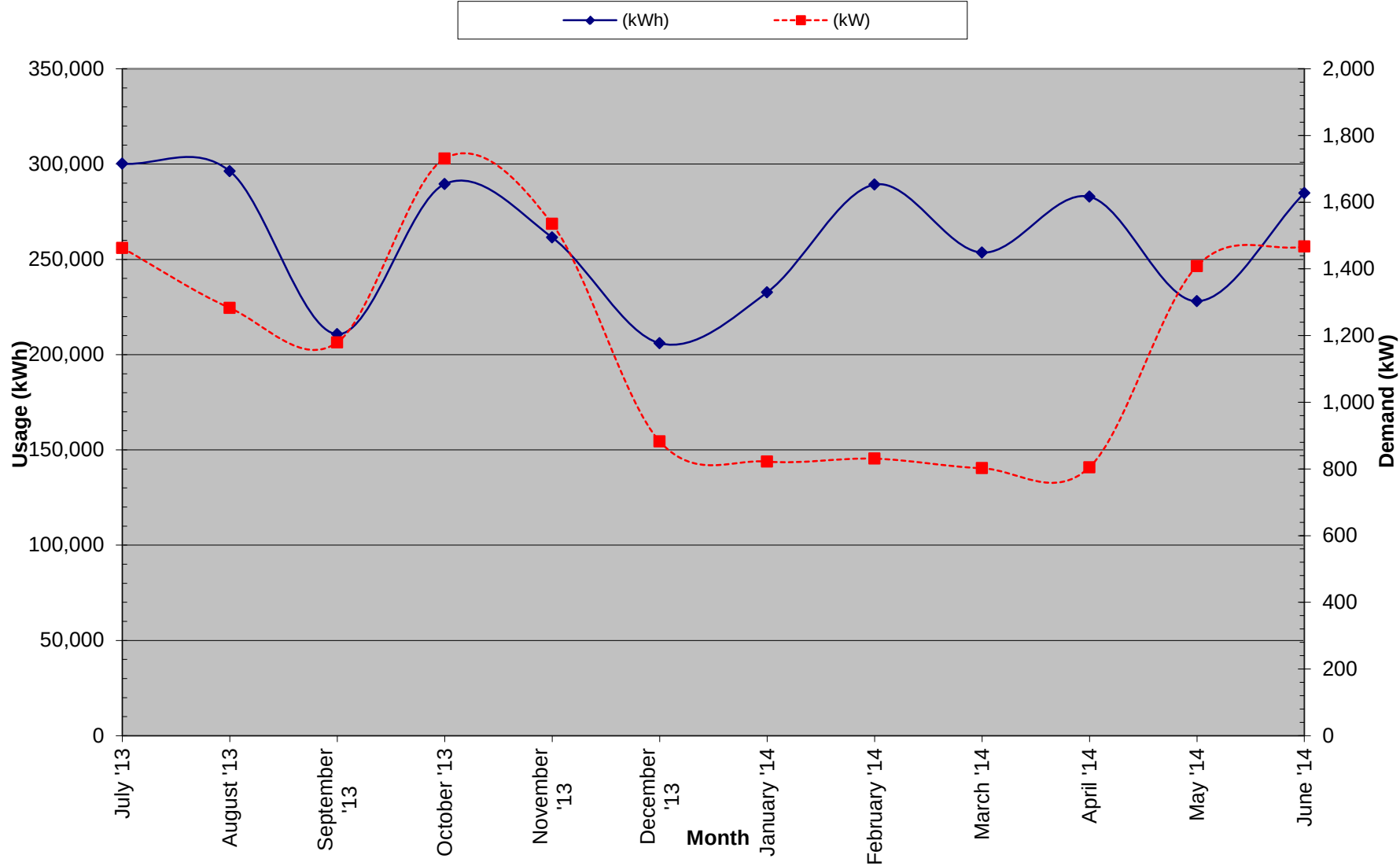
Jan '14 - \$0.1092/KWH + KW Demand x \$2.06

Feb '14 - \$0.1092/KWH + KW Demand x \$2.43

March '14 - \$0.1092/KWH + Trans. Adj. \$0.0038/KWH

Apr '14 thru June '14 - \$0.1092/KWH + Trans. Adj. \$0.0031/KWH

Electric Usage - Bloomfield High School

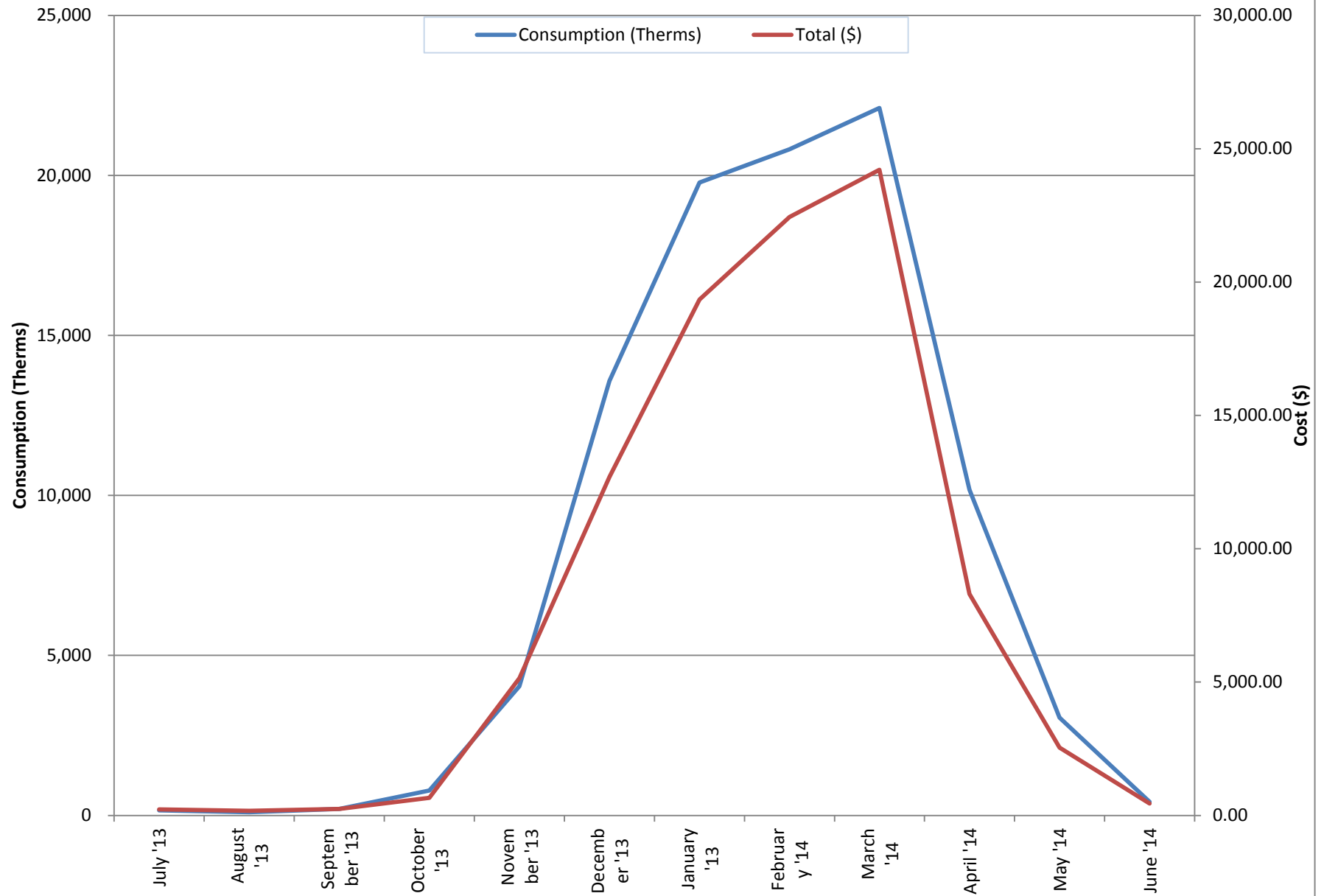


Bloomfield High School
160 Broad Street Bloomfield, NJ 07003

For Service at: **Bloomfield High School**
Account No.: **4200304007**
Meter No.: **2933958**
Natural Gas Service
Delivery - **PSE&G**
Supplier - **PSE&G**

Month	Consumption (Therms)	Charges			Unit Costs		
		Delivery (\$)	Supply (\$)	Total (\$)	Delivery (\$/Therm)	Supply (\$/Therm)	Total (\$/Therm)
July '13	159	\$ 127	\$ 99	\$ 226	\$ 0.80	\$ 0.62	\$ 1.42
August '13	98	\$ 118	\$ 57	\$ 175	\$ 1.20	\$ 0.58	\$ 1.79
September '13	202	\$ 133	\$ 114	\$ 247	\$ 0.66	\$ 0.56	\$ 1.22
October '13	780	\$ 214	\$ 443	\$ 657	\$ 0.27	\$ 0.57	\$ 0.84
November '13	4,037	\$ 2,877	\$ 2,266	\$ 5,143	\$ 0.71	\$ 0.56	\$ 1.27
December '13	13,577	\$ 4,919	\$ 7,771	\$ 12,690	\$ 0.36	\$ 0.57	\$ 0.93
January '13	19,775	\$ 6,776	\$ 12,568	\$ 19,344	\$ 0.34	\$ 0.64	\$ 0.98
February '14	20,819	\$ 6,892	\$ 15,549	\$ 22,441	\$ 0.33	\$ 0.75	\$ 1.08
March '14	22,109	\$ 7,115	\$ 17,098	\$ 24,213	\$ 0.32	\$ 0.77	\$ 1.10
April '14	10,179	\$ 1,075	\$ 7,230	\$ 8,305	\$ 0.11	\$ 0.71	\$ 0.82
May '14	3,055	\$ 417	\$ 2,123	\$ 2,540	\$ 0.14	\$ 0.69	\$ 0.83
June '14	427	\$ 154	\$ 298	\$ 452	\$ 0.36	\$ 0.70	\$ 1.06
Total (12 - Month)	95,217			\$ 96,433.00			\$ 1.013

Natural Gas Usage - Bloomfield High School



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.Jsnergylc.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.tignaturalgas.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

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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 5 th 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, 2 nd 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
Integrus Energy Services, Inc. 33 Wood Ave, South, Suite 610 Iselin, NJ 08830	(800) 536-0151 www.integrusenergy.com	C/I ACTIVE
Jsynergy, LLC 445 Central Ave. Suite 204 Cedarhurst, NY 11516	(516) 331-2020 Jsynergylc.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. 16 th 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](#)

APPENDIX B

Equipment Inventory

CHA Project # 30040
Bloomfield High School
160 Broad Street Bloomfield, NJ 07003

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.	Current year	Years Old	ASHRAE life expectancy
Air Cooled Chiller	2	Dunham Bush	ACFX220-6-0	2A42000120 & 2A42000121	Air Cooled Electric Chiller	205 tons @54.1/44 deg F water temp 95 deg F amb. And 30% propylene glycol	EER 9.15	Roof	Cooling for entire school	2004	9		2015	11	20
Primary Chilled Water Pumps	3	Taco	F14007E2FAJMG	EC08123/7	Centrifugal base mounted end suction pump with direct drive electric motor	500 GPM @ 30 FT. HD. And 7.5 HP Motor	N/A	Penthouse Mechanical Roo,	Chilled Water circulation at chiller	2004	9		2015	11	20
Secondary Chilled Water Pumps	2	Taco	FI6011B2MA11L0A	ECGS192/3	Centrifugal base mounted end suction pump with direct drive electric motor	1100 GPM @ 110 FT. HD. And 40 HP Motor	Motor Efficiency 94.5%	Penthouse Mechanical Roo,	Chilled Water for entire School	2004	9		2015	11	20
Hot Water Boilers	10	Aerco	Benchmark 2.0	G-04-0925 thru G-04- 0934	Gas Fired Condensing Hot Water Boiler	2000 MBH Input Max/100 MBH Input Min	Efficiency at AHRI 94.6%	Penthouse Mechanical Roo,	Heating Hot Water for entire School	2004	9		2015	11	20
Hot Water Pumps	2	Taco	TA103812L 1B2L0	N/A	Centrifugal base mounted end suction pump with direct drive electric motor	750 GPM @109 FT. HD. And 30 HP Motor	Motor Efficiency 94.1%	Penthouse Mechanical Roo,	Heating Hot Water for entire School	2004	9		2015	11	20
Air Handling Unit AHU-1	1	Ventrol	ITF-I-4	10960-01	Air Handling Unit with chilled water and hot water coils	8200 CFM capacity with 7.5 HP Supply Fan Motor	N/A	Attic	5th Floor Interior Building 'B'	2004	9		2015	11	20
Air Handling Unit AHU-2	1	Ventrol	ITF-I-4	10960-02	Air Handling Unit with chilled water and hot water coils	22000 CFM capacity with 15.00 HP Supply Fan Motor	N/A	Attic	Auditorium Building 'B'	2004	9		2015	11	20
Air Handling Unit AHU-3	1	Ventrol	ITF-I-4	10960-03	Air Handling Unit with chilled water and hot water coils	14600 CFM capacity with 7.5 HP Supply Fan Motor	N/A	Attic	4th Floor Building South 'B'	2004	9		2015	11	20
Air Handling Unit AHU-4	1	Ventrol	ITF-I-4	10960-04	Air Handling Unit with chilled water and hot water coils	12540 CFM capacity with 7.5 HP Supply Fan Motor	N/A	Attic	4th Floor North Building 'B'	2004	9		2015	11	20
Air Handling Unit AHU-5	1	Ventrol	ITF-I-4	10960-05	Air Handling Unit with chilled water and hot water coils	11000 CFM capacity with 10.0 HP Supply Fan Motor and 3.0 HP Return Fan Motor	N/A	Above Gymnasium Ceiling	Gymnasium	2004	9		2015	11	20
Air Handling Unit AHU-6	1	Ventrol	ITF-I-4	10960-06	Air Handling Unit with chilled water and hot water coils	11000 CFM capacity with 10.0 HP Supply Fan Motor and 3.0 HP Return Fan Motor	N/A	Above Gymnasium Ceiling	Gymnasium	2004	9		2015	11	20
Air Handling Unit AHU-7	1	Ventrol	ITF-I-4	10960-07	Air Handling Unit with chilled water and hot water coils	35715 CFM capacity with 30.0 HP Supply Fan Motor and 10.0 HP Return Fan Motor	N/A	Roof	Cafeteria	2004	9		2015	11	20
Air Handling Unit AHU-9	1	Ventrol	V2-C2-3-30- 200-FA000000A0	200410-CBWC01395	Air Handling Unit with chilled water and hot water coils	2600 CFM capacity with 2.0 HP Supply Fan Motor	N/A	Ceiling	TV Studios	2004	9		2015	11	20
Air Handling Unit AHU-10	1	Ventrol	ITF-I-4	10960-09	Air Handling Unit with chilled water and hot water coils	2600 CFM capacity with 2.0 HP Supply Fan Motor	N/A	Ceiling Mounted in Wood Shop	Wood Shop	2004	9		2015	11	20
Air Handling Unit AHU-11	1	Ventrol	ITF-I-4	10960-10	Air Handling Unit with chilled water and hot water coils	2600 CFM capacity with 2.0 HP Supply Fan Motor	N/A	Ceiling Mounted in Wood Shop	Wood Shop	2004	9		2015	11	20
Air Handling Unit AHU-12	1	Ventrol	ITF-I-4	10960-11	Air Handling Unit with chilled water and hot water coils	7275 CFM capacity with 5.0 HP Supply Fan Motor and 5.0 HP Exhaust Fan Motor	N/A	Ceiling Mounted	Storages	2004	9		2015	11	20
Rooftop Unit RTU-1	1	Aeon	RN-070-3-0	200411-ANWY00067	Rooftop Unit with electric cooling and hot water heating	24590 CFM capacity with 20.0 HP Supply Fan Motor and 10.0 HP Return Fan Motor	N/A	Roof	Science Wing Bldg. 'A'	2004	4		2015	11	15
Rooftop Unit RTU-2	1	Aeon	RN-040-3-0	200411-ANWY00068	Rooftop Unit with electric cooling and hot water heating	12550 CFM capacity with 7.5 HP Supply Fan Motor	N/A	Roof	Science Wing Bldg. 'A'	2004	4		2015	11	15
Rooftop Unit RTU-3	1	Aeon	RN-040-3-0	200411-ANWY00069	Rooftop Unit with electric cooling and hot water heating	13845 CFM capacity with 7.5 HP Supply Fan Motor	N/A	Roof	5th Floor North Building 'B'	2004	4		2015	11	15
Rooftop Unit RTU-4	1	Aeon	RN-031-3-0	200411-ANWY00070	Rooftop Unit with electric cooling and hot water heating	11550 CFM with 7.5 HP Supply Fan Motor	N/A	Roof	5th Floor South Building 'B'	2004	4		2015	11	15
Rooftop Unit RTU-5	1	Aeon	RN-070-3-0	20041-ANWY00071	Rooftop Unit with electric cooling and hot water heating	30415 CFM capacity with 15.0 HP Supply Fan Motor and 7.5 HP Return Fan Motor	N/A	Roof	3rd Floor Building 'B'	2004	4		2015	11	15
Rooftop Unit RTU-6	1	Aeon	RN-070-3-0	20041-ANWY00072	Rooftop Unit with electric cooling and hot water heating	25660 CFM capacity with 20.0 HP Supply Fan Motor and 10.0 HP Return Fan Motor	N/A	Roof	2nd Floor Building 'B'	2004	4		2015	11	15

CHA Project # 30040
Bloomfield High School
160 Broad Street Bloomfield, NJ 07003

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.	Current year	Years Old	ASHRAE life expectancy
Rooftop Unit RTU-7	1	Aaon	RN-040-3-0	200411-ANWV00073	Rooftop Unit with electric cooling and hot water heating	15650 CFM capacity with 7.5 HP Supply Fan Motor and 5.0 HP Exhaust Fan Motor	N/A	Roof	Aux. Basketball	2004	4		2015	11	15
Rooftop Unit RTU-8	1	Aaon	RM-020-3-0	200411-AMWP00643	Rooftop Unit with electric cooling and hot water heating	6560 CFM capacity with 5.0 HP Supply Fan Motor	N/A	Roof	Aux. Gymnasium	2004	4		2015	11	15
Rooftop Unit RTU-9	1	Aaon	RN-031-3-0	200411-ANWU00074	Rooftop Unit with electric cooling and hot water heating	12150 CFM capacity with 7.5 HP Supply Fan Motor and (2) 5.0 HP Exhaust Fan Motors	N/A	Roof	Locker Rooms and Storage	2004	4		2015	11	15
Rooftop Unit RTU-10	1	Aaon	RL-110-3-0	200411-BLWL00043	Rooftop Unit with electric cooling and hot water heating	15000 CFM capacity with 15 HP Supply Fan Motor and (2) 5.0 HP Return Fan Motors	N/A	Roof	Offices and Classrooms	2004	4		2015	11	15
Rooftop Unit RTU-11	1	Aaon	RN-031-3-0	200411-ANWU00075	Rooftop Unit with electric cooling and hot water heating	10900 CFM capacity with 5.0 HP Supply Fan Motor and 3.0 HP Return Fan Motor	N/A	Roof	Kitchen	2004	4		2015	11	15
Rooftop Unit RTU-12	1	Aaon	RN-040-3-0	20041-ANWV00076	Rooftop Unit with electric cooling and hot water heating	13000 CFM capacity with 5.0 HP Supply Fan Motor and 3.0 HP Return Fan Motor	N/A	Roof	Existing Gymnasium Building 'C'	2004	4		2015	11	15
Rooftop Unit RTU-13	1	Aaon	RL-110-3-0	20041-BLWL00044	Rooftop Unit with electric cooling and hot water heating	35775 CFM capacity with 15.0 HP Supply Fan Motor and (2) 7.5 HP Retrn Fan Motors	N/A	Roof	2nd and 3rd Floors Building 'C'	2004	4		2015	11	15
Rooftop Unit RTU-14	1	Aaon	RM-020-3-0	20041-AMWP00644	Rooftop Unit with electric cooling and hot water heating	7200 CFM capacity with 5.0 HP Supply Fan Motor	N/A	Roof	Media Center Building 'C'	2004	4		2015	11	15
Rooftop Unit RTU-15	1	Aaon	RN-040-3-0	20041-ANWV00077	Rooftop Unit with electric cooling and hot water heating	16500 CFM capacity with 7.5 HP Supply Fan Motor	N/A	Roof	3rd Floor Building 'C'	2004	4		2015	11	15
Make-Up Air Unit	1	Rupp Air	RAM-12M	N/A	Make-Up Air Unit with Gas Heating	4500 CFM Capacity with 5.0 HP Supply Fan Motor and 350 MBH Gas Input	N/A	Roof	Kitchen	2004	7		2015	11	18
Make-Up Air Unit	1	Rupp Air	RAM-12M	N/A	Make-Up Air Unit with Gas Heating	4000 CFM Capacity with 3.0 HP Supply Fan Motor and 302 MBH Gas Input	N/A	Roof	Kitchen	2004	7		2015	11	18
Make-Up Air Unit	1	Rupp Air	RAM-12M	N/A	Make-Up Air Unit with Gas Heating	3400 CFM Capacity with 3.0 HP Supply Fan Motor and 302 MBH Gas Input	N/A	Roof	Kitchen	2004	7		2015	11	18
DX Split AC Unit	1	Mitsubishi	MUY-D30NA-1	N/A	DX Split AC Unit	30 MBH Cooling Capacity	16 SEER	Roof	Server Room	2004	4		2015	11	15
DX Split AC Unit	1	Mitsubishi	PU12EK	N/A	DX Split AC Unit	12 MBH Cooling Capacity	10 EER	Roof	Elevator Machine Room	2004	4		2015	11	15
Domestic Hot Water Heater	2	PVI	1400 N 250A-PV	1204114652 and 1204114659	Gas Fired Condensing Domestic Hot Water Heater	250 Gallon Storage, 1000 MBH Input 1400 GPH Recovery Rate	94% Thermal Efficiency	Penthouse Mechanical Roo.	Domestic Hot Water to Building	2004	7		2015	11	18
Domestic Hot Water Heater	1	PVI	1400 N 250A-PV	1204114653	Gas Fired Condensing Domestic Hot Water Heater	250 Gallon Storage, 1000 MBH Input 1400 GPH Recovery Rate	94% Thermal Efficiency	Basement	Domestic Hot Water to Building	2004	7		2015	11	18
DHW Recirculating Pumps	2	Bell and Gossett	SEAL BRG A51	189105	In Line Pumpset	N/A	N/A	One in Penthouse Mechanical Room and One in Basement	Domestic Hot Water to Building	2004	-1		2015	11	10

APPENDIX C

ECM Calculations

Bloomfield School District
CHA Project Numer: 30040

Rate of Discount (used for NPV) 5.0%

Utility Costs	Yearly Usage	Electricity Cost (Source: Equinor)	Building Area	Annual Utility Cost
\$ 0.170 kWh blended	5	0.00042026	435,150	Electric Natural Gas Fuel Oil
\$ 0.149 kWh supply	3,135,590	0.00042026		\$ 534,608 \$ 96,431 \$ -
\$ 5.32 Btu	1,739.9	0		
\$ 1.01 Btu/therm	95.217	0.0003471		
\$ - Btu/therm	-	0		
\$ - Btu/therm	-	0		

