TOMS RIVER REGIONAL SCHOOL DISTRICT

HIGH SCHOOL SOUTH

55 Hyers Street, Toms River, NJ 08753

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

July 2014

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CHA PROJECT NO. 28485

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REPORT DISCLAIMER

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

A thorough walkthrough of the 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 Toms River Regional School District (TRS), 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
High School South	55 Hyers St, Toms River, NJ 08753	172,344	1951

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)	Water Savings (kGal)	Total Savings ($)	Payback (years)
High School South	423,765	17,163	771	108,356	12.1

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

CHA typically recommends ECMs that have an individual payback of 15 years or less, however if a particular piece of equipment or system is in poor condition or beyond its useful life, we will recommend that ECM as well regardless of simple payback. 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.

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

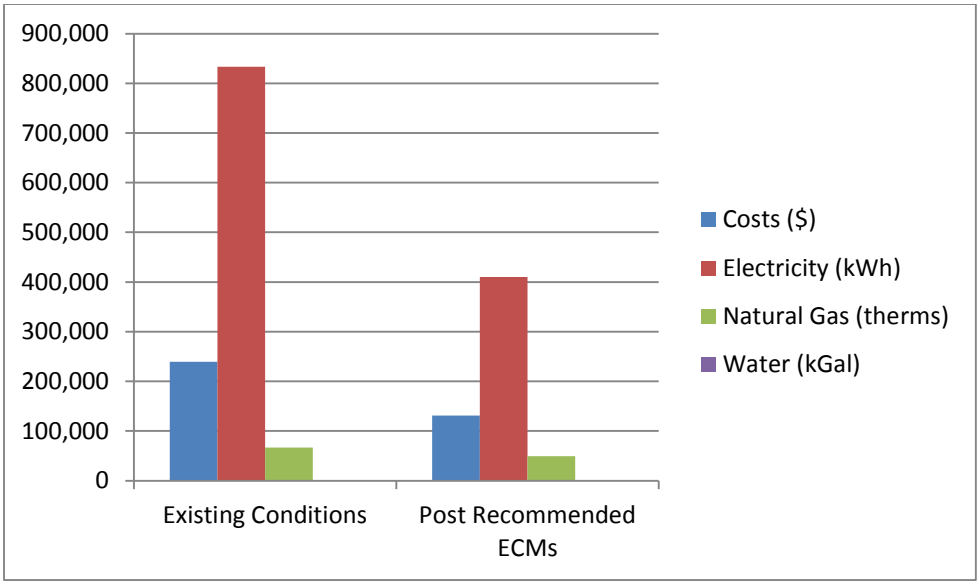
ECM #	Energy Conservation Measure	Est. Costs ($)	Est. Savings ($/year)	Payback w/o Incentive	Potential Incentive ($)*	Payback w/ Incentive	Recommended
1	Replace Door Seals & Sweeps	6,222	1,145	5.4	0	5.4	Y
2A	Install High Efficiency Condensing HW Boiler to Replace Steam to HW Heat Exchangers	130,631	18,857	6.9	3,000	6.8	Y
2B**	Convert Entire Steam System to Hot Water and Install Condensing HW Boilers	1,887,162	24,277	77.7	9,000	77.4	N
3	Replace DX / RTU Equipment w/ Higher Efficiency Equipment	456,700	9,992	45.7	6,123	45.1	Y
4	Install Window A/C Controllers	1,200	627	1.9	0	1.9	Y
5	Extend HVAC Controls System	239,855	1,206	199.0	0	199.0	N
6	Replace DHW Boiler with a High Efficiency Condensing Unit	44,228	2,090	21.2	1,155	20.6	Y
7	Install Kitchen Hood Controller	30,787	461	66.8	1,000	64.7	Y
8	Install Walk-In Controls	20,625	1,540	13.4	175	13.3	Y
9	Replace Electric Dishwasher Booster Heater w/ NG Fired	17,400	2,786	6.2	2,635	5.3	Y
10	Install Vending Machine Controls	3,361	4,693	0.7	0	0.7	Y
11	Replace CRT Monitors w/ LCD	18,732	1,516	12.4	0	12.4	Y
12	Install Low Flow Plumbing Fixtures	179,376	14,442	12.4	0	12.4	Y
L1**	Lighting Replacements / Upgrades	351,836	44,277	7.9	8,300	7.8	N
L2**	Install Lighting Controls (Add Occupancy Sensors)	52,920	13,330	4.0	6,860	3.5	N
L3	Lighting Replacements with Controls (Occupancy Sensors)	404,756	50,206	8.1	15,160	7.8	Y
	Total**	**1,553,874**	**109,561**	**14.2**	**29,248**	**13.9**	
	Total (Recommended)	**1,314,019**	**108,356**	**12.1**	**29,248**	**11.9**	

* Incentive shown is per the New Jersey SmartStart Program.
** Does not include alternate ECMs.

There are no renewable energy ECMs recommended for further study because the school already has a large solar photovoltaic array which generates electricity and is not a good candidate for other renewable energy technologies such as wind generation.

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

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs ($)	239,551	131,196	45%
Electricity (kWh)	833,573	409,808	51%
Natural Gas (therms)	66,518	49,355	26%
Water (kGal)	1,018	247	76%
Site EUI (kbtu/SF/Yr)	57.6	36.8	



2.0 BUILDING INFORMATION AND EXISTING CONDITIONS

The following is a summary of building information related to building envelope, HVAC, controls, domestic hot water systems, kitchen equipment, plumbing, plug load and lighting as observed during CHAs site visit. See appendix B for detailed information on mechanical equipment, including capacities, model numbers and age.

Building Name: Toms River High School South
Address: 55 Hyers Street, Toms River, NJ 08753
Gross Floor Area: 172,344 Square Feet
Number of Floors: 2 (D-Wing)
Year Built: 1951
Additions: 1955, 1960, 1978, 1983, 1996

Description of Spaces: Classrooms, offices, cafeteria (including stage), kitchen, gymnasium, two (2) auxiliary gymnasiums, media center, computer labs, support services, restrooms and mechanical rooms.
Description of Occupancy: The school serves 1652 students from 9th to 12th grade. There are 130 school faculty and staff members.
Number of Computers: The school has approximately 250 desktop and laptop computers. There were 90 CRT computer monitors and televisions counted while onsite which could be replaced with more energy efficient LCD flat screens. An ECM is included which to address this; more information is available in the Plug Load section below.
Building Usage: Hours of operation are 7:45 AM – 1:40 PM Monday through Friday, with various after-school activities until 6:00 PM. Custodians are in the building until 11:00 each night. As the hours vary from day to day, 70 hours per week, 10 weeks per year is considered the typical for this report.

Additional Buildings: In addition to the main building, there is also one (1) field house, one (1) grounds building, two (2) ticket booths, two (2) concessions stands and one district food storage warehouse.

The ground's building is located on the South Eastern side on the football stadium and contains ground's maintenance equipment. The field house is located next to a sports storage shed

(which does not contain any lighting or equipment), that is next to the ground's building. The field house was accessible during the field visit, but did not have any electricity running to it because the line was down. Therefore no mechanical equipment was seen. The building contained locker rooms and restrooms on the first floor and coaches rooms on the second floor. The ticket booths are located on the South Western side of the football stadium and do not contain any equipment. One (1) concession stand which operates for football games as well as track and field events is located under the home bleachers on the Eastern side of the field and contains one (1) residential refrigerator/freezer. The second concession stand is located near the baseball field and was not observed during the facility visit. The district food storage warehouse is located on the Southern side of the building near the kitchen and is only accessible from the exterior of the building. The warehouse contains three (3) walk-in freezers which have built-in energy saver controls.

There are no ECMs for any additional buildings besides for lighting upgrades because the hours of operation are fairly minimal for each building.

Building Envelope

Construction Materials: The building is constructed of brick and concrete masonry units (CMU) with steel framing and minimal insulation depending on the construction year. The interior walls are a mixture of brick, CMU, concrete and plaster.
Façade: Red brick
Roof: The roof is flat and appeared to be a spray-foam roofing system covered with a rubberized membrane mixed with fine grade stones (possibly sand) atop metal decking. It is estimated that the spray foam thickness was 2-3". There are no ECMs included to replace or upgrade the roofing system.
Windows: Windows throughout the school appear to be operable double pane, thermally sealed windows some of which had an exterior film applied. There are no ECMs included to improve the windows.
Exterior Doors: Exterior doors are FRP with double pane glass where applicable. It is estimated that roughly 40% of the doors could use new door sweeps and seals to protect against outside air infiltration. An ECM is included which addresses this.

Heating Ventilation & Air Conditioning (HVAC) Systems

Heating: Heating in this building is supplied by three (3) Kewanee steam boilers, each with a heating output of 5,021 MBH. Facility personnel indicated that one boiler runs as primary, one as secondary and the last solely as back-up. The boilers have a nameplate efficiency of 80% and were installed in 1985; due to the age of the boilers they are assumed to be operating closer to 65% efficiency. Steam is distributed throughout the building at 2.5-5 psi depending on the heating load required in the building (depending on the conditions outside) to unit ventilators (UV) and radiators in classrooms, corridors and offices in roughly 50% of the building. The remaining 50% of the steam is converted to heating hot water (HHW) using a shell and tube heat exchanger which is located in the basement of the building. There are four (4) HHW pumps which are estimated to be 3-5 HP in size. HHW is circulated throughout the 50% portion of the building to UVs in classrooms.

Additionally there are some rooms which are heated by either natural gas fired rooftop units (RTU) or by split system heat pumps. Some of the RTUs provide both heating and cooling

while others are cooling only. There are also three (3) natural gas fired heating and ventilation (HV) only units which serve the gymnasium and locker rooms. The heating capacities and CFMs are not known as no nameplate data is available.

The cafeteria wing has several rooms which receive heating, cooling and ventilation from packaged electric heating and DX cooled units manufactured by EDPAC.

There are two alternate ECMs included which evaluate energy savings associated with the steam heating system. The first ECM looks to replace the steam to hot water heater exchanger with a dedicated high efficiency condensing hot water boiler. The second ECM evaluates replacing the existing steam system in its entirety with a hydronic system which would include condensing high efficiency hot water boilers and piping.

Cooling: There is no central source of cooling in this school; rather there are several split systems with condensing units located outside and rooftop units (RTU) which are either cooling only or have both heating and cooling. In total there are 19 condensing units (either air conditioning only or heat pumps), 23 RTUs (16 of which are combined heating and cooling), and six (6) window air conditioners.

An ECM is included which assesses the replacement of existing DX equipment with more efficient DX equipment. A second ECM calculates the savings associated with installing plug-in air conditioner controllers which will automatically controls window A/Cs based on occupancy.

Specific information relative to each unit including capacity and efficiency are listed in Appendix B.

Ventilation: Ventilation in this building is either supplied by the RTU / HV units or by UVs in classrooms. Additional ventilation is provided by operable windows. There did not appear to be a dedicated make-up air (MUA) unit supplying fresh air to the kitchen, but likely receives transfer ventilation are from the RTUs which serve the cafeteria.

There are no ECMs associated with ventilation savings..

Exhaust: There are several exhaust fans located on the roof which are used as general exhaust for corridors, restroom and custodial closets which are fractional horsepower. The exhaust fan which serves the kitchen hood has a 3 HP motor and is manually controlled by kitchen staff. In general, the hood is turned on at 6am and off at 1 pm.

An ECM has been included to evaluate exhaust fan energy savings, but is described in more detail in the Kitchen section below.

Controls Systems

There are multiple controls systems in this building. Some of the RTUs including those which serve the cafeteria/stage, guidance, E-2 and weight room are tied into the Energy Management System (EMS) controls which is accessible by the main district office, to adjust temperature set points, control schedules and alarms. Other RTUs, HVs and split systems are not directly tied into the EMS, but do have dedicated thermostats (some of which are programmable) in the spaces they serve to control the units. In general temperature set points for heating and cooling are 70F and 74F respectively.

It is estimated that approximately 10% of the building has stand-alone controls. These areas could benefit from being connected to the existing energy management system. An ECM is included to extend the existing EMS.

Domestic Hot Water Systems

Domestic hot water (DHW) in this building is generated by one (1) AO Smith DHW heater rated at 660,000 btu/h which is estimated to have been installed in 2012. The nameplate efficiency of the unit is 80%. The DHW heater generates 140F hot water which circulates through a large 1000 gallon insulated tank before being distributed to restroom faucets, custodial wash sinks and kitchen scullery sinks. There are showers in the locker and team rooms however they are rarely used.

The existing DHW heater is a standard 80% efficient water heater which could be replaced with high efficiency hot water heater of equivalent capacity. An ECM has been included to analyze the savings associated with replacing the water heater and reducing the storage capacity.

Kitchen Equipment

The kitchen is used for both cooking and reheating (frozen) food. The kitchen cooking equipment is primarily natural gas fired and includes:

- Two (2) [double door] convection ovens
- One (1) steamer
- One (1) range with oven below
- Two (2) [double door] reach-in warmers
- Two (2) [double door] reach-in coolers
- One (1) 6’ x 10’ walk-in cooler
- One (1) 6’ x 10’ walk-in freezer

The units listed above appeared to be in good condition and therefore there are no ECMs associated with replacing them. An O&M is included which suggests the equipment should be replaced with Energy Star equivalents when they fail.

There is also one (1) dishwasher with a 45 kW electric dishwasher booster heater that generates hot water for sanitation purposes. The dishwasher use varies, but similarly to the kitchen hood it is used between 6am – 1pm.

Three ECMs have been proposed which will save energy in the kitchen area if implemented. The first ECM is to install a kitchen hood controller which will automatically control the kitchen hood exhaust fan based on how much cooking is taking place. The second ECM analyzes the installation of a walk-in cooler/freezer controller which will optimize evaporator run-time and will sequence defrost and door heater cycles. The final ECM takes advantage of the lower cost of natural gas compared to electricity and evaluates the replacement of the existing electric booster heater versus an equivalent capacity natural gas fired unit.

Plug Load

This school has computers, copiers, residential appliances (microwave, refrigerator), printers and portable electric heaters (personal) and vending machines which contribute to the plug load in the building.

The installation of vending machine occupancy sensors has been evaluated in an effort to reduce the plug load in the building. In addition, an ECM is included which recommends the replacement of all CRT monitors with more energy efficient LCD monitors.

Plumbing Systems

Plumbing fixtures in the toilet rooms seem to consist mostly of high flow urinals and toilets and metering type faucets. Depending on the age and style of the actual plumbing fixtures, occasionally flush valves can be retro-fitted with low flow flush valve technology, although other times the entire fixture will require replacement. Metering type faucets on the other hand offer low-usage times regardless of the flow rate of the individual faucet.

An ECM is included to evaluate the water savings potential of replacing existing fixtures with low- flow toilets and urinals which use sensor technology.

Lighting Systems

The lighting system consists of mostly 4' 4-lamp T8 and T12 recessed mounted troffer fluorescent fixtures with other fluorescent fixtures of different arrangements including but not limited to 4', 3-, 2- and 1-lamp; 2' U-shaped 2-lamp; that are either ceiling (flush), pendant (hanging), or recessed fixtures. In addition, the main gymnasium and auxiliary gymnasium are illuminated by 250W high pressure sodium (HPS) high bay lighting fixtures.

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Exterior lighting consists of 70W metal halide (MH) wall packs and 100W mercury vapor (MV) which provide area lighting. It is likely the exterior lighting is controlled by photocell mounted on the light fixture.

Three lighting ECMs have been included which include adding occupancy sensors to the existing lighting, replacement of the T-8 lighting with LED lighting and a third ECM that evaluates the effect of occupancy sensors used with the LED lighting upgrades.