Bloomfield High School																										
Recommend?	Y or N	Item	Savings					Cost		Simple Payback	Life Expectancy	Equivalent CO2 (Metric tons)	NJ Smart Start Incentives	Direct Install Expense (kWh)	Payback of incentives	Simple Projected Lifetime Savings					ROI	NPV	IRR			
			kWh	kWh	Items	No. 2 Oil out	Water used	\$	\$							kWh	kWh	Items	Water	\$						
	Y	ECM-1	0.0	849	0	0	1,163	0	20,890	15.7	20	6.6	\$ -	N	15.7	0.0	16,971	23,360	0	0	\$ 26,447	0.3	~~\$51,120~~	2.4%		
	Y	ECM-2	195.0	-276,024	0	0	0	52,748	\$ 607,635	11.5	20	116.0	\$ 15,200	N	11.2	3,900.0	5,520,480	0	0	\$ 1,187,458	1.0	\$192,327	6.3%			
	Y	ECM-3	0.5	23,667	0	0	0	3,489	\$ 40,307	11.6	20	9.9	\$ -	N	11.6	10.5	473,339	0	0	\$ 81,136	1.0	\$11,597	5.9%			
	Y	ECM-4	Upgrade PDC Controls	0.0	19,345	892	0	0	4,192	\$ 40,187	9.6	20	12.9	\$ -	N	9.6	0.0	386,900	17,840	0	\$ 83,945	1.1	\$22,183	8.3%		
	N	ECM-5	Upgrade Flood Control	0.0	7,096	5,479	0	0	6,756	\$ 136,316	20.2	18	32.2	\$ -	N	20.2	0.0	127,736	98,616	0	\$ 121,613	(0.1)	~~\$40,307~~	-1.2%		
	N	ECM-6	Walk-In Cooler Controls	0.0	9,621	0	0	0	1,636	\$ 27,617	16.9	18	4.0	\$ -	N	16.9	0.0	173,178	0	0	\$ 29,440	0.1	~~\$5,120~~	0.7%		
	N	ECM-L1	Lighting Replacements / Upgrades	123	-299,367	0	0	0	51,557	\$ 875,986	17.0	15	125.8	\$ 48,515	N	16.0	1,844.3	4,490,511	0	0	\$ 881,124	0.0	~~(\$211,999)~~	-0.8%		
	N	ECM-L2	Install Lighting Controls (Add Occupancy Sensors)	0	196,171	0	0	0	33,349	\$ 49,761	1.5	15	82.4	\$ 7,760	N	1.3	0.0	2,942,560	0	0	\$ 500,235	9.1	\$356,117	79.4%		
	Y	ECM-L3	Lighting Replacements with Controls (Occupancy Sensors)	123	-431,679	0	0	0	70,874	\$ 925,747	13.1	15	181.4	\$ 56,275	N	12.3	1,844.3	6,475,187	0	0	\$ 1,218,519	0.3	~~\$23,179~~	2.0%		
Total			318.5	768,281	7,534	0	0	\$ 141,818	\$ 1,798,689	12.8	18.7	363	\$ 71,475		12.2	5,755	13,173,790	139,716	-	\$ 2,748,458	8.5	~~153,696~~	4.4%			
Recommended Measures (highlighted green above)			318.5	751,564	2,855	0	0	\$ 132,626	\$ 1,634,676	12.3	19.0	327	\$ 71,475		11.8	5,755	12,872,876	41,100	-	\$ 2,597,405	0.6	201,601	5.3%			
% of Existing			18%	24%	2%	0%	0																			

City: Newark, NJ						
Occupied Hours/Week						
Temp	Enthalpy h (Btu/lb)	Bin Hours	Building	Auditorium	Gymnasium	Classrooms
			Operating Hours	Occupied Hours	Occupied Hours	Occupied Hours
102.5	35.6	0	0	0	0	0
97.5	35.4	31	31	0	0	0
92.5	35.1	130	130	0	0	0
87.5	34.6	500	500	0	0	0
82.5	33.0	620	620	0	0	0
77.5	31.5	620	620	0	0	0
72.5	29.5	864	864	0	0	0
67.5	27.2	864	864	0	0	0
62.5	24.6	927	927	0	0	0
57.5	20.1	620	620	0	0	0
52.5	18.2	730	730	0	0	0
47.5	16.0	491	491	0	0	0
42.5	14.1	69	69	0	0	0
37.5	12.5	1,093	1,093	0	0	0
32.5	10.7	730	730	0	0	0
27.5	8.7	334	334	0	0	0
22.5	7.0	252	252	0	0	0
17.5	4.4	132	132	0	0	0
12.5	3.7	47	47	0	0	0
7.5	2.1	34	34	0	0	0
2.5	1.3	1	1	0	0	0
-2.5						
-7.5						

Multipliers	
Material	1.07
Labor	1.245
Equipment	1.141

Heating System Efficiency	80%
Cooling Eff (kW/ton)	1.1

Heating	
Hours	4,425 Hrs
Weighted Avg	51 F
Avg	50 F

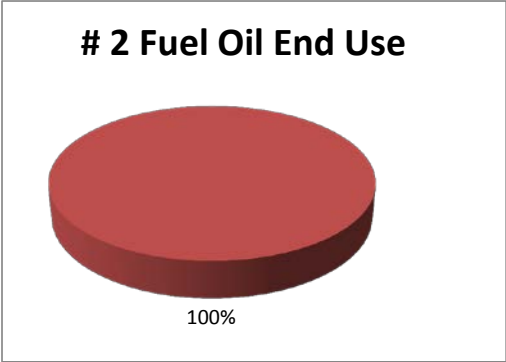
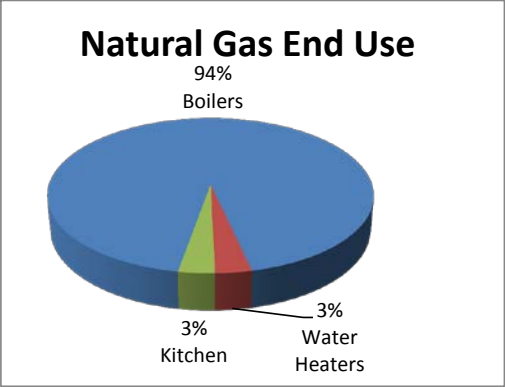
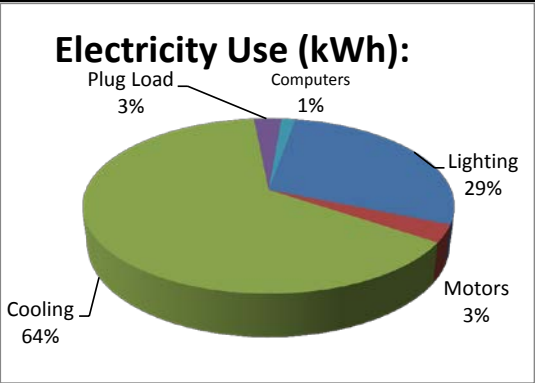
Cooling	
Hours	4,330 Hrs
Weighted Avg	51 F
Avg	73 F

Utility End Use Analysis		
Electricity Use (kWh):		Notes/Comments:
3,135,590	Total	Based on utility analysis
892,848	Lighting	From Lighting Calculations
100,000	Motors	Estimated
2,007,742	Cooling	From calculations
90,000	Plug Load	Estimated
45,000	Computers	Estimated
Natural Gas Use (Therms):		Notes/Comments:
95,217	Total	Based on utility analysis
89,217	Boilers	Remaining
3,000	Water Heaters	From calculations
3,000	Kitchen	Estimated

28%
 3%
 64%
 3%
 1%

94%
 3%
 3%

100%



Bloomfield School District
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ECM-1 Attic Insulation

Description: The original building is 100 years old and has an attic. The attic insulation is old and has fallen off from a large section of the attic. It is believed to have lost its effectiveness. Also the old gymnasium has an attic that is also included in this measure. This measure looks at adding R-38 insulation on the attics of the original building and the old gymnasium.

Area of Attic	9,000 SF	Cooling System Efficiency	1.3 kW/ton	Heating System Efficiency	80%
Existing Infiltration Factor	0.23 cfm/SF	Ex Occupied Cng Temp.	72 °F	Heating On Point	55 °F
Proposed Infiltration Factor	0.23 cfm/SF	Ex Unoccupied Cng Temp.	85 °F	Ex Occupied Htg Temp.	70 °F
Existing U Value	0.100 Btuh/SF°F	Cooling Occ Enthalpy Setpoint	27.5 Btu/lb	Ex Unoccupied Htg Temp.	65 °F
Proposed U Value	0.026 Btuh/SF°F	Cooling Unocc Enthalpy Setpoint	27.5 Btu/lb	Electricity	\$ 0.170 \$/kWh
Air Conditioned Area %	100%			Natural Gas	\$ 1.01 \$/Therm

					EXISTING LOADS		PROPOSED LOADS		COOLING ENERGY		HEATING ENERGY	
					Occupied	Unoccupied	Occupied	Unoccupied				
Avg Outdoor Air Temp. Bins °F	Avg Outdoor Air Enthalpy	Existing Equipment Bin Hours	Occupied Equipment Bin Hours	Unoccupied Equipment Bin Hours	Wall Infiltration & Heat Load BTUH	Wall Infiltration & Heat Load BTUH	Wall Infiltration & Heat Load BTUH	Wall Infiltration & Heat Load BTUH	Existing Cooling Energy kWh	Proposed Cooling Energy kWh	Existing Heating Energy therms	Proposed Heating Energy therms
A		B	C	D	E	F	G	H	I	J	K	L
97.5	35.4	6	6	0	-96,606	-84,906	-79,695	-76,616	63	52	0	0
92.5	37.4	31	31	0	-110,687	-98,987	-97,092	-94,013	372	326	0	0
87.5	35.0	131	131	0	-83,670	-71,970	-73,391	-70,312	1,187	1,042	0	0
82.5	33.0	500	500	0	-61,121	0	-54,158	0	3,311	2,934	0	0
77.5	31.5	620	620	0	-42,655	0	-39,008	0	2,865	2,620	0	0
72.5	29.9	664	664	0	-22,861	0	-22,530	0	1644	1621	0	0
67.5	27.2	854	854	0	0	0	0	0	0	0	0	0
62.5	24.0	927	927	0	0	0	0	0	0	0	0	0
57.5	20.3	600	600	0	0	0	0	0	0	0	0	0
52.5	18.2	730	730	0	54,873	39,195	43,268	30,906	0	0	501	395
47.5	16.0	491	491	0	70,551	54,873	55,630	43,268	0	0	433	341
42.5	14.5	656	656	0	86,229	70,551	67,992	55,630	0	0	707	558
37.5	12.5	1,023	1,023	0	101,907	86,229	80,354	67,992	0	0	1,303	1,028
32.5	10.5	734	734	0	117,585	101,907	92,717	80,354	0	0	1,079	851
27.5	8.7	334	334	0	133,263	117,585	105,079	92,717	0	0	556	439
22.5	7.0	252	252	0	148,941	133,263	117,441	105,079	0	0	469	370
17.5	5.4	125	125	0	164,619	148,941	129,803	117,441	0	0	257	203
12.5	3.7	47	47	0	180,297	164,619	142,165	129,803	0	0	106	84
7.5	2.1	34	34	0	195,975	180,297	154,528	142,165	0	0	83	66
2.5	1.3	1	1	0	211,653	195,975	166,890	154,528	0	0	3	2
-2.5	0.0	0	0	0	227,331	211,653	179,252	166,890	0	0	0	0
TOTALS		8,760	8,760	0					9,442	8,594	5,497	4,335

Existing Ceiling Infiltration	2,070 cfm			Savings	1,163 Therms	\$ 1,178
Existing Ceiling Heat Transfer	900 Btuh/°F				849 kWh	\$ 144
Proposed Ceiling Infiltration	2,070 cfm					\$ 1,322
Proposed Ceiling Heat Transfer	237 Btuh/°F					

Bloomfield School District
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Bloomfield High School

ECM-1

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.		
Attic Insulation	9,000	SF	\$ 0.73	\$ 0.50		\$ 6,747	\$ 5,607	\$ -	\$ 12,354	Estimated

Note: Cost estimates are used for energy savings only. Do not use for procurement

\$ 12,354	Subtotal
\$ 4,324	35% Contingency
\$ 4,170	25% Contractor O&P
\$ -	0% Engineering
\$ 20,800	Total

Bloomfield School District
CHA Project Numer: 30040
Bloomfield High School

ECM-2

Replace Electric Chillers

Description: The chilled water system comprises of two Dunham Bush air cooled chillers each of 200 ton capacity, primary and secondary chilled water pumpsets. While the secondary pumps are provided with VFDs the primary chilled water pumps are constant speed because the air cooled chiller design requires constant flow through the chillers. Modern chillers allow for variable flow thus providing considerable energy savings during part load conditions. This ECM evaluates the electrical energy savings associated with replacing older, less efficient air cooled chillers with high efficiency chillers that allow variable flow.

Item	Value	Units	Formula/Comments
Demand Unit Cost	\$ 5.32	/ kW	
Consumption Rate	\$ 0.15	/ kWh	
FORMULA CONSTANTS			
Peak Duty Cycle	67%		NJ Protocols
Equivalent full Load Hours	947	hrs	NJ Protocols
Capacity of Chillers	400	tons	
PART-LOAD OPERATION			
Baseline IPLV	1.08	kW/ton	
Proposed IPLV	0.62	kW/ton	
Demand Savings	125.6	kW	
Energy Savings	177,536	kWh	
FULL LOAD OPERATION			
Baseline FLV	1.31	kW/ton	
Proposed FLV	1.05	kW/ton	
Demand Savings	69.7	kW	
Energy Savings	98,488	kWh	
ENERGY SAVINGS			
Demand Savings	195	kW	
Energy Savings	276,024	kWh	
Cost Savings	\$ 52,767		

Savings calculation formulas are taken from NJ Protocols document for Electric Chiller

Bloomfield School District
CHA Project Numer: 30040
Bloomfield High School

ECM-2 - 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.		
200 Ton Chiller	2	EA	\$145,000	\$ 15,000	\$ -	\$ 297,830	\$ 37,380	\$ -	\$ 335,210	Quote from Trane
Structural, Piping and Electrical work	2	EA	\$ 35,000	\$ 15,000		\$ 71,890	\$ 37,380	\$ -	\$ 109,270	Estimated
Crane	1	EA			\$ 5,000	\$ -	\$ -	\$ 5,620	\$ 5,620	Estimated
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	

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

\$ 450,100	Subtotal
\$ 157,535	35% Contingency
\$ 607,635	Total

Bloomfield School District
CHA Project Numer: 30040
Bloomfield High School

Replace primary CHW pump motors with high efficiency motors and install VFD

Variable Inputs

Supply Electric Rate	\$0.146
Demand Rate	\$5.320
Cooling System "On" Point	65
VFD Efficiency	98.5%

Electric Savings	23,667
Demand Savings	0.5
Cost Savings	\$ 3,489

ECM-3 Replace primary CHW pump motors with high efficiency motors and install VFD

This measure evaluates the potential energy savings for replacing the existing 7.5 HP chilled water primary pump motors with high efficiency inverter-duty motors and adding variable frequency drives (VFD). A more detailed hydraulic calculation should be carried out to size the pump and motor properly if this measure is approved by Bloomfield School District. There are three pumps installed, one for each chiller and one as a backup for both pumps. Calculations, therefore, are made for two pumps. Also, this measure should be considered in conjunction with ECM-2 - Replace Electric Chiller.

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	2	7.5	15.0	85.5%	90.0%	10.47	9.95
Total:						10.47	9.95

SAVINGS ANALYSIS								
OAT - DB Avg Temp F (A)	Annual Hours in Bin (B)	Cooling Hours Bin (C) =IF(A>TP,0,C)	Pump Load % (D)	Existing Pump kWh (E) =D*AA	Proposed Pump kW (F) =BB*E^3.0/CC	Speed efficiency % (G)	Proposed Pump kWh (H) =C*F/G	Proposed Savings kWh (I) =E-H
See Note 3	See Note 3				See Note 5			
102.5	0	0	0%	0	0.0	0.0%	0	0
97.5	6	6	100%	63	10.1	99.0%	61	2
92.5	31	31	93%	325	8.1	100.0%	251	74
87.5	131	131	79%	1,372	4.9	99.3%	646	725
82.5	500	500	64%	5,235	2.7	93.0%	1,443	3,792
77.5	620	620	50%	6,492	1.3	81.5%	960	5,531
72.5	664	664	50%	6,952	1.3	81.5%	1,029	5,924
67.5	854	854	50%	8,942	1.3	81.5%	1,323	7,619
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		29,379			5,712	23,667

Notes:

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

Bloomfield School District
CHA Project Numer: 30040
Bloomfield High School

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Replace primary CHW pump motors with high efficiency motors and install VFD - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Premium efficiency 7.5 HP motor	3	EA	\$ 700	\$ 1,000		\$ 2,157	\$ 3,738	\$ -	\$ 5,895	
VFD	3	EA	\$ 2,400	\$ 1,000		\$ 7,394	\$ 3,738	\$ -	\$ 11,132	RS Means 2012
Electrical - misc.	3	EA	\$ 1,000	\$ 1,000		\$ 3,081	\$ 3,738	\$ -	\$ 6,819	RS Means 2012
Differential Pressure Sensor	1	EA	\$ 1,000	\$ 1,000		\$ 1,027	\$ 1,246	\$ -	\$ 2,273	RS Means 2012
Balancing of pumpsets	3	EA		\$ 1,000		\$ -	\$ 3,738	\$ -	\$ 3,738	Estimated
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	

\$ 29,857	Subtotal
\$ 10,450	35% Contingency
\$ 40,307	Total

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

Bloomfield School District
CHA Project Number: 30040
Bloomfield High School

ECM-4 Upgrade DDC Controls

Description: Currently, the school has a functional DDC system. However, the system lacks some critical features like access from remote location and ability to send alerts to maintenance personnel. In large premises like the high school these features help resolve issues faster reducing down time and save energy. This ECM evaluates savings by upgrading the existing system.

Building Information:

435,150	Sq Footage	\$0.17	\$/kWh Blended
Y	Cooling	\$1.01	\$/Therm
Y	Heating		

FULL DDC - TEMPERATURE SETBACK SAVINGS CALCULATION

EXISTING CONDITIONS		
Heating		
Heating Season Facility Temp	70	F
Weekly Occupied Hours	100	hrs
Heating Season Setback Temp	65	F
Heating Season % Savings per Degree Setback	0%	
Annual Boiler Capacity	3,000	Mbtu/yr
Connected Heating Load Capacity	3,000,000	Btu/hr
Equivalent Full Load Heating Hours	200	hrs
Heating System Efficiency	80%	
Cooling		
Cooling Season Facility Temp	72	F
Weekly Occupied Hours	100	hrs
Cooling Season Setback Temp	77	F
Cooling Season % Savings per Degree Setback	0%	
Connected Cooling Load Capacity	200	Tons
Equivalent Full Load Cooling Hours	200	hrs
Cooling Equipment EER	10.0	
SAVINGS		
Natural Gas Savings	0	Therms
Cooling Electricity Savings	0	kWh

FULL DDC - ADDITIONAL CONTROLS SAVINGS CALCULATION

EXISTING CONDITIONS		
Existing Facility Total Electric usage	3,135,590	kWh
Existing Facility Total Gas usage	95,217	Therms
Existing Facility Cooling Electric usage	2,007,742.0	kWh ¹
Existing Facility Heating Natural Gas usage	89,217	Therms ²
PROPOSED CONDITIONS		
Proposed Facility Cooling Electric Savings	20,077	kWh
Proposed Facility Natural Gas Savings	892	Therms
SAVINGS		
Electric Savings	20,077	kWh
Natural Gas Savings	892	Therms

Assumptions

- 64% of facility total electricity dedicated to Cooling; based on utility information
- 94% of facility total natural gas dedicated to Heating; based on utility information
- 1%** The building has a DDC system and it is estimated there would be 1% savings after upgrading the system.

Nighttime Setback

EXISTING CONDITIONS		
Heating		
Heating Season Facility Temp	70	F
Weekly Occupied Hours	70	hrs
Heating Season Setback Temp	65	F
Heating Season % Savings per Degree Setback	0%	
Annual Boiler Capacity	3,000	Mbtu/yr
Connected Heating Load Capacity	3,000,000	Btu/hr
Equivalent Full Load Heating Hours	200	hrs
Heating Equipment Efficiency	80%	
Cooling		
Cooling Season Facility Temp	72	F
Weekly Occupied Hours	70	hrs
Cooling Season Setback Temp	80	F
Cooling Season % Savings per Degree Setback	0%	
Connected Cooling Load Capacity	200	Tons
Equivalent Full Load Cooling Hours	200	hrs
Cooling Equipment EER	10.0	
SAVINGS		
Natural Gas Savings	0	Therms ³
Cooling Electricity Savings	0	kWh

COMBINED SAVINGS

Natural Gas Savings	892	Therms
Cooling Electricity Savings	20,077	kWh
Total Cost Savings	\$ 4,317	
Estimated Total Project Cost	\$ 40,187	
Simple Payback	9.3	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

Bloomfield School District
CHA Project Numer: 30040
Bloomfield High School

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.00

ECM-4 - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						\$ -	\$ -	\$ -	\$ -	
DDC Project Cost	1	LS	\$ 12,000	\$ 14,000		\$ 12,324	\$ 17,444	\$ -	\$ 29,768	Estimated
			\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	

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

\$ 29,768	Subtotal
\$ 10,419	35% Contingency
\$ 40,187	Total

Bloomfield School District
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ECM-5

Kitchen Hood Control

Description: The school's kitchen has three kitchen hoods. 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 adjusts the exhaust 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	\$ 1.01	/ Therm		
Electricity Cost	\$ 0.17	/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	3			Q
Kitchen Hood Fan Motor HP	2.0	HP	Three motors - 1- 3HP and 2- 1/1/2 HP each.	HP
Motor Load Factor	0.90		NJ Protocols	LF
Efficiency of Fan Motor(s)	85.5%			FEFF
Kitchen Hood Fan Run Hours	2,080			RH
Fan Motor Power Reduction (From VFD)	0.584			PR
Fan Electricity Savings	5,722	kWh		
HEATING SAVINGS				
Kitchen is Heated?	Y			
Square Footage of Kitchen	2,000	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 Reduction (from VFD/Control)	0.310			FR
Heating Degree Day	2,783		NJ Protocols Table	HDD
Heating System Efficiency	80%		AFUE (%)	HEFF
Heating Savings	548	MMbtu		
Heating Savings	5,479	Therms		
COOLING SAVINGS				
Kitchen is Cooled?	Y			
Cooling Degree Day	893		NJ Protocols Table	CDD
Cooling System Efficiency	3.00		COP	CEFF
Cooling Savings	1,374	kWh		
TOTAL SAVINGS				
Electricity Savings	7,096	kWh		
Fuel Savings	5,479	Therms		
Cost Savings	\$ 6,756			

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

Bloomfield School District
 CHA Project Numer: 30040
 Bloomfield High School

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

ECM-5 - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
MeLink Kitchen Hood Control System	3	ea	\$ 9,500	\$ 9,000		\$ 29,270	\$ 33,642	\$ -	\$ 62,912	Vendor Est
Motor VFDs	3	ea	\$ 1,575	\$ 431		\$ 4,853	\$ 1,609	\$ -	\$ 6,462	RS Means 2012
Motors	3	ea	\$ 326	\$ 79		\$ 1,004	\$ 294	\$ -	\$ 1,299	RS Means 2012
Reprogram DDC system	3	ea	\$ 100	\$ 1,200		\$ 308	\$ 4,486	\$ -	\$ 4,794	Estimated
Electrical - misc.	3	ls	\$ 1,000	\$ 6,000		\$ 3,081	\$ 22,428	\$ -	\$ 25,509	RS Means 2012
						\$ -	\$ -	\$ -	\$ -	
						\$ -	\$ -	\$ -	\$ -	

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

\$ 100,975	Subtotal
\$ 35,341	35% Contingency
\$ 136,316	Total

Bloomfield School District
CHA Project Numer: 30040
Bloomfield High School

ECM-6 Walk-In Cooler Controls

ECM Description :

For kitchens that contain walk-in coolers and freezers, CoolTrol is a controller that reduces energy consumption by controlling off of dew point 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

\$0.17 \$/kWh Blended

EXISTING CONDITIONS		
Walk-In Freezer(s)		
Existing Freezer Controls?	N	
Quantity of Walk-In Freezers	0	
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)	-	kWhEF
Electricity Savings (Evaporator Fan Reduced Heat)	-	kWhRH
Total Walk-In Freezer(s) Electricity Savings	-	kWh
Walk-In Cooler(s)		
Existing Cooler Controls?	N	
Quantity of Walk-In Coolers	3	
Nameplate Amps of Cooler Evaporator Fan	3.4	
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)	6,644	kWh
Electricity Savings (Evaporator Fan Reduced Heat)	2,977	kWh
Total Walk-In Cooler(s) Electricity Savings	9,621	kWh
SAVINGS		
Total Electricity Savings	9,621	kWh
Total Cost Savings	\$ 1,636	
Estimated Cost	\$ 27,617	
Simple Payback	16.9	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

Bloomfield School District
CHA Project Numer: 30040
Bloomfield High School

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

ECM-6 - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
									\$ -	
Turnkey Walk-In Controller & Equipment	3	EA	\$ 3,000	\$ 3,000	\$ -	\$ 9,243	\$ 11,214	\$ -	\$ 20,457	Vendor Estimate
						\$ -	\$ -	\$ -	\$ -	

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

\$ 20,457	Subtotal
\$ 7,160	35% Contingency
\$ 27,617	Total

Bloomfield School District
CHA Project Numer: 30040
Bloomfield 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 governments 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)	435,150
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilities (BPU)

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

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	\$534,608	\$96,433
Existing Usage (from utility)	3,135,590	95,217
Proposed Savings	751,564	2,055
Existing Total MMBtus	20,223	
Proposed Savings MMBtus	2,771	
% Energy Reduction	13.7%	
Proposed Annual Savings	\$132,626	

	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	\$1,634,676
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	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	\$1,634,676	

Project Payback (years)	
w/o Incentives	w/ Incentives
12.3	12.3

* 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

Cost of Electricity:

\$0.146	\$/kWh
\$5.32	\$/kW

EXISTING CONDITIONS												Retrofit Control
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	Usage Describe Usage Type using Operating Hours	No. of Fixtures before the retrofit	Standard Fixture Code Lighting Fixture Code	Fixture Code Code from Table of Standard Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/Space) * (Annual Hours)	Retrofit control device	Notes
34	Hallway 5th FL	Hallway	44	1T 32 C F 2 (ELE)	F42ILL	59	2.60	OCC	3900	10,124	OCC	
40LED	B550 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
34	Storage	Storage	6	1T 32 C F 2 (ELE)	F42ILL	59	0.35	SW	1040	368	OCC	
40LED	B570 Social Science Office	Office	24	T 32 R F 2 (ELE)	F42LL	60	1.44	OCC	2600	3,744	OCC	
34	Restroom Private	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	728	43	OCC	
40LED	B572 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B571 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
34	Storage	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
34	Management Info System RM	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
40LED	B568 Computer Lab	CLRM	24	T 32 R F 2 (ELE)	F42LL	60	1.44	OCC	1750	2,520	OCC	
40LED	B567 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B566 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B565 CLRM	CLRM	35	T 32 R F 2 (ELE)	F42LL	60	2.10	OCC	1750	3,675	OCC	
40LED	B564 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B563 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B562 CLRM	CLRM	9	T 32 R F 2 (ELE)	F42LL	60	0.54	OCC	1750	945	OCC	
40LED	B561 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	Storage	Storage	6	T 32 R F 2 (ELE)	F42LL	60	0.36	OCC	1040	374	OCC	
40LED	B560 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
270LED	Closet Janitors	Closet	1	2T 40 R CF 2	CFQ40/2	90	0.09	SW	1040	94	OCC	
40LED	B575 World Language Office	CLRM	16	T 32 R F 2 (ELE)	F42LL	60	0.96	OCC	1750	1,680	OCC	
40LED	Office	Office	4	T 32 R F 2 (ELE)	F42LL	60	0.24	OCC	2600	624	OCC	
34	Restroom Private	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	728	43	OCC	
40LED	B559 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B558 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
270LED	Restroom Boys	Restroom	1	2T 40 R CF 2	CFQ40/2	90	0.09	SW	3120	281	OCC	
34	Restroom Boys	Restroom	9	1T 32 C F 2 (ELE)	F42ILL	59	0.53	SW	3120	1,657	OCC	
40LED	B556 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B557 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B554 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B555 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B553 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B552 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
270LED	Restroom Girls	Restroom	1	2T 40 R CF 2	CFQ40/2	90	0.09	SW	3120	281	OCC	
34	Restroom Girls	Restroom	9	1T 32 C F 2 (ELE)	F42ILL	59	0.53	SW	3120	1,657	OCC	
34	Closet Janitors	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
270LED	Restroom Girls	Restroom	1	2T 40 R CF 2	CFQ40/2	90	0.09	SW	3120	281	OCC	
34	Restroom Girls	Restroom	9	1T 32 C F 2 (ELE)	F42ILL	59	0.53	SW	3120	1,657	OCC	
270LED	Restroom Boys	Restroom	1	2T 40 R CF 2	CFQ40/2	90	0.09	SW	3120	281	OCC	
34	Restroom Boys	Restroom	9	1T 32 C F 2 (ELE)	F42ILL	59	0.53	SW	3120	1,657	OCC	
34	Closet Janitors	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
40LED	B452 Business Comp Lab	CLRM	27	T 32 R F 2 (ELE)	F42LL	60	1.62	OCC	1750	2,835	OCC	
40LED	B451 CLRM	CLRM	9	T 32 R F 2 (ELE)	F42LL	60	0.54	OCC	1750	945	OCC	
40LED	B450 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B472 CLRM	CLRM	27	T 32 R F 2 (ELE)	F42LL	60	1.62	OCC	1750	2,835	OCC	
40LED	B471 CLRM	CLRM	27	T 32 R F 2 (ELE)	F42LL	60	1.62	OCC	1750	2,835	OCC	
40LED	B470 CLRM	CLRM	9	T 32 R F 2 (ELE)	F42LL	60	0.54	OCC	1750	945	OCC	
40LED	Mech Rm.	Mech	18	T 32 R F 2 (ELE)	F42LL	60	1.08	SW	3000	3,240	OCC	
34	Mech Rm.	Mech	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	SW	3000	531	OCC	
40LED	B469 CLRM	CLRM	9	T 32 R F 2 (ELE)	F42LL	60	0.54	OCC	1750	945	OCC	
40LED	B468 CLRM	CLRM	27	T 32 R F 2 (ELE)	F42LL	60	1.62	OCC	1750	2,835	OCC	
40LED	B467 CLRM	CLRM	27	T 32 R F 2 (ELE)	F42LL	60	1.62	OCC	1750	2,835	OCC	
270LED	Closet Janitors	Closet	1	2T 40 R CF 2	CFQ40/2	90	0.09	SW	1040	94	OCC	
34	Restroom Private	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	728	43	OCC	
40LED	B479 Business Tech Family Office	CLRM	25	T 32 R F 2 (ELE)	F42LL	60	1.50	OCC	1750	2,625	OCC	
218LED	B479 Business Tech Family Office	Storage	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.54	OCC	1040	562	OCC	
40LED	B479 Business Tech Family Office	Storage	4	T 32 R F 2 (ELE)	F42LL	60	0.24	OCC	1040	250	OCC	
40LED	B460 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B459 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B458 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B456 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B457 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B455 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B454 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
34	Hallway 4th FL	Hallway	104	1T 32 C F 2 (ELE)	F42ILL	59	6.14	OCC	3900	23,930	OCC	
270LED	Hallway 4th FL	Hallway	4	2T 40 R CF 2	CFQ40/2	90	0.36	OCC	3900	1,404	OCC	
40LED	B465 Chemistry	CLRM	32	T 32 R F 2 (ELE)	F42LL	60	1.92	OCC	1750	3,360	OCC	
218LED	Storage	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	1040	187	OCC	

Cost of Electricity:

\$0.146	\$/kWh
\$5.32	\$/kW

EXISTING CONDITIONS												Retrofit Control
Field Code	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
	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 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
218LED	Chemical Storage	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	1040	187	OCC	
40LED	B462 Chemistry	CLRM	30	T 32 R F 2 (ELE)	F42LL	60	1.80	OCC	1750	3,150	OCC	
40LED	B464 Chemistry	CLRM	36	T 32 R F 2 (ELE)	F42LL	60	2.16	OCC	1750	3,780	OCC	
40LED	B464 Chemistry	CLRM	30	T 32 R F 2 (ELE)	F42LL	60	1.80	OCC	1750	3,150	OCC	
40LED	B461 Chemistry	CLRM	30	T 32 R F 2 (ELE)	F42LL	60	1.80	OCC	1750	3,150	OCC	
34	Closet Janitors	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	Management Info System RM	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	Storage	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	B466 Small Group RM	CLRM	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	SW	1750	310	OCC	
146LED	Gymnasium North	Gym	24	High Bay MH 400	MH400/1	458	10.99	SW	3380	37,153	OCC	
146LED	Gymnasium South	Gym	35	High Bay MH 400	MH400/1	458	16.03	SW	3380	54,181	OCC	
218LED	Storage	Storage	3	W 32 C F 3 (ELE)	F43ILL/2	90	0.27	OCC	1040	281	OCC	
34	Elec. RM	Closet	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	SW	1040	245	OCC	
34	Closet Janitors	Closet	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
270LED	Restroom Boys	Restroom	2	2T 40 R CF 2	CFQ40/2	90	0.18	OCC	3120	562	OCC	
34	Restroom Boys	Restroom	8	1T 32 C F 2 (ELE)	F42ILL	59	0.47	OCC	3120	1,473	OCC	
270LED	Fitness Center	Fitness Center	21	2T 40 R CF 2	CFQ40/2	90	1.89	OCC	3380	6,388	OCC	
218LED	Office	Office	3	W 32 C F 3 (ELE)	F43ILL/2	90	0.27	OCC	2600	702	OCC	
218LED	Storage	Storage	7	W 32 C F 3 (ELE)	F43ILL/2	90	0.63	OCC	1040	655	OCC	
270LED	Restroom Girls	Restroom	2	2T 40 R CF 2	CFQ40/2	90	0.18	OCC	3120	562	OCC	
34	Restroom Girls	Restroom	8	1T 32 C F 2 (ELE)	F42ILL	59	0.47	OCC	3120	1,473	OCC	
34	Hallway 3rd FL	Hallway	142	1T 32 C F 2 (ELE)	F42ILL	59	8.38	OCC	3900	32,674	OCC	
270LED	Hallway 3rd FL	Hallway	4	2T 40 R CF 2	CFQ40/2	90	0.36	OCC	3900	1,404	OCC	
40LED	B362 Biology	CLRM	32	T 32 R F 2 (ELE)	F42LL	60	1.92	OCC	1750	3,360	OCC	
218LED	Storage	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	1040	187	OCC	
218LED	Chemical Storage	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	1040	187	OCC	
40LED	B361 Biology	CLRM	30	T 32 R F 2 (ELE)	F42LL	60	1.80	OCC	1750	3,150	OCC	
40LED	B381 Computer	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
218LED	B382 Science Office	CLRM	8	W 32 C F 3 (ELE)	F43ILL/2	90	0.72	OCC	1750	1,260	OCC	
218LED	Office	Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	2600	468	OCC	
40LED	B358 Biology	CLRM	31	T 32 R F 2 (ELE)	F42LL	60	1.86	OCC	1750	3,255	OCC	
218LED	Office	Office	5	W 32 C F 3 (ELE)	F43ILL/2	90	0.45	OCC	2600	1,170	OCC	
34	Elec. RM	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	Elec. RM	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	Management Info System RM	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	B363 Small Group RM	CLRM	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	SW	1750	310	OCC	
270LED	Closet Janitors	Closet	1	2T 40 R CF 2	CFQ40/2	90	0.09	SW	1040	94	OCC	
34	Restroom Private	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	728	43	OCC	
40LED	B378 English Office	CLRM	25	T 32 R F 2 (ELE)	F42LL	60	1.50	OCC	1750	2,625	OCC	
40LED	Office	Office	5	T 32 R F 2 (ELE)	F42LL	60	0.30	OCC	2600	780	OCC	
218LED	Storage	Storage	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.54	OCC	1040	562	OCC	
218LED	Storage	Storage	3	W 32 C F 3 (ELE)	F43ILL/2	90	0.27	OCC	1040	281	OCC	
40LED	B357 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
270LED	Restroom Boys	Restroom	2	2T 40 R CF 2	CFQ40/2	90	0.18	OCC	3120	562	OCC	
34	Restroom Boys	Restroom	8	1T 32 C F 2 (ELE)	F42ILL	59	0.47	OCC	3120	1,473	OCC	
40LED	B356 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B355 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B354 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B353 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
270LED	Restroom Girls	Restroom	1	2T 40 R CF 2	CFQ40/2	90	0.09	OCC	3120	281	OCC	
34	Restroom Girls	Restroom	9	1T 32 C F 2 (ELE)	F42ILL	59	0.53	OCC	3120	1,657	OCC	
40LED	B370 Internship & Coop Educ.	CLRM	7	T 32 R F 2 (ELE)	F42LL	60	0.42	OCC	1750	735	OCC	
40LED	B352 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B351 CLRM	CLRM	9	T 32 R F 2 (ELE)	F42LL	60	0.54	OCC	1750	945	OCC	
40LED	B350 CLRM	CLRM	9	T 32 R F 2 (ELE)	F42LL	60	0.54	OCC	1750	945	OCC	
34	Storage	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	OCC	1040	184	OCC	
40LED	B368 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B367 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B366 Computer Lab	CLRM	30	T 32 R F 2 (ELE)	F42LL	60	1.80	OCC	1750	3,150	OCC	
40LED	B365 Computer Lab	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B364 CLRM	CLRM	22	T 32 R F 2 (ELE)	F42LL	60	1.32	OCC	1750	2,310	OCC	
117	Auditorium	Auditorium	38	CF 23	CFS23/1	23	0.87	SW	1200	1,049	NONE	
34	Auditorium	Auditorium	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1200	142	NONE	
88	Auditorium	Auditorium	5	CF 13 1 LAMP	CFQ13/1-L	15	0.08	SW	1200	90	NONE	
270LED	Auditorium	Auditorium	2	2T 40 R CF 2	CFQ40/2	90	0.18	SW	1200	216	NONE	
218LED	A321.1 Prof Development	CLRM	8	W 32 C F 3 (ELE)	F43ILL/2	90	0.72	OCC	1750	1,260	OCC	
270LED	Library	CLRM	29	2T 40 R CF 2	CFQ40/2	90	2.61	SW	1750	4,568	OCC	
218LED	Library	CLRM	36	W 32 C F 3 (ELE)	F43ILL/2	90	3.24	SW	1750	5,670	OCC	

Cost of Electricity:

\$0.146	\$/kWh
\$5.32	\$/kW

EXISTING CONDITIONS												Retrofit Control
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	Usage Describe Usage Type using Operating Hours	No. of Fixtures before the retrofit	Standard Fixture Code Lighting Fixture Code	Fixture Code Code from Table of Standard Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/Space) * (Annual Hours)	Retrofit control device	Notes
34	Library	CLRM	45	1T 32 C F 2 (ELE)	F42ILL	59	2.66	SW	1750	4,646	OCC	
270LED	Library	CLRM	7	2T 40 R CF 2	CFQ40/2	90	0.63	SW	1750	1,103	OCC	
218LED	Library - Office/Common Space	CLRM	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.54	OCC	1750	945	OCC	
218LED	Library - Periodical Storage	Storage	4	W 32 C F 3 (ELE)	F43ILL/2	90	0.36	OCC	1040	374	OCC	
34	Library - Restroom Boys	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	728	43	OCC	
34	Library - Restroom Girls	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	728	43	OCC	
218LED	Library - Server Rm	Storage	7	W 32 C F 3 (ELE)	F43ILL/2	90	0.63	OCC	1040	655	OCC	
269	Library - Front Desk	CLRM	44	CFS40	CFS40/1	40	1.76	SW	1750	3,080	OCC	
34	Library - Storage	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
40LED	A300	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	A301	CLRM	18	T 32 R F 2 (ELE)	F42LL	60	1.08	OCC	1750	1,890	OCC	
34	Yearbook RM	Office	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	OCC	2600	460	OCC	
40LED	A302	CLRM	22	T 32 R F 2 (ELE)	F42LL	60	1.32	OCC	1750	2,310	OCC	
40LED	A303	CLRM	20	T 32 R F 2 (ELE)	F42LL	60	1.20	OCC	1750	2,100	OCC	
261	Art Display RM East	Stage	12	PAR 38 SP	H100/1	100	1.20	SW	180	216	NONE	
34	Art Display RM East	Hallway	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	OCC	3900	920	OCC	
270LED	Art Display RM East	Stage	8	2T 40 R CF 2	CFQ40/2	90	0.72	SW	180	130	NONE	
261	Art Display RM West	Stage	9	PAR 38 SP	H100/1	100	0.90	SW	180	162	NONE	
34	Art Display RM West	Hallway	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	OCC	3900	920	OCC	
270LED	Art Display RM West	Stage	8	2T 40 R CF 2	CFQ40/2	90	0.72	SW	180	130	NONE	
34	Gymnasium Mech RM	Storage	42	1T 32 C F 2 (ELE)	F42ILL	59	2.48	SW	1040	2,577	OCC	
218LED	A320 Art Library & Resource	Office	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.54	OCC	2600	1,404	OCC	
34	Storage	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	OCC	1040	123	OCC	
34	Storage	Storage	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	OCC	1040	245	OCC	
34	A308.1 Art Office	CLRM	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	OCC	1750	413	OCC	
40LED	A309 CLRM	CLRM	24	T 32 R F 2 (ELE)	F42LL	60	1.44	OCC	1750	2,520	OCC	
40LED	A308 CLRM	CLRM	26	T 32 R F 2 (ELE)	F42LL	60	1.56	OCC	1750	2,730	OCC	
34	A307.1 Storage	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1040	61	OCC	
40LED	A307 CLRM	CLRM	24	T 32 R F 2 (ELE)	F42LL	60	1.44	OCC	1750	2,520	OCC	
34	Kiln	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	SW	1040	184	OCC	
40LED	A305 Comp Lab	CLRM	29	T 32 R F 2 (ELE)	F42LL	60	1.74	OCC	1750	3,045	OCC	
40LED	A306 Small Group	CLRM	9	T 32 R F 2 (ELE)	F42LL	60	0.54	OCC	1750	945	OCC	
34	Mech RM	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1040	61	OCC	
40LED	A304.1 Small Group	CLRM	8	T 32 R F 2 (ELE)	F42LL	60	0.48	OCC	1750	840	OCC	
34	Restroom Mens	Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	3120	184	OCC	
34	Restroom Womens	Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	3120	184	OCC	
40LED	A326 Fine Arts Office	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	A310	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	A311 Computer Lab	CLRM	24	T 32 R F 2 (ELE)	F42LL	60	1.44	OCC	1750	2,520	OCC	
40LED	A312 CLRM	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
34	Closet Janitor	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1040	61	OCC	
34	Restroom Boys	Restroom	12	1T 32 C F 2 (ELE)	F42ILL	59	0.71	OCC	3120	2,209	OCC	
270LED	Restroom Boys	Restroom	1	2T 40 R CF 2	CFQ40/2	90	0.09	OCC	3120	281	OCC	
34	Restroom Girls	Restroom	12	1T 32 C F 2 (ELE)	F42ILL	59	0.71	OCC	3120	2,209	OCC	
259	Restroom Girls	Restroom	1	4 CFT 40 Chandelier	CFT40/4-BX	144	0.14	OCC	3120	449	OCC	
40LED	A313	CLRM	23	T 32 R F 2 (ELE)	F42LL	60	1.38	OCC	1750	2,415	OCC	
18	Boiler Penthouse	Storage	22	T 32 R F 4 (ELE)	F44ILL	112	2.46	SW	1040	2,563	OCC	
34	Stairwell A3	Hallway	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	OCC	3900	690	OCC	
259	Stairwell A3	Hallway	23	4 CFT 40 Chandelier	CFT40/4-BX	144	3.31	OCC	3900	12,917	OCC	
259	Stairwell A1	Hallway	23	4 CFT 40 Chandelier	CFT40/4-BX	144	3.31	OCC	3900	12,917	OCC	
34	Stairwell A2	Hallway	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	OCC	3900	460	OCC	
270LED	Stairwell A2	Hallway	3	2T 40 R CF 2	CFQ40/2	90	0.27	OCC	3900	1,053	OCC	
259	Stairwell A2	Hallway	23	4 CFT 40 Chandelier	CFT40/4-BX	144	3.31	OCC	3900	12,917	OCC	
259	Stairwell A5	Hallway	8	4 CFT 40 Chandelier	CFT40/4-BX	144	1.15	OCC	3900	4,493	OCC	
34	Stairwell A5	Hallway	5	1T 32 C F 2 (ELE)	F42ILL	59	0.30	OCC	3900	1,151	OCC	
259	Stairwell A4	Hallway	7	4 CFT 40 Chandelier	CFT40/4-BX	144	1.01	OCC	3900	3,931	OCC	
34	Stairwell A4	Hallway	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	OCC	3900	460	OCC	
18	Stairwell B1	Hallway	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	OCC	3900	874	OCC	
259	Stairwell B1	Hallway	9	4 CFT 40 Chandelier	CFT40/4-BX	144	1.30	OCC	3900	5,054	OCC	
34	Stairwell B1	Hallway	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	OCC	3900	460	OCC	
259	Stairwell B3	Hallway	8	4 CFT 40 Chandelier	CFT40/4-BX	144	1.15	OCC	3900	4,493	OCC	
259	Stairwell B2	Hallway	9	4 CFT 40 Chandelier	CFT40/4-BX	144	1.30	OCC	3900	5,054	OCC	
259	Stairwell North	Hallway	7	4 CFT 40 Chandelier	CFT40/4-BX	144	1.01	OCC	3900	3,931	OCC	
34	Hallway B	Hallway	33	1T 32 C F 2 (ELE)	F42ILL	59	1.95	OCC	3900	7,593	OCC	
88	Hallway B	Hallway	9	CF 13 1 LAMP	CFQ13/1-L	15	0.14	OCC	3900	527	OCC	
34	Hallway A	Hallway	16	1T 32 C F 2 (ELE)	F42ILL	59	0.94	OCC	3900	3,682	OCC	
270LED	Hallway D	Hallway	9	2T 40 R CF 2	CFQ40/2	90	0.81	OCC	3900	3,159	OCC	

Cost of Electricity:

\$0.146	\$/kWh
\$5.32	\$/kW

EXISTING CONDITIONS												Retrofit Control
Field Code	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
	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 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
34	Hallway D	Hallway	28	1T 32 C F 2 (ELE)	F42ILL	59	1.65	OCC	3900	6,443	OCC	
262LED	Hallway C	Hallway	1	CF42/1	CF42/1-I	48	0.05	OCC	3900	187	OCC	
34	Hallway C	Hallway	28	1T 32 C F 2 (ELE)	F42ILL	59	1.65	OCC	3900	6,443	OCC	
40LED	A209 Fashion	CLRM	26	T 32 R F 2 (ELE)	F42LL	60	1.56	OCC	1750	2,730	OCC	
40LED	A210	CLRM	28	T 32 R F 2 (ELE)	F42LL	60	1.68	OCC	1750	2,940	OCC	
40LED	A213	CLRM	27	T 32 R F 2 (ELE)	F42LL	60	1.62	OCC	1750	2,835	OCC	
40LED	A213	CLRM	1	T 32 R F 2 (ELE)	F42LL	60	0.06	OCC	1750	105	OCC	
40LED	A212 Tutor	CLRM	23	T 32 R F 2 (ELE)	F42LL	60	1.38	OCC	1750	2,415	OCC	
34	A212 Tutor - Office	Office	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	OCC	2600	307	OCC	
218LED	A212 Tutor - Assistant Pricipal	Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	2600	468	OCC	
40LED	A212 Tutor	CLRM	1	T 32 R F 2 (ELE)	F42LL	60	0.06	OCC	1750	105	OCC	
40LED	A211 Culonary	CLRM	30	T 32 R F 2 (ELE)	F42LL	60	1.80	OCC	1750	3,150	OCC	
34	A211 Culonary - Storage	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1040	61	OCC	
218LED	A211 Culonary - Office	Office	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.54	OCC	2600	1,404	OCC	
34	Storage	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1040	61	OCC	
34	Boys	Restroom	12	1T 32 C F 2 (ELE)	F42ILL	59	0.71	OCC	3120	2,209	OCC	
270LED	Boys	Restroom	1	2T 40 R CF 2	CFQ40/2	90	0.09	OCC	3120	281	OCC	
34	Girls	Restroom	12	1T 32 C F 2 (ELE)	F42ILL	59	0.71	OCC	3120	2,209	OCC	
270LED	Girls	Restroom	1	2T 40 R CF 2	CFQ40/2	90	0.09	OCC	3120	281	OCC	
218LED	Storage	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	1040	187	OCC	
34	Women's Family Restroom	Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	3120	184	OCC	
34	Private Restroom	Restroom Private	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	OCC	728	86	OCC	
218LED	Management Information Systems Rm	Storage	1	W 32 C F 3 (ELE)	F43ILL/2	90	0.09	OCC	1040	94	OCC	
40LED	A208 Interior Design	CLRM	16	T 32 R F 2 (ELE)	F42LL	60	0.96	OCC	1750	1,680	OCC	
40LED	A207 Childcare	CLRM	24	T 32 R F 2 (ELE)	F42LL	60	1.44	OCC	1750	2,520	OCC	
218LED	A207 Childcare - Side Rm	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	1040	187	OCC	
34	A207 Childcare - Bathroom	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	728	43	OCC	
40LED	A206 Testing	CLRM	30	T 32 R F 2 (ELE)	F42LL	60	1.80	OCC	1750	3,150	OCC	
40LED	A205 Music	CLRM	30	T 32 R F 2 (ELE)	F42LL	60	1.80	OCC	1750	3,150	OCC	
40LED	A204 Robotics	CLRM	40	T 32 R F 2 (ELE)	F42LL	60	2.40	OCC	1750	4,200	OCC	
218LED	Janitors	Closet	1	W 32 C F 3 (ELE)	F43ILL/2	90	0.09	OCC	1040	94	OCC	
218LED	Storage Technician	Closet	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	1040	187	OCC	
218LED	Storage	Closet	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	1040	187	OCC	
34	Mech Rm	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	Elec Rm	Closet	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
34	Management Info Sys Rm	Closet	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
40LED	A203	CLRM	15	T 32 R F 2 (ELE)	F42LL	60	0.90	OCC	1750	1,575	OCC	
34	Girls Locker Rm	Hallway	25	1T 32 C F 2 (ELE)	F42ILL	59	1.48	OCC	3900	5,753	OCC	
34	Storage	Closet	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	OCC	1040	184	OCC	
34	Girls Team Locker	Hallway	25	1T 32 C F 2 (ELE)	F42ILL	59	1.48	OCC	3900	5,753	OCC	
40LED	A202 Wellness Center	CLRM	17	T 32 R F 2 (ELE)	F42LL	60	1.02	OCC	1750	1,785	OCC	
218LED	A216 Trainer's Facility	CLRM	8	W 32 C F 3 (ELE)	F43ILL/2	90	0.72	OCC	1750	1,260	OCC	
34	A216 Trainer's Facility	CLRM	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1750	103	OCC	
218LED	A216 Trainer's Facility - Office	Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	2600	468	OCC	
34	A216 Trainer's Facility - Bathroom	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	728	43	OCC	
40LED	A201	CLRM	17	T 32 R F 2 (ELE)	F42LL	60	1.02	OCC	1750	1,785	OCC	
40LED	A201	CLRM	19	T 32 R F 2 (ELE)	F42LL	60	1.14	OCC	1750	1,995	OCC	
34	A200	CLRM	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1750	103	OCC	
34	B262	CLRM	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1750	103	OCC	
40LED	B262	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
40LED	B261	CLRM	27	T 32 R F 2 (ELE)	F42LL	60	1.62	OCC	1750	2,835	OCC	
88	Atrium	Hallway	6	CF 13 1 LAMP	CFQ13/1-L	15	0.09	OCC	3900	351	OCC	
40LED	Attendance	Office	18	T 32 R F 2 (ELE)	F42LL	60	1.08	OCC	2600	2,808	OCC	
34	Guidance	Office	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	2600	153	OCC	
40LED	Guidance	Office	7	T 32 R F 2 (ELE)	F42LL	60	0.42	OCC	2600	1,092	OCC	
40LED	Guidance - Office	Office	3	T 32 R F 2 (ELE)	F42LL	60	0.18	OCC	2600	468	OCC	
40LED	Guidance - Office	Office	3	T 32 R F 2 (ELE)	F42LL	60	0.18	OCC	2600	468	OCC	
40LED	Guidance - Cont Rm.	Office	3	T 32 R F 2 (ELE)	F42LL	60	0.18	OCC	2600	468	OCC	
34	Faculty Restroom	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	728	43	OCC	
40LED	B270 Math Office	CLRM	25	T 32 R F 2 (ELE)	F42LL	60	1.50	OCC	1750	2,625	OCC	
40LED	B270 Math Office - office	Office	5	T 32 R F 2 (ELE)	F42LL	60	0.30	OCC	2600	780	OCC	
34	B270 Math Office - storage	Storage	9	1T 32 C F 2 (ELE)	F42ILL	59	0.53	OCC	1040	552	OCC	
40LED	B254	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
34	Boys	Restroom	8	1T 32 C F 2 (ELE)	F42ILL	59	0.47	OCC	3120	1,473	OCC	
270LED	Boys	Restroom	1	2T 40 R CF 2	CFQ40/2	90	0.09	OCC	3120	281	OCC	
40LED	B253 Math Lab	CLRM	24	T 32 R F 2 (ELE)	F42LL	60	1.44	OCC	1750	2,520	OCC	
218LED	B253 Math Lab - Storage	Closet	3	W 32 C F 3 (ELE)	F43ILL/2	90	0.27	SW	1040	281	OCC	
40LED	B252 Math Lab	CLRM	30	T 32 R F 2 (ELE)	F42LL	60	1.80	OCC	1750	3,150	OCC	

Cost of Electricity:

\$0.146	\$/kWh
\$5.32	\$/kW

EXISTING CONDITIONS												Retrofit Control
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	Usage Describe Usage Type using Operating Hours	No. of Fixtures before the retrofit	Standard Fixture Code Lighting Fixture Code	Fixture Code Code from Table of Standard Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Retrofit control device	Notes
34	Girls	Restroom	8	1T 32 C F 2 (ELE)	F42ILL	59	0.47	OCC	3120	1,473	OCC	
270LED	Girls	Restroom	1	2T 40 R CF 2	CFQ40/2	90	0.09	OCC	3120	281	OCC	
40LED	B251	CLRM	18	T 32 R F 2 (ELE)	F42LL	60	1.08	OCC	1750	1,890	OCC	
34	Janitors	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1040	61	OCC	
34	Auditorium	Auditorium	24	1T 32 C F 2 (ELE)	F42ILL	59	1.42	SW	1200	1,699	NONE	
34	Stage Storage	Storage	11	1T 32 C F 2 (ELE)	F42ILL	59	0.65	SW	1040	675	OCC	
34	Stage dimmer ctrl. Rm.	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
40LED	B250	CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.26	OCC	1750	2,205	OCC	
34	B250 - small CLRM	CLRM	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	OCC	1750	310	OCC	
34	IT Storage	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	SW	1040	184	OCC	
18	B260	CLRM	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	1750	588	OCC	
34	Management Info Sys Rm	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	Elec Rm	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	Elec Rm	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
40LED	B255 Physical Science	CLRM	31	T 32 R F 2 (ELE)	F42LL	60	1.86	OCC	1750	3,255	OCC	
218LED	B255 Physical Science - Office	Office	5	W 32 C F 3 (ELE)	F43ILL/2	90	0.45	SW	2600	1,170	OCC	
40LED	B257 Physics	CLRM	27	T 32 R F 2 (ELE)	F42LL	60	1.62	OCC	1750	2,835	OCC	
40LED	B256 Physical Sciences	CLRM	31	T 32 R F 2 (ELE)	F42LL	60	1.86	OCC	1750	3,255	OCC	
40LED	B256 Physical Sciences - Office	Office	4	T 32 R F 2 (ELE)	F42LL	60	0.24	OCC	2600	624	OCC	
40LED	B258 Physical Sciences	CLRM	36	T 32 R F 2 (ELE)	F42LL	60	2.16	OCC	1750	3,780	OCC	
218LED	B258 Physical Sciences - Office	Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	2600	468	OCC	
5LED	B258 Physical Science	Office	2	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.12	OCC	2600	312	OCC	
40LED	B258 Physical Science	Office	32	T 32 R F 2 (ELE)	F42LL	60	1.92	OCC	2600	4,992	OCC	
218LED	Cafeteria	Hallway	23	W 32 C F 3 (ELE)	F43ILL/2	90	2.07	SW	3900	8,073	NONE	
270LED	Cafeteria	Hallway	47	2T 40 R CF 2	CFQ40/2	90	4.23	SW	3900	16,497	NONE	
259	Cafeteria	Hallway	46	4 CFT 40 Chandelier	CFT40/4-BX	144	6.62	SW	3900	25,834	NONE	
269	Cafeteria	Hallway	35	CFS40	CFS40/1	40	1.40	SW	3900	5,460	NONE	
218LED	Kitchen	CLRM	41	W 32 C F 3 (ELE)	F43ILL/2	90	3.69	OCC	1750	6,458	OCC	
262LED	Kitchen	CLRM	4	CF42/1	CF42/1-I	48	0.19	OCC	1750	336	OCC	
34	Kitchen	CLRM	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	OCC	1750	413	OCC	
34	Kitchen - Storage	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	OCC	1040	123	OCC	
218LED	Kitchen - Office (B170.2)	Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	2600	468	OCC	
34	Kitchen - Loading	Hallway	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	OCC	3900	690	OCC	
218LED	Kitchen - Loading	Hallway	8	W 32 C F 3 (ELE)	F43ILL/2	90	0.72	OCC	3900	2,808	OCC	
34	Kitchen - Acid Waste Rm	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
34	Kitchen - Storage	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
34	Kitchen - Storage	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
34	Janitor	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1040	61	OCC	
34	Elec Rm	Closet	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1040	61	OCC	
34	Staff Locker Rm	CLRM	5	1T 32 C F 2 (ELE)	F42ILL	59	0.30	OCC	1750	516	OCC	
34	Restroom	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	728	43	OCC	
34	Storage	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
259	Faculty Dinning Rm	Hallway	8	4 CFT 40 Chandelier	CFT40/4-BX	144	1.15	OCC	3900	4,493	OCC	
218LED	Faculty Dinning Rm	Hallway	17	W 32 C F 3 (ELE)	F43ILL/2	90	1.53	OCC	3900	5,967	OCC	
262LED	Faculty Dinning Rm	Hallway	3	CF42/1	CF42/1-I	48	0.14	OCC	3900	562	OCC	
218LED	B163 Custodial Office	Hallway	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.54	OCC	3900	2,106	OCC	
34	B163 Custodial Office - Restroom	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	728	43	OCC	
218LED	B163 Custodial Office - Office	Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	2600	468	OCC	
218LED	Hallway	Hallway	1	W 32 C F 3 (ELE)	F43ILL/2	90	0.09	OCC	3900	351	OCC	
34	Hallway	Hallway	57	1T 32 C F 2 (ELE)	F42ILL	59	3.36	OCC	3900	13,116	OCC	
88	Hallway	Hallway	19	CF 13 1 LAMP	CFQ13/1-L	15	0.29	OCC	3900	1,112	OCC	
189	Hallway	Hallway	4	X 7.0 W 1	ECF7/1	10	0.04	OCC	3900	156	OCC	
259	Hallway	Hallway	11	4 CFT 40 Chandelier	CFT40/4-BX	144	1.58	OCC	3900	6,178	OCC	
18	Hallway	Hallway	4	T 32 R F 4 (ELE)	F44ILL	112	0.45	OCC	3900	1,747	OCC	
20LED	Hallway	Hallway	27	S 28 P F 1 (ELE)	F41ILL	31	0.84	OCC	3900	3,264	OCC	
218LED	Concession	Stage	3	W 32 C F 3 (ELE)	F43ILL/2	90	0.27	OCC	180	49	OCC	
218LED	Receiver	Office	14	W 32 C F 3 (ELE)	F43ILL/2	90	1.26	SW	2600	3,276	OCC	
34	Telephone Equip	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	SW	1040	123	OCC	
40LED	B152	CLRM	27	T 32 R F 2 (ELE)	F42LL	60	1.62	OCC	1750	2,835	OCC	
34	B152 Restroom	Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	3120	184	OCC	
34	Faculty Restroom	Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	3120	184	OCC	
34	Student Testing	CLRM	13	1T 32 C F 2 (ELE)	F42ILL	59	0.77	OCC	1750	1,342	OCC	
40LED	Office	Office	3	T 32 R F 2 (ELE)	F42LL	60	0.18	OCC	2600	468	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Conf Rm	Office	3	T 32 R F 2 (ELE)	F42LL	60	0.18	OCC	2600	468	OCC	
189	Conf Rm	Office	8	X 7.0 W 1	ECF7/1	10	0.08	OCC	2600	208	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	

Cost of Electricity:

\$0.146	\$/kWh
\$5.32	\$/kW

EXISTING CONDITIONS												Retrofit Control
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	Usage Describe Usage Type using Operating Hours	No. of Fixtures before the retrofit	Standard Fixture Code Lighting Fixture Code	Fixture Code Code from Table of Standard Wattages	Watts per Fixture Value from Table of Standard Fixture Wattages	kW/Space (Watts/Fixt) * (Fixt No.)	Exist Control Pre-inst. control device	Annual Hours Estimated annual hours for the usage group	Annual kWh (kW/space) * (Annual Hours)	Retrofit control device	Notes
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
40LED	Office	Office	3	T 32 R F 2 (ELE)	F42LL	60	0.18	OCC	2600	468	OCC	
40LED	Guidance open offices	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.12	OCC	2600	312	OCC	
218LED	Guidance open offices	Office	12	W 32 C F 3 (ELE)	F43ILL/2	90	1.08	OCC	2600	2,808	OCC	
40LED	Guidance conf.	Office	4	T 32 R F 2 (ELE)	F42LL	60	0.24	OCC	2600	624	OCC	
189	Guidance conf.	Office	8	X 7.0 W 1	ECF7/1	10	0.08	OCC	2600	208	OCC	
218LED	Guidance copier	Office	5	W 32 C F 3 (ELE)	F43ILL/2	90	0.45	OCC	2600	1,170	OCC	
218LED	Guidance storage	Storage	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.54	SW	1040	562	OCC	
218LED	Book store	Office	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.54	OCC	2600	1,404	OCC	
218LED	Book store - storage	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	SW	1040	187	OCC	
40LED	B150 Student Activities	CLRM	12	T 32 R F 2 (ELE)	F42LL	60	0.72	OCC	1750	1,260	OCC	
218LED	B155 Tech Service Center	Storage	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.54	OCC	1040	562	OCC	
189	Boys	Restroom	1	X 7.0 W 1	ECF7/1	10	0.01	OCC	3120	31	OCC	
34	Boys	Restroom	13	1T 32 C F 2 (ELE)	F42ILL	59	0.77	OCC	3120	2,393	OCC	
189	Girls	Restroom	1	X 7.0 W 1	ECF7/1	10	0.01	OCC	3120	31	OCC	
34	Girls	Restroom	13	1T 32 C F 2 (ELE)	F42ILL	59	0.77	OCC	3120	2,393	OCC	
34	Storage	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	OCC	1040	123	OCC	
20LED	Central Office	Office	16	S 28 P F 1 (ELE)	F41ILL	31	0.50	OCC	2600	1,290	OCC	
20LED	Central Office	Office	14	S 28 P F 1 (ELE)	F41ILL	31	0.43	OCC	2600	1,128	OCC	
146LED	Main Gym	Gym	36	High Bay MH 400	MH400/1	458	16.49	SW	3380	55,729	OCC	
34	Storage	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	OCC	1040	184	OCC	
34	Storage	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	OCC	1040	184	OCC	
34	Storage	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.18	OCC	1040	184	OCC	
218LED	Vestibules	Hallway	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	SW	3900	702	OCC	
34	Boys Team Rm	Hallway	25	1T 32 C F 2 (ELE)	F42ILL	59	1.48	OCC	3900	5,753	OCC	
218LED	Gym Offices	Office	5	W 32 C F 3 (ELE)	F43ILL/2	90	0.45	OCC	2600	1,170	OCC	
34	Restroom	Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	3120	184	OCC	
218LED	A114 Athletic Director	Office	4	W 32 C F 3 (ELE)	F43ILL/2	90	0.36	OCC	2600	936	OCC	
34	Elec. Rm	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1040	61	OCC	
34	Storage	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
40LED	A102 Music Rm	CLRM	35	T 32 R F 2 (ELE)	F42LL	60	2.10	OCC	1750	3,675	OCC	
40LED	A101 Music Rm	CLRM	19	T 32 R F 2 (ELE)	F42LL	60	1.14	OCC	1750	1,995	OCC	
5LED	A101 Music Rm	CLRM	1	2T 32 R F 2 (u) (ELE)	FU2LL	60	0.06	SW	1750	105	OCC	
40LED	A100 Music Rm	CLRM	33	T 32 R F 2 (ELE)	F42LL	60	1.98	OCC	1750	3,465	OCC	
34	Women Faculty Restroom	Restroom Private	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	OCC	728	86	OCC	
34	Boys Rm.	Restroom	16	1T 32 C F 2 (ELE)	F42ILL	59	0.94	OCC	3120	2,945	OCC	
34	Girls Rm.	Restroom	16	1T 32 C F 2 (ELE)	F42ILL	59	0.94	OCC	3120	2,945	OCC	
34	A106 Wood Shop	CLRM	38	1T 32 C F 2 (ELE)	F42ILL	59	2.24	OCC	1750	3,924	OCC	
40LED	A105 Television Studio	CLRM	17	T 32 R F 2 (ELE)	F42LL	60	1.02	OCC	1750	1,785	OCC	
34	Storage	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	OCC	1040	61	OCC	
40LED	A104 The Den	CLRM	28	T 32 R F 2 (ELE)	F42LL	60	1.68	OCC	1750	2,940	OCC	
18	A104 The Den - Office	Office	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	2600	291	OCC	
18	A104 The Den - Office	Office	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	2600	582	OCC	
218LED	A104 The Den - Office	Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	2600	468	OCC	
218LED	A104 The Den - Office	Office	4	W 32 C F 3 (ELE)	F43ILL/2	90	0.36	OCC	2600	936	OCC	
34	A103 Woodshop	CLRM	44	1T 32 C F 2 (ELE)	F42ILL	59	2.60	OCC	1750	4,543	OCC	
218LED	A103 Woodshop - Office	Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	2600	468	OCC	
218LED	A103 Woodshop - Storage	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.18	OCC	1040	187	OCC	
34	A103 Woodshop - Storage	Storage	4	1T 32 C F 2 (ELE)	F42ILL	59	0.24	OCC	1040	245	OCC	
34	A103 Woodshop - Storage	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.06	SW	1040	61	OCC	
34	Faculty Restroom	Restroom Private	2	1T 32 C F 2 (ELE)	F42ILL	59	0.12	OCC	728	86	OCC	
146LED	Lower Gym - Pit	Gym	8	High Bay MH 400	MH400/1	458	3.66	SW	3380	12,384	OCC	
18	Lower Gym - Pit	Gym	10	T 32 R F 4 (ELE)	F44ILL	112	1.12	SW	3380	3,786	OCC	
270LED	Exterior	Exterior	20	2T 40 R CF 2	CFQ40/2	90	1.80	Breaker	3640	6,552	PHC	
142	Exterior	Exterior	4	MH 100	MH100/1	128	0.51	Breaker	3640	1,864	PHC	
262LED	Exterior	Exterior	10	CF42/1-I	CF42/1-I	48	0.48	Breaker	3640	1,747	PHC	
261	Exterior	Exterior	3	PAR 38 SP	H100/1	100	0.30	Breaker	3640	1,092	PHC	
Total			4,921				361.68			892,848		

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	No. 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						
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 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	(kWh/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	(kWh/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						
34	Hallway 5th FL	44	1T 32 C F 2 (ELE)	F42ILL	59	2.6	OCC	3900	10,124	44	1T 32 C F 2 (ELE)	F42ILL	59	2.6	OCC	3,900	10,124	- 0.0	-	-	\$ -	\$ -	#DIV/0!						
40LED	B550 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
34	Storage	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	SW	1040	368	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	SW	1,040	368	- 0.0	-	-	\$ -	\$ -	#DIV/0!						
40LED	B570 Social Science Office	24	T 32 R F 2 (ELE)	F42ILL	60	1.4	OCC	2600	3,744	24	T 38 R LED	RTLED38	38	0.9	OCC	2,600	2,371	1,373.05	0.5	\$ 234.67	\$ 5,670.00	\$240	24.2						
34	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	728	43	0.0	-	-	\$ -	\$ -	#DIV/0!						
40LED	B572 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B571 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
34	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1040	123	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1,040	123	- 0.0	-	-	\$ -	\$ -	#DIV/0!						
34	Management Info System RM	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1040	123	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1,040	123	- 0.0	-	-	\$ -	\$ -	#DIV/0!						
40LED	B568 Computer Lab	24	T 32 R F 2 (ELE)	F42ILL	60	1.4	OCC	2,520	24	T 38 R LED	RTLED38	38	0.9	OCC	1,750	1,596	924.05	0.5	\$ 168.98	\$ 5,670.00	\$240	33.6							
40LED	B567 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B566 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B565 CLRM	35	T 32 R F 2 (ELE)	F42ILL	60	2.1	OCC	1750	3,675	35	T 38 R LED	RTLED38	38	1.3	OCC	1,750	2,328	1,348.08	0.8	\$ 246.43	\$ 8,268.75	\$350	33.6						
40LED	B564 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B563 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B562 CLRM	9	T 32 R F 2 (ELE)	F42ILL	60	0.5	OCC	1750	945	9	T 38 R LED	RTLED38	38	0.3	OCC	1,750	599	347.02	0.2	\$ 63.37	\$ 2,126.25	\$90	33.6						
40LED	B561 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	Storage	6	T 32 R F 2 (ELE)	F42ILL	60	0.4	OCC	1040	374	6	T 38 R LED	RTLED38	38	0.2	OCC	1,040	237	137.01	0.1	\$ 28.53	\$ 1,417.50	\$60	49.7						
40LED	B560 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
270LED	Closet Janitors	1	2T 40 R CF 2	CF40Q2	90	0.1	SW	1040	94	1	2T 16 R LED 2	2G11LED2	40	0.0	SW	1,040	156	10.81	0.1	\$ 10.81	\$ 162.00	\$5	15.0						
40LED	B575 World Language Office	16	T 32 R F 2 (ELE)	F42ILL	60	1.0	OCC	1750	1,680	16	T 38 R LED	RTLED38	38	0.6	OCC	1,750	1,064	616.04	0.4	\$ 112.65	\$ 3,780.00	\$160	33.6						
40LED	Office	4	T 32 R F 2 (ELE)	F42ILL	60	0.2	OCC	2600	624	4	T 38 R LED	RTLED38	38	0.2	OCC	2,600	395	229.01	0.1	\$ 39.11	\$ 945.00	\$40	24.2						
34	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	728	43	- 0.0	-	-	\$ -	\$ -	#DIV/0!						
40LED	B559 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B558 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
270LED	Restroom Boys	1	2T 40 R CF 2	CF40Q2	90	0.1	SW	3120	281	1	2T 16 R LED 2	2G11LED2	40	0.0	SW	3,120	125	156.01	0.1	\$ 26.03	\$ 162.00	\$5	6.2						
34	Restroom Boys	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	SW	3120	1,657	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	SW	3,120	1,657	- 0.0	-	-	\$ -	\$ -	#DIV/0!						
40LED	B556 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B557 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B554 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B555 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B553 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
40LED	B552 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809.05	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6						
270LED	Restroom Girls	1	2T 40 R CF 2	CF40Q2	90	0.1	SW	3120	281	1	2T 16 R LED 2	2G11LED2	40	0.0</															