3.0 UTILITIES

Utilities used by the building are delivered and supplied by the following utility companies:

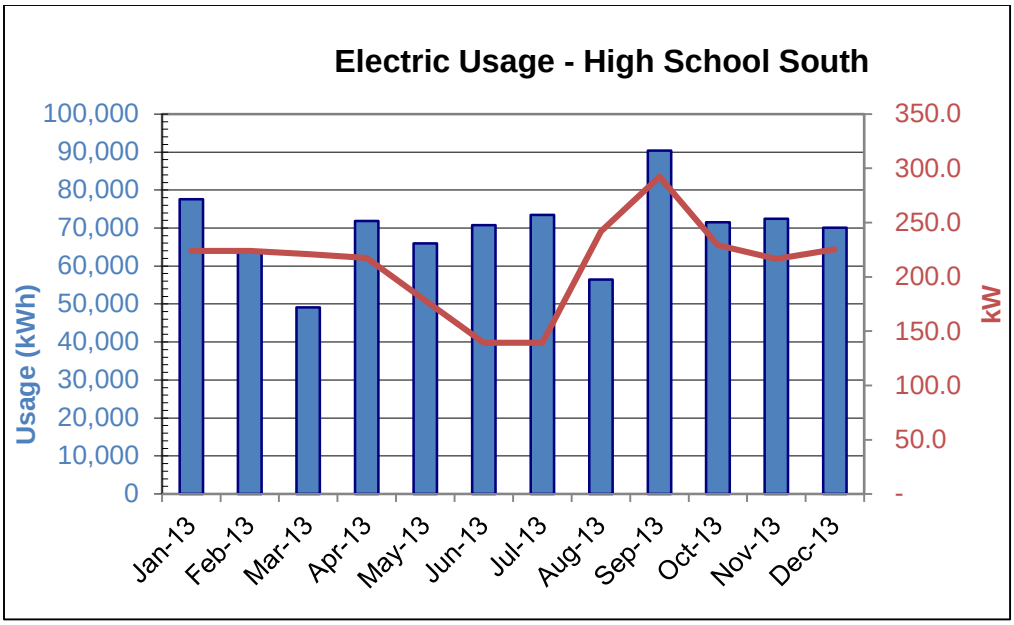
	Electric	Natural Gas
Deliverer	JCP&L	NJ Natural Gas
Supplier	Direct Energy LLC	NJ Natural Gas

This building rents a large solar array, located on the roof, from Hudson Solar. The array generates some electricity for use in the building. JCP&L *banks* electricity for any months where the electricity generated is greater than the amount used by the school and uses the *banked* kWh for the rest of the months until it runs out; when it runs out the building pays for electricity as normal. This reduced usage is reflected in the monthly utility bills. For the 12-month period ending in December 2013, the utilities usages and costs for the building were as follows:

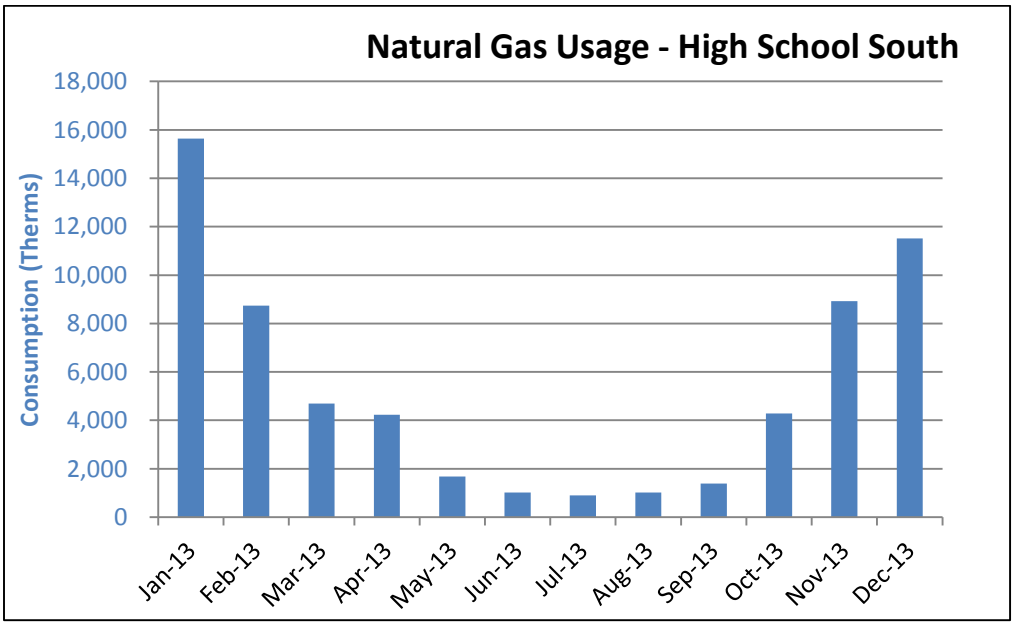
Electric		
Annual Consumption	833,573	kWh
Annual Cost	$140,449	$
Blended Unit Rate	$0.168	$/kWh
Supply Rate	$0.149	$/kWh
Demand Rate	$5.94	$/kW
Peak Demand	223.8	kW
Natural Gas		
Annual Consumption	66,518	Therms
Annual Cost	$80,024	$
Unit Rate	$1.203	$/therm
Water		
Annual Usage	1,018	kGal
Annual Cost	$19,078	$
Unit Rate	$18.74	$/kGal

Blended Rate: Average rate charged determined by the annual cost / annual usage
Supply Rate: Actual rate charged for electricity usage in kWh (based on most recent electric bill)
Demand Rate: Rate charged for actual electrical demand in kW (based on most recent electric bill)

Domestic water and sewer services are provided by the City of Toms River.



The electricity usage profile above seems to fluctuate month to month rather than seasonally, as would be expected. There is a large demand spike in September which could be caused by a reduction in solar energy produced during that month, while cooling equipment may have still been active.



The natural gas usage profile above shows mostly seasonal usage for space heating. There is some baseline usage in the summer months which is likely attributed to domestic hot water production with a small amount of kitchen equipment usage. This is a fairly typical profile for school natural gas usage.

See Appendix A for a utility analysis.

Under New Jersey's energy deregulation law, the supply portion of the electric (or natural gas) bill is separated from the delivery portion. The supply portion is open to competition, and

customers can shop around for the best price for their energy suppliers. The electric and natural gas distribution utilities will still deliver the gas/ electric supplies through their wires and pipes – and respond to emergencies, should they arise – regardless of where those supplies are purchased. Purchasing the energy supplies from a company other than your electric or gas utility is purely an economic decision; it has no impact on the reliability or safety of the service.

Comparison of Utility Rates to NJ State Average Rates*				Recommended to Shop for Third Party Supplier?
Utility	Units	School Average Rate	NJ Average Rate	
Electricity	$/kWh	$0.149	$0.125	Y
Natural Gas	$/Therm	$1.203	$0.955	Y

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

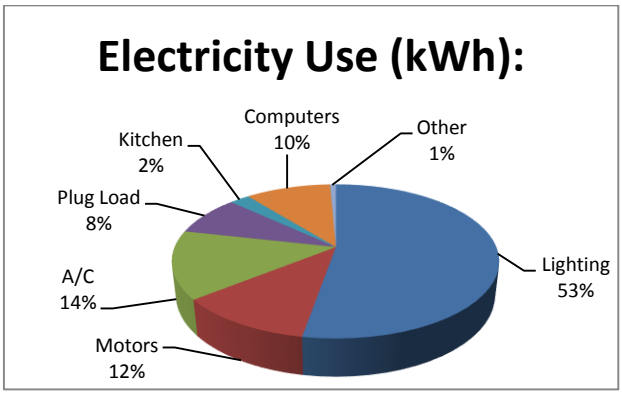
Additional information on selecting a third party energy supplier is available here:

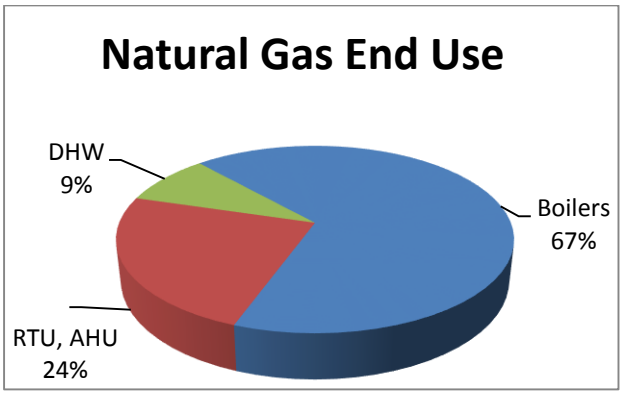
http://www.state.nj.us/bpu/commercial/shopping.html.

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.

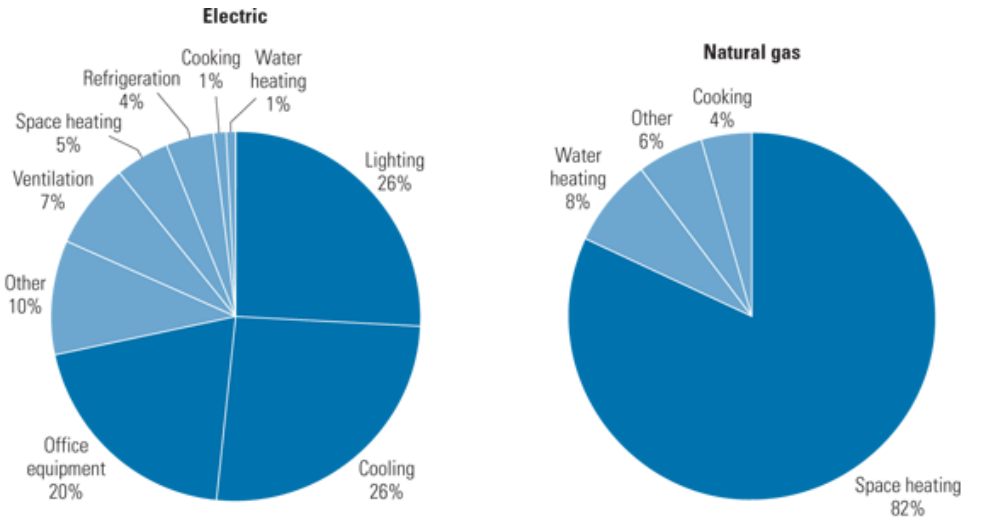
Site End-Use Utility Profile





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

Typical End-Use Utility Profile for Educational Facilities



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

4.0 BENCHMARKING

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

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

Site EUI kBtu/ft^2/yr	Source EUI (kBtu/ft^2/yr)	Energy Star Rating (1-100)
57.6	66.9	98

The school has an above average Energy Star Rating Score (50 being the median score), and is considered an energy efficient building.

Note: This score is considered high for a building of this type. It is likely that the score is being inflated by the electricity which is generated from the solar panels.

Copies of the benchmarking report are available in Appendix F.

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 Replace Door Sweeps and Seals

The seals around exterior doors fail over time. This leads to infiltration of unconditioned outside air or exfiltration of conditioned air resulting in increased heating energy usage. This measure calls for the replacement of 40% of exterior door seals. Replacement of these seals will result in a reduction of the buildings heating and cooling loads, therefore providing natural gas and electricity savings. The linear footage of gap and wind speed is used to estimate the infiltration rate, which is then multiplied by the BIN weather data and the equipment efficiencies to determine the annual energy savings.

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

ECM-1 Replace Door Sweeps and Seals

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
6,222	-	1,433	751	1,145	(0.1)	-	5.4	5.4

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

This measure is recommended.

5.2.1 ECM-2A Install High Efficiency Condensing HW Boiler to Replace Steam to HW Heat Exchanger

Presently, half of the building is heated by hot water which is generated through a heat exchanger by steam from the steam boilers. This is an inefficient process which could be improved by installing dedicated hot water boilers which would generate hot water directly for the system rather than using steam.

New modulating condensing gas boilers are available that minimally operate at 88%, and can operate as high as 96%. To implement this ECM, the heat exchanger and associated piping will be removed and the new hot water boilers, distribution piping and primary pumps put in their place. Some piping and wiring modifications will be needed. New dedicated boiler venting would also need to be installed either through the roof or sidewall. Asbestos abatement may need to be performed prior to any work and the cost for this is not included in the payback analysis.

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

ECM-2A Install High Efficiency Condensing HW Boiler to Replace Steam to HW Heat Exchanger

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
130,631	-	-	15,674	18,857	2.6	3,000	6.9	6.8

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

This measure is recommended.

5.2.2 ECM-2B Convert Entire Steam System to Hot Water and Install Condensing HW Boilers

This ECM evaluates the replacement of the existing natural gas fired steam system with high efficiency condensing hot water boilers and a full hydronic heating system which will also enable additional savings through hot water temperature reset based on outdoor air temperature.

Steam heating systems are inherently inefficient and high maintenance as compared to re-circulated hot water heating systems or other modern heating systems. As steam systems age, the steam traps fail which then requires more untreated cold make-up water. This in turn requires more chemical treatment and increases the risk of boiler thermal shock. Steam piping becomes fouled with scale and corrosion over time resulting in poor heat transfer an ultimately pipe failure. Steam heating systems use boilers that only operate up to 84% combustion efficiency and have even lower thermal efficiency. Multiple condensate pumps and boiler feed water pumps consume electricity that would not be needed in other modern heating systems.

This ECM evaluates replacing the steam system in its entirety with a more efficient hot water system. New modulating condensing gas boilers are available that minimally operate at 88%, and can operate as high as 96%. To implement this ECM, the steam boilers, distribution piping, venting and terminal units would be removed and the new hot water boilers, distribution piping, primary pumps and terminal units put in their place. Significant piping modifications would be needed. New dedicated boiler venting would also need to be installed either through the roof or sidewall. Asbestos abatement may need to be performed prior to any work and the cost for this is not included in the payback analysis.

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

ECM-2B Convert Entire Steam System to Hot Water and Install Condensing HW Boilers

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
1,887,162	-	-	20,180	24,277	(0.7)	9,000	77.7	77.4

* 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-2A and because of the high capital cost and long associated payback.

5.3 ECM-3 Replace DX / RTU Equipment w/ Higher Efficiency Equipment

The school has 42 split system air conditioning units as well as packaged RTUs with DX cooling and natural gas fired furnaces. Nineteen of the aforementioned DX units are either approaching or have surpassed their service life (20 years), this ECM evaluates replacement with more efficient technology. The calculation methodology estimates the average existing EER (9.6) for cooling compared to what is currently available (14.0). The units which have natural gas fired furnaces will not see any efficiency increase as condensing natural gas furnaces are not readily available; therefore no natural gas savings are included below.

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

ECM-3 Replace DX / RTU Equipment w/ Higher Efficiency Equipment

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
456,700	31	52,319	-	9,992	(0.5)	6,123	45.7	45.1

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

This measure is recommended, as inclusion of this measure allows for a total project payback of under 15 years.

5.4 ECM-4 Install Window A/C Controller

There are six (6) window air conditioners in the building which can be occasionally left on by occupants when they leave the room.

This ECM evaluates the installation of programmable “smart” timers that interrupt the electrical supply to the window air conditioners when cooling is not needed due to the room being unoccupied. The timers are configurable to operate as a standalone timer or they can be wirelessly interconnected to provide remote temperature control using software.

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

ECM-4 Install Window A/C Controller

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
1,200	-	3,724	-	627	4.2	-	1.9	1.9

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

This measure is recommended.

5.5 ECM-5 Extend HVAC Controls System

Presently, the building's steam boilers and heat exchanger as well as 90% of the cooling equipment are controlled by the Energy Management System; the remaining 10% of the building which has HVAC equipment has stand-alone controls. This ECM evaluates the savings associated with extending the EMS to incorporate the equipment still on stand-alone controls.

Energy savings is estimated at 10% overall energy reduction based on past experience with similar sized school buildings having fully functioning digital controls.

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

ECM-5 Extend HVAC Controls System

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
239,855	-	2,501	652	1,206	(0.9)	-	199.0	199.0

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

This measure is not recommended due to the long payback.

5.6 ECM-6 Replace DHW Heater with a High Efficiency DHW Heater

The existing domestic hot water heating system consists of one (1) natural gas fired DHW heater connected to a 1000 gallon storage tank. The DHW heater has a thermal efficiency of 80%.

Implementation of this ECM will entail replacing the existing DHW heater with a high efficiency condensing water heater. The proposed DHW heater will operate at 96% efficiency and be connected to a new to a 500 gallon storage tank.

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

ECM-6 Replace DHW Heaters with High Efficiency DHW Heaters

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
44,228	-	-	1,738	2,090	0.2	1,155	21.2	20.6

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

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This measure is recommended, as inclusion of this measure allows for a total project payback of under 15 years.

5.7 ECM-7 Install Kitchen Hood Controller

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

Energy saving is calculated from reduction of exhaust fan speed.

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

ECM-7 Install Kitchen Hood Controller

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
30,787	-	2,733	-	461	(0.8)	1,000	66.8	64.7

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

This measure is recommended, as inclusion of this measure allows for a total project payback of under 15 years.

5.8 ECM-8 Install Walk-in Cooler / Freezer Controls

Presently there is one (1) walk-in cooler and one (1) walk-in freezer in this building.

Installing a walk-in cooler/ freezer control system was assessed. The system will monitor both dry and wet bulb temperature within the walk-in unit and allow evaporators and compressors to modulate up and down based on enthalpy set points rather than by dry bulb temperature alone. Savings is a result of reduced run time of evaporator fans, compressors and door heaters. Implementation will include the installation of one (1) walk-in control system which can control multiple different units.

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

ECM-8 Install Walk-in Cooler / Freezer Controls

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
20,625	-	9,142	-	1,540	0.1	175	13.4	13.3

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

This measure is recommended.

5.9 ECM-9 Replace Electric Booster Heater with Natural Gas Fired Unit

The school's kitchen uses an electric dishwasher booster heater to increase the temperature of the incoming hot water from 140 degrees to 180 degrees. The kitchen typically uses these heaters for 1,000 hours per year. Natural gas is available in the kitchen and could be used instead of electricity as a means of boosting DHW temperature. Implementation would require a new DHW booster heater and venting. Energy cost savings would be achieved through the lower cost of natural gas versus the higher cost of electricity.

The calculation uses estimated electrical consumption and cost for the unit as the baseline, which was converted to natural gas for the proposed case. The difference between the two values is the energy savings.

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

ECM-9 Replace Electric Booster Heater with Natural Gas Fired Unit

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
17,400	7	23,447	(1,000)	2,786	3.7	2,635	6.2	5.3

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

This measure is recommended.

5.10 ECM-10 Install Vending Machine Controls

The building presently has seven (7) cold beverage and five (5) snack-type vending machines.

These vending machines operate continuously 24 hours per day, seven (7) days a week. Installing controls such as timers or occupancy sensors allow the machines to turn on only when a customer is present or when the compressor must run to maintain the product at the desired temperature. By implementing this measure electrical energy savings could be realized.

The calculation uses electrical consumption and annual electrical cost as the baseline, vs. the reduced electrical consumption and cost for the proposed case. The difference between the two values is the energy savings.

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

ECM-10 Install Vending Machine Controls

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
3,361	-	27,854	-	4,693	19.9	-	0.7	0.7

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

This measure is recommended.

5.11 ECM-11 Replace CRT Monitors with LCD

While onsite it was observed that there are approximately 90 CRT computer monitors in the building. According to the EPA, LCD monitors offer a variety of benefits over equivalently sized CRT monitors including: smaller size, less eyestrain, lower power consumption, less heat generation, lighter weight and better image contrast. The EPA estimates that LCDs on average consume roughly 100 kWh less annually when compared to CRT monitors.