		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				
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 R F(U) = 2'x2' Troff 40 w Recess. Floor 2	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				
40LED	B350 CLRM	9	T 32 R F 2 (ELE)	F42LL	60	0.5	OCC	1750	945	9	T 38 R LED	RTLED38	38	0.3	OCC	1750	599	347	0.2	\$ 63.37	\$ 2,126.25	\$90	33.6				
34	Storage	3	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	1040	184	3	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	1040	184	-	0.0	\$ -	\$ -	\$0					
40LED	B368 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1750	1,397	809	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6				
40LED	B367 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1750	1,397	809	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6				
40LED	B366 Computer Lab	30	T 32 R F 2 (ELE)	F42LL	60	1.8	OCC	1750	3,150	30	T 38 R LED	RTLED38	38	1.1	OCC	1750	1,995	1,155	0.7	\$ 211.22	\$ 7,087.50	\$300	33.6				
40LED	B365 Computer Lab	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1750	1,397	809	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6				
40LED	B364 CLRM	22	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,310	22	T 38 R LED	RTLED38	38	0.8	OCC	1750	1,463	847	0.5	\$ 154.90	\$ 5,197.50	\$220	33.6				
117	Auditorium	38	CF 23	CFS23/1	23	0.9	SW	1200	1,049	38	CF 23	CFS23/1	23	0.9	SW	1200	1,049	-	0.0	\$ -	\$ -	\$0					
34	Auditorium	2	1T 32 C F 2 (ELE)	F42LL	59	0.1	SW	1200	142	2	1T 32 C F 2 (ELE)	F42LL	59	0.1	SW	1200	142	-	0.0	\$ -	\$ -	\$0					
34	Auditorium	5	CF 13 L LAMP	CFQ13/1-L	15	0.1	SW	1200	90	5	CF 13 L LAMP	CFQ13/1-L	15	0.1	SW	1200	90	-	0.0	\$ -	\$ -	\$0					
270LED	Auditorium	2	2T 40 R CF 2	CFQ40/2	90	0.2	SW	1750	216	2	2T 16 R LED 2	2G11LED/2	40	0.1	SW	1200	96	120	0.1	\$ 23.95	\$ 324.00	\$10	13.5				
218LED	A321.1 Prof Development	8	W 32 C F 3 (ELE)	F43LL/2	90	0.7	OCC	1750	1,260	8	4 R LED Tube	200732x3	45	0.4	OCC	1750	630	630	0.4	\$ 115.21	\$ 2,577.60	\$120	22.4				
270LED	Library	29	2T 40 R CF 2	CFQ40/2	90	2.6	SW	1750	4,568	29	2T 16 R LED 2	2G11LED/2	40	1.2	SW	1750	2,030	2,538	1.5	\$ 464.05	\$ 4,698.00	\$145	10.1				
218LED	Library	36	W 32 C F 3 (ELE)	F43LL/2	90	3.2	SW	1750	5,670	36	4 R LED Tube	200732x3	45	1.6	SW	1750	2,835	2,835	1.6	\$ 518.45	\$ 11,599.20	\$540	22.4				
34	Library	45	1T 32 C F 2 (ELE)	F42LL	59	2.7	SW	1750	4,646	45	1T 32 C F 2 (ELE)	F42LL	59	2.7	SW	1750	4,646	-	0.0	\$ -	\$ -	\$0					
270LED	Library	7	2T 40 R CF 2	CFQ40/2	90	0.6	SW	1750	1,103	7	2T 16 R LED 2	2G11LED/2	40	0.3	SW	1750	490	613	0.4	\$ 112.01	\$ 1,134.00	\$45	10.1				
218LED	Library - Office/Common Space	6	W 32 C F 3 (ELE)	F43LL/2	90	0.5	OCC	1750	945	6	4 R LED Tube	200732x3	45	0.3	OCC	1750	473	473	0.3	\$ 86.41	\$ 1,933.20	\$90	22.4				
218LED	Library - Periodical Storage	4	W 32 C F 3 (ELE)	F43LL/2	90	0.4	OCC	1040	374	4	4 R LED Tube	200732x3	45	0.2	OCC	1040	187	187	0.2	\$ 38.90	\$ 1,288.80	\$60	33.1				
34	Library - Restroom Boys	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	728	43	-	0.0	\$ -	\$ -	\$0					
34	Library - Restroom Girls	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	728	43	-	0.0	\$ -	\$ -	\$0					
218LED	Library - Server Rm	7	W 32 C F 3 (ELE)	F43LL/2	90	0.6	OCC	1750	1,103	7	4 R LED Tube	200732x3	45	0.3	OCC	1040	328	328	0.3	\$ 68.07	\$ 2,255.40	\$105	33.1				
269	Library - Front Desk	44	CFS40	CFS40/1	40	1.8	SW	1750	3,080	44	CFS40	CFS40/1	40	1.8	SW	1750	3,080	-	0.0	\$ -	\$ -	\$0					
34	Library - Storage	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	SW	1040	61	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	SW	1040	61	-	0.0	\$ -	\$ -	\$0					
40LED	A300	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1750	1,397	809	0.5	\$ 147.86	\$ 4,961.25	\$210	33.6				
40LED	A301	18	T 32 R F 2 (ELE)	F42LL	60	1.1	OCC	1750	1,890	18	T 38 R LED	RTLED38	38	0.7	OCC	1750	1,197	693	0.4	\$ 126.73	\$ 4,252.50	\$180	33.6				
34	Yearbook RM	3	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	1040	103	3	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	1040	103	-	0.0	\$ -	\$ -	\$0					
40LED	A302	22	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,310	22	T 38 R LED	RTLED38	38	0.8	OCC	1750	1,463	847	0.5	\$ 154.90	\$ 5,197.50	\$220	33.6				
40LED	A303	20	T 32 R F 2 (ELE)	F42LL	60	1.2	OCC	1750	2,100	20	T 38 R LED	RTLED38	38	0.8	OCC	1750	1,330	770	0.4	\$ 140.81	\$ 4,725.00	\$200	33.6				
261	Art Display RM East	12	PAR 38 SP	H100/1	100	1.2	SW	180	216	12	PAR 38 SP	H100/1	100	1.2	SW	180	216	-	0.0	\$ -	\$ -	\$0					
34	Art Display RM East	4	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	3900	920	4	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	3900	920	-	0.0	\$ -	\$ -	\$0					
270LED	Art Display RM East	8	2T 40 R CF 2	CFQ40/2	90	0.7	SW	180	130	8	2T 16 R LED 2	2G11LED/2	40	0.3	SW	180	58	72	0.4	\$ 36.09	\$ 1,296.00	\$40	35.9				
261	Art Display RM West	9	PAR 38 SP	H100/1	100	0.9	SW	180	162	9	PAR 38 SP	H100/1	100	0.9	SW	180	162	-	0.0	\$ -	\$ -	\$0					
34	Art Display RM West	4	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	3900	920	4	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	3900	920	-	0.0	\$ -	\$ -	\$0					
270LED	Art Display RM West	8	2T 40 R CF 2	CFQ40/2	90	0.7	SW	180	130	8	2T 16 R LED 2	2G11LED/2	40	0.3	SW	180	58	72	0.4	\$ 36.09	\$ 1,296.00	\$40	35.9				
34	Gymnasium Mech RM	42	1T 32 C F 2 (ELE)	F42LL	59	2.5	SW	1040	2,577	42	1T 32 C F 2 (ELE)	F42LL	59	2.5	SW	1040	2,577	-	0.0	\$ -	\$ -	\$0					
218LED	A320 Art Library & Resource																										

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	Standard Fixture Code		Fixture Code	Watts per Fixture	kW/Space	Retrofit	Annual Hours	Annual kWh	Annual kWh	Annual kWh Saved	Annual \$ Saved	Retrofit Cost	NJ Smart Start	Simple Payback	Simple Payback					
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	before the retrofit	"Lighting Fixture Code" Example 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	Simple Payback					
40LED	A202 Wellness Center	17	T 32 R F 2 (ELE)	F42LL	60	1.0	OCC	1750	1,785	17	T 38 R LED	RTLED38	38	0.6	OCC	1,750	1,131	655	0.4	\$	119.69	\$	4,016.25	\$170	33.6	32.1			
218LED	A216 Trainer's Facility	8	W 32 C F 3 (ELE)	F43LL/2	90	0.7	OCC	1750	1,260	8	4 R LED Tube	200732x3	45	0.4	OCC	1,750	630	630	0.4	\$	115.21	\$	2,577.60	\$120	22.4	21.3			
34	A216 Trainer's Facility - Office	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	1750	103	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	1,750	103	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
218LED	A216 Trainer's Facility - Office	2	W 32 C F 3 (ELE)	F43LL/2	90	0.2	OCC	2600	468	2	4 R LED Tube	200732x3	45	0.1	OCC	2,600	234	234	0.1	\$	40.00	\$	644.40	\$30	16.1	15.4			
34	A216 Trainer's Facility - Bathroom	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	728	43	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
40LED	A201	17	T 32 R F 2 (ELE)	F42LL	60	1.0	OCC	1750	1,785	17	T 38 R LED	RTLED38	38	0.6	OCC	1,750	1,131	655	0.4	\$	119.69	\$	4,016.25	\$170	33.6	32.1			
40LED	A201	19	T 32 R F 2 (ELE)	F42LL	60	1.1	OCC	1750	1,995	19	T 38 R LED	RTLED38	38	0.7	OCC	1,750	1,264	732	0.4	\$	133.77	\$	4,488.75	\$190	33.6	32.1			
34	A200	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	1750	103	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	1,750	103	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
34	B262	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	1750	103	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	1,750	103	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
40LED	B262	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809	0.5	\$	147.86	\$	4,961.25	\$210	33.6	32.1			
40LED	B261	27	T 32 R F 2 (ELE)	F42LL	60	1.6	OCC	1750	2,835	27	T 38 R LED	RTLED38	38	1.0	OCC	1,750	1,796	1,040	0.6	\$	190.10	\$	6,378.75	\$270	33.6	32.1			
88	Atrium	6	CF 13 L LAMP	CF013/1-L	15	0.1	OCC	3900	351	6	CF 13 L LAMP	CF013/1-L	15	0.1	OCC	3,900	351	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
40LED	Attendance	18	T 32 R F 2 (ELE)	F42LL	60	1.1	OCC	2600	2,808	18	T 38 R LED	RTLED38	38	0.7	OCC	2,600	1,778	1,030	0.4	\$	176.00	\$	4,252.50	\$180	24.2	23.1			
34	Guidance	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	2600	153	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	2,600	153	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
40LED	Guidance	7	T 32 R F 2 (ELE)	F42LL	60	0.4	OCC	2600	1,052	7	T 38 R LED	RTLED38	38	0.3	OCC	2,600	692	400	0.2	\$	68.45	\$	1,653.75	\$70	24.2	23.1			
40LED	Guidance - Office	2	T 32 R F 2 (ELE)	F42LL	60	0.2	OCC	2600	468	2	T 38 R LED	RTLED38	38	0.1	OCC	2,600	296	172	0.1	\$	29.33	\$	708.75	\$30	24.2	23.1			
40LED	Guidance - Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	OCC	2600	468	3	T 38 R LED	RTLED38	38	0.1	OCC	2,600	296	172	0.1	\$	29.33	\$	708.75	\$30	24.2	23.1			
40LED	Guidance - Cont Rm.	3	T 32 R F 2 (ELE)	F42LL	60	0.2	OCC	2600	468	3	T 38 R LED	RTLED38	38	0.1	OCC	2,600	296	172	0.1	\$	29.33	\$	708.75	\$30	24.2	23.1			
34	Faculty Restroom	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	728	43	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
40LED	B270 Math Office	25	T 32 R F 2 (ELE)	F42LL	60	1.5	OCC	1750	2,625	25	T 38 R LED	RTLED38	38	1.0	OCC	1,750	1,663	963	0.6	\$	176.02	\$	5,906.25	\$250	33.6	32.1			
40LED	B270 Math Office - office	5	T 38 R LED	F42LL	60	0.2	OCC	2600	780	5	T 38 R LED	RTLED38	38	0.2	OCC	2,600	296	484	0.1	\$	48.89	\$	1,181.25	\$30	24.2	23.1			
34	B270 Math Office - storage	5	1T 32 C F 2 (ELE)	F42LL	59	0.5	OCC	1040	552	9	1T 32 C F 2 (ELE)	F42LL	59	0.5	OCC	1,040	552	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
40LED	B254	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,397	809	0.5	\$	147.86	\$	4,961.25	\$210	33.6	32.1			
34	Boys	8	1T 32 C F 2 (ELE)	F42LL	59	0.5	OCC	3120	1,473	8	1T 32 C F 2 (ELE)	F42LL	59	0.5	OCC	3,120	1,473	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
270LED	Boys	1	2T 40 R CF 2	CF040/2	90	0.1	OCC	3120	281	1	2T 16 R LED 2	2011LED/2	40	0.0	OCC	3,120	125	156	0.1	\$	26.03	\$	162.00	\$5	6.2	6.0			
40LED	B253 Math Lab	24	T 32 R F 2 (ELE)	F42LL	60	1.4	OCC	1750	2,625	24	T 38 R LED	RTLED38	38	0.8	OCC	1,750	1,596	1,029	0.5	\$	168.98	\$	5,670.00	\$240	33.6	32.1			
218LED	B253 Math Lab - Storage	3	W 32 C F 3 (ELE)	F43LL/2	90	0.3	SW	1040	281	3	4 R LED Tube	200732x3	45	0.1	SW	1,040	140	140	0.1	\$	29.17	\$	966.60	\$45	33.1	31.6			
40LED	B252 Math Lab	30	T 32 R F 2 (ELE)	F42LL	60	1.8	OCC	1750	3,150	30	T 38 R LED	RTLED38	38	1.1	OCC	1,750	1,995	1,155	0.7	\$	211.22	\$	7,087.50	\$300	33.6	32.1			
34	Girls	8	1T 32 C F 2 (ELE)	F42LL	59	0.5	OCC	3120	1,473	8	1T 32 C F 2 (ELE)	F42LL	59	0.5	OCC	3,120	1,473	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
270LED	Girls	1	2T 40 R CF 2	CF040/2	90	0.1	OCC	3120	281	1	2T 16 R LED 2	2011LED/2	40	0.0	OCC	3,120	125	156	0.1	\$	26.03	\$	162.00	\$5	6.2	6.0			
40LED	B251	18	T 32 R F 2 (ELE)	F42LL	60	1.1	OCC	1750	1,890	18	T 38 R LED	RTLED38	38	0.7	OCC	1,750	1,197	693	0.4	\$	126.73	\$	4,252.50	\$180	33.6	32.1			
34	Janitors	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	1040	61	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	1,040	61	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
34	Auditorium	24	1T 32 C F 2 (ELE)	F42LL	59	1.4	SW	1,200	1,699	24	1T 32 C F 2 (ELE)	F42LL	59	1.4	SW	1,200	1,699	-	0.0	\$	-	\$	-	0	-	#DIV/0!			
34	Stage Storage	11	1T 32 C F 2 (ELE)	F42LL	59	0.6	SW	1,040	675	11	1T 32 C F 2 (ELE)	F42LL	59																

		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 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				
20LED	Central Office	16	S 28 P F 1 (ELE)	F41ILL	31	0.5	OCC	2600	1,290	16	4 ft LED Tube	200732x1	15	0.2	OCC	2,600	624	666	0.3	\$ 113.78	\$ 2,323.20	\$80	20.4	19.7				
20LED	Central Office	14	S 28 P F 1 (ELE)	F41ILL	31	0.4	OCC	2600	1,128	14	4 ft LED Tube	200732x1	15	0.2	OCC	2,600	546	582	0.2	\$ 99.56	\$ 2,032.80	\$70	20.4	19.7				
146LED	Main Gym	36	High Bay MH 400	MH400/1	458	16.5	SW	3380	55,729	36	BAYLED78W	BAYLED78W	93	3.3	SW	3,380	11,316	44,413	13.1	\$ 7,340.23	\$ 30,391.04	\$5,400	4.1	3.4				
34	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1040	184	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1,040	184	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
34	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1040	184	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1,040	184	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
34	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1040	184	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1,040	184	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
218LED	Vestibules	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	SW	3900	702	2	4 ft LED Tube	200732x3	45	0.1	SW	3,900	351	351	0.1	\$ 57.13	\$ 644.40	\$30	11.3	10.8				
34	Boys Team Rm	25	1T 32 C F 2 (ELE)	F42ILL	59	1.5	OCC	3900	5,753	25	1T 32 C F 2 (ELE)	F42ILL	59	1.5	OCC	3,900	5,753	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
218LED	Gym Offices	5	W 32 C F 3 (ELE)	F43ILL/2	90	0.5	OCC	2600	1,170	5	4 ft LED Tube	200732x3	45	0.2	OCC	2,600	585	585	0.2	\$ 100.00	\$ 1,611.00	\$75	16.1	15.4				
34	Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	3120	184	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	3,120	184	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
218LED	A114 Athletic Director	4	W 32 C F 3 (ELE)	F43ILL/2	90	0.4	OCC	2600	936	4	4 ft LED Tube	200732x3	45	0.2	OCC	2,600	468	468	0.2	\$ 80.00	\$ 1,288.80	\$60	16.1	15.4				
34	Elec. Rm	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1040	61	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1,040	61	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
34	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1040	61	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1,040	61	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
40LED	A102 Music Rm	35	T 32 R F 2 (ELE)	F42ILL	60	2.1	OCC	1750	3,675	35	T 38 R LED	RTLLED38	38	1.3	OCC	1,750	2,328	1,348	0.8	\$ 246.43	\$ 8,268.75	\$350	33.6	32.1				
40LED	A101 Music Rm	19	T 32 R F 2 (ELE)	F42ILL	60	1.1	OCC	1750	1,995	19	T 38 R LED	RTLLED38	38	0.7	OCC	1,750	1,264	732	0.4	\$ 133.77	\$ 4,488.75	\$190	33.6	32.1				
8LED	A101 Music Rm	1	2T 32 R F 2 (U) (ELE)	F42ILL	60	0.1	SW	1750	105	1	2T XX R LED	RTLLED	25	0.0	SW	1,750	44	61	0.0	\$ 11.20	\$ 202.50	\$50	18.1	13.6				
40LED	A100 Music Rm	33	T 32 R F 2 (ELE)	F42ILL	60	2.0	OCC	1750	3,465	33	T 38 R LED	RTLLED38	38	1.3	OCC	1,750	2,195	1,271	0.7	\$ 232.34	\$ 7,796.25	\$330	33.6	32.1				
34	Women Faculty Restroom	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	728	86	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	728	86	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
34	Boys Rm.	16	1T 32 C F 2 (ELE)	F42ILL	59	0.9	OCC	3120	2,945	16	1T 32 C F 2 (ELE)	F42ILL	59	0.9	OCC	3,120	2,945	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
34	Girls Rm.	16	1T 32 C F 2 (ELE)	F42ILL	59	0.9	OCC	3120	2,945	16	1T 32 C F 2 (ELE)	F42ILL	59	0.9	OCC	3,120	2,945	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
34	A106 Wood Shop	38	1T 32 C F 2 (ELE)	F42ILL	59	2.2	OCC	1750	3,924	38	1T 32 C F 2 (ELE)	F42ILL	59	2.2	OCC	1,750	3,924	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
40LED	A105 Television Studio	17	T 32 R F 2 (ELE)	F42ILL	60	1.0	OCC	1750	1,785	17	T 38 R LED	RTLLED38	38	0.6	OCC	1,750	1,131	655	0.4	\$ 119.69	\$ 4,016.25	\$170	33.6	32.1				
34	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1040	61	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1,040	61	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
40LED	A104 The Den	28	T 32 R F 2 (ELE)	F42ILL	60	1.7	OCC	1750	2,940	28	T 38 R LED	RTLLED38	38	1.1	OCC	1,750	1,862	1,078	0.6	\$ 197.14	\$ 6,615.00	\$280	33.6	32.1				
18	A104 The Den - Office	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291	1	T 28 R F 4	F44SSILL	96	0.1	SW	2,600	250	42	0.0	\$ 7.11	\$ 141.75	\$0	19.9	19.9				
18	A104 The Den - Office	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 28 R F 4	F44SSILL	96	0.2	SW	2,600	499	83	0.0	\$ 14.22	\$ 283.50	\$0	19.9	19.9				
218LED	A104 The Den - Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	OCC	2600	468	2	4 ft LED Tube	200732x3	45	0.1	OCC	2,600	234	234	0.1	\$ 40.00	\$ 644.40	\$30	16.1	15.4				
218LED	A104 The Den - Office	4	W 32 C F 3 (ELE)	F43ILL/2	90	0.4	OCC	2600	936	4	4 ft LED Tube	200732x3	45	0.2	OCC	2,600	468	468	0.2	\$ 80.00	\$ 1,288.80	\$60	16.1	15.4				
34	A103 Woodshop	44	1T 32 C F 2 (ELE)	F42ILL	59	2.6	OCC	1750	4,543	44	1T 32 C F 2 (ELE)	F42ILL	59	2.6	OCC	1,750	4,543	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
218LED	A103 Woodshop - Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	OCC	2600	468	2	4 ft LED Tube	200732x3	45	0.1	OCC	2,600	234	234	0.1	\$ 40.00	\$ 644.40	\$30	16.1	15.4				
218LED	A103 Woodshop - Storage	4	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	OCC	1040	197	4	4 ft LED Tube	200732x3	45	0.1	OCC	1,040	94	19.45	\$ 19.45	\$ 644.40	\$30	33.1	31.6					
34	A103 Woodshop - Storage	4	1T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1040	245	4	1T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1,040	245	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
34	A103 Woodshop - Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1040	61	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1,040	61	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
34	Faculty Restroom	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	728	86	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	728	86	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
146LED	Lower Gym - Pit	8	High Bay MH 400	MH400/1	458	3.7	SW	3380	12,384	8	BAYLED78W	BAYLED78W	93	3.0	SW	3,380	2,515	9,870	2.9	\$ 1,631.16	\$ 6,753.56	\$1,200	4.1	3.4				
18	Lower Gym - Pit	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	3380	3,786	10	T 28 R F 4	F44SSILL	96	1.0	SW	3,380	3,245	541	0.2	\$ 89.38	\$ 1,417.50	\$0	15.9	15.9				
270LED	Exterior	20	2T 40 R CF 2	CF40/2	90	1.8	Breaker	3640	6,552	20	2T 16 R LED 2	20311LED/2	40	0.8	Breaker	3,640	2,912	3,640	1.0	\$ 596.67	\$ 3,240.00	\$100	5.4	5.3				
142	Exterior	4	MH 100	MH100/1	128	0.5	Breaker	3640	1,864	4	MH 100	MH100/1	128	0.5	Breaker	3,640	1,864	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
262LED	Exterior	10	CF42/1	CF42/1-1	48	0.5	Breaker	3640	1,747	10	6BLMWLED	6BLMWLED	13	0.1	Breaker	3,640	473	1,274	0.4	\$ 208.84	\$ 1,620.00	\$0	7.8	7.8				
261	Exterior	3	PAR 38 SP	H100/1	100	0.3	Breaker	3640	1,092	3	PAR 38 SP	H100/1	100	0.3	Breaker	3,640	1,092	-	0.0	\$ -	\$ -	\$0		#DIV/0!				
Total		4,921				361.7			892,848	4,921			20,378	238.7			593,480	299,367	123.0	\$51,673	\$875,986	\$48,515						
																		Demand Savings		123.0	\$7,855							

		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		
34	Hallway 5th FL	44	1T 32 C F 2 (ELE)	F42ILL	59	2.6	2.6	OCC	2400	6,230.4	3,894.0	0.0	\$569.97	\$128.25	\$20.00	0.2	0.2		
40LED	B550 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
34	Storage	6	1T 32 C F 2 (ELE)	F42ILL	59	0.4	0.4	OCC	2600	920.4	-552.2	0.0	-\$80.83	\$128.25	\$20.00		-1.3		
40LED	B570 Social Science Office	24	T 32 R F 2 (ELE)	F42ILL	60	1.4	1.4	OCC	1500	2,160.0	1,584.0	0.0	\$231.85	\$128.25	\$20.00	0.6	0.5		
34	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	-85.9	0.0	-\$12.57	\$128.25	\$20.00		-8.6		
40LED	B572 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B571 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
34	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2600	306.8	-184.1	0.0	-\$26.94	\$128.25	\$20.00		-4.0		
34	Management Info System RM	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2600	306.8	-184.1	0.0	-\$26.94	\$128.25	\$20.00		-4.0		
40LED	B568 Computer Lab	24	T 32 R F 2 (ELE)	F42ILL	60	1.4	1.4	OCC	1400	2,016.0	504.0	0.0	\$73.77	\$128.25	\$20.00	1.7	1.5		
40LED	B567 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B566 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B565 CLRM	35	T 32 R F 2 (ELE)	F42ILL	60	2.1	2.1	OCC	1400	2,940.0	735.0	0.0	\$107.58	\$128.25	\$20.00	1.2	1.0		
40LED	B564 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B563 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B562 CLRM	9	T 32 R F 2 (ELE)	F42ILL	60	0.5	0.5	OCC	1400	756.0	189.0	0.0	\$27.66	\$128.25	\$20.00	4.6	3.9		
40LED	B561 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	Storage	6	T 32 R F 2 (ELE)	F42ILL	60	0.4	0.4	OCC	2600	936.0	-561.6	0.0	-\$82.20	\$128.25	\$20.00		-1.3		
40LED	B560 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
270LED	Closet Janitors	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	1400	126.0	-32.4	0.0	-\$4.74	\$128.25	\$20.00		-22.8		
40LED	B575 World Language Office	16	T 32 R F 2 (ELE)	F42ILL	60	1.0	1.0	OCC	1400	1,344.0	336.0	0.0	\$49.18	\$128.25	\$20.00	2.6	2.2		
40LED	Office	4	T 32 R F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1500	360.0	264.0	0.0	\$38.64	\$128.25	\$20.00	3.3	2.8		
34	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	-85.9	0.0	-\$12.57	\$128.25	\$20.00		-8.6		
40LED	B559 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B558 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
270LED	Restroom Boys	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	2184	196.6	84.2	0.0	\$12.33	\$128.25	\$20.00	10.4	8.8		
34	Restroom Boys	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2184	1,159.7	497.0	0.0	\$72.75	\$128.25	\$20.00	1.8	1.5		
40LED	B556 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B557 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B554 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B555 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B553 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B552 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
270LED	Restroom Girls	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	2184	196.6	84.2	0.0	\$12.33	\$128.25	\$20.00	10.4	8.8		
34	Restroom Girls	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2184	1,159.7	497.0	0.0	\$72.75	\$128.25	\$20.00	1.8	1.5		
270LED	Restroom Girls	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	2184	196.6	84.2	0.0	\$12.33	\$128.25	\$20.00	10.4	8.8		
34	Restroom Girls	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2184	1,159.7	497.0	0.0	\$72.75	\$128.25	\$20.00	1.8	1.5		
270LED	Restroom Boys	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	2184	196.6	84.2	0.0	\$12.33	\$128.25	\$20.00	10.4	8.8		
34	Restroom Boys	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2184	1,159.7	497.0	0.0	\$72.75	\$128.25	\$20.00	1.8	1.5		
34	Closet Janitors	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	82.6	-21.2	0.0	-\$3.11	\$128.25	\$20.00		-34.8		
40LED	B452 Business Comp Lab	27	T 32 R F 2 (ELE)	F42ILL	60	1.6	1.6	OCC	1400	2,268.0	567.0	0.0	\$82.99	\$128.25	\$20.00	1.5	1.3		
40LED	B451 CLRM	9	T 32 R F 2 (ELE)	F42ILL	60	0.5	0.5	OCC	1400	756.0	189.0	0.0	\$27.66	\$128.25	\$20.00	4.6	3.9		
40LED	B450 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B472 CLRM	27	T 32 R F 2 (ELE)	F42ILL	60	1.6	1.6	OCC	1400	2,268.0	567.0	0.0	\$82.99	\$128.25	\$20.00	1.5	1.3		
40LED	B471 CLRM	27	T 32 R F 2 (ELE)	F42ILL	60	1.6	1.6	OCC	1400	2,268.0	567.0	0.0	\$82.99	\$128.25	\$20.00	1.5	1.3		
40LED	B470 CLRM	9	T 32 R F 2 (ELE)	F42ILL	60	0.5	0.5	OCC	1400	756.0	189.0	0.0	\$27.66	\$128.25	\$20.00	4.6	3.9		
40LED	Mech Rm.	18	T 32 R F 2 (ELE)	F42ILL	60	1.1	1.1	OCC	2000	2,160.0	1,080.0	0.0	\$158.08	\$128.25	\$20.00	0.8	0.7		
34	Mech Rm.	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2000	354.0	177.0	0.0	\$25.91	\$128.25	\$20.00	4.6	3.9		
40LED	B469 CLRM	9	T 32 R F 2 (ELE)	F42ILL	60	0.5	0.5	OCC	1400	756.0	189.0	0.0	\$27.66	\$128.25	\$20.00	4.6	3.9		
40LED	B468 CLRM	27	T 32 R F 2 (ELE)	F42ILL	60	1.6	1.6	OCC	1400	2,268.0	567.0	0.0	\$82.99	\$128.25	\$20.00	1.5	1.3		
40LED	B467 CLRM	27	T 32 R F 2 (ELE)	F42ILL	60	1.6	1.6	OCC	1400	2,268.0	567.0	0.0	\$82.99	\$128.25	\$20.00	1.5	1.3		
270LED	Closet Janitors	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	1400	126.0	-32.4	0.0	-\$4.74	\$128.25	\$20.00		-22.8		
34	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	-85.9	0.0	-\$12.57	\$128.25	\$20.00		-8.6		
40LED	B479 Business Tech Family Office	25	T 32 R F 2 (ELE)	F42ILL	60	1.5	1.5	OCC	1400	2,100.0	525.0	0.0	\$76.84	\$128.25	\$20.00	1.7	1.4		
218LED	B479 Business Tech Family Office	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	2600	1,404.0	-842.4	0.0	-\$123.30	\$128.25	\$20.00		-0.9		
40LED	B479 Business Tech Family Office	4	T 32 R F 2 (ELE)	F42ILL	60	0.2	0.2	OCC	2600	624.0	-374.4	0.0	-\$54.80	\$128.25	\$20.00		-2.0		
40LED	B460 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B459 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B458 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B456 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B457 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B455 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B454 CLRM	21	T 32 R F 2 (ELE)	F42ILL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
34	Hallway 4th FL	104	1T 32 C F 2 (ELE)	F42ILL	59	6.1	6.1	OCC	2400	14,726.4	9,204.0	0.0	\$1,347.19	\$128.25	\$20.00	0.1	0.1		
270LED	Hallway 4th FL	4	2T 40 R CF 2	CFQ40/2	90	0.4	0.4	OCC	2400	864.0	540.0	0.0	\$79.04	\$128.25	\$20.00	1.6	1.4		
40LED	B465 Chemistry	32	T 32 R F 2 (ELE)	F42ILL	60	1.9	1.9	OCC	1400	2,688.0	672.0	0.0	\$98.36	\$128.25	\$20.00	1.3	1.1		
218LED	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2600	468.0	-280.8	0.0	-\$41.10	\$128.25	\$20.00		-2.6		
218LED	Chemical Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2600	468.0	-280.8	0.0	-\$41.10	\$128.25	\$20.00		-2.6		
40LED	B462 Chemistry	30	T 32 R F 2 (ELE)	F42ILL	60	1.8	1.8	OCC	1400	2,520.0	630.0	0.0	\$92.21	\$128.25	\$20.00	1.4	1.2		
40LED	B464 Chemistry	36	T 32 R F 2 (ELE)	F42ILL	60	2.2	2.2	OCC	1400	3,024.0	756.0	0.0	\$110.66	\$128.25	\$20.00	1.2	1.0		
40LED	B464 Chemistry	30	T 32 R F 2 (ELE)	F42ILL	60	1.8	1.8	OCC	1400	2,520.0	630.0	0.0	\$92.21	\$128.25	\$20.00	1.4	1.2		
40LED	B461 Chemistry</																		

		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		
40LED	Office	5	T 32 R F 2 (ELE)	F42LL	60	0.3	0.3	OCC	1500	450.0	330.0	0.0	\$48.30	\$128.25	\$20.00	2.7	2.2		
218LED	Storage	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	2600	1,404.0	-842.4	0.0	-\$123.30	\$128.25	\$20.00		-0.9		
218LED	Storage	3	W 32 C F 3 (ELE)	F43ILL/2	90	0.3	0.3	OCC	2600	702.0	-421.2	0.0	-\$61.65	\$128.25	\$20.00		-1.8		
40LED	B357 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
270LED	Restroom Boys	2	2T 40 R CF 2	CFQ40/2	90	0.2	0.2	OCC	2184	393.1	168.5	0.0	\$24.66	\$128.25	\$20.00	5.2	4.4		
34	Restroom Boys	8	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2184	1,030.8	441.8	0.0	\$64.67	\$128.25	\$20.00	2.0	1.7		
40LED	B356 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B355 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B354 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B353 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
270LED	Restroom Girls	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	2184	196.6	84.2	0.0	\$12.33	\$128.25	\$20.00	10.4	8.8		
34	Restroom Girls	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2184	1,159.7	457.0	0.0	\$72.75	\$128.25	\$20.00	1.8	1.5		
40LED	B370 Internship & Coop Educ.	7	T 32 R F 2 (ELE)	F42LL	60	0.4	0.4	OCC	1400	588.0	147.0	0.0	\$21.52	\$128.25	\$20.00	6.0	5.0		
40LED	B352 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B351 CLRM	9	T 32 R F 2 (ELE)	F42LL	60	0.5	0.5	OCC	1400	756.0	189.0	0.0	\$27.66	\$128.25	\$20.00	4.6	3.9		
40LED	B350 CLRM	9	T 32 R F 2 (ELE)	F42LL	60	0.5	0.5	OCC	1400	756.0	189.0	0.0	\$27.66	\$128.25	\$20.00	4.6	3.9		
34	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2600	460.2	-276.1	0.0	-\$40.42	\$128.25	\$20.00		-2.7		
40LED	B368 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B367 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B366 Computer Lab	30	T 32 R F 2 (ELE)	F42LL	60	1.8	1.8	OCC	1400	2,520.0	630.0	0.0	\$92.21	\$128.25	\$20.00	1.4	1.2		
40LED	B365 Computer Lab	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B364 CLRM	22	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,948.0	482.0	0.0	\$67.62	\$128.25	\$20.00	1.9	1.6		
117	Auditorium	38	CF 23	CF523/1	23	0.9	0.9	NONE	1200	1,048.8	0.0	0.0	\$0.00	\$0.00	\$0.00				
34	Auditorium	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	NONE	1200	141.6	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!		
88	Auditorium	5	CF 13 1 LAMP	CFQ13/1-L	15	0.1	0.1	NONE	1200	90.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!		
270LED	Auditorium	2	2T 40 R CF 2	CFQ40/2	90	0.2	0.2	NONE	1200	216.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!		
218LED	A321.1 Prof Development	8	W 32 C F 3 (ELE)	F43ILL/2	90	0.7	0.7	OCC	1400	1,008.0	252.0	0.0	\$36.89	\$128.25	\$20.00	3.5	2.9		
270LED	Library	29	2T 40 R CF 2	CFQ40/2	90	2.6	2.6	OCC	1400	3,654.0	913.5	0.0	\$133.71	\$128.25	\$20.00	1.0	0.8		
218LED	Library	36	W 32 C F 3 (ELE)	F43ILL/2	90	3.2	3.2	OCC	1400	4,536.0	1,134.0	0.0	\$165.98	\$128.25	\$20.00	0.8	0.7		
34	Library	45	1T 32 C F 2 (ELE)	F42ILL	59	2.7	2.7	OCC	1400	3,717.0	929.3	0.0	\$136.01	\$128.25	\$20.00	0.9	0.8		
270LED	Library	7	2T 40 R CF 2	CFQ40/2	90	0.6	0.6	OCC	1400	882.0	220.5	0.0	\$32.27	\$128.25	\$20.00	4.0	3.4		
218LED	Library - Office/Common Space	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	1400	756.0	189.0	0.0	\$27.66	\$128.25	\$20.00	4.6	3.9		
218LED	Library - Periodical Storage	4	W 32 C F 3 (ELE)	F43ILL/2	90	0.4	0.4	OCC	2600	936.0	-581.6	0.0	-\$82.20	\$128.25	\$20.00		-3.9		
34	Library - Restroom Boys	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	-85.9	0.0	-\$12.57	\$128.25	\$20.00		-8.6		
34	Library - Restroom Girls	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	-85.9	0.0	-\$12.57	\$128.25	\$20.00		-8.6		
218LED	Library - Server Rm	7	W 32 C F 3 (ELE)	F43ILL/2	90	0.6	0.6	OCC	2600	1,638.0	-982.8	0.0	-\$143.85	\$128.25	\$20.00		-0.8		
269	Library - Front Desk	44	CFS40	CFS40/1	40	1.8	1.8	OCC	1400	2,464.0	616.0	0.0	\$90.16	\$128.25	\$20.00	1.4	1.2		
34	Library - Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2600	153.4	-92.0	0.0	-\$13.47	\$128.25	\$20.00		-8.0		
40LED	A300	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	A301	18	T 32 R F 2 (ELE)	F42LL	60	1.1	1.1	OCC	1400	1,512.0	378.0	0.0	\$55.33	\$128.25	\$20.00	2.3	2.0		
34	Yearbook RM	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1500	265.5	194.7	0.0	\$28.50	\$128.25	\$20.00	4.5	3.8		
40LED	A302	22	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,948.0	482.0	0.0	\$67.62	\$128.25	\$20.00	1.9	1.6		
40LED	A303	20	T 32 R F 2 (ELE)	F42LL	60	1.2	1.2	OCC	1400	1,680.0	420.0	0.0	\$61.48	\$128.25	\$20.00	2.1	1.8		
261	Art Display RM East	12	PAR 38 SP	H100/1	100	1.2	1.2	NONE	180	216.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!		
34	Art Display RM East	4	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	566.4	354.0	0.0	\$51.82	\$128.25	\$20.00	2.5	2.1		
270LED	Art Display RM East	8	2T 40 R CF 2	CFQ40/2	90	0.7	0.7	NONE	180	129.6	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!		
261	Art Display RM West	9	PAR 38 SP	H100/1	100	0.9	0.9	NONE	180	162.0	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!		
34	Art Display RM West	4	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2400	566.4	354.0	0.0	\$51.82	\$128.25	\$20.00	2.5	2.1		
270LED	Art Display RM West	8	2T 40 R CF 2	CFQ40/2	90	0.7	0.7	NONE	180	129.6	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!		
34	Gymnasium Mech RM	42	1T 32 C F 2 (ELE)	F42ILL	59	2.5	2.5	OCC	2600	6,442.8	-3,865.7	0.0	-\$565.82	\$128.25	\$20.00		-0.2		
218LED	A320 Art Library & Resource	6	W 32 C F 3 (ELE)	F43ILL/2	90	0.5	0.5	OCC	1500	810.0	594.0	0.0	\$86.94	\$128.25	\$20.00	1.5	1.2		
34	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2600	306.8	-184.1	0.0	-\$36.94	\$128.25	\$20.00		-4.0		
34	Storage	2	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2600	613.8	-388.2	0.0	-\$53.89	\$128.25	\$20.00		-2.0		
34	A308.1 Art Office	4	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1400	330.4	82.6	0.0	\$12.09	\$128.25	\$20.00	10.6	9.0		
40LED	A309 CLRM	24	T 32 R F 2 (ELE)	F42LL	60	1.4	1.4	OCC	1400	2,016.0	504.0	0.0	\$73.77	\$128.25	\$20.00	1.7	1.5		
40LED	A308 CLRM	26	T 32 R F 2 (ELE)	F42LL	60	1.6	1.6	OCC	1400	2,184.0	546.0	0.0	\$79.92	\$128.25	\$20.00	1.6	1.4		
34	A307.1 Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2600	153.4	-92.0	0.0	-\$13.47	\$128.25	\$20.00		-8.0		
40LED	A307 CLRM	24	T 32 R F 2 (ELE)	F42LL	60	1.4	1.4	OCC	1400	2,016.0	504.0	0.0	\$73.77	\$128.25	\$20.00	1.7	1.5		
34	Klin	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2600	460.2	-276.1	0.0	-\$40.42	\$128.25	\$20.00		-2.7		
40LED	A305 Comp Lab	29	T 32 R F 2 (ELE)	F42LL	60	1.7	1.7	OCC	1400	2,436.0	609.0	0.0	\$89.14	\$128.25	\$20.00	1.4	1.2		
40LED	A306 Small Group	9	T 32 R F 2 (ELE)	F42LL	60	0.5	0.5	OCC	1400	756.0	189.0	0.0	\$27.66	\$128.25	\$20.00	4.6	3.9		
261	Mech RM	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2600	153.4	-92.0	0.0	-\$13.47	\$128.25	\$20.00		-8.0		
40LED	A304.1 Small Group	8	T 32 R F 2 (ELE)	F42LL	60	0.5	0.5	OCC	1400	672.0	168.0	0.0	\$24.59	\$128.25	\$20.00	5.2	4.4		
34	Restroom Mens	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	55.2	0.0	\$8.08	\$128.25	\$20.00	15.9	13.4		
34	Restroom Womens	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	55.2	0.0	\$8.08	\$128.25	\$20.00	15.9	13.4		
40LED	A326 Fine Arts Office	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	Office	2	T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	A310	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	A311 Computer Lab	24	T 32 R F 2 (ELE)	F42LL	60	1.4	1.4	OCC	1400	2,016.0	504.0	0.0	\$73.77	\$128.25	\$20.00	1.7	1.5		
40LED	A312 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
34	Closest Janitor	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	423.1	21.2	0.0	\$3.33	\$128.25	\$20.00		-34.8		
34	Restroom Boys	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	0.7	OCC	2184	1,546.3	662.7	0.0	\$97.00	\$128.25	\$20.00	1.3	1.1		
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		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		
40LED	A212 Tutor	1	T 32 R F 2 (ELE)	F42LL	60	0.1	0.1	OCC	1400	84.0	21.0	0.0	\$3.07	\$128.25	\$20.00	41.7	35.2		
40LED	A211 Culinary	30	T 32 R F 2 (ELE)	F42LL	60	1.8	1.8	OCC	1400	2,520.0	630.0	0.0	\$92.21	\$128.25	\$20.00	1.4	1.2		
34	A211 Culinary - Storage	1	1T 32 C F 2 (ELE)	F43ILL/2	59	0.1	0.1	OCC	2600	153.4	-92.0	0.0	-\$13.47	\$128.25	\$20.00		-8.0		
218LED	A211 Culinary - Office	6	W 32 C F 3 (ELE)	F42LL	90	0.5	0.5	OCC	1500	810.0	594.0	0.0	\$96.94	\$128.25	\$20.00	1.5	1.2		
34	Storage	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2600	153.4	-92.0	0.0	-\$13.47	\$128.25	\$20.00		-8.0		
34	Boys	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	0.7	OCC	2184	1,546.3	662.7	0.0	\$97.00	\$128.25	\$20.00	1.3	1.1		
270LED	Boys	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	2184	196.6	84.2	0.0	\$12.33	\$128.25	\$20.00	10.4	8.8		
34	Girls	12	1T 32 C F 2 (ELE)	F42ILL	59	0.7	0.7	OCC	2184	1,546.3	662.7	0.0	\$97.00	\$128.25	\$20.00	1.3	1.1		
270LED	Girls	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	2184	196.6	84.2	0.0	\$12.33	\$128.25	\$20.00	10.4	8.8		
218LED	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2600	468.0	-280.8	0.0	-\$41.10	\$128.25	\$20.00		-2.6		
34	Women's Family Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	55.2	0.0	\$8.08	\$128.25	\$20.00	15.9	13.4		
34	Private Restroom	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	257.7	-171.8	0.0	-\$25.15	\$128.25	\$20.00		-4.3		
218LED	Management Information Systems Rm	1	W 32 C F 3 (ELE)	F43ILL/2	90	0.1	0.1	OCC	2600	234.0	-140.4	0.0	-\$20.55	\$128.25	\$20.00		-5.3		
40LED	A208 Interior Design	16	T 32 R F 2 (ELE)	F42LL	60	1.0	1.0	OCC	1400	1,344.0	336.0	0.0	\$49.18	\$128.25	\$20.00	2.6	2.2		
40LED	A207 Childcare	24	T 32 R F 2 (ELE)	F42LL	60	1.4	1.4	OCC	1400	2,016.0	504.0	0.0	\$73.77	\$128.25	\$20.00	1.7	1.5		
218LED	A207 Childcare - Side Rm	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	2600	468.0	-280.8	0.0	-\$41.10	\$128.25	\$20.00		-2.6		
34	A207 Childcare - Bathroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	-85.9	0.0	-\$12.57	\$128.25	\$20.00		-8.6		
40LED	A206 Testing	30	T 32 R F 2 (ELE)	F42LL	60	1.8	1.8	OCC	1400	2,520.0	630.0	0.0	\$92.21	\$128.25	\$20.00	1.4	1.2		
40LED	A205 Music	30	T 32 R F 2 (ELE)	F42LL	60	1.8	1.8	OCC	1400	2,520.0	630.0	0.0	\$92.21	\$128.25	\$20.00	1.4	1.2		
40LED	A204 Robotics	40	T 32 R F 2 (ELE)	F42LL	60	2.4	2.4	OCC	1400	3,360.0	840.0	0.0	\$122.95	\$128.25	\$20.00	1.0	0.9		
218LED	Janitors	1	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	0.1	OCC	1400	126.0	-32.4	0.0	-\$4.74	\$128.25	\$20.00		-22.8		
218LED	Storage Technician	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	1400	252.0	-64.8	0.0	-\$9.48	\$128.25	\$20.00		-11.4		
218LED	Storage	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	1400	252.0	-64.8	0.0	-\$9.48	\$128.25	\$20.00		-11.4		
34	Mech Rm	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	82.6	-21.2	0.0	-\$3.11	\$128.25	\$20.00		-34.8		
34	Elec Rm	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	165.2	-42.5	0.0	-\$6.22	\$128.25	\$20.00		-17.4		
34	Management Info Sys Rm	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	165.2	-42.5	0.0	-\$6.22	\$128.25	\$20.00		-17.4		
40LED	A203	15	T 32 R F 2 (ELE)	F42LL	60	0.9	0.9	OCC	1400	1,260.0	315.0	0.0	\$46.11	\$128.25	\$20.00	2.8	2.3		
34	Girls Locker Rm	25	1T 32 C F 2 (ELE)	F42ILL	59	1.5	1.5	OCC	2400	3,540.0	2,212.5	0.0	\$323.84	\$128.25	\$20.00	0.4	0.3		
34	Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1400	247.8	-63.7	0.0	-\$9.33	\$128.25	\$20.00		-11.6		
34	Girls Team Locker	25	1T 32 C F 2 (ELE)	F42ILL	59	1.5	1.5	OCC	2400	3,540.0	2,212.5	0.0	\$323.84	\$128.25	\$20.00	0.4	0.3		
40LED	A202 Wellness Center	17	T 32 R F 2 (ELE)	F42LL	60	1.0	1.0	OCC	1400	1,408.0	357.0	0.0	\$52.25	\$128.25	\$20.00	2.5	2.1		
218LED	A216 Trainer's Facility	8	W 32 C F 3 (ELE)	F43ILL/2	90	0.7	0.7	OCC	1400	1,208.0	282.0	0.0	\$36.09	\$128.25	\$20.00	3.5	2.9		
34	A216 Trainer's Facility	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	82.6	-21.2	0.0	\$3.02	\$128.25	\$20.00		-34.8		
218LED	A216 Trainer's Facility - Office	2	W 32 C F 3 (ELE)	F43ILL/2	90	0.2	0.2	OCC	1500	270.0	198.0	0.0	\$28.98	\$128.25	\$20.00	4.4	3.7		
34	A216 Trainer's Facility - Bathroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	-85.9	0.0	-\$12.57	\$128.25	\$20.00		-8.6		
40LED	A201	17	T 32 R F 2 (ELE)	F42LL	60	1.0	1.0	OCC	1400	1,428.0	357.0	0.0	\$52.25	\$128.25	\$20.00	2.5	2.1		
40LED	A201	19	T 32 R F 2 (ELE)	F42LL	60	1.1	1.1	OCC	1400	1,596.0	399.0	0.0	\$58.40	\$128.25	\$20.00	2.2	1.9		
34	A200	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	82.6	20.7	0.0	\$3.02	\$128.25	\$20.00	42.4	35.8		
34	B262	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	82.6	20.7	0.0	\$3.02	\$128.25	\$20.00	42.4	35.8		
40LED	B262	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
40LED	B261	27	T 32 R F 2 (ELE)	F42LL	60	1.6	1.6	OCC	1400	2,268.0	567.0	0.0	\$22.99	\$128.25	\$20.00	1.5	1.3		
34	Atrium	6	CF 13 L LAMP	CFQ13/L	15	0.1	0.1	OCC	2400	216.0	135.0	0.0	\$19.76	\$128.25	\$20.00	6.5	5.5		
40LED	Attendance	18	T 32 R F 2 (ELE)	F42LL	60	1.1	1.1	OCC	1500	1,820.0	1,188.0	0.0	\$173.89	\$128.25	\$20.00	0.7	0.6		
34	Guidance	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1500	88.5	64.9	0.0	\$9.50	\$128.25	\$20.00	13.5	11.4		
40LED	Guidance	7	T 32 R F 2 (ELE)	F42LL	60	0.4	0.4	OCC	1500	630.0	462.0	0.0	\$67.62	\$128.25	\$20.00	1.9	1.6		
40LED	Guidance - Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	1500	270.0	198.0	0.0	\$28.98	\$128.25	\$20.00	4.4	3.7		
40LED	Guidance - Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	1500	270.0	198.0	0.0	\$28.98	\$128.25	\$20.00	4.4	3.7		
40LED	Guidance - Cont Rm.	3	T 32 R F 2 (ELE)	F42LL	60	0.2	0.2	OCC	1500	270.0	198.0	0.0	\$28.98	\$128.25	\$20.00	4.4	3.7		
34	Faculty Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	-85.9	0.0	-\$12.57	\$128.25	\$20.00		-8.6		
40LED	B270 Math Office	25	T 32 R F 2 (ELE)	F42LL	60	1.5	1.5	OCC	1400	2,100.0	525.0	0.0	\$76.84	\$128.25	\$20.00	1.7	1.4		
40LED	B270 Math Office - office	5	T 32 R F 2 (ELE)	F42LL	60	0.3	0.3	OCC	1500	450.0	330.0	0.0	\$48.30	\$128.25	\$20.00	2.7	2.2		
34	B270 Math Office - storage	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2600	1,380.6	828.4	0.0	\$121.25	\$128.25	\$20.00		-0.9		
40LED	B254	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
34	Boys	8	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2184	1,030.8	441.8	0.0	\$64.67	\$128.25	\$20.00	2.0	1.7		
270LED	Boys	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	2184	196.6	84.2	0.0	\$12.33	\$128.25	\$20.00	10.4	8.8		
40LED	B253 Math Lab	24	T 32 R F 2 (ELE)	F42LL	60	1.4	1.4	OCC	1400	2,016.0	504.0	0.0	\$73.77	\$128.25	\$20.00	1.7	1.5		
218LED	B253 Math Lab - Storage	3	W 32 C F 3 (ELE)	F43ILL/2	90	0.3	0.3	OCC	1400	378.0	-97.2	0.0	-\$14.23	\$128.25	\$20.00		-7.6		
40LED	B252 Math Lab	30	T 32 R F 2 (ELE)	F42LL	60	1.8	1.8	OCC	1400	2,520.0	630.0	0.0	\$92.21	\$128.25	\$20.00	1.4	1.2		
34	Girls	8	1T 32 C F 2 (ELE)	F42ILL	59	0.5	0.5	OCC	2184	1,030.8	441.8	0.0	\$64.67	\$128.25	\$20.00	2.0	1.7		
270LED	Girls	1	2T 40 R CF 2	CFQ40/2	90	0.1	0.1	OCC	2184	196.6	84.2	0.0	\$12.33	\$128.25	\$20.00	10.4	8.8		
40LED	B251	18	T 32 R F 2 (ELE)	F42LL	60	1.1	1.1	OCC	1400	1,512.0	378.0	0.0	\$28.98	\$128.25	\$20.00	2.3	2.0		
34	Janitors	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	82.6	-21.2	0.0	-\$3.11	\$128.25	\$20.00		-34.8		
34	Auditorium	24	1T 32 C F 2 (ELE)	F42ILL	59	1.4	1.4	NONE	1200	1,899.2	0.0	0.0	\$0.00	\$0.00	\$0.00		#DIV/0!		
34	Stage Storage	11	1T 32 C F 2 (ELE)	F42ILL	59	0.6	0.6	OCC	2600	1,687.4	-1,012.4	0.0	-\$148.19	\$128.25	\$20.00		-0.7		
34	Stage dimmer ctrl. Rm.	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	82.6	-21.2	0.0	-\$3.11	\$128.25	\$20.00		-34.8		
40LED	B250	21	T 32 R F 2 (ELE)	F42LL	60	1.3	1.3	OCC	1400	1,764.0	441.0	0.0	\$64.55	\$128.25	\$20.00	2.0	1.7		
34	B250 - small CLRM	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	1400	247.8	62.0	0.0	\$9.07	\$128.25	\$20.00	14.1	11.9		
34	IT Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	0.2	OCC	2600	460.2	-276.1	0.0	-\$40.42	\$128.25	\$20.00		-2.7		
18	B260	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	0.3	OCC	1400	470.4	117.6	0.0	\$17.21	\$128.25	\$20.00	7.5	6.3		
34	Management Info Sys Rm	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	82.6	-21.2	0.0	-\$3.11	\$128.25	\$20.00		-34.8		
34	Elec Rm	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	82.6	-21.2	0.0	-\$3.11	\$128.25	\$20.00		-34.8		
34	Elec Rm	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	1400	82.6	-21.2	0.0	-\$3.11	\$128.25	\$20.00		-34.8</		