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

ECM-11 Replace CRT Monitors with LCD

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
18,732	-	9,000	-	1,516	(0.2)	-	12.4	12.4

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

This measure is recommended.

5.12 ECM-12 Install Low Flow Plumbing Fixtures

The plumbing fixtures in this building are older high flow fixtures. The water savings associated from replacing existing high flow fixtures with low-flow fixtures was calculated by taking the difference of the annual water usage for the proposed and base case. The basis of this calculation is the estimate usage of each fixture, gallons per use, and number of fixtures. Replacing the existing fixtures in the restrooms with 1.28 Gals/flush

toilets and 1.0 gal/flush urinals will conserve water which will result in lower annual water and sewer charges. Faucets with low-flow push valves were not considered for replacement.

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

ECM-12 Install Low Flow Plumbing Fixtures

Budgetary Cost	Annual Utility Savings					ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Water	Total				
$	kW	kWh	Therms	kGal	$		$	Years	Years
179,376	0	0	0	771	14,442	1.4	-	12.4	12.4

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

This measure is recommended.

5.12.1 ECM-L1 Lighting Replacement / Upgrades

The existing interior lighting systems consist of a combination of T8 and T12 linear fluorescent fixtures. Exterior lighting includes 70W and 100W wall mounted area light fixtures. Recent technological improvements in light emitting diode (LED) technologies have driven down the initial costs making it a viable option for installation.

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

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

ECM-L1 Lighting Replacement / Upgrades

Budgetary Cost	Annual Utility Savings				ROI	Potential Incentive*	Payback (without incentive)	Payback (with incentive)
	Electricity		Natural Gas	Total				
$	kW	kWh	Therms	$		$	Years	Years
351,836	91	254,251	-	44,277	1.1	8,300	7.9	7.8

* 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.

5.12.2 ECM-L2 Install Lighting Controls (Occupancy Sensors)

Presently, all interior lighting fixtures are controlled my 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 the previous section, 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
52,920	0	89,625	-	13,330	3.3	6,860	4.0	3.5

* 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.

5.12.3 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
404,756	91	294,114	-	50,206	1.1	15,160	8.1	7.8

* 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.

5.13 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:

- Install Covers on Window Air Conditioners
- Clean Window AC filters before each season
- Clear surface above unit ventilators of materials, plants, or books
- Set computers monitors to turn off and computers to sleep mode when not in use
- Look for the ENERGY STAR® label when purchasing Window AC units or Kitchen Appliances
- Disconnect unnecessary or unused small appliances and electronics when not in use to reduce phantom loads
- Educate students and staff about how their behavior affects energy use. Create student energy patrols to monitor and inform administration when energy is being wasted.

6.0 PROJECT INCENTIVES

6.1 Incentives Overview

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

6.1.1 New Jersey Smart Start Program

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

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

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

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

Refer to Appendix D for more information on this program.

6.1.3 New Jersey Pay For Performance Program (P4P)

This building may be eligible for incentives from the New Jersey Office of Clean Energy. The most significant incentives are available from the New Jersey Pay for Performance (P4P) Program. The P4P program is designed to offset the cost of energy conservation projects for facilities that pay the Societal Benefits Charge (SBC) and whose demand (kW) in any of the preceding 12 months exceeds 100 kW. This demand minimum has been waived for buildings owned by local governments or municipalities and non-profit organizations and *is not applicable to public schools*. Facilities that meet this criterion must also achieve a minimum performance target of 15% energy reduction by using the EPA Portfolio Manager benchmarking tool before and after implementation of the measure(s). Additionally, the overall return on investment (ROI) must exceed 10%. If the participant is a municipal electric company customer, and a customer of a regulated gas New Jersey Utility, only gas measures will be eligible under the Program. Available incentives are as follows:

Incentive #1: Energy Reduction Plan – This incentive is designed to offset the cost of services associated with the development of the Energy Reduction Plan (ERP). The ERP must include a detailed energy audit of the desired ECMs, energy savings calculations (using building modeling software) and inputting of all utility bills into the EPA Portfolio Manager website.

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

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

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

Electric

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

Gas

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

Incentive cap: 25% of total project cost

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

Electric

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

Gas

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

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

For the purpose of demonstrating the eligibility of the ECM's to meet the minimum savings requirement of 15% annual savings and 10% IRR for the Pay for Performance Program, all recommended ECM's identified in this report have been included in the incentive calculations.

The recommended savings presented in this report reduce energy consumption by an estimated 34.1%, however their combined IRR is roughly 2.3%. Based on this, the recommended measures would not be eligible to receive P4P incentives. There may exist other combinations of ECMs which meet both requirements of eligibility, but all combinations were not evaluated as part of this assessment.

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

This building currently has a large solar array installed on the roof which is rented from Hudson Solar. The size of the solar array is 625.24 kW which generates an estimated 786,000 kWh per year which represents 94% of the electricity used by the building. The electricity which is generated is either used by the building or *banked*. The district pays Hudson Solar for all electricity which is generated by the panels at an average rate of $0.14/kWh. It is not recommended that any additional photovoltaic panels be added to the building at this time.

7.1.2 Solar Thermal Hot Water Generation

Active solar thermal systems use solar collectors to gather the sun's energy to heat a fluid. An absorber in the collector (usually black colored piping) converts the sun's energy into heat. The heat is transferred to circulating water, antifreeze, or air for immediate use or is storage for later utilization. Applications for active solar thermal energy include supplementing domestic hot water, heating swimming pools, space heating or preheating air in residential and commercial buildings.

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

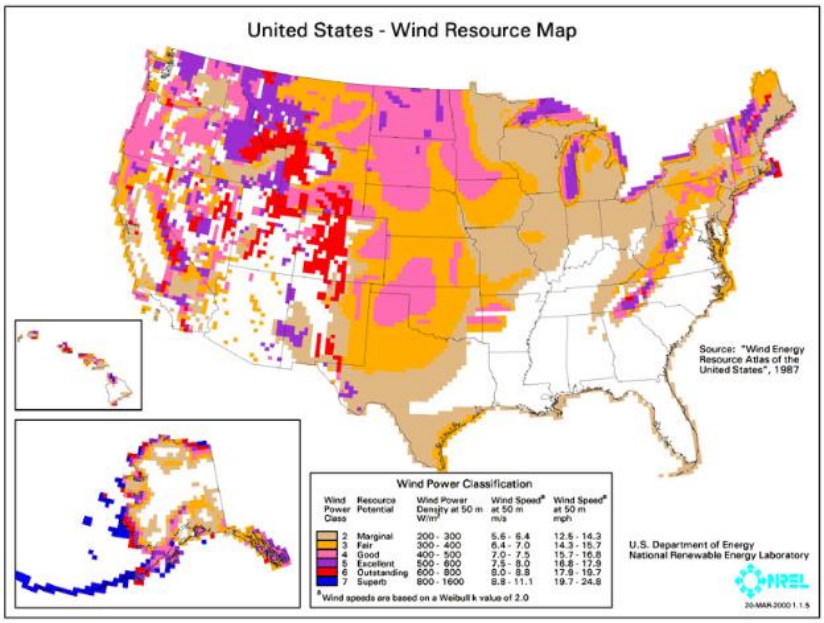
Several options exist for using active solar thermal systems for space heating. The most common method is called a passive solar hot water system involves using glazed collectors to heat a liquid held in a storage tank (similar to an active solar hot water system described above which requires pumping). The most practical system would transfer the heat from the panels to thermal storage tanks and then use the pre-heated water for domestic hot water production. DHW is presently produced by natural gas fired water heaters and, therefore, this measure would offer natural gas utility savings. Unfortunately, the amount of domestic hot water that is currently used by this school is very small.

This measure is not recommended because the existing PV array takes up much of the available roof area; and there are no suitable areas on the ground to put thermal hot water generation panels.

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, Toms River, NJ is classified as Class 1 at 50m, meaning the city would not be a good candidate for wind power.



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

7.3 Combined Heat and Power Plant

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

Any proposed CHP project will need to consider many factors, such as existing system load, use of thermal energy produced, system size, natural gas fuel availability, and proposed plant location. 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 limited building usage during the summer months.

This measure is not recommended due to the absence of year-round thermal loads which are needed for efficiency CHP operation.

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 2013 through December 2013 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
223.8	217.3	221.5	Y	N

This measure is not recommended because the school is not able to meet the 100 kW load reduction necessary to participate.

8.0 CONCLUSIONS & RECOMMENDATIONS

The following section summarizes the LGEA energy audit conducted by CHA for Toms River High School South.

The following projects should be considered for implementation:

- ECM-1 Replace Door Sweeps And Seals
- ECM-2A Separate Hot Water System From Steam
- ECM-3 Replace DX / RTU Equipment W/ Higher Efficiency Equipment
- ECM-4 Install Window A/C Controller
- ECM-6 Replace DHW Heater With A High Efficiency DHW Heater
- ECM-7 Install Kitchen Hood Controller
- ECM-8 Install Walk-In Cooler / Freezer Controls
- ECM-9 Replace Electric Booster Heater With Natural Gas Fired Unit
- ECM-10 Install Vending Machine Controls
- ECM-11 Replace CRT Monitors With LCD
- ECM-12 Install Low Flow Plumbing Fixtures
- ECM-L3 Lighting Replacements With Controls (Occupancy Sensors)

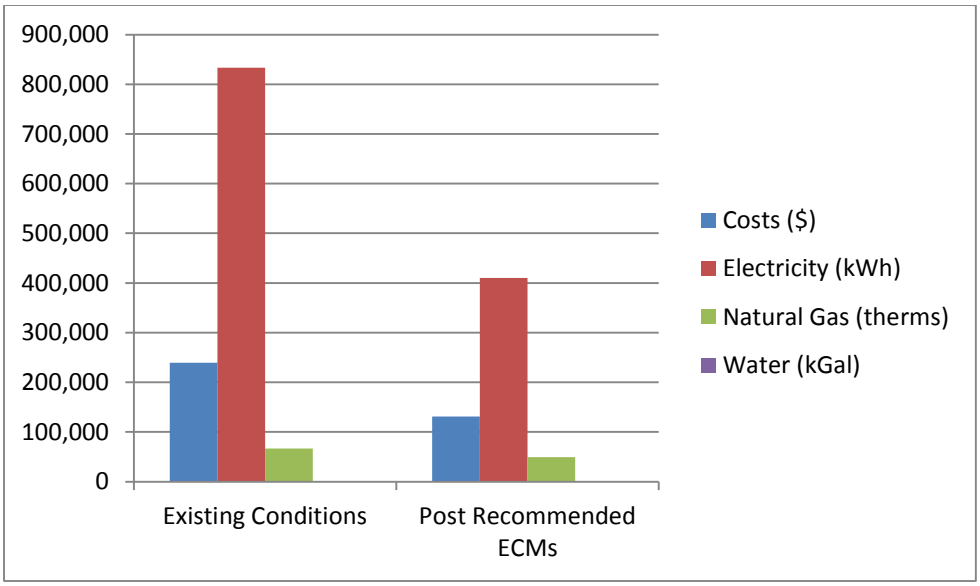
The potential annual energy and cost savings for the recommended ECMs are shown in the following table.

Electric Savings (kWh)	Natural Gas Savings (therms)	Water Savings (kGal)	Total Savings ($)	Payback (years)
423,765	17,163	771	108,356	12.1

There are no renewable energy ECMs recommended for further study because the school already has a large solar photovoltaic array which generates electricity and is not a good candidate for other renewable energy technologies such as wind generation.

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

	Existing Conditions	Post Recommended ECMs	Percent Savings
Costs ($)	239,551	131,196	45%
Electricity (kWh)	833,573	409,808	51%
Natural Gas (therms)	66,518	49,355	26%
Water (kGal)	1,018	247	76%
Site EUI (kbtu/SF/Yr)	55.1	36.8	



Next Steps: This energy audit has identified several areas of potential energy savings. Toms River Schools can use this information to pursue incentives offered by the NJBPU's NJ Clean Energy Program.

APPENDIX A

Utility Usage Analysis and Alternate Utility Suppliers

Toms River Regional Schools
123 Walnut St, Toms River, NJ 08753

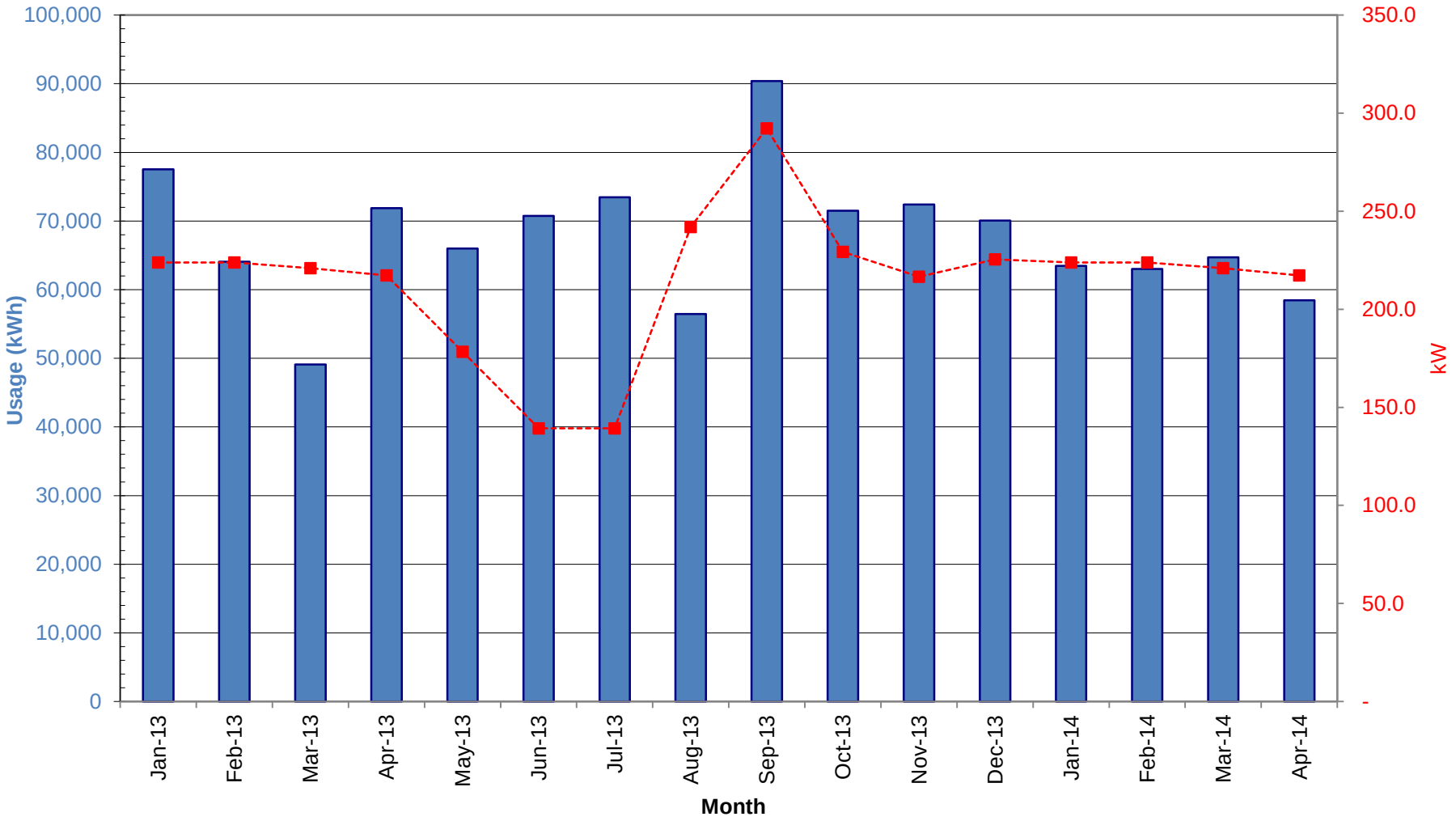
For Service at: **Toms River High School South**
55 Hyers Street, Toms River, NJ 08753
Account No.: **100 104 414 261** **Delivery -** Jersey Central Power & Lighting
Meter No.: **G28112335** **Supplier -** Direct Energy LLC
Electric Service **Building does NOT own solar panels**

					Provider Charges				Usage (kWh) vs. Demand (kW) Charges		Unit Costs		
Month	**Delivery (kWh)**	**Generated (kWh)**	**Consumption (kWh)**	**Demand (kW)**	**Delivery ($)**	**Supplier ($)**	**Solar ($)**	**Total ($)**	**Consumption ($)**	**Demand ($)**	**Blended Rate ($/kWh)**	**Consumption ($/kWh)**	**Demand ($/kW)**
January-13	45,600	31,944	77,544	223.8	$ 5,913	$ 3,578	$ 4,440	$ 13,932	$ 12,484	$ 1,448	$ 0.180	$ 0.161	$ 6.47
February-13	23,760	40,324	64,084	223.8	$ 3,845	$ 1,864	$ 5,605	$ 11,315	$ 9,867	$ 1,448	$ 0.177	$ 0.154	$ 6.47
March-13	(16,080)	65,189	49,109	220.9	$ 2,742	$ (1,262)	$ 9,061	$ 10,542	$ 9,112	$ 1,429	$ 0.215	$ 0.186	$ 6.47
April-13	(18,960)	90,829	71,869	217.3	$ 3,361	$ (1,488)	$ 12,625	$ 14,499	$ 13,093	$ 1,406	$ 0.202	$ 0.182	$ 6.47
May-13	(26,160)	92,139	65,979	178.3	$ 978	$ (2,053)	$ 12,807	$ 11,733	$ 10,579	$ 1,154	$ 0.178	$ 0.160	$ 6.47
June-13	(22,800)	93,543	70,743	139.3	$ 978	$ (1,789)	$ 13,003	$ 12,192	$ 11,225	$ 967	$ 0.172	$ 0.159	$ 6.94
July-13	(16,080)	89,538	73,458	139.3	$ 717	$ (1,262)	$ 12,446	$ 11,902	$ 11,193	$ 709	$ 0.162	$ 0.152	$ 5.09
August-13	(26,160)	82,602	56,442	242.0	$ 1,691	$ (2,053)	$ 11,771	$ 11,409	$ 9,731	$ 1,678	$ 0.202	$ 0.172	$ 6.94
September-13	8,400	81,984	90,384	292.2	$ 1,902	$ 659	$ 11,683	$ 14,244	$ 12,353	$ 1,891	$ 0.158	$ 0.137	$ 6.47
October-13	18,000	53,487	71,487	229.3	$ 1,495	$ 1,412	$ 7,622	$ 10,530	$ 9,046	$ 1,484	$ 0.147	$ 0.127	$ 6.47
November-13	31,920	40,482	72,402	216.6	$ 1,413	$ 2,505	$ 5,769	$ 9,686	$ 8,285	$ 1,401	$ 0.134	$ 0.114	$ 6.47
December-13	46,080	23,992	70,072	225.4	$ 1,470	$ 3,578	$ 3,419	$ 8,467	$ 7,009	$ 1,458	$ 0.121	$ 0.100	$ 6.47
January-14	37,680	25,771	63,451	223.8	$ 1,665	$ 2,957	$ 3,672	$ 8,294	$ 6,846	$ 1,448	$ 0.131	$ 0.108	$ 6.47
February-14	24,960	38,072	63,032	223.8	$ 1,872	$ 1,959	$ 5,425	$ 9,255	$ 7,807	$ 1,448	$ 0.147	$ 0.124	$ 6.47
March-14	6,960	57,772	64,732	220.9	$ 1,575	$ 546	$ 8,233	$ 10,354	$ 8,925	$ 1,429	$ 0.160	$ 0.138	$ 6.47
April-14	(29,040)	87,495	58,455	217.3	$ 1,418	$ (2,279)	$ 12,468	$ 11,607	$ 10,201	$ 1,406	$ 0.199	$ 0.175	$ 6.47
Total (All)	**88,080**	**995,163**	**1,083,243**	**292.2**	**$ 33,037**	**$ 6,874**	**$ 140,049**	**$ 179,960**	**$ 157,756**	**$ 22,204**	**$ 0.166**	**$ 0.146**	**$ 6.47**
Total (2013)	**47,520**	**786,053**	**833,573**	**292.2**	**$ 26,508**	**$ 3,691**	**$ 110,250**	**$ 140,449**	**$ 123,977**	**$ 16,473**	**$ 0.168**	**$ 0.149**	**$ 5.94**
Notes			1	2	3	4		5	6	7	8	9	10

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

No data provided, interpolated value
Months taking from banked kWh
Calculated using supplier rate of 0.07847
Data from RFP

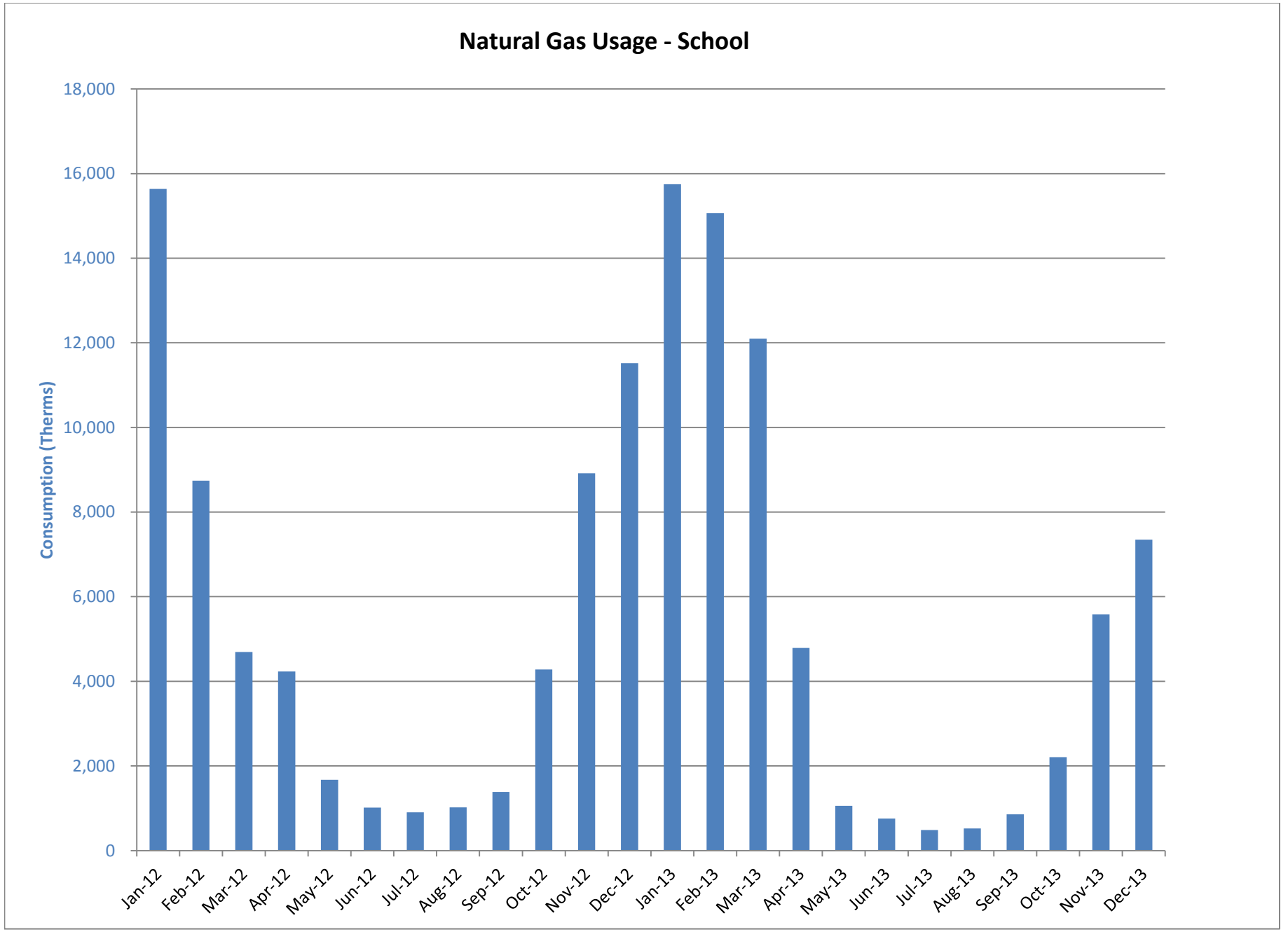
Electric Usage - School



Toms River Regional Schools
123 Walnut St, Toms River, NJ 08753

For Service at: **Toms River High School South**
55 Hyers Street, Toms River, NJ 08753
Account No.: **204612157525**
Meter No:
Natural Gas Service **Delivery -** **New Jersey Natural Gas**
Supplier - **New Jersey Natural Gas**

		Charges			Unit Costs		
Month	**Consumption (Therms)**	**Delivery ($)**	**Supply ($)**	**Total ($)**	**Delivery ($/Therm)**	**Supply ($/Therm)**	**Total ($/Therm)**
January-12	15,640			$ 22,224	$ -	$ -	$ 1.42
February-12	8,740			$ 14,941	$ -	$ -	$ 1.71
March-12	4,691			$ 11,154	$ -	$ -	$ 2.38
April-12	4,231			$ 6,955	$ -	$ -	$ 1.64
May-12	1,672			$ 3,640	$ -	$ -	$ 2.18
June-12	1,017			$ 2,638	$ -	$ -	$ 2.59
July-12	904			$ 2,482	$ -	$ -	$ 2.75
August-12	1,023			$ 2,504	$ -	$ -	$ 2.45
September-12	1,385			$ 2,606	$ -	$ -	$ 1.88
October-12	4,281			$ 5,246	$ -	$ -	$ 1.23
November-12	8,919			$ 9,679	$ -	$ -	$ 1.09
December-12	11,520			$ 12,280	$ -	$ -	$ 1.07
January-13	15,748			$ 16,301	$ -	$ -	$ 1.04
February-13	15,065			$ 15,605	$ -	$ -	$ 1.04
March-13	12,099			$ 12,849	$ -	$ -	$ 1.06
April-13	4,790			$ 6,054	$ -	$ -	$ 1.26
May-13	1,056			$ 2,607	$ -	$ -	$ 2.47
June-13	757			$ 2,085	$ -	$ -	$ 2.75
July-13	485			$ 1,916	$ -	$ -	$ 3.95
August-13	523			$ 2,102	$ -	$ -	$ 4.02
September-13	857			$ 2,301	$ -	$ -	$ 2.68
October-13	2,206			$ 3,555	$ -	$ -	$ 1.61
November-13	5,582			$ 6,593	$ -	$ -	$ 1.18
December-13	7,348			$ 8,056	$ -	$ -	$ 1.10
Total (all)	**130,543**	**$ -**	**$ -**	**$ 176,374**	$ -	$ -	**$ 1.35**
Total (last 12 months)	**66,518**	**$ -**	**$ -**	**$ 80,024**	$ -	$ -	**$ 1.20**

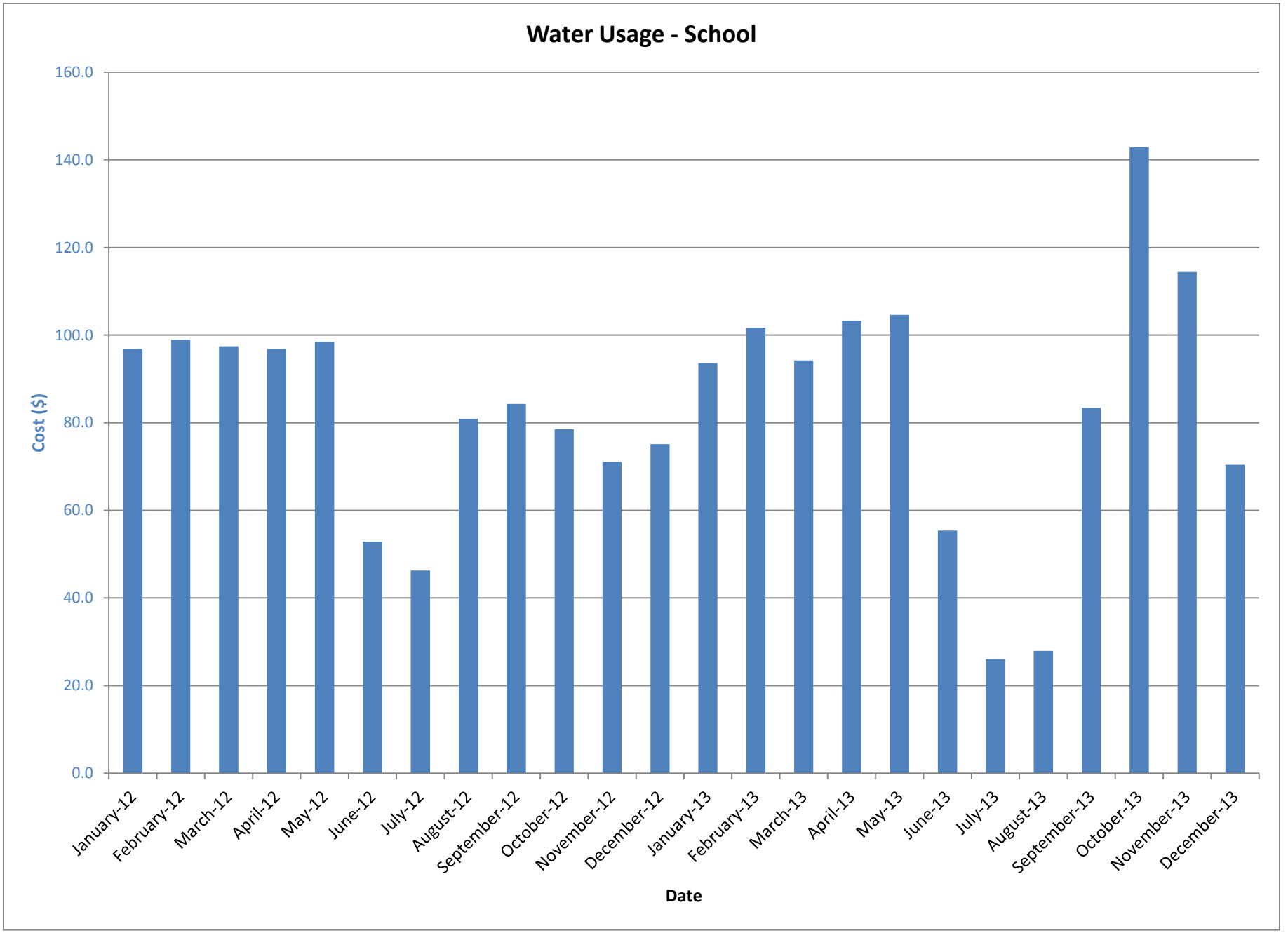

Natural Gas Usage - School
Consumption (Therms)
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Jan-12
Feb-12
Mar-12
Apr-12
May-12
Jun-12
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13

Toms River Regional Schools
123 Walnut St, Toms River, NJ 08753

For Service at: **Toms River High School South**
55 Hyers Street, Toms River, NJ 08753

Account No.:
Meter No.:
Water Service **Delivery -**
Supplier -

Month	Total ($)	Gallons (1000)	$/kGal
January-12	$ 1,365	96.9	$ 14.09
February-12	$ 1,280	99.0	$ 12.93
March-12	$ 1,315	97.5	$ 13.49
April-12	$ 1,448	96.8	$ 14.96
May-12	$ 1,327	98.5	$ 13.48
June-12	$ 1,018	52.9	$ 19.25
July-12	$ 1,037	46.3	$ 22.41
August-12	$ 1,190	80.9	$ 14.71
September-12	$ 1,281	84.3	$ 15.19
October-12	$ 1,219	78.5	$ 15.53
November-12	$ 1,380	71.1	$ 19.42
December-12	$ 1,220	75.1	$ 16.24
January-13	$ 1,333	93.6	$ 14.24
February-13	$ 1,475	101.7	$ 14.51
March-13	$ 1,515	94.2	$ 16.08
April-13	$ 1,625	103.3	$ 15.73
May-13	$ 1,657	104.6	$ 15.84
June-13	$ 1,368	55.4	$ 24.69
July-13	$ 1,171	26.0	$ 44.98
August-13	$ 1,173	27.9	$ 42.01
September-13	$ 1,626	83.4	$ 19.50
October-13	$ 1,950	142.9	$ 13.64
November-13	$ 2,394	114.4	$ 20.92
December-13	$ 1,791	70.4	$ 25.44
Total (all)	**$ 34,157**	**1,995**	**$ 17.12**
Total (last 12 months)	**$ 19,078**	**1,018**	**$ 18.74**


Water Usage - School
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Cost ($)
January-12
February-12
March-12
April-12
May-12
June-12
July-12
August-12
September-12
October-12
November-12
December-12
January-13
February-13
March-13
April-13
May-13
June-13
July-13
August-13
September-13
October-13
November-13
December-13
Date

JCP&L SERVICE TERRITORY
Last Updated: 10/24/12

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

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

ConEdison Solutions Cherry Tree Corporate Center 535 State Highway Suite 180 Cherry Hill, NJ 08002	(888) 665-0955 www.conedsolutions.com	**C/I** **ACTIVE**
Constellation NewEnergy, Inc. 900A Lake Street, Suite 2 Ramsey, NJ 07446	(866) 237-7693 www.constellation.com	**R/C/I** **ACTIVE**
Constellation Energy 900A Lake Street, Suite 2 Ramsey, NJ 07446	(877) 997-9995 www.constellation.com	**R** **ACTIVE**
Direct Energy Business, LLC 120 Wood Avenue Suite 611 Iselin, NJ 08830	(888) 925-9115 www.directenergybusiness.com	**C/I** **ACTIVE**
Direct Energy Services, LLC 120 Wood Avenue Suite 611 Iselin, NJ 08830	(866) 547-2722 www.directenergy.com	**C/I** **ACTIVE**
Discount Energy Group, LLC 811 Church Road, Suite 149 Cherry Hill, NJ 08002	(800) 282-3331 www.discountenergygroup.com	**R/C** **ACTIVE**
Dominion Retail, Inc. **d/b/a Dominion Energy Solutions** 395 Route 70 West, Suite 125 Lakewood, NJ 08701	(866) 275-4240 www.dom.com/products	**R/C** **ACTIVE**
DTE Energy Supply, Inc. One Gateway Center, Suite 2600 Newark, NJ 07102	(877) 332-2450 www.dtesupply.com	**C/I** **ACTIVE**
Energy Plus Holdings LLC 309 Fellowship Road East Gate Center, Suite 200 Mt. Laurel, NJ 08054	(877) 866-9193 www.energypluscompany.com	**R/C** **ACTIVE**
Energy.me Midwest LLC 90 Washington Blvd Bedminster, NJ 07921	(855) 243-7270 www.energy.me	**R/C/I** **ACTIVE**

Ethical Electric Benefit Co. d/b/a Ethical Electric 100 Overlook Center, 2nd Fl. Princeton, NJ 08540	(888) 444-9452 www.ethicalelectric.com	**R/C** **ACTIVE**
FirstEnergy Solutions Corp. 300 Madison Avenue Morristown, NJ 07962	(800) 977-0500 www.fes.com	**C/I** **ACTIVE**
Gateway Energy Services Corp. 44 Whispering Pines Lane Lakewood, NJ 08701	(800) 805-8586 www.gesc.com	**R/C/I** **ACTIVE**
GDF SUEZ Energy Resources NA, Inc. 333 Thornall Street Sixth Floor Edison, NJ 08819	(866) 999-8374 www.gdfsuezenergyresources.com	**C/I** **ACTIVE**
Glacial Energy of New Jersey, Inc. 75 Route 15 Building E Lafayette, NJ 07848	(888) 452-2425 www.glacialenergy.com	**C/I** **ACTIVE**
Green Mountain Energy Company 211 Carnegie Center Drive Princeton, NJ 08540	(866) 767-5818 www.greenmountain.com/commercial-home	**C/I** **ACTIVE**
Hess Corporation 1 Hess Plaza Woodbridge, NJ 07095	(800) 437-7872 www.hess.com	**C/I** **ACTIVE**
HIKO Energy, LLC 655 Suffern Road Teaneck, NJ 07666	(888) 264-4908 www.hikoenergy.com	**R/C** **ACTIVE**
HOP Energy, LLC d/b/a Metro Energy, HOP Fleet Fueling, HOP Energy Fleet Fueling 1011 Hudson Avenue Ridgefield, NJ 07657	(877) 390-7155 www.hopenergy.com	**R/C/I** **ACTIVE**
IDT Energy, Inc. 550 Broad Street Newark, NJ 07102	(973) 438-4380 www.idtenergy.com	**R/C** **ACTIVE**

Independence Energy Group, LLC 211 Carnegie Center Princeton, NJ 08540	(877) 235-6708 www.chooseindependence.com	**R/C** **ACTIVE**
Integrys Energy Services, Inc. 99 Wood Ave, South, Suite 802 Iselin, NJ 08830	(877) 763-9977 www.integrysenergy.com	**C/I** **ACTIVE**
Liberty Power Delaware, LLC 3000 Atrium Way Suite 273 Mt. Laurel, NJ 08054	(866) 769-3799 www.libertypowercorp.com	**R/C/I** **ACTIVE**
Liberty Power Holdings, LLC 3000 Atrium Way Suite 273 Mt. Laurel, NJ 08054	(866) 769-3799 www.libertypowercorp.com	**R/C/I** **ACTIVE**
Linde Energy Services 575 Mountain Avenue Murray Hill, NJ 07974	(800) 247-2644 www.linde.com	**C/I** **ACTIVE**
Marathon Power LLC 302 Main Street Paterson, NJ 07505	(888) 779-7255 www.mecny.com	**R/C/I** **ACTIVE**
NATGASCO, Inc. 532 Freeman St. Orange, NJ 07050	(973) 678-1800 x. 251 www.supremeenergyinc.com	**R/C** **ACTIVE**
NextEra Energy Services New Jersey, LLC 651 Jernee Mill Road Sayreville, NJ 08872	(877) 528-2890 Commercial (800) 882-1276 Residential www.nexteraenergyservices.com	**R/C/I** **ACTIVE**
NJ Gas & Electric 1 Bridge Plaza fl.2 Fort Lee, NJ 07024	(866) 568-0290 www.NJGandE.com	**R/C/I** **ACTIVE**
Noble Americas Energy Solutions The Mac-Cali Building 581 Main Street, 8th Floor Woodbridge, NJ 07095	(877) 273-6772 www.noblesolutions.com	**C/I** **ACTIVE**
North American Power and Gas, LLC 222 Ridgedale Ave. Cedar Knolls, NJ 07927	(888) 313-9086 www.napower.com	**R/C/I** **ACTIVE**

Palmco Power NJ, LLC One Greentree Centre 10,000 Lincoln Drive East, Suite 201 Marlton, NJ 08053	(877) 726-5862 www.PalmcoEnergy.com	**R/C/I** **ACTIVE**
Pepco Energy Services, Inc. 112 Main St. Lebanon, NJ 08833	(800) ENERGY-9 (363-7499) www.pepco-services.com	**R/C** **ACTIVE**
Plymouth Rock Energy, LLC 338 Maitland Avenue Teaneck, NJ 07666	(855) 32-POWER (76937) www.plymouthenergy.com	**R/C/I** **ACTIVE**
PPL EnergyPlus, LLC 811 Church Road Cherry Hill, NJ 08002	(800) 281-2000 www.pplenergyplus.com	**C/I** **ACTIVE**
Public Power & Utility of New Jersey, LLC 39 Old Ridgebury Rd. Suite 14 Danbury, CT 06810	(888) 354-4415 www.ppandu.com	**R/C/I** **ACTIVE**
Reliant Energy 211 Carnegie Center Princeton, NJ 08540	(877) 297-3795 (877) 297-3780 www.reliant.com/pjm	**R/C/I** **ACTIVE**
ResCom Energy LLC 18C Wave Crest Ave. Winfield Park, NJ 07036	(888) 238-4041 http://rescomenergy.com	**R/C/I** **ACTIVE**
Respond Power LLC 10 Regency CT Lakewood, NJ 08701	(877) 973-7763 www.respondpower.com	**R/C/I** **ACTIVE**
South Jersey Energy Company 1 South Jersey Plaza Route 54 Folsom, NJ 08037	(800) 800-266-6020 www.southjerseyenergy.com	**C/I** **ACTIVE**
Sperian Energy Corp. 1200 Route 22 East, Suite 2000 Bridgewater, NJ 08807	(888) 682-8082	**R/C/I** **ACTIVE**
Starion Energy PA Inc. 101 Warburton Avenue Hawthorne, NJ 07506	(800) 600-3040 www.starionenergy.com	**R/C/I** **ACTIVE**

Stream Energy 309 Fellowship Road Suite 200 Mt. Laurel, NJ 08054	(877) 369-8150 www.streamenergy.net	**R** **ACTIVE**
UGI Energy Services, Inc. **d/b/a GASMARK** 224 Strawbridge Drive Suite 107 Moorestown, NJ 08057	(856) 273-9995 www.ugienergyservices.com	**C/I** **ACTIVE**
Verde Energy USA, Inc. 50 East Palisades Avenue Englewood, NJ 07631	(800) 388-3862 www.lowcostpower.com	**R/C/I** **ACTIVE**
Viridian Energy 2001 Route 46 Waterview Plaza Suite 310 Parsippany, NJ 07054	(866) 663-2508 www.viridian.com	**R/C/I** **ACTIVE**
Xoom Energy New Jersey, LLC 744 Broad Street Newark, NJ 07102	(888)997-8979 www.xoomenergy.com	**R/C/I** **ACTIVE**
YEP Energy 89 Headquarters Plaza North #1463 Morristown, NJ 07960	(855) 363-7736 www.yepenergyNJ.com	**R/C/I** **ACTIVE**
Your Energy Holdings, LLC One International Boulevard Suite 400 Mahwah, NJ 07495-0400	(855) 732-2493 www.thisisyourenergy.com	**R/C/I** **ACTIVE**

NJ NATURAL GAS CO. SERVICE TERRITORY
Last Updated: 10/24/12

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

Supplier	Telephone & Web Site	*Customer Class
Alpha Gas and Electric, LLC 641 5th Street Lakewood, NJ 08701	855-553-6374 www.alphagasandelectric.com	**R/C** **ACTIVE**
Astral Energy LLC 16 Tyson Place Bergenfield, NJ 07621	201-384-5552 www.astralenergyllc.com	**R/C/I** **ACTIVE**
BBPC, LLC d/b/a Great Eastern Energy 116 Village Blvd. Suite 200 Princeton, NJ 08540	888-651-4121 www.greateasternenergy.com	**C/I** **ACTIVE**
Clearview Electric Inc. **d/b/a Clearview Gas** 1744 Lexington Ave. Pennsauken, New Jersey 08110	800-746-4720 www.clearviewenergy.com	**R/C** **ACTIVE**
Colonial Energy, Inc. 83 Harding Road Wyckoff, NJ 07481	845-429-3229 www.colonialgroupinc.com	**C/I** **ACTIVE**
Commerce Energy, Inc. 7 Cedar Terrace Ramsey, NJ 07746	(888) 817-8572 www.commerceenergy.com	**R** **ACTIVE**
Compass Energy Services, Inc. 1085 Morris Avenue, Suite 150 Union, NJ 07083	866-867-8328 908-638-6605 www.compassenergy.net	**C/I** **ACTIVE**
ConocoPhillips Company 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	800-646-4427 www.conocophillips.com	**C/I** **ACTIVE**
Constellation NewEnergy-Gas Division, LLC 900A lake Street, Suite 2 Ramsey, NJ 07466	800-900-1982 www.constellation.com	**C/I** **ACTIVE**
Consolidated Edison Solutions, Inc. Cherry Tree Corporate Center 535 State Highway 38, Suite 140 Cherry Hill, NJ 08002	888-665-0955 www.conedsolutions.com	**C/I** **ACTIVE**

Core Energy Inc. 37 West 55th Street Suite 200 Ocean City, NJ 08226	877-329-3495 www.core-energy.net	**R/C** **ACTIVE**
Direct Energy Business, LLC 120 Wood Avenue, Suite 611 Iselin, NJ 08830	888-925-9115 www.directenergy.com	**C/I** **ACTIVE**
Direct Energy Services, LLP 120 Wood Avenue, Suite 611 Iselin, NJ 08830	866-547-2722 www.directenergy.com	**R/C/I** **INACTIVE**
Dominion Retail, Inc. **d/b/a Dominion Energy Solutions** 395 Route #70 West, Suite 125 Lakewood, NJ 08701	866-645-9802 www.dom.com/products	**R/C** **ACTIVE**
Energy Plus Natural Gas LP 309 Fellowship Road, East Gate Center, Suite 200 Mt. Laurel, NJ 08054	877-866-9193 www.energypluscompany.com	**R/I** **ACTIVE**
Gateway Energy Services Corp. 44 Whispering Pines Lane Lakewood, NJ 08701	800-805-8586 www.gesc.com	**R/C/I** **ACTIVE**
Global Energy Marketing LLC 129 Wentz Avenue Springfield, NJ 07081	800-542-0778 www.globalp.com	**C/I** **ACTIVE**
Greenlight Energy 330 Hudson Street, Suite 4 Hoboken, NJ 07030	718-204-7467 www.greenlightenergy.us	**C** **ACTIVE**
HIKO Energy, LLC 655 Suffern Road Teaneck, NJ 07666	(888) 264-4908 www.hikoenergy.com	**R/C** **ACTIVE**
UGI Energy Services, Inc. **d/b/a/ GASMARK** 224 Strawbridge Drive, Suite 107 Moorestown, NJ 08057	856-273-9995 www.ugienergyservices.com	**C/I** **ACTIVE**
Hess Energy, Inc. One Hess Plaza Woodbridge, NJ 07095	800-437-7872 www.hess.com	**C/I** **ACTIVE**
Hess Small Business Services, LLC One Hess Plaza Woodbridge, NJ 07095	888-494-4377 www.hessenergy.com	**C/I** **ACTIVE**
IDT Energy, Inc. 550 Broad Street Newark, New Jersey 07102	973-438-4380 www.idtenergy.com	**R/C** **ACTIVE**

Integrys Energy Services-Natural Gas, LLC 99 Wood Avenue South Suite #802 Iselin, NJ 08830	(800) 536-0151 www.integrysenergy.com	**C/I** **ACTIVE**
Intelligent Energy 2050 Center Avenue, Suite 500 Fort Lee, NJ 07024	800-927-9794 www.intelligentenergy.org	**R/C/I** **ACTIVE**
Keil & Sons, Inc. **d/b/a Systrum Energy** 1 Bergen Blvd. Fairview, NJ 07022	1-877-797-8786 www.systrumenergy.com	**R/C/I** **ACTIVE**
Marathon Power LLC 302 Main Street Paterson, NJ 07505	888-779-7255 www.mecny.com	**R/C/I** **ACTIVE**
Metromedia Energy, Inc. 6 Industrial Way Eatontown, NJ 07724	800-828-9427 www.metromediaenergy.com	**C** **ACTIVE**
MxEnergy, Inc. 900 Lake Street Ramsey, NJ 07446	800-785-4374 www.mxenergy.com	**R/C/I** **ACTIVE**
NATGASCO (Mitchell Supreme) 532 Freeman Street Orange, NJ 07050	800-840-4GAS www.natgasco.com	**C** **ACTIVE**
New Energy Services LLC 101 Neptune Avenue Deal, NJ 07723	800-660-3643 www.newenergyservicesllc.com	**R/C/I** **ACTIVE**
New Jersey Gas & Electric 1 Bridge Plaza, Fl. 2 Fort Lee, NJ 07024	866-568-0290 www.NJGandE.com	**R/C** **ACTIVE**
North American Power & Gas, LLC d/b/a North American Power 197 Route 18 South Ste. 3000 East Brunswick, NJ 08816	(888) 313-9086 www.napower.com	**R/C/I** **ACTIVE**
Palmco Energy NJ, LLC One Greentree Centre 10,000 Lincoln Drive East Suite 201 Marlton, NJ 08053	877-726-5862 www.PalmcoEnergy.com	**R/C/I** **ACTIVE**

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

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APPENDIX B

Equipment Inventory

Toms River Regional School District
CHA Project# 28485
Toms River South High School

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size	Efficiency	Location	Areas/Equipment Served	Actual *Estimated* Date Installed	Remaining Useful Life (years)	Other Info.
Air Compressor	1	Quincy	Unknown	Unknown	Air Compressor	Split Horsepower	78.5%	Boiler Room	Pneumatic Control System	*1990*	-4	2x compressor motors
B-1 (primary) B-2 (secondary) B-3 (back-up)	3	Kewanee Boiler Corporation	L3S150-G02	R6993 R7014 R6815	Steam Boiler /Natural Gas	5,021 MBH (Output) /150 HP	80%	Boiler Room	Steam Heating System	1985	-4	2.5 - 5 psi
Condensate Return Tank	1	Unknown	Unknown	Unknown	Condensate Return Tank	~300 Gal	N/A	Boiler Room	Steam Heating System	*1982*	-2	
Condensing Unit	1	PennAire	7A0024A100A0	K271WJ4CF	Split System Condensing Unit	2 Ton	~8.9 EER	E-Wing (Outside)	E-3	1995	1	
Condensing Unit	1	PennAire	7C0048A300A0	K2626P7CF	Split System Condensing Unit	4 Ton	~8.9 EER	E-Wing (Outside)	E-1	1995	1	
Condensing Unit	1	International Comfort Products LLC	N2A048AHA2	X062883387	Split System Condensing Unit	4 Ton,	~8.9 EER	E-Wing (Outside)	E-1	*1995*	1	
Condensing Unit	1	Carrier	38EB018300	Y305598	Split System Condensing Unit	18,000 btu/h	~9.4 EER	Roof above F04	F04	*2005*	11	
Condensing Unit	1	Sanyo	SAP90CH	Unknown	Split System Condensing Unit	9,000 btu/h	~8.9 EER	Roof	Unknown (near girl's locker)	1995	1	
Condensing Unit	1	Carrier	38CKC018330	0600E14376	Split System Condensing Unit	18,000 btu/h	9.5 EER	Roof	Coach's Office (near boy's locker)	*2006*	12	
Condensing Unit	1	Carrier	38CKC018330	3398E18594	Split System Condensing Unit	18,000 btu/h	9.5 EER	Roof	Coach's Office (Team Locker Room)	*1995*	1	
Condensing Unit	1	Carrier	38CKC018330	0600E14372	Split System Condensing Unit	18,000 btu/h	9.5 EER	Roof	Coach's Office (Boy's Locker Room)	*2006*	12	
Condensing Unit	1	Carrier	38CKC018330	0600E14369	Split System Condensing Unit	18,000 btu/h	9.5 EER	Roof	Coach's Office (Boy's Locker Room)	*2006*	12	
Condensing Unit	1	International Comfort Products LLC	HAC036AKA1	L013401226	Split System Heat Pump	3 Ton	13 SEER ~ 14.4 EER	Courtyard	Nurse's Office	*2001*	7	
Condensing Unit	1	International Comfort Products LLC	N2A318AKB200	E082714021	Split System Heat Pump	3 Ton	13 SEER ~ 14.4 EER	Courtyard	~A-2	*2008*	14	
Condensing Unit	1	Trane	TTB018C100A0	L202U8PAF	Split System Condensing Unit	18,000 btu/h,	10 EER	On ground outside C-5S	C-5S	1996	2	
Condensing Unit	1	Trane	TTB030C100A0	L206M19BF	Split System Condensing Unit	30,000 btu/h	10 EER	On ground outside D-13	D-13	1996	2	
Condensing Unit	1	International Comfort Products LLC	HCC036HC	E044432662	Split System Heat Pump	3 Ton	13 SEER ~ 14.4 EER	Ground outside E-10	E-12	*2004*	5	
Condensing Unit	1	United Refrigeration Inc	TZAA-336-CA757	8372W331303035	Split System Heat Pump	3 Ton	13 SEER ~ 14.4 EER	Ground outside E-10	E10	2013	14	
Condensing Unit	1	Carrier	38YCA036540	4694E14716	Split System Heat Pump	3 Ton	13 SEER ~ 14.4 EER	Ground outside E-10	E-8	*2004*	5	
Condensing Unit	1	Carrier	38YCA036560	4994E07216	Split System Heat Pump	3 Ton	13 SEER ~ 14.4 EER	Ground outside E-10	E-6	*2004*	5	
Condensing Unit	1	Trane	TTA090A300CA	J27198612	Split System Heat Pump	7.5 Ton	11.2 EER	Ground outside E-4	E-4	*2004*	5	
Condensing Unit	1	AAON	CA1315 CA-08-3:0AA0A00	200506-CCCF04974	Split System Condensing Unit	8 Ton	11.2 EER	Ground outside E-2	E-2	2005	6	
DHW Boiler	1	AO Smith	HW-670-300	1226M001300	DHW Boiler	In: 660,000 btu/h Out: 526,000 btu/h	80%	Boiler Room	Domestic Hot Water System	*2012*	22	
DHW Storage Tank	1	Unknown	Unknown	Unknown	DHW Storage Tank (Insulated)	~500 Gallons	N/A	Boiler Room	Domestic Hot Water System	*1990*	6	
Dishwasher	1	Insinger	ADMIRAL	840913A	Dishwasher	Unknown	N/A	Kitchen	Kitchen	*2009*	10	
Dishwasher Booster Heater	1	Hatco	C-45	8499100149	Dishwasher Booster Heater	45 kW	N/A	Kitchen	Dishwasher	*1999*	0	
EF-	1	Unknown	Unknown	Unknown	KitchenExhaust Fan	3 HP	~89.5%	Roof above Kitchen	Exhaust Hood	*1996*	-3	
HV	1	Reznor	No Tag	Unknown	Heating and Ventilation Unit / Natural Gas	Unknown	N/A	Roof	Boy's Locker Room/Team Room	*2005*	9	
HV	1	Reznor	No Tag	Unknown	Heating and Ventilation Unit / Natural Gas	Unknown	N/A	Roof	Room Behind Gym	*2005*	9	
HV	1	Reznor	No Tag	Unknown	Heating and Ventilation Unit / Natural Gas	Unknown	N/A	Roof	Boy's Locker Room	*2005*	9	
Kitchen Hood	4	Greitzer	No Tag	Unknown	Kitchen Hood	5' x 6'	N/A	Kitchen	Kitchen	*2000*	11	
RT-1	1	Carrier	48TMF016---611AA	3806U23828	Forced Air Furnace w/ DX Cooling / Natural Gas	15 Ton In 360 / Out 292 MBH, 5800 CFM	9.5 EER 81%	Roof above Cafe	Cafeteria	*2006*	7	High / Low Fire (360 / 270 MBH)
RT-2	1	Carrier	48TMF016---611AA	3806U23827	Forced Air Furnace w/ DX Cooling / Natural Gas	15 Ton In 360 / Out 292 MBH, 5800 CFM	9.5 EER 81%	Roof above Cafe	Cafeteria	*2006*	7	
RT-3	1	Carrier	48TMF016---611AA	4606U28925	Forced Air Furnace w/ DX Cooling / Natural Gas	15 Ton In 360 / Out 292 MBH, 5800 CFM	9.5 EER 81%	Roof above Cafe	Cafeteria	*2006*	7	
RT-4	1	Carrier	48TMF016---611AA	3306U19704	Forced Air Furnace w/ DX Cooling / Natural Gas	15 Ton In 360 / Out 292 MBH, 5800 CFM	9.5 EER 81%	Roof above Cafe	Cafeteria	*2006*	7	
RT-5	1	Carrier	48TME012-A-601--	3406G30797	Forced Air Furnace w/ DX Cooling / Natural Gas	10 Ton In 180 / Out 144 MBH, 3800 CFM	9.5 EER 80%	Roof above Stage	Stage	*2006*	7	

Toms River Regional School District
CHA Project# 28485
Toms River South High School

Description	QTY	Manufacturer Name	Model No.	Serial No.	Equipment Type / Utility	Capacity/Size	Efficiency	Location	Areas/Equipment Served	Actual *Estimated* Date Installed	Remaining Useful Life (years)	Other Info.
RT-6	1	Carrier	48TME012-A-601--	3406G30794	Forced Air Furnace w/ DX Cooling / Natural Gas	10 Ton In 180 / Out 144 MBH, 3800 CFM	9.5 EER 80%	Roof above Stage	Stage	*2006*	7	
RTU-	1	Heat Controller Inc	PCT36-1F	4566 F3491 2588	DX AC Unit	3 Ton	13 SEER ~ 14.4 EER	Roof above C7	C7	1991	-8	Economizer Installed
RTU-	1	Heat Controller Inc	PCT36-1F	4566 F3491 2590	DX AC Unit	3 Ton	13 SEER ~ 14.4 EER	Roof above C8	C8	1991	-8	Economizer Installed
RTU-	1	Heat Controller Inc	PCT36-1F	4566 F3491 2589	DX AC Unit	3 Ton	13 SEER ~ 14.4 EER	Roof above C5	C5	1991	-8	Economizer Installed
RTU-	1	Heat Controller Inc	PCT36-1F	4566 F3491 2591	DX AC Unit	3 Ton	13 SEER ~ 14.4 EER	Roof above C3	C3	1991	-8	Economizer Installed
RTU-	1	Heat Controller Inc	PCT36-1F	4566 F3491 2592	DX AC Unit	3 Ton	13 SEER ~ 14.4 EER	Roof above C1	C1	1991	-8	
RTU-	1	Trane	YCD091D3H0BE	L27102621D	Forced Air Furnace w/ DX Cooling / Natural Gas	7.5 Ton 120 / 150 MBH	11.2 EER 80%	Roof above B7	B7	1996	-3	Single Stage Heat
RTU-	1	Trane	YCD074C3L0BE	L26104185D	Forced Air Furnace w/ DX Cooling / Natural Gas	6 Ton, 97.2 / 120 MBH	11.2 EER 81%	Roof above B5	B5	1996	-3	Single Stage Heat
RTU-	1	York	D6NZ036N07206NXA	W1A4329059	Forced Air Furnace w/ DX Cooling / Natural Gas	3 Ton 90 MBH	11.1 EER 80%	Roof above CST	CST	*2009*	10	
RTU-	1	York	ZS-12N24ATAAA5A	N1G3955939	Forced Air Furnace w/ DX Cooling / Natural Gas	12.5 Ton 240 / 144 MBH	11.2 EER 80%	Roof above Main Office	Main Office	*2009*	10	
RTU-	1	United Refrigeration Inc	TZAC-360CLA	7992F501008263	DX AC Unit	5 Ton	11.1 EER	Roof above Guidance	Guidance	2010	11	
RTU-	1	International Comfort Products LLC	PGD120H240A	L0029 93111	Forced Air Furnace w/ DX Cooling / Natural Gas	10 Ton 240 / 192 MBH 160 / 125 MBH	12 EER 80%	Roof above Girls Locker Room	Girls Locker Room	*2002*	3	High/Low fire heater
RTU-	1	Carrier	48HJE012---551--	3699G30621	Forced Air Furnace w/ DX Cooling / Natural Gas	10 Ton In 180 / Out 148 MBH	11 EER 82%	Roof above Athletic Trainer Office	Athletic Trainer Office	*1999*	0	Multi-Stage Heat
RTU-	1	Carrier	48HJE012---551--	3599038855	Forced Air Furnace w/ DX Cooling / Natural Gas	10 Ton In 180 / Out 148 MBH	11 EER 82%	Roof above Coaches Office	Coaches Office	*1999*	0	
RTU-	1	Carrier	48HJE005---531--	0800G20175	Forced Air Furnace w/ DX Cooling / Natural Gas	4 Ton In 115 / Out 93 MBH	11.1 EER 81%	Roof	Unknown (near boy's locker)	2008	9	
RTU-	1	Carrier	48HJE006---531--	0900G20278	Forced Air Furnace w/ DX Cooling / Natural Gas	5 Ton In 115 / Out 93 MBH	11 EER 81%	Roof	Unknown (near boy's locker)	2009	10	
RTU-	1	Carrier	48HJD017	3498F65063	Forced Air Furnace w/ DX Cooling / Natural Gas	15 Ton In 275 / Out 223 MBH	10 EER 81%	Roof above Weight Room	Weight Room	1993	-6	Multi-Stage Heat
RTU-	1	International Comfort Products LLC	PAS120H000AA----	G032630453	DX AC Unit	10 Ton	11.2 EER	On Grade outside Media Center	Media Center	*2003*	4	*Electric Heat Unknown*
Walk-In Cooler	1	Bally / Geldback	Unknown / AL28-81	Unknown / B8476454-6	Walk-In Cooler / Evaporator	6' x 10' 2x 115V, 1 PH, 1/47 HP, 1.1 A	N/A	Kitchen	Kitchen	*1996*	2	
Walk-In Freezer	1	Bally / Geldback	Unknown / AL36-139E	Unknown / M8375600--5	Walk-In Freezer / Evaporator	6' x 10' 3x 208V, 1 PH, 1/47 HP, 0.55 A	N/A	Kitchen	Kitchen	*1996*	2	
Walk-In Freezer Door Heater	1	Bally	AD-3477.5-2A-4	DX9307890-01	Walk-In Freezer Door Heater	Door: 0.29 kW Frame: 1.13 kW	N/A	Kitchen	Walk-in Freezer	*1996*	2	
Reach-In Warmer	2	Unknown	Unknown	Unknown	2-Door Reach-In Commercial Warmer	Unknown Capacity ft^3	N/A	Kitchen	Kitchen	*2008*	4	
Reach-In Cooler	2	Unknown	Unknown	Unknown	2-Door Reach-In Commercial Cooler	Unknown Capacity ft^3	N/A	Kitchen	Kitchen	*2008*	4	
Window A/C	6	Various	Unknown	Unknown	Window Mounted Air Conditioning Unit	12,0000 - 24,000 btu/h (10.7 EER)	10.7 EER	Classrooms and Offices	Classrooms and Offices	*2005*	11	
Walk-In Freezer #1	1	Bally	*DF-300A-1*	Unknown	Walk-In Freezer / Evaporator	15' X 20' 2X 208/230V, 1 PH, 800W, 5.4A	N/A	District Food Warehouse	Walk-In Freezer #1	*2005*	11	Energy Saver - Condensate Control
Walk-In Freezer #2	1	Trrenton Refrigeration Products	Unknown	Unknown	Walk-In Freezer / Evaporator	8' X 10'	N/A	District Food Warehouse	Walk-In Freezer #2	*2005*	11	Energy Saver - Condensate Control
Walk-In Freezer #3	1	Bohn	LET160BJ	D96L 05495	Walk-In Freezer / Evaporator	8' X 30', 4x 208/230V, 1 PH, 1/15 HP, 1.1A ea Door Htr: 17.3A, 4000W	N/A	District Food Warehouse	Walk-In Freezer #3	*2005*	11	Energy Saver - Condensate Control
Refrigerator/Freezer	1	Electrolux	FRT18S6JW4	BA93137510	Residential Refrigerator/Freezer	Unknown Capacity ft^3	N/A	Football Concessions	Football Concessions	2009	5	

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
Existing Lighting & Audit Input

Cost of Electricity: **$0.149** **$/kWh**
$5.94 **$/kW**

			EXISTING CONDITIONS									Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
32LED	Athletic Trainer	Office	17	1T 32 R F 2 (ELE)	F42LL	60	1.02	SW	2600	2,652	C-OCC	
18LED	Athletic Trainer	Office	5	T 32 R F 4 (ELE)	F44ILL	112	0.56	SW	2600	1,456	C-OCC	
13LED	Electrical Closet	Linen/Utility/Wet/Janitor/Electrical	1	S 32 P F 2 (ELE)	F42LL	60	0.06	SW	1560	94	NONE	
18LED	Men's Restroom	Restroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	3120	699	C-OCC	
18LED	Women's Restroom	Restroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	3120	699	C-OCC	
32LED	Custodial Room	Linen/Utility/Wet/Janitor/Electrical	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	1560	94	NONE	
32LED	Women's Faculty Restroom	Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	3120	187	C-OCC	
32LED	Men's Faculty Restroom	Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	3120	187	C-OCC	
X5	Storage Room (locked - no entry)	Storage Area	1	CF42/1	CF42/1-I	48	0.05	SW	1560	75	C-OCC	
18LED	G-10	Classroom	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2600	2,621	C-OCC	
18LED	H-1 (No Entry)	Classroom	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2600	2,621	C-OCC	
18LED	H-2 (No Entry)	Classroom	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2600	2,621	C-OCC	
X5	Custodial Room (locked - no entry)	Linen/Utility/Wet/Janitor/Electrical	1	CF42/1	CF42/1-I	48	0.05	SW	1560	75	NONE	
32LED	W-1	Classroom	11	1T 32 R F 2 (ELE)	F42LL	60	0.66	SW	2600	1,716	C-OCC	
40LED	H hallway	Hallway	13	T 32 R F 2 (ELE)	F42LL	60	0.78	SW	3640	2,839	C-OCC	
32LED	W-1 Storage	Storage Area	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	1560	94	C-OCC	
40LED	W-1 Office	Office	4	T 32 R F 2 (ELE)	F42LL	60	0.24	SW	2600	624	C-OCC	
46LED	Back Gym Corridor	Hallway	8	W 32 C F 2 (ELE)	F42LL	60	0.48	SW	3640	1,747	C-OCC	
46LED	Gym Storage	Storage Area	12	W 32 C F 2 (ELE)	F42LL	60	0.72	SW	1560	1,123	C-OCC	
46LED	Exit	Hallway	3	W 32 C F 2 (ELE)	F42LL	60	0.18	SW	3640	655	C-OCC	
13LED	W-3	Classroom	7	S 32 P F 2 (ELE)	F42LL	60	0.42	SW	2600	1,092	C-OCC	
13LED	W-2	Classroom	9	S 32 P F 2 (ELE)	F42LL	60	0.54	SW	2600	1,404	C-OCC	
18LED	Corridor Front + Gym	Hallway	29	T 32 R F 4 (ELE)	F44ILL	112	3.25	SW	3640	11,823	C-OCC	
13LED	Weight Room	Gymnasium	28	S 32 P F 2 (ELE)	F42LL	60	1.68	SW	3120	5,242	NONE	
46LED	Weight Room Corridor	Hallway	4	W 32 C F 2 (ELE)	F42LL	60	0.24	SW	3640	874	C-OCC	
141LED	Wrestling Room	Gymnasium	10	HPS 250	HPS250/1	295	2.95	SW	3120	9,204	NONE	
32LED	Boys' Baseball Locker Room	Locker Room	12	1T 32 R F 2 (ELE)	F42LL	60	0.72	SW	3120	2,246	C-OCC	
18LED	Baseball Office	Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.45	SW	2600	1,165	C-OCC	
32LED	Locker Room Restroom	Restroom	3	1T 32 R F 2 (ELE)	F42LL	60	0.18	SW	3120	562	C-OCC	
32LED	Locker Room Corridor	Hallway	10	1T 32 R F 2 (ELE)	F42LL	60	0.60	SW	3640	2,184	C-OCC	
32LED	Boys' Locker Room	Locker Room	7	1T 32 R F 2 (ELE)	F42LL	60	0.42	SW	3120	1,310	C-OCC	
18LED	Boys' Locker Room Office	Office	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	2600	582	C-OCC	
32LED	Locker Room Entrance	Hallway	1	1T 32 R F 2 (ELE)	F42LL	60	0.06	SW	3640	218	C-OCC	
141LED	Large Gymnasium	Gymnasium	36	HPS 250	HPS250/1	295	10.62	SW	3120	33,134	NONE	
18LED	Physical Education Office (locked - no entry)	Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.45	SW	2600	1,165	C-OCC	
18LED	Boys' Locker Room (locked - no entry)	Locker Room	10	T 32 R F 4 (ELE)	F44ILL	112	1.12	SW	3120	3,494	C-OCC	
X5	Storage Room (locked - no entry)	Storage Area	3	CF42/1	CF42/1-I	48	0.14	SW	1560	225	C-OCC	
141LED	Auxilary Basketball Practice	Gymnasium	10	HPS 250	HPS250/1	295	2.95	SW	3120	9,204	NONE	
X5	Basketball Storage Room (locked - no entry)	Storage Area	2	CF42/1	CF42/1-I	48	0.10	SW	1560	150	C-OCC	
X5	Storage Room (locked - no entry)	Storage Area	2	CF42/1	CF42/1-I	48	0.10	SW	1560	150	C-OCC	
32LED	Athletic Coordinator	Office	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	2600	624	C-OCC	
32LED	M-1 Team Room	Classroom	10	1T 32 R F 2 (ELE)	F42LL	60	0.60	SW	2600	1,560	C-OCC	
32LED	M-1 Restroom	Restroom	4	1T 32 R F 2 (ELE)	F42LL	60	0.24	SW	3120	749	C-OCC	
32LED	Girls' Locker Room	Locker Room	10	1T 32 R F 2 (ELE)	F42LL	60	0.60	SW	3120	1,872	C-OCC	
257	Media Center	Media Center	37	CFT55	CFT50/1-BX	54	2.00	SW	3120	6,234	C-OCC	
256	Media Center	Media Center	3	CFT55/12-BX	CFT55/12-BX	672	2.02	SW	3120	6,290	C-OCC	
102	Media Center	Media Center	12	O CF 26	CFQ26/1-L	27	0.32	SW	3120	1,011	C-OCC	
257	Media Technology Lab	Media Center	9	CFT55	CFT50/1-BX	54	0.49	SW	3120	1,516	C-OCC	
257	Technology Lab	Classroom	14	CFT55	CFT50/1-BX	54	0.76	SW	2600	1,966	C-OCC	
6LED	D-20	Classroom	11	T 34 R F 4 (MAG)	F44EE	144	1.58	SW	2600	4,118	C-OCC	
18LED	D-20	Classroom	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	2600	291	C-OCC	
6LED	D-21	Classroom	9	T 34 R F 4 (MAG)	F44EE	144	1.30	SW	2600	3,370	C-OCC	
18LED	D-21	Classroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2600	874	C-OCC	
6LED	D-22	Classroom	8	T 34 R F 4 (MAG)	F44EE	144	1.15	SW	2600	2,995	C-OCC	
18LED	D-22	Classroom	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	2600	291	C-OCC	
7LED	D-22	Classroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.06	SW	2600	156	C-OCC	
6LED	D-23	Classroom	4	T 34 R F 4 (MAG)	F44EE	144	0.58	SW	2600	1,498	C-OCC	
18LED	D-23	Classroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	2600	582	C-OCC	
7LED	D-23	Classroom	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.18	SW	2600	468	C-OCC	
6LED	D-24	Classroom	7	T 34 R F 4 (MAG)	F44EE	144	1.01	SW	2600	2,621	C-OCC	
18LED	D-24	Classroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	2600	582	C-OCC	
7LED	D-24	Classroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.06	SW	2600	156	C-OCC	
18LED	D-25 (locked - no entry)	Classroom	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2600	2,621	C-OCC	
18LED	D-27	Classroom	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2600	2,621	C-OCC	
7LED	D-27	Classroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.06	SW	2600	156	C-OCC	
52LED	Boys' Restroom	Restroom	3	W 34 C F 2 (MAG)	F42EE	72	0.22	SW	3120	674	C-OCC	
52LED	Girls' Restroom	Restroom	3	W 34 C F 2 (MAG)	F42EE	72	0.22	SW	3120	674	C-OCC	
6LED	D-28	Classroom	6	T 34 R F 4 (MAG)	F44EE	144	0.86	SW	2600	2,246	C-OCC	
18LED	D-28	Classroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2600	874	C-OCC	
4LED	D-28	Classroom	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.07	SW	2600	187	C-OCC	
18LED	D-29 (locked - no entry)	Classroom	9	T 32 R F 4 (ELE)	F44ILL	112	1.01	SW	2600	2,621	C-OCC	

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
Existing Lighting & Audit Input

Cost of Electricity: **$0.149** **$/kWh**
$5.94 **$/kW**

			EXISTING CONDITIONS									Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
6LED	D-30	Classroom	10	T 34 R F 4 (MAG)	F44EE	144	1.44	SW	2600	3,744	C-OCC	
18LED	D-30	Classroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	2600	582	C-OCC	
6LED	D-31	Classroom	9	T 34 R F 4 (MAG)	F44EE	144	1.30	SW	2600	3,370	C-OCC	
4LED	D-31	Classroom	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.07	SW	2600	187	C-OCC	
52LED	Supervisor Office	Office	6	W 34 C F 2 (MAG)	F42EE	72	0.43	SW	2600	1,123	C-OCC	
20LED	Faculty Restroom	Restroom	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	3120	100	C-OCC	
6LED	D-32	Classroom	11	T 34 R F 4 (MAG)	F44EE	144	1.58	SW	2600	4,118	C-OCC	
18LED	D-32	Classroom	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	2600	291	C-OCC	
6LED	D-32 Prep Area	Storage Area	3	T 34 R F 4 (MAG)	F44EE	144	0.43	SW	1560	674	C-OCC	
6LED	D-33	Classroom	12	T 34 R F 4 (MAG)	F44EE	144	1.73	SW	2600	4,493	C-OCC	
7LED	D-33	Classroom	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.12	SW	2600	312	C-OCC	
4LED	D-33	Classroom	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.07	SW	2600	187	C-OCC	
20LED	Faculty Restroom	Restroom	1	S 32 C F 1 (ELE)	F41LL	32	0.03	SW	3120	100	C-OCC	
X5	Custodial Room	Linen/Utility/Wet/Janitor/Electrical	1	CF42/1	CF42/1-I	48	0.05	SW	1560	75	NONE	
6LED	D-35	Classroom	13	T 34 R F 4 (MAG)	F44EE	144	1.87	SW	2600	4,867	C-OCC	
18LED	D-35	Classroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	2600	582	C-OCC	
41LED	D-36	Classroom	6	1B 40 R F 2 (MAG)	F42SS	94	0.56	SW	2600	1,466	C-OCC	
6LED	D-34	Classroom	5	T 34 R F 4 (MAG)	F44EE	144	0.72	SW	2600	1,872	C-OCC	
18LED	D-34	Classroom	4	T 32 R F 4 (ELE)	F44ILL	112	0.45	SW	2600	1,165	C-OCC	
7LED	D-34	Classroom	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.06	SW	2600	156	C-OCC	
18LED	2nd Floor Corridor	Hallway	18	T 32 R F 4 (ELE)	F44ILL	112	2.02	SW	3640	7,338	C-OCC	
6LED	2nd Floor Corridor	Hallway	3	T 34 R F 4 (MAG)	F44EE	144	0.43	SW	3640	1,572	C-OCC	
6LED	D-27	Classroom	7	T 34 R F 4 (MAG)	F44EE	144	1.01	SW	2600	2,621	C-OCC	
18LED	D-27	Classroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	2600	582	C-OCC	
261LED	Cafeteria	Cafeteria	25	PAR 38 SP	H100/1	100	2.50	SW	2600	6,500	C-OCC	
18LED	Cafeteria	Cafeteria	85	T 32 R F 4 (ELE)	F44ILL	112	9.52	SW	2600	24,752	C-OCC	
15LED	Kitchen - Dishwasher Room	Kitchen	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	2600	156	NONE	
178LED	Kitchen - Dishwasher Room	Kitchen	2	B 34 R F 2 (MAG)	F42EE	72	0.14	SW	2600	374	NONE	
52LED	Kitchen - Restroom	Restroom	2	W 34 C F 2 (MAG)	F42EE	72	0.14	SW	3120	449	C-OCC	
178LED	Kitchen - Laundry	Kitchen	1	B 34 R F 2 (MAG)	F42EE	72	0.07	SW	2600	187	NONE	
52LED	Kitchen - Laundry	Kitchen	1	W 34 C F 2 (MAG)	F42EE	72	0.07	SW	2600	187	NONE	
4LED	Kitchen - Storage	Storage Area	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.07	SW	1560	112	C-OCC	
15LED	Kitchen	Kitchen	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2600	1,248	NONE	
15LED	Kitchen	Kitchen	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2600	624	NONE	
178LED	Kitchen	Kitchen	28	B 34 R F 2 (MAG)	F42EE	72	2.02	SW	2600	5,242	NONE	
178LED	Kitchen - Office	Kitchen	1	B 34 R F 2 (MAG)	F42EE	72	0.07	SW	2600	187	NONE	
178LED	Kitchen - Office	Kitchen	2	B 34 R F 2 (MAG)	F42EE	72	0.14	SW	2600	374	NONE	
52LED	Kitchen - Side Room	Kitchen	2	W 34 C F 2 (MAG)	F42EE	72	0.14	SW	2600	374	NONE	
7LED	Exit	Hallway	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.06	SW	3640	218	C-OCC	
4LED	Exit	Hallway	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.07	SW	3640	262	C-OCC	
18LED	Teachers Room	Staff Lounge	5	T 32 R F 4 (ELE)	F44ILL	112	0.56	SW	2600	1,456	C-OCC	
6LED	Teachers Room	Staff Lounge	13	T 34 R F 4 (MAG)	F44EE	144	1.87	SW	2600	4,867	C-OCC	
39	Mens Restroom	Restroom	1	2' 17 W F 2 (ELE)	F22ILL	33	0.03	SW	3120	103	C-OCC	
39	Womens Restroom	Restroom	1	2' 17 W F 2 (ELE)	F22ILL	33	0.03	SW	3120	103	C-OCC	
6LED	F-1	Classroom	9	T 34 R F 4 (MAG)	F44EE	144	1.30	SW	2600	3,370	C-OCC	
7LED	Corridor Cafe to F-1	Hallway	5	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.30	SW	3640	1,092	C-OCC	
18LED	Exit near F-1	Hallway	6	T 32 R F 4 (ELE)	F44ILL	112	0.67	SW	3640	2,446	C-OCC	
133	Corridor	Hallway	6	CF 26	CFQ26/1-L	27	0.16	SW	3640	590	C-OCC	
18LED	Corridor past Chorus to Cafe	Hallway	16	T 32 R F 4 (ELE)	F44ILL	112	1.79	SW	3640	6,523	C-OCC	
15LED	Boys Restroom	Restroom	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	3120	749	C-OCC	
15LED	Girls Restroom (No Entry)	Restroom	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	3120	749	C-OCC	
6LED	F-2	Classroom	19	T 34 R F 4 (MAG)	F44EE	144	2.74	SW	2600	7,114	C-OCC	
7LED	Room between F-2 and F-4	Classroom	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.12	SW	2600	312	C-OCC	
6LED	Room between F-2 and F-4	Classroom	3	T 34 R F 4 (MAG)	F44EE	144	0.43	SW	2600	1,123	C-OCC	
7LED	Room between F-2 and F-4	Classroom	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.18	SW	2600	468	C-OCC	
18LED	Room between F-2 and F-4	Classroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2600	874	C-OCC	
7LED	Room between F-2 and F-4	Classroom	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.18	SW	2600	468	C-OCC	
18LED	Room between F-2 and F-4	Classroom	3	T 32 R F 4 (ELE)	F44ILL	112	0.34	SW	2600	874	C-OCC	
7LED	Room between F-2 and F-4	Classroom	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.18	SW	2600	468	C-OCC	
18LED	F-4	Classroom	14	T 32 R F 4 (ELE)	F44ILL	112	1.57	SW	2600	4,077	C-OCC	
7LED	F-6	Classroom	9	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.54	SW	2600	1,404	C-OCC	
7LED	F-6 Storage	Storage Area	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.18	SW	1560	281	C-OCC	
18LED	Exit near F-6	Hallway	2	T 32 R F 4 (ELE)	F44ILL	112	0.22	SW	3640	815	C-OCC	
133	Corridor near Exit	Hallway	7	CF 26	CFQ26/1-L	27	0.19	SW	3640	688	C-OCC	
52LED	Corridor near Exit	Hallway	8	W 34 C F 2 (MAG)	F42EE	72	0.58	SW	3640	2,097	C-OCC	
18LED	Corridor near Exit	Hallway	12	T 32 R F 4 (ELE)	F44ILL	112	1.34	SW	3640	4,892	C-OCC	
178LED	Cafeteria Side Room	Hallway	2	B 34 R F 2 (MAG)	F42EE	72	0.14	SW	3640	524	C-OCC	
52LED	Cafeteria Side Room	Hallway	1	W 34 C F 2 (MAG)	F42EE	72	0.07	SW	3640	262	C-OCC	
15LED	E-2	Classroom	20	S 32 C F 2 (ELE)	F42LL	60	1.20	SW	2600	3,120	C-OCC	
35LED	E-2	Classroom	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.80	SW	2600	4,680	C-OCC	
35LED	E-2 Closet (No entry)	Storage Area	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.45	SW	1560	702	C-OCC	

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
Existing Lighting & Audit Input

Cost of Electricity: **$0.149** **$/kWh**
$5.94 **$/kW**

			EXISTING CONDITIONS									Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh		
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	Retrofit control device	Notes
18LED	E-4 (No Entry)	Classroom	10	T 32 R F 4 (ELE)	F44ILL	112	1.12	SW	2600	2,912	C-OCC	
35LED	E-4 Closet	Storage Area	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.45	SW	1560	702	C-OCC	
35LED	D-14	Classroom	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.81	SW	2600	2,106	C-OCC	
35LED	D-14 Side Room	Classroom	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.36	SW	2600	936	C-OCC	
6LED	D-11	Classroom	13	T 34 R F 4 (MAG)	F44EE	144	1.87	SW	2600	4,867	C-OCC	
61LED	Room next to D-11	Storage Area	6	T 34 R F 3 (MAG)	F43EE	115	0.69	SW	1560	1,076	C-OCC	
178LED	Exit	Hallway	4	B 34 R F 2 (MAG)	F42EE	72	0.29	SW	3640	1,048	C-OCC	
15LED	Exit	Hallway	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	3640	437	C-OCC	
6LED	D-12	Classroom	14	T 34 R F 4 (MAG)	F44EE	144	2.02	SW	2600	5,242	C-OCC	
6LED	D-7	Classroom	11	T 34 R F 4 (MAG)	F44EE	144	1.58	SW	2600	4,118	C-OCC	
6LED	D-10 (No Entry)	Classroom	14	T 34 R F 4 (MAG)	F44EE	144	2.02	SW	2600	5,242	C-OCC	
6LED	D-8	Classroom	12	T 34 R F 4 (MAG)	F44EE	144	1.73	SW	2600	4,493	C-OCC	
6LED	D-5 (No Entry)	Classroom	11	T 34 R F 4 (MAG)	F44EE	144	1.58	SW	2600	4,118	C-OCC	
178LED	Exit	Hallway	1	B 34 R F 2 (MAG)	F42EE	72	0.07	SW	3640	262	C-OCC	
6LED	D-6 (No Entry)	Classroom	12	T 34 R F 4 (MAG)	F44EE	144	1.73	SW	2600	4,493	C-OCC	
15LED	Boys Restroom	Restroom	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	3120	562	C-OCC	
15LED	Girls Restroom (No Entry)	Restroom	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	3120	562	C-OCC	
7LED	Exit to Courtyard	Hallway	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.06	SW	3640	218	C-OCC	
6LED	Exit to Courtyard	Hallway	1	T 34 R F 4 (MAG)	F44EE	144	0.14	SW	3640	524	C-OCC	
61LED	D-3 (No Entry)	Classroom	4	T 34 R F 3 (MAG)	F43EE	115	0.46	SW	2600	1,196	C-OCC	
6LED	D-4 (No Entry)	Classroom	12	T 34 R F 4 (MAG)	F44EE	144	1.73	SW	2600	4,493	C-OCC	
6LED	D-2 (No Entry)	Classroom	12	T 34 R F 4 (MAG)	F44EE	144	1.73	SW	2600	4,493	C-OCC	
61LED	D-1	Classroom	4	T 34 R F 3 (MAG)	F43EE	115	0.46	SW	2600	1,196	C-OCC	
18LED	Corridor near E-2	Hallway	4	T 32 R F 4 (ELE)	F44ILL	112	0.45	SW	3640	1,631	C-OCC	
6LED	Corridor near E-4	Hallway	4	T 34 R F 4 (MAG)	F44EE	144	0.58	SW	3640	2,097	C-OCC	
6LED	D- Corridor	Hallway	25	T 34 R F 4 (MAG)	F44EE	144	3.60	SW	3640	13,104	C-OCC	
15LED	Main Entrance	Hallway	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	3640	655	C-OCC	
178LED	Main Entrance	Hallway	3	B 34 R F 2 (MAG)	F42EE	72	0.22	SW	3640	786	C-OCC	
15LED	Corridor near Main Entrance	Hallway	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	3640	437	C-OCC	
4LED	D-Wing Stairwell	Stairway	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.29	SW	3640	1,048	NONE	
4LED	D-Wing Stairwell	Stairway	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.29	SW	3640	1,048	NONE	
4LED	D-Wing Stairwell	Stairway	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.29	SW	3640	1,048	NONE	
6LED	Nurse's Office	Nurses Office	2	T 34 R F 4 (MAG)	F44EE	144	0.29	SW	2600	749	NONE	
6LED	Nurse's Office	Nurses Office	4	T 34 R F 4 (MAG)	F44EE	144	0.58	SW	2600	1,498	NONE	
133	Nurse's Office	Nurses Office	2	CF 26	CFQ26/1-L	27	0.05	SW	2600	140	NONE	
178LED	Storage	Storage Area	3	B 34 R F 2 (MAG)	F42EE	72	0.22	SW	1560	337	C-OCC	
6LED	Storage	Storage Area	1	T 34 R F 4 (MAG)	F44EE	144	0.14	SW	1560	225	C-OCC	
6LED	Main Corridor	Hallway	20	T 34 R F 4 (MAG)	F44EE	144	2.88	SW	3640	10,483	C-OCC	
6LED	Exit	Hallway	4	T 34 R F 4 (MAG)	F44EE	144	0.58	SW	3640	2,097	C-OCC	
15LED	Assistant Principal Office	Office	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2600	468	C-OCC	
15LED	Main Office - Office	Office	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2600	468	C-OCC	
15LED	Main Office - Office A	Office	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2600	312	C-OCC	
15LED	Main Office - Office B	Office	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2600	312	C-OCC	
15LED	Main Office - Office C	Office	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2600	312	C-OCC	
15LED	Main Office - Office D	Office	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2600	312	C-OCC	
15LED	Main Office - Office E	Office	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	2600	624	C-OCC	
15LED	Main Office - Break Room	Staff Lounge	2	S 32 C F 2 (ELE)	F42LL	60	0.12	SW	2600	312	C-OCC	
178LED	Main Office	Office	1	B 34 R F 2 (MAG)	F42EE	72	0.07	SW	2600	187	C-OCC	
178LED	Main Office	Office	1	B 34 R F 2 (MAG)	F42EE	72	0.07	SW	2600	187	C-OCC	
15LED	Main Office	Office	8	S 32 C F 2 (ELE)	F42LL	60	0.48	SW	2600	1,248	C-OCC	
7LED	Main Office - Storage A	Storage Area	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.06	SW	1560	94	C-OCC	
133	Main Office - Storage B	Storage Area	1	CF 26	CFQ26/1-L	27	0.03	SW	1560	42	C-OCC	
6LED	Tech Lab	Office	8	T 34 R F 4 (MAG)	F44EE	144	1.15	SW	2600	2,995	C-OCC	
6LED	Tech Lab	Office	2	T 34 R F 4 (MAG)	F44EE	144	0.29	SW	2600	749	C-OCC	
6LED	Tech Lab	Office	3	T 34 R F 4 (MAG)	F44EE	144	0.43	SW	2600	1,123	C-OCC	
18LED	Offices 1	Office	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	2600	291	C-OCC	
6LED	Offices 2	Office	2	T 34 R F 4 (MAG)	F44EE	144	0.29	SW	2600	749	C-OCC	
6LED	Offices 3	Office	2	T 34 R F 4 (MAG)	F44EE	144	0.29	SW	2600	749	C-OCC	
6LED	Offices 4	Office	2	T 34 R F 4 (MAG)	F44EE	144	0.29	SW	2600	749	C-OCC	
6LED	Offices 5	Office	2	T 34 R F 4 (MAG)	F44EE	144	0.29	SW	2600	749	C-OCC	
6LED	Offices 6	Office	2	T 34 R F 4 (MAG)	F44EE	144	0.29	SW	2600	749	C-OCC	
6LED	Offices 7	Office	2	T 34 R F 4 (MAG)	F44EE	144	0.29	SW	2600	749	C-OCC	
6LED	Guidance	Office	13	T 34 R F 4 (MAG)	F44EE	144	1.87	SW	2600	4,867	C-OCC	
6LED	Guidance - Storage	Storage Area	2	T 34 R F 4 (MAG)	F44EE	144	0.29	SW	1560	449	C-OCC	
6LED	A-17	Classroom	13	T 34 R F 4 (MAG)	F44EE	144	1.87	SW	2600	4,867	C-OCC	
133	A-17 - Side Area	Classroom	2	CF 26	CFQ26/1-L	27	0.05	SW	2600	140	C-OCC	
133	A-17 - Side Area	Classroom	1	CF 26	CFQ26/1-L	27	0.03	SW	2600	70	C-OCC	
133	A-17 - Kiln	Storage Area	2	CF 26	CFQ26/1-L	27	0.05	SW	1560	84	C-OCC	
15LED	A-17 - Storage	Storage Area	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	1560	94	C-OCC	
133	A-17 - Entrane	Classroom	1	CF 26	CFQ26/1-L	27	0.03	SW	2600	70	C-OCC	
133	A-17 - Storage	Storage Area	2	CF 26	CFQ26/1-L	27	0.05	SW	1560	84	C-OCC	

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
Existing Lighting & Audit Input

Cost of Electricity: **$0.149** **$/kWh**
$5.94 **$/kW**

			EXISTING CONDITIONS									Retrofit Control	
	Area Description	Usage	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh			
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	Describe Usage Type using Operating Hours	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)		Retrofit control device	Notes
4LED	A-17 - Storage	Storage Area	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.07	SW	1560	112		C-OCC	
178LED	A-16	Classroom	20	B 34 R F 2 (MAG)	F42EE	72	1.44	SW	2600	3,744		C-OCC	
7LED	Corridor	Hallway	8	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.48	SW	3640	1,747		C-OCC	
15LED	Custodial Office	Office	3	S 32 C F 2 (ELE)	F42LL	60	0.18	SW	2600	468		C-OCC	
15LED	Grounds Shed	Grounds	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	1560	374		C-OCC	
15LED	Grounds Shed Garage	Grounds	4	S 32 C F 2 (ELE)	F42LL	60	0.24	SW	1560	374		C-OCC	
33	Grounds Shed Garage - Storage	Grounds	2	13 W CF 1	CFQ13/1-L	15	0.03	SW	1560	47		C-OCC	
40LED	Field House Locker	Field House	4	T 32 R F 2 (ELE)	F42LL	60	0.24	SW	1200	288		NONE	
133	Field House Locker Restroom	Field House	1	CF 26	CFQ26/1-L	27	0.03	SW	1200	32		NONE	
40LED	Field House Locker 1	Field House	14	T 32 R F 2 (ELE)	F42LL	60	0.84	SW	1200	1,008		NONE	
40LED	Field House Locker 2	Field House	8	T 32 R F 2 (ELE)	F42LL	60	0.48	SW	1200	576		NONE	
18LED	Field House Shower Room	Field House	1	T 32 R F 4 (ELE)	F44ILL	112	0.11	SW	1200	134		NONE	
40LED	Field House Stairway	Field House	4	T 32 R F 2 (ELE)	F42LL	60	0.24	SW	1200	288		NONE	
40LED	Second Floor Corridor	Field House	9	T 32 R F 2 (ELE)	F42LL	60	0.54	SW	1200	648		NONE	
40LED	Team Room	Field House	11	T 32 R F 2 (ELE)	F42LL	60	0.66	SW	1200	792		NONE	
40LED	Coaches Room	Field House	6	T 32 R F 2 (ELE)	F42LL	60	0.36	SW	1200	432		NONE	
33	Restroom	Field House	1	13 W CF 1	CFQ13/1-L	15	0.02	SW	1200	18		NONE	
40LED	Conference Room	Field House	8	T 32 R F 2 (ELE)	F42LL	60	0.48	SW	1200	576		NONE	
133	Video Editing Room	Field House	1	CF 26	CFQ26/1-L	27	0.03	SW	1200	32		NONE	
33	Ticket Booth	Ticket Booth	1	13 W CF 1	CFQ13/1-L	15	0.02	SW	520	8		NONE	
33	Ticket Booth	Ticket Booth	1	13 W CF 1	CFQ13/1-L	15	0.02	SW	520	8		NONE	
15LED	Concessions	Concessions	5	S 32 C F 2 (ELE)	F42LL	60	0.30	SW	780	234		NONE	
15LED	Concessions Storage (No Entry)	Concessions	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	780	47		NONE	
133	Concessions - Exterior	Outdoor Lighting	4	CF 26	CFQ26/1-L	27	0.11	SW	3120	337		NONE	
15LED	Ladies Restroom	Concessions	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	780	47		NONE	
15LED	Mens Restroom	Concessions	1	S 32 C F 2 (ELE)	F42LL	60	0.06	SW	780	47		NONE	
227LED	Exterior Building Lighting	Outdoor Lighting	23	70 W MH Wall Pack	MH70/1	95	2.19	SW	3120	6,817		NONE	
237LED	Exterior Building Lighting	Outdoor Lighting	4	MV 100	MV100/1	125	0.50	SW	3120	1,560		NONE	
s	**Total**		**1,506**				**157.73**			**439,650**			

APPENDIX C

ECM Calculations

Toms River Regional Schools
CHA Project Number: 28485

Rate of Discount (used for NPV) 3.0%

Utility Costs		Yearly Usage	Metric Ton Carbon Dioxide Equivalent	Building Area	Annual Utility Cost		
					Electric	Natural Gas	Water
$ 0.168	$/kWh blended		0.000420205	172,344	$ 140,449	$ 80,024	$ 19,078
$ 0.149	$/kWh supply	833,573	0.000420205				
$ 5.94	$/kW	223.8	0				
$ 1.20	$/Therm	66,518	0.00533471				
$ 18.74	$/kgals	1,018	0				

Toms River High School South

Recommend? Y or N		Item	Savings kW	Savings kWh	Savings therms	Savings Water kgal	Savings $	Cost	Simple Payback	Life Expectancy	Equivalent CO_2 (Metric tons)	NJ Smart Start Incentives	Direct Install Eligible (Y/N)	Payback w/ Incentives	Simple Projected Lifetime Savings kW	kWh	therms	kgal/yr	$	ROI	NPV	IRR
Y	ECM-1	Replace Door Seals & Sweeps	0.0	1,433	751	0	$ 1,145	$ 6,222	5.4	5	4.6	$ -	N	5.4	0.0	7,163	3,754	0	$ 5,723	(0.1)	($980)	-2.7%
Y	ECM-2A	Install High Efficiency Condensing HW Boiler to Replace Steam to HW Heat Exchangers	0.0	0	15,674	0	$ 18,857	$ 130,631	6.9	25	83.6	$ 3,000	Y	6.8	0.0	0	391,860	0	$ 471,426	2.6	$200,729	14.2%
N	ECM-2B	Convert Entire Steam System to Hot Water and Install Condensing HW Boilers	0.0	0	20,180	0	$ 24,277	$ 1,887,162	77.7	25	107.7	$ 9,000	Y	77.4	0.0	0	504,494	0	$ 606,930	(0.7)	($1,455,420)	-7.3%
Y	ECM-3	Replace DX / RTU Equipment w/ Higher Efficiency Equipment	31.0	52,319	0	0	$ 9,992	$ 456,700	45.7	20	22.0	$ 6,123	Y	45.1	619.9	1,046,377	0	0	$ 220,508	(0.5)	($301,929)	-6.7%
Y	ECM-4	Install Window A/C Controllers	0.0	3,724	0	0	$ 627	$ 1,200	1.9	10	1.6	$ -	N	1.9	0.0	37,242	0	0	$ 6,275	4.2	$4,153	51.5%
N	ECM-5	Extend HVAC Controls System	0.0	2,501	652	0	$ 1,206	$ 239,855	199.0	15	4.5	$ -	N	199.0	0.0	37,511	9,778	0	$ 18,084	(0.9)	($225,463)	-22.5%
Y	ECM-6	Replace DHW Boiler with a High Efficiency Condensing Unit	0.0	0	1,738	0	$ 2,090	$ 44,228	21.2	25	9.3	$ 1,155	Y	20.6	0.0	0	43,440	0	$ 52,260	0.2	($6,672)	1.5%
Y	ECM-7	Install Kitchen Hood Controller	0.0	2,733	0	0	$ 461	$ 30,787	66.8	15	1.1	$ 1,000	N	64.7	0.0	41,000	0	0	$ 6,908	(0.8)	($24,289)	-14.4%
Y	ECM-8	Install Walk-In Controls	0.0	9,142	0	0	$ 1,540	$ 20,625	13.4	15	3.8	$ 175	N	13.3	0.0	137,129	0	0	$ 23,105	0.1	($2,062)	1.6%
Y	ECM-9	Replace Electric Dishwasher Booster Heater w/ NG Fired	7.0	23,447	(1,000)	0	$ 2,786	$ 17,400	6.2	25	4.5	$ 2,635	Y	5.3	175.8	586,166	(25,000)	0	$ 81,227	3.7	$33,744	18.6%
Y	ECM-10	Install Vending Machine Controls	0.0	27,854	0	0	$ 4,693	$ 3,361	0.7	15	11.7	$ -	N	0.7	0.0	417,814	0	0	$ 70,398	19.9	$52,666	139.6%
Y	ECM-11	Replace CRT Monitors w/ LCD	0.0	9,000	0	0	$ 1,516	$ 18,732	12.4	10	3.8	$ -	N	12.4	0.0	90,000	0	0	$ 15,164	(0.2)	($5,797)	-3.7%
Y	ECM-12	Install Low Flow Plumbing Fixtures	0.0	0	0	771	$ 14,442	$ 179,376	12.4	30	0.0	$ -	N	12.4	0.0	0	0	23,117	$ 433,259	1.4	$103,693	7.0%
N	ECM-L1	Lighting Replacements / Upgrades	90.6	254,251	0	0	$ 44,277	$ 351,836	7.9	15	106.8	$ 8,300	Y	7.8	1,359.5	3,813,758	0	0	$ 739,528	1.1	$185,046	9.7%
N	ECM-L2	Install Lighting Controls (Add Occupancy Sensors)	0.0	89,625	0	0	$ 13,330	$ 52,920	4.0	15	37.7	$ 6,860	Y	3.5	0.0	1,344,382	0	0	$ 226,516	3.3	$113,072	28.2%
Y	ECM-L3	Lighting Replacements with Controls (Occupancy Sensors)	90.6	294,114	0	0	$ 50,206	$ 404,756	8.1	15	123.6	$ 15,160	Y	7.8	1,359.5	4,411,703	0	0	$ 840,277	1.1	$209,764	9.7%
		Total (Not Including [B] Option ECMs or L1, L2)	**128.7**	**426,266**	**17,815**	**771**	**$ 109,561**	**$ 1,553,874**	**14.2**	**17.3**	**274**	**$ 29,248**		**13.9**	**2,155**	**6,812,106**	**423,832**	**23,117**	**$ 2,244,615**	**0.4**	**($82,130)**	**2.3%**
		Recommended Measures (highlighted green above)	**128.7**	**423,765**	**17,163**	**771**	**$ 108,356**	**$ 1,314,019**	**12.1**	**17.5**	**270**	**$ 29,248**		**11.9**	**2,155**	**6,774,595**	**414,054**	**23,117**	**$ 2,226,531**	**0.7**	**$141,852**	**4.3%**
		% of Existing	**57%**	**51%**	**26%**	**76%**																

	City:	Atlantic City, NJ				
	Occupied Hours/Week	70	70	70	70	70
		Building Operating Hours	Auditorium Occupied Hours	Gymnasium Occupied Hours	Library Occupied Hours	Classrooms Occupied Hours
Temp	Enthalpy h (Btu/lb)	Bin Hours				
102.5						
97.5	38.6	17	7	7	7	7	7
92.5	38.5	61	25	25	25	25	25
87.5	37.5	132	55	55	55	55	55
82.5	34.8	344	143	143	143	143	143
77.5	32.4	566	236	236	236	236	236
72.5	31.3	755	315	315	315	315	315
67.5	27.8	780	325	325	325	325	325
62.5	24.7	889	370	370	370	370	370
57.5	21.8	742	309	309	309	309	309
52.5	19.0	710	296	296	296	296	296
47.5	17.0	642	268	268	268	268	268
42.5	15.0	795	331	331	331	331	331
37.5	12.8	784	327	327	327	327	327
32.5	10.7	682	284	284	284	284	284
27.5	8.7	345	144	144	144	144	144
22.5	7.1	229	95	95	95	95	95
17.5	5.4	189	79	79	79	79	79
12.5	4.1	70	29	29	29	29	29
7.5	2.5	22	9	9	9	9	9
2.5	1.3	6	3	3	3	3	3
-2.5							
-7.5							

Multipliers	
Material:	1.027
Labor:	1.246
Equipment:	1.124

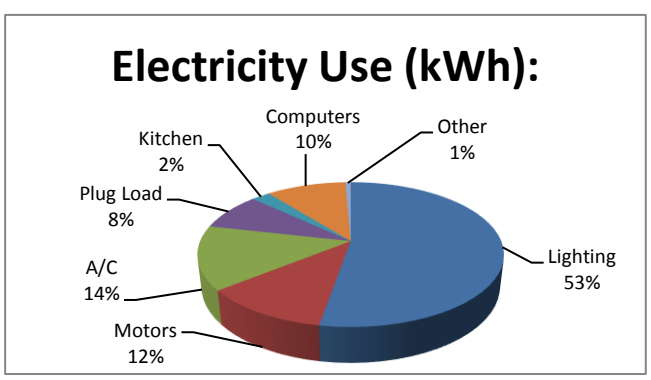
Heating System Efficiency	80%
Cooling Eff (kW/ton)	1.2

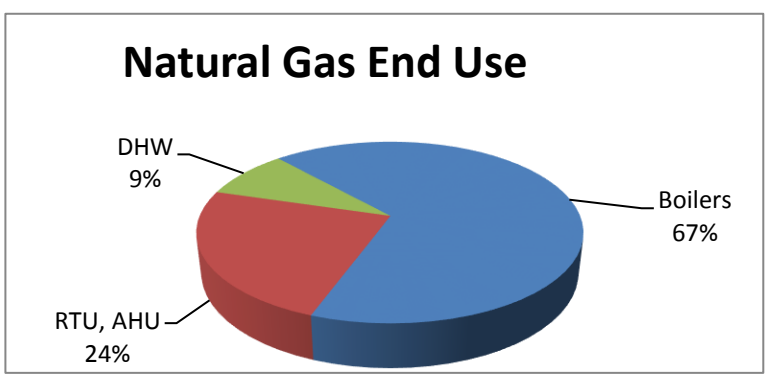
Heating		
Hours	4,427	Hrs
Weighted Avg	40	F
Avg	28	F

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

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

Utility End Use Analysis			
Electricity Use (kWh):		**Notes/Comments:**	
833,573	Total	Based on utility analysis	
439,650	Lighting	From Lighting Calculations	53%
95,774	Motors	Estimated	11%
119,179	A/C	Estimated	14%
69,972	Plug Load	Estimated	8%
19,478	Kitchen	Estimated	2%
83,750	Computers	Estimated	10%
5,770	Other	Remaining	1%
Natural Gas Use (Therms):		**Notes/Comments:**	
66,518	Total	Based on utility analysis	
44,739	Boilers	Therms/SF x Square Feet Served	67%
15,964	RTU, AHU	Based on utility analysis	24%
5,815	DHW	Based on utility analysis	9%





Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-1: Install Door Seals

Description: This ECM evaluates the thermal and electrical savings associate with adding door seals and sweeps to prevent infiltration of cold (hot) outdoor air.

Note: Door numbers below do not correspond to the actual door label. It is estimated that 40% of the doors have seals which can be replaced based on a representative sample taken while onsite.

Heating System Efficiency	80%		Ex Occupied Clng Temp.	72	*F	Ex Occupied Htg Temp.	70	*F
Cooling System Efficiency	1.20	kW/ton	Ex Unoccupied Clng Temp.	74	*F	Ex Unoccupied Htg Temp.	68	*F
Linear Feet of Door Edge	351	LF	Cooling Occ Enthalpy Setpoint	27.5	Btu/lb	Electricity	$ 0.17	$/kWh
Existing Infiltration Factor