		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		
34	Hallway	57	1T 32 C F 2 (ELE)	F42ILL	59	3.4	3.4	OCC	2400	8,071.2	5,044.5	0.0	\$738.36	\$128.25	\$20.00	0.2	0.1		
88	Hallway	19	CF 13 1 LAMP	CF013/1-L	15	0.3	0.3	OCC	2400	684.0	427.5	0.0	\$62.57	\$128.25	\$20.00	2.0	1.7		
189	Hallway	4	X 7.0 W 1	ECF7/1	10	0.0	0.0	OCC	2400	96.0	60.0	0.0	\$8.78	\$128.25	\$20.00	14.6	12.3		
259	Hallway	11	A CFT 40 Chandelier	CFT40/4-BX	144	1.6	1.6	OCC	2400	3,801.6	2,378.0	0.0	\$247.78	\$128.25	\$20.00	0.4	0.3		
18	Hallway	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	0.4	OCC	2400	1,075.2	672.0	0.0	\$98.36	\$128.25	\$20.00	1.3	1.1		
20LED	Hallway	27	S 28 P F 1 (ELE)	F41ILL	31	0.8	0.8	OCC	2400	2,008.8	1,255.5	0.0	\$183.77	\$128.25	\$20.00	0.7	0.6		
218LED	Concession	3	W 32 C F 3 (ELE)	F43ILL/2	90	0.3	0.3	OCC	4368	1,179.4	-1,130.8	0.0	-\$165.51	\$128.25	\$20.00		-0.7		
218LED	Receiver	14	W 32 C F 3 (ELE)	F43ILL/2	90	1.3	1.3	OCC	1500	1,890.0	1,386.0	0.0	\$202.87	\$128.25	\$20.00	0.6	0.5		
34	Telephone Equip	2	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2600	306.8	-184.1	0.0	-\$26.94	\$128.25	\$20.00		-4.0		
40LED	B152	27	T 32 R F 2 (ELE)	F42ILL	60	1.6	1.6	OCC	1400	2,268.0	567.0	0.0	\$82.99	\$128.25	\$20.00	1.5	1.3		
34	B152 Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	55.2	0.0	\$8.08	\$128.25	\$20.00	15.9	13.4		
34	Faculty Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	0.1	OCC	2184	128.9	55.2	0.0	\$8.08	\$128.25	\$20.00	15.9	13.4		
34	Student Testing	13	1T 32 C F 2 (ELE)	F42ILL	59	0.8	0.8	OCC	1400	1,073.8	688.5	0.0	\$99.29	\$128.25	\$20.00	3.3	2.8		
40LED	Office	3	T 32 R F 2 (ELE)	F42ILL	60	0.2	0.2	OCC	1500	270.0	198.0	0.0	\$28.98	\$128.25	\$20.00	4.4	3.7		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Conf Rm	3	T 32 R F 2 (ELE)	F42ILL	60	0.2	0.2	OCC	1500	270.0	198.0	0.0	\$28.98	\$128.25	\$20.00	4.4	3.7		
189	Conf Rm	8	X 7.0 W 1	ECF7/1	10	0.1	0.1	OCC	1500	120.0	88.0	0.0	\$12.88	\$128.25	\$20.00	10.0	8.4		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
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40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F 2 (ELE)	F42ILL	60	0.1	0.1	OCC	1500	180.0	132.0	0.0	\$19.32	\$128.25	\$20.00	6.6	5.6		
40LED	Office	2	T 32 R F																

				EXISTING CONDITIONS										RETROFIT CONDITIONS										COST & SAVINGS ANALYSIS									
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of Fixtures before the retrofit	Standard Fixture Code	Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. Control device	Annual Hours	Annual kWh (kW/Space) * (Annual Hours)	Number of Fixtures after the retrofit	Lighting Fixture Code	Standard Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit Control device	Annual Hours	Annual kWh (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	Original Annual kW Saved	Original Annual kW Saved (Retrofit Annual kW)	Annual \$ Saved (kWh Saved) * (\$/kWh)	Retrofit Cost for renovations to lighting system	Prescriptive Lighting Measures	Simple Payback Length of time for renovations cost to be recovered	Simple Payback Length of time for renovations cost to be recovered						
34	Hallway 5th FL	44	1T 32 C F 2 (ELE)	F42ILL		59	2.6	OCC	3900	10,124	44	1T 32 C F 2 (ELE)	F42ILL		59	2.6	OCC	2,400	6,230	3,894.0.0	\$	569.97	\$	128.25	\$	20	0.2						
40LED	B550 CLRM	21	T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
34	Storage	6	1T 32 C F 2 (ELE)	F42ILL		59	0.4	SW	1040	368	6	1T 32 C F 2 (ELE)	F42ILL		59	0.4	OCC	2,600	920	(552)0.0	\$	(80.83)	\$	128.25	\$	20							
40LED	B570 Social Science Office	24	1T 32 R F 2 (ELE)	F42ILL		60	1.4	OCC	2600	3,744	24	T 38 R LED	RTLED38		38	0.9	OCC	1,500	1,368	2,376.0.5	\$	381.51	\$	5,798.25	\$	260	15.2						
34	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL		59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42ILL		59	0.1	OCC	1,284	129	(86)0.0	\$	(12.57)	\$	128.25	\$	20							
40LED	B572 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B571 CLRM	21	T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
34	Storage	2	1T 32 C F 2 (ELE)	F42ILL		59	0.1	SW	1040	123	2	1T 32 C F 2 (ELE)	F42ILL		59	0.1	OCC	2,600	307	(184)0.0	\$	(26.94)	\$	128.25	\$	20							
34	Management Info System RM	3	1T 32 C F 2 (ELE)	F42ILL		59	0.1	SW	1040	123	2	1T 32 C F 2 (ELE)	F42ILL		59	0.1	OCC	2,600	307	(184)0.0	\$	(26.94)	\$	128.25	\$	20							
40LED	B568 Computer Lab	24	1T 32 R F 2 (ELE)	F42ILL		60	1.4	OCC	1750	2,520	24	T 38 R LED	RTLED38		38	0.9	OCC	1,400	1,277	1,243.0.5	\$	215.70	\$	5,798.25	\$	260	26.9						
40LED	B567 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B566 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B565 CLRM	35	1T 32 R F 2 (ELE)	F42ILL		60	2.1	OCC	1750	3,675	35	T 38 R LED	RTLED38		38	1.3	OCC	1,400	1,862	1,813.0.8	\$	314.56	\$	8,397.00	\$	370	26.7						
40LED	B564 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B563 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B562 CLRM	9	1T 32 R F 2 (ELE)	F42ILL		60	0.5	OCC	1750	945	9	T 38 R LED	RTLED38		38	0.3	OCC	1,400	479	466.0.2	\$	80.89	\$	2,254.50	\$	110	27.9						
40LED	B561 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	Storage	6	1T 32 R F 2 (ELE)	F42ILL		60	0.4	OCC	1040	374	6	T 38 R LED	RTLED38		38	0.2	OCC	2,600	593	(218)0.1	\$	(23.53)	\$	128.25	\$	20							
40LED	B560 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
270LED	Closet Janitors	1	2T 40 R CF 2	CFQ40/2		90	0.1	SW	1040	94	1	2T 16 R LED 2	2G11LED/2		40	0.0	OCC	1,400	56	38.0.1	\$	8.70	\$	290.25	\$	25	33.4						
40LED	B575 World Language Office	16	1T 32 R F 2 (ELE)	F42ILL		60	1.0	OCC	1750	1,680	16	T 38 R LED	RTLED38		38	0.6	OCC	1,400	851	829.0.4	\$	143.80	\$	3,908.25	\$	180	27.2						
40LED	Office	4	1T 32 C F 2 (ELE)	F42ILL		60	0.2	OCC	2600	624	4	T 38 R LED	RTLED38		38	0.2	OCC	1,500	228	1,072.0.2	\$	63.58	\$	1,073.25	\$	60	16.9						
34	Restroom Private	1	1T 32 C F 2 (ELE)	F42ILL		59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42ILL		59	0.1	OCC	1,284	129	(86)0.0	\$	(12.57)	\$	128.25	\$	20							
40LED	B559 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B558 CLRM	21	T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
270LED	Restroom Boys	1	2T 40 R CF 2	CFQ40/2		90	0.1	SW	3120	281	1	2T 16 R LED 2	2G11LED/2		40	0.0	OCC	2,184	87	193.0.1	\$	31.51	\$	290.25	\$	25	9.2						
34	Restroom Boys	9	1T 32 C F 2 (ELE)	F42ILL		59	0.5	SW	3120	1,657	9	1T 32 C F 2 (ELE)	F42ILL		59	0.5	OCC	2,184	1,160	497.0.0	\$	72.75	\$	128.25	\$	20	1.8						
40LED	B556 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B557 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B554 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B553 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B553 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
40LED	B552 CLRM	21	1T 32 R F 2 (ELE)	F42ILL		60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38		38	0.8	OCC	1,400	1,117	1,088.0.5	\$	188.74	\$	5,089.50	\$	230	27.0						
270LED	Restroom Girls	1	2T 40 R CF 2																														

		EXISTING CONDITIONS										RETROFIT CONDITIONS										COST & SAVINGS ANALYSIS						
Field Code	Area Description Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of Fixtures before the retrofit	Standard Fixture Code	Fixture Code	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fist No.)	Exist Control	Annual Hours	Annual kWh	No. of fixtures after the retrofit	Standard Fixture Code	Fixture Code	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	(kWh Saved) * (\$/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Simple Payback Length of time for renovations cost to be recovered	Simple Payback Length of time for renovations cost to be recovered				
40LED	B367 CLRM	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,400	1,117	1,088	0.5	\$ 188.74	\$ 5,089.50	\$ 230	27.0	25.7				
40LED	B366 Computer Lab	30	T 32 R F 2 (ELE)	F42LL	60	1.8	OCC	1750	3,150	30	T 38 R LED	RTLED38	38	1.1	OCC	1,400	1,596	1,554	0.7	\$ 269.62	\$ 7,215.75	\$ 320	26.8	25.6				
40LED	B365 Computer Lab	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,400	1,117	1,088	0.5	\$ 188.74	\$ 5,089.50	\$ 230	27.0	25.7				
40LED	B364 CLRM	22	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,310	22	T 38 R LED	RTLED38	38	0.8	OCC	1,400	1,170	1,140	0.5	\$ 197.72	\$ 5,325.75	\$ 240	26.9	25.7				
117	Auditorium	38	CF 23	CFS23/1	23	0.9	SW	1200	1,049	38	CF 23	CFS23/1	23	0.9	NONE	1,200	1,049	-	0.0	\$ -	\$ -	-	-	-				
34	Auditorium	2	1T 32 C F 2 (ELE)	F42LL	59	0.1	SW	1200	142	2	1T 32 C F 2 (ELE)	F42LL	59	0.1	NONE	1,200	142	-	0.0	\$ -	\$ -	-	-	-				
88	Auditorium	5	CF 13 I LAMP	CF013/1-L	15	0.1	SW	1200	90	5	CF 13 I LAMP	CF013/1-L	15	0.1	NONE	1,200	90	-	0.0	\$ -	\$ -	-	-	-				
270LED	Auditorium	2	2T 40 R CF 2	CFQ40/2	90	0.2	SW	1200	216	2	2T 16 R LED 2	2G11LED/2	40	0.1	NONE	1,200	96	120	0.1	\$ 23.95	\$ 324.00	\$ 10	13.5	13.1				
218LED	A321.1 Prof Development	8	W 32 C F 3 (ELE)	F43LL/2	90	0.7	OCC	1750	1,260	8	4 ft LED Tube	200732x3	45	0.4	OCC	1,400	594	788	0.4	\$ 133.65	\$ 2,705.85	\$ 140	20.2	19.2				
270LED	Library	29	2T 40 R CF 2	CFQ40/2	90	2.6	SW	1750	4,568	29	2T 16 R LED 2	2G11LED/2	40	1.2	OCC	1,400	1,624	2,944	1.5	\$ 523.48	\$ 4,825.25	\$ 165	9.2	8.9				
218LED	Library	36	W 32 C F 3 (ELE)	F43LL/2	90	3.2	SW	1750	5,670	36	4 ft LED Tube	200732x3	45	1.6	OCC	1,400	2,268	3,402	1.6	\$ 601.45	\$ 11,727.45	\$ 560	19.5	18.6				
34	Library	45	1T 32 C F 2 (ELE)	F42LL	59	2.7	SW	1750	4,645	45	1T 32 C F 2 (ELE)	F42LL	59	2.7	OCC	1,400	3,717	929	0.0	\$ 136.01	\$ 128.25	\$ 20	0.9	0.8				
270LED	Library	7	2T 40 R CF 2	CFQ40/2	90	0.6	SW	1750	1,035	7	2T 16 R LED 2	2G11LED/2	40	0.3	OCC	1,400	392	711	0.4	\$ 126.36	\$ 1,262.25	\$ 55	10.0	9.6				
218LED	Library - Office/Common Space	6	W 32 C F 3 (ELE)	F43LL/2	90	0.5	OCC	1750	945	6	4 ft LED Tube	200732x3	45	0.3	OCC	1,400	378	567	0.3	\$ 100.24	\$ 2,061.45	\$ 110	20.6	19.5				
218LED	Library - Periodical Storage	4	W 32 C F 3 (ELE)	F43LL/2	90	0.4	OCC	1040	374	4	4 ft LED Tube	200732x3	45	0.2	OCC	2,600	468	(94.02)	0.0	\$ (2.20)	\$ 1,417.05	\$ 80	-	-				
34	Library - Restroom Boys	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	2,184	129	(86.00)	0.0	\$ (12.57)	\$ 128.25	\$ 20	-	-				
34	Library - Restroom Girls	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	2,184	129	(86.00)	0.0	\$ (12.57)	\$ 128.25	\$ 20	-	-				
218LED	Library - Server Rm	7	W 32 C F 3 (ELE)	F43LL/2	90	0.6	OCC	1040	655	7	4 ft LED Tube	200732x3	45	0.3	OCC	2,600	819	(164.03)	0.0	\$ (21.85)	\$ 2,393.65	\$ 125	-	-				
259	Library - Front Desk	44	CFS40/1	CFS40/1	50	1.8	SW	1750	3,080	44	CFS40/1	CFS40/1	50	1.8	OCC	1,400	2,464	616	0.0	\$ 90.16	\$ 128.25	\$ 20	1.4	1.2				
34	Library - Storage	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	SW	1040	61	1	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	2,600	153	(92.00)	0.0	\$ (13.47)	\$ 128.25	\$ 20	-	-				
40LED	A300	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,400	1,117	1,088	0.5	\$ 188.74	\$ 5,089.50	\$ 230	27.0	25.7				
40LED	A301	18	T 32 R F 2 (ELE)	F42LL	60	1.1	OCC	1750	1,890	18	T 38 R LED	RTLED38	38	0.7	OCC	1,400	958	932	0.4	\$ 161.77	\$ 4,380.75	\$ 200	27.1	25.8				
34	Yearbook RM	3	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	2000	486	3	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	1,500	286	28.50	0.0	\$ 28.50	\$ 128.25	\$ 20	4.5	3.8				
40LED	A302	22	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,310	22	T 38 R LED	RTLED38	38	0.8	OCC	1,400	1,170	1,140	0.5	\$ 197.72	\$ 5,325.75	\$ 240	26.9	25.7				
40LED	A303	20	T 32 R F 2 (ELE)	F42LL	60	1.2	OCC	1750	2,100	20	T 38 R LED	RTLED38	38	0.8	OCC	1,400	1,064	1,036	0.4	\$ 179.75	\$ 4,853.25	\$ 220	27.0	25.8				
261	Art Display RM East	12	PAR 38 SP	H100/1	100	1.2	SW	180	216	12	PAR 38 SP	H100/1	100	1.2	NONE	180	216	-	0.0	\$ -	\$ -	-	-	-				
34	Art Display RM East	4	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	920	42	4	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	2,400	566	354	0.0	\$ 51.82	\$ 128.25	\$ 20	2.5	2.1				
270LED	Art Display RM East	8	2T 40 R CF 2	CFQ40/2	90	0.7	SW	180	130	8	2T 16 R LED 2	2G11LED/2	40	0.3	NONE	180	58	72	0.4	\$ 36.09	\$ 1,296.00	\$ 40	35.9	34.8				
261	Art Display RM West	9	PAR 38 SP	H100/1	100	0.9	SW	180	162	9	PAR 38 SP	H100/1	100	0.9	NONE	180	162	-	0.0	\$ -	\$ -	-	-	-				
34	Art Display RM West	4	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	3900	920	4	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	2,400	566	354	0.0	\$ 51.82	\$ 128.25	\$ 20	2.5	2.1				
270LED	Art Display RM West	8	2T 40 R CF 2	CFQ40/2	90	0.7	SW	180	130	8	2T 16 R LED 2	2G11LED/2	40	0.3	NONE	180	58	72	0.4	\$ 36.09	\$ 1,296.00	\$ 40	35.9	34.8				
34	Gymnasium Mech RM	5	1T 32 C F 2 (ELE)	F42LL	59	2.5	SW	1040	2,577	5	1T 32 C F 2 (ELE)	F42LL	59	2.5	OCC	2,600	6,443	(3,866.00)	0.0	\$ (565.82)	\$ 128.25	\$ 20	-	-				
218LED	A320 Art Library & Resource	6	W 32 C F 3 (ELE)	F43LL/2	90	0.5	OCC	2600	1,404	6	4 ft LED Tube	200732x3	45	0.3	OCC	1,500	405	999	0.3	\$ 163.47	\$ 2,061.45	\$ 110	12.6	11.9				
34	Storage	2	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	1040	123	2	1T 32 C F 2 (ELE)	F42LL	59	0.1	OCC	2,600	307	(184.00)	0.0	\$ (26.94)	\$ 128.25	\$ 20	-	-				
34	Storage	4	1T 32 C F 2 (ELE)	F42LL	59	0.2	OCC	1040	245																			

		EXISTING CONDITIONS										RETROFIT CONDITIONS										COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exisit Control	Annual Hours	Annual kWh	No. of fixtures after the retrofit	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	Simple Payback	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)		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				
40LED	A201	19	T 32 R F 2 (ELE)	F42LL	60	1.1	OCC	1750	1,995	19	T 38 R LED	RTLED38	38	0.7	OCC	1,400	1,011	984	0.4	\$ 170.76	\$ 4,617.00	\$ 210	27.0	25.8				
34	A200	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1750	103	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1,400	83	21	0.0	\$ 3.02	\$ 128.25	\$ 20	42.4	35.8				
34	B262	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1750	103	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1,400	83	21	0.0	\$ 3.02	\$ 128.25	\$ 20	42.4	35.8				
40LED	B262	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,400	1,117	1,088	0.5	\$ 188.74	\$ 5,089.50	\$ 230	27.0	25.7				
40LED	B261	27	T 32 R F 2 (ELE)	F42LL	60	1.6	OCC	1750	2,835	27	T 38 R LED	RTLED38	38	1.0	OCC	1,400	1,436	1,406	0.6	\$ 242.66	\$ 6,509.50	\$ 290	27.0	25.8				
88	Atrium	6	CF 13 I LAMP	CF013I-L	15	0.1	OCC	3900	351	6	CF 13 I LAMP	CF013I-L	15	0.1	OCC	2,400	216	135	0.0	\$ 19.76	\$ 128.25	\$ 20	6.5	5.5				
40LED	Attendance	18	T 32 R F 2 (ELE)	F42LL	60	1.1	OCC	2600	2,808	18	T 38 R LED	RTLED38	38	0.7	OCC	1,500	1,026	1,782	0.4	\$ 286.13	\$ 4,380.75	\$ 200	15.3	14.6				
34	Guidance	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	2600	153	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1,500	89	65	0.0	\$ 9.50	\$ 128.25	\$ 20	13.5	11.4				
40LED	Guidance	7	T 32 R F 2 (ELE)	F42LL	60	0.7	OCC	2600	1,092	7	T 38 R LED	RTLED38	38	0.3	OCC	1,500	389	693	0.2	\$ 111.27	\$ 1,782.00	\$ 90	16.0	15.0				
40LED	Guidance - Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	OCC	2600	468	3	T 38 R LED	RTLED38	38	0.1	OCC	1,500	171	297	0.1	\$ 47.69	\$ 837.00	\$ 50	17.6	16.5				
40LED	Guidance - Office	3	T 32 R F 2 (ELE)	F42LL	60	0.2	OCC	2600	468	3	T 38 R LED	RTLED38	38	0.1	OCC	1,500	171	297	0.1	\$ 47.69	\$ 837.00	\$ 50	17.6	16.5				
40LED	Guidance - Cont Rm.	1	T 32 R F 2 (ELE)	F42LL	60	0.2	OCC	2600	468	1	T 38 R LED	RTLED38	38	0.1	OCC	1,500	171	297	0.1	\$ 47.69	\$ 837.00	\$ 50	17.6	16.5				
34	Faculty Restroom	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	728	43	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1,200	129	(86)	0.0	\$ (12.57)	\$ 128.25	\$ 20						
40LED	B270 Math Office	25	T 32 R F 2 (ELE)	F42LL	60	1.5	OCC	1750	2,625	25	T 38 R LED	RTLED38	38	1.0	OCC	1,400	1,330	1,249	0.6	\$ 224.69	\$ 6,034.50	\$ 270	26.9	25.7				
40LED	B270 Math Office - office	5	T 32 R F 2 (ELE)	F42LL	60	0.3	OCC	2600	780	5	T 38 R LED	RTLED38	38	0.2	OCC	1,500	285	495	0.1	\$ 79.48	\$ 1,309.50	\$ 70	16.5	15.6				
34	B270 Math Office - storage	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	OCC	1040	552	9	1T 32 C F 2 (ELE)	F42ILL	59	0.5	OCC	2,600	1,381	(828)	0.0	\$ (121.25)	\$ 128.25	\$ 20						
40LED	B254	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,400	1,117	1,088	0.5	\$ 188.74	\$ 5,089.50	\$ 230	27.0	25.7				
34	Boys	8	1T 32 C F 2 (ELE)	F42ILL	59	0.5	OCC	3120	1,473	8	1T 32 C F 2 (ELE)	F42ILL	59	0.5	OCC	2,184	1,031	442	0.0	\$ 64.67	\$ 128.25	\$ 20	2.0	1.7				
270LED	Boys	1	2T 40 R CF 2	CFQ40/2	90	0.1	OCC	3120	281	1	2T 16 R LED 2	2G11LED/2	40	0.0	OCC	2,184	87	193	0.1	\$ 31.51	\$ 290.25	\$ 25	9.2	8.4				
40LED	B253 Math Lab	24	T 32 R F 2 (ELE)	F42LL	60	1.4	OCC	1750	2,520	24	T 38 R LED	RTLED38	38	0.9	OCC	1,400	1,277	1,243	0.5	\$ 215.70	\$ 5,798.25	\$ 260	26.9	25.7				
218LED	B253 Math Lab - Storage	3	W 32 C F 3 (ELE)	F43LL/2	90	0.3	SW	1040	281	3	4 ft LED Tube	200732x3	45	0.1	OCC	1,400	189	92	0.1	\$ 22.06	\$ 1,094.85	\$ 65	49.6	46.7				
40LED	B252 Math Lab	30	T 32 R F 2 (ELE)	F42LL	60	1.8	OCC	1750	3,150	30	T 38 R LED	RTLED38	38	1.5	OCC	1,400	1,596	1,554	0.7	\$ 269.62	\$ 7,215.75	\$ 320	26.8	25.6				
34	Girls	8	1T 32 C F 2 (ELE)	F42ILL	59	0.5	OCC	3120	1,473	8	1T 32 C F 2 (ELE)	F42ILL	59	0.5	OCC	2,184	1,031	442	0.0	\$ 64.67	\$ 128.25	\$ 20	2.0	1.7				
270LED	Girls	1	2T 40 R CF 2	CFQ40/2	90	0.1	OCC	3120	281	1	2T 16 R LED 2	2G11LED/2	40	0.0	OCC	2,184	87	193	0.1	\$ 31.51	\$ 290.25	\$ 25	9.2	8.4				
40LED	B251	18	T 32 R F 2 (ELE)	F42LL	60	1.1	OCC	1750	1,890	18	T 38 R LED	RTLED38	38	0.7	OCC	1,400	958	932	0.4	\$ 161.77	\$ 4,380.75	\$ 200	27.1	25.8				
34	Janitors	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1040	61	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1,400	83	(21)	0.0	\$ (3.11)	\$ 128.25	\$ 20						
34	Auditorium	24	1T 32 C F 2 (ELE)	F42LL	59	1.4	SW	1,698	24	24	1T 32 C F 2 (ELE)	F42LL	59	1.4	NONE	1,200	1,698	(1,012)	0.0	\$ (148.19)	\$ 128.25	\$ 20						
34	Stage Storage	11	1T 32 C F 2 (ELE)	F42ILL	59	0.6	SW	1040	675	11	1T 32 C F 2 (ELE)	F42ILL	59	0.6	OCC	2,600	1,687	(1,012)	0.0	\$ (148.19)	\$ 128.25	\$ 20						
34	Stage dimmer ctrl. Rm.	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	SW	1040	61	1	1T 32 C F 2 (ELE)	F42ILL	59	0.1	OCC	1,400	83	(21)	0.0	\$ (3.11)	\$ 128.25	\$ 20						
40LED	B250	21	T 32 R F 2 (ELE)	F42LL	60	1.3	OCC	1750	2,205	21	T 38 R LED	RTLED38	38	0.8	OCC	1,400	1,117	1,088	0.5	\$ 188.74	\$ 5,089.50	\$ 230	27.0	25.7				
34	B250 - small CLRM	3	T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1750	310	3	T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1,400	248	62	0.0	\$ 9.07	\$ 128.25	\$ 20	14.1	11.9				
34	IT Storage	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	1750	184	3	1T 32 C F 2 (ELE)	F42ILL	59	0.2	OCC	2,600	405	(276)	0.0	\$ (2.00)	\$ 128.25	\$ 20						
18	B260	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	1750	588	3	T 28 R F 4	F44SILL	96	0.3	OCC	1,400	403	185	0.0	\$ 30.12	\$ 553.50	\$ 20	18.4	17.7				
34	Management Info Sys Rm	1	1T 32 C F 2 (ELE																									

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



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NJ SmartStart Buildings

Program Overview

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HURRICANE SANDY

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LOCAL GOVERNMENT ENERGY
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LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT
PROGRAM

DIRECT INSTALL

ENERGY BENCHMARKING

OIL, PROPANE & MUNICIPAL
ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM



With New Jersey SmartStart Buildings ...

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

Special Notice

Enhanced incentives are available for NJ SmartStart Building upgrades in buildings impacted by Hurricane Sandy. Eligible projects receive an additional 50% and new incentives have been 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 — for 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. To receive an incentive, you must submit an application form (and applicable worksheets) and receive an approval letter from the program before any equipment is installed (click here for complete Terms and Conditions). Upon receipt of an approval letter, you may proceed to install the equipment listed on your approved application. Equipment installed prior to the date of the approval letter is not eligible for an incentive. **Any customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Getting Started

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

PAST PROGRAMS**TOOLS AND RESOURCES****PROGRAM UPDATES****CONTACT US**

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

Support for Custom Energy-Efficiency Measures

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

Incentives for Qualifying Equipment and Projects

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

Find out more about equipment incentives

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

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Equipment Incentives

Special Notice

Enhanced incentives are available for NJ SmartStart Building upgrades in buildings impacted by Hurricane Sandy. Eligible projects receive an additional 50% and new incentives have been 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 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 specific details needed for your project) and a current utility bill(s).

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



Electric Chillers

Water-cooled chillers (\$12 - \$170 per ton)

Air-cooled chillers (\$8 - \$52 per ton)

Gas Cooling

Gas absorption chillers (\$185-\$450 per ton)

Gas Engine-Driven Chillers (Calculated through Custom Measure 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 Measure)
 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 discontinued effective March 1, 2013 except for buildings impacted by Hurricane Sandy. Approved applications will have the standard timeframe from the program commitment date to complete the installation.**)

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/freezer case)

Prescriptive Lighting

New Linear Fluorescent

T-12, HID and Incandescent to T-5 and T-8 (\$25 - \$200 per 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 per 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 Space
Linear panels (\$50 per fixture)

Fuel pump canopy (\$100 per fixture)

LED retrofit kits (custom measures)

New Pulse-Start Metal Halide (\$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. Approved applications will have the standard timeframe of one year from the project 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 fixture for office applications only)

Occupancy controlled hi-low fluorescent controls (\$25 per fixture 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 (\$100 per door)

Aluminum Night Curtains for open refrigerated cases (\$3.50 per 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 program incentive threshold, currently 5% more energy efficient than ASHRAE 2007 for New Construction only.)

Custom electric and gas equipment incentives (not prescriptive)

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

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II. DIRECT INSTALL



Your Power to Save

At Home, for Business, and for the Future

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HURRICANE SANDY

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FUEL CELLSLOCAL GOVERNMENT ENERGY
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ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM

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 to and how to get through the process. Created specifically for existing small to medium facilities, Direct Install is a turnkey solution that makes it easy and affordable to upgrade high efficiency equipment. Direct Install is designed to cut your facility's energy costs replacing lighting, HVAC and other outdated operational equipment with energy efficient alternatives. The program pays up to 70% of retrofit costs, dramatically improving your payback on the project. There is a \$125,000 incentive cap on each project.

ELIGIBILITY



Existing small to mid-sized commercial and industrial facilities with a peak electric demand that did not exceed 200 kW in any of the preceding 12 months are eligible to participate in Direct Install. Applicants will submit the last 12 months of electric utility bills indicating that they are below the demand threshold and have occupied the building during that time. Buildings must be located in New Jersey and served by the state's public, regulated electric or natural gas utility 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, types and capacities. Boilers may not exceed 500,000 Btuh and furnaces may not exceed 140,

III. PAY FOR PERFORMANCE (P4P)



Your Power to Save

At Home, for Business, and for the Future

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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 facility. Earn incentives that are directly linked to your savings. Pay for Performance relies on a



program partners who provide technical services under direct contract to you. Acting as your energy expert, your partner will develop a whole-building energy reduction plan for each project with a whole-building technical component of a traditional energy audit, a financial plan for full implementation of energy efficient measures and a construction schedule for installation.

Eligibility

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

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

ENERGY STAR Portfolio Manager

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



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

Incentives

**OIL, PROPANE & MUNICIPAL
ELECTRIC CUSTOMERS**

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

EDA PROGRAMS

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.

SBC CREDIT PROGRAM

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.

PAST PROGRAMS

TOOLS AND RESOURCES

Incentive #3 - Completion of Post-Construction Benchmarking Report - A completed report verifying energy reductions based on one year of post-

PROGRAM UPDATES

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.

CONTACT US

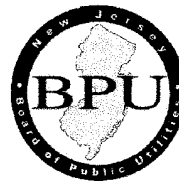


A detailed Incentive Structure document is available on the applications and form

Steps to Participation

[Click here](#) for a step-by-step description of the program.

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PAY FOR PERFORMANCE APPLICATION FORM

July 1, 2014 – June 30, 2015

Utility Serving Applicant:

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

Instructions

1. Read the program material to determine project qualification.
2. Read the Participation Agreement and sign where indicated.
3. Fill out all applicable spaces on this form.
4. Provide a copy of the customer's company W-9 form.
5. Provide the most recent 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.

6. Provide brief description of facility, noting any special or unusual circumstances and/or site conditions.
7. 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	

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 #1 – Utility: _____	Program Name: _____
Utility Program #2 – Utility: _____	Program Name: _____
Federal Program #1 – Organization: _____	Program Name: _____
Federal Program #2 – 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

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*Incentives/Requirements subject to change.

001-FY15-07/14

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, 2015 in order to be eligible for the Fiscal Year 2015 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, industrial and certain multifamily buildings with peak kilowatt demand usage of more than 100 kW in any of the most recent preceding twelve months of utility bills and a customer of the New Jersey Utilities. Market Manager has the discretion to approve applications that fall below the 100 kW minimum 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.

Equipment procured by participating Customer through another program offered by the New Jersey Utilities, as applicable, is not eligible for incentives through this Program. Customers who, from July 1, 2013 – June 30, 2014, have not contributed to the Societal benefits Change 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. The total package of measures as presented in the Energy Reduction Plan must have at least a 10% internal rate of return (IRR).

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, an original 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).

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 or the Participating Customer's designee 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 actual project cost. Incentive #1 will be capped not to exceed 50% of the project's annual energy cost. The Market Manager reserves the right to limit the amount of the Program Incentives (Incentive #1, #2 and #3) to \$1M per gas and electric account (limited to \$2M per project) in a program year. Campus style facilities, which are master-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 Entry Cap of \$4M (Definition of an Entry 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. Failure to complete the installation of the measures in the Energy Reduction Plan may result in the repayment of Incentive #1. 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 submission 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 Pay For Performance-Existing Buildings 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 submission date. Upon approval of the submittal package, the Customer will receive an Incentive #3 Submittal approval letter indicating successful completion of the program.

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.

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 performance target 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. The total energy savings may not come from a single measure. A 4% performance target may be offered to customers whose annual energy consumption is heavily weighted to manufacturing and process loads. 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. 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 performancebased 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 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 preinspected. 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 incentives. 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, 2014. Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities.

PROJECT – A commercial, industrial or multifamily existing building with peak demand in excess of 100 kW in any of the most recent preceding twelve months of electric usage. 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. The 100 kW requirement is waived for the following customer classes: hospitals, non-profits (as defined by section 501(c)(3) of the Internal Revenue Code), public colleges and universities, local government entities, including K-12 schools, and affordable multifamily customers (defined as low income, subsidized, HUD, etc.)

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 IMPLICITLY. 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)



Your Power to Save

At Home, for Business, and for the Future

[About Us](#) | [Press Room](#) | [Library](#)

HOME

RESIDENTIAL

COMMERCIAL, INDUSTRIAL
AND LOCAL GOVERNMENT

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

HURRICANE SANDY

PROGRAMS

NJ SMARTSTART BUILDINGS

PAY FOR PERFORMANCE

COMBINED HEAT & POWER AND
FUEL CELLSLOCAL 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 their facilities and pay for the costs using the value of energy savings that result from the improvements. 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 make energy related improvements to their facilities and pay for the costs using the value of energy savings that result from the improvements. The program also allows agencies to reduce energy usage with minimal expenditure of new financial resources.

This Local Finance Notice outlines how local governments can develop and implement an ESIP at 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 efficiency improvements. Local units should carefully consider all alternatives to develop an approach that best meets their needs. Local units considering an ESIP should carefully review the Local Finance Notice, the law, and consult with qualified professionals to determine how they should approach the task.

The NJ Board of Public Utilities sponsored Sustainable Jersey in the creation of an ESIP Guidebook that explains how to implement the program. The guidebook also includes a list 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 energy audit 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, please email it to ESIP@bpu.state.nj.us. Please limit the file size to 3MB (or break it into smaller files).

Frankford Township School District
Northern Hunterdon-Voorhees Regional High School
Manalapan Township (**180 MB** - Right Click, Save As)

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

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Bloomfield High School
CHA Project Numer: 30040

Cost of Electricity	\$0.17	/kWh
Electricity Usage	3,135,590	kWh/yr
System Unit Cost	\$4,000	/kW

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary	Annual Utility Savings				Estimated	Total	Federal Tax	New Jersey	Payback	Payback
Cost					Maintenance	Savings	Credit	Renewable	(without	(with
					Savings			** SREC	incentive)	incentive)
\$	kW	kWh	therms	\$	\$	\$	\$	\$	Years	Years
\$460,000	115.0	146,612	0	\$24,924	0	\$24,924	\$0	\$29,322	18.5	8.5

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= \$200 /1000kwh

Area Output*

1,581 m2
17,018 ft2

Perimeter Output*

1 m
3 ft

Available Roof Space for PV:

(Area Output - 10 ft x Perimeter) x 85%
14,440 ft2

Approximate System Size:

Is the roof flat? (Yes/No) Yes

8 watt/ft2
115,516 DC watts
115 kW Enter into PV Watts

PV Watts Inputs***

Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Tilt Angle 20
Enter into PV Watts (default)
Array Azimuth 180
Enter into PV Watts
Zip Code *07003
Enter info PV Watts
DC/AC Derate Factor 1.1



PV Watts Output

146,612 annual kWh calculated in PV Watts program

% Offset Calc

Usage 3,135,590 (from utilities)
PV Generation 146,612 (generated using PV Watts)
% offset 5%

* <http://www.freemaptools.com/area-calculator.htm>
** <http://www.flettexchange.com>
*** <http://pvwatts.nrel.gov/>

My Location

160 Broad Street Bloomfield NJ 07003
» Change Location

Release Notice (?)

HELP

ALL NREL SOLAR TOOLS

RESOURCE DATA SYSTEM INFO RESULTS



Go to
system
info

146,612 kWh per Year *

RESULTS

Print Results

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Energy Value (\$)
January	2.78	8,659	639
February	3.52	9,797	723
March	4.34	13,026	961
April	4.95	13,875	1,024
May	5.69	16,013	1,182
June	5.86	15,552	1,148
July	5.73	15,524	1,146
August	5.47	14,693	1,084
September	4.91	13,125	969
October	3.99	11,400	841
November	2.68	7,745	572
December	2.35	7,203	532
Annual	4.36	146,612	\$ 10,821

User Comments



 Download Results: [Monthly](#) | [Hourly](#)

[Find A Local Installer](#)



*** Caution:** Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Similarly, the "Energy Value" column simply multiplies the utility-average electricity price by production. Complex utility rates and financing can significantly impact the energy value. See [Help](#) for additional guidance.

Location and Station Identification

Requested Location	160 Broad Street Bloomfield NJ 07003
Weather Data Source	(TMY2) NEWARK, NJ 5.8 mi
Latitude	40.7° N
Longitude	74.17° W

PV System Specifications *(Commercial)*

DC System Size	115 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	20°
Array Azimuth	180°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

Initial Economic Comparison

Average Cost of Electricity Purchased from Utility	0.07 \$/kWh
Initial Cost	2.60 \$/Wdc
Cost of Electricity Generated by System	0.13 \$/kWh

Selected Incentives

Capacity Based Incentives (CBI)	New Jersey Renewable Energy Incentive Program Rate: \$0.75 - Maximum Amount: \$5,625.00
---------------------------------	--

These values can be compared to get an idea of the cost-effectiveness of this system. However, system costs, system financing options (including 3rd party ownership) and complex utility rates can significantly change the relative value of the PV system.

NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

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APPENDIX F

Photos



BLOOMFIELD HIGH SCHOOL



HOT WATER BOILERS



HOT WATER PUMPS



PRIMARY AND SECONDARY CHILLED WATER PUMPS



AIR COOLED CHILLERS



ROOFTOP UNIT, MAKE UP AIR UNITS, LAB EXHAUST FANS AND GENERAL EXHAUST FANS



AIR HANDLING UNIT



KITCHEN EXHAUST HOOD



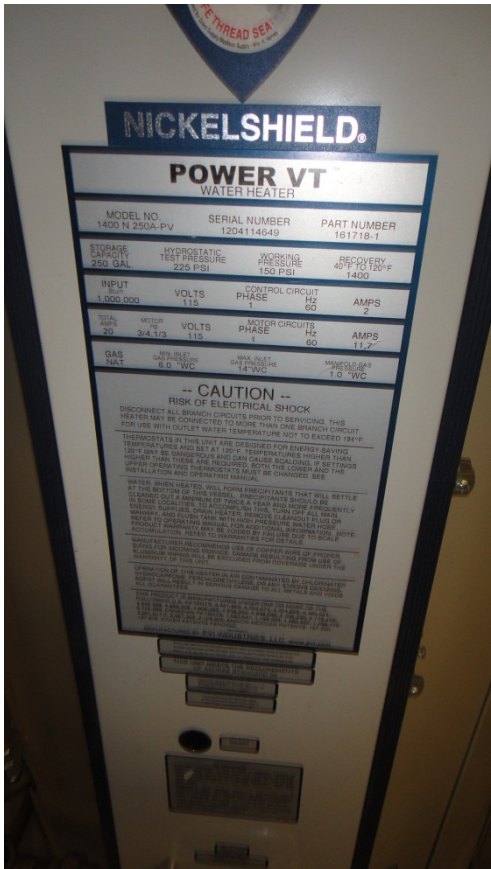
GYMNASIUM LIGHTING



AUDITORIUM LIGHTING



EXTERIOR WALL LIGHTS



DHW HEATER

APPENDIX G

EPA Benchmarking Report



ENERGY STAR® Statement of Energy Performance

85

ENERGY STAR®
Score¹

Bloomfield High School

Primary Property Function: K-12 School
Gross Floor Area (ft²): 435,150
Built: 1911

For Year Ending: June 30, 2014
Date Generated: May 24, 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

Bloomfield High School
160 Broad Street
Bloomfield, New Jersey 07003

Property Owner

' _____
() - _____

Primary Contact

' _____
() - _____

Property ID: 4433880

Energy Consumption and Energy Use Intensity (EUI)

Site EUI

46.5 kBtu/ft²

Annual Energy by Fuel

Electric - Grid (kBtu)	10,698,633 (53%)
Natural Gas (kBtu)	9,521,700 (47%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	69.2
National Median Source EUI (kBtu/ft²)	149.1
% Diff from National Median Source EUI	-33%

Source EUI

100.2 kBtu/ft²

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,938
--	-------

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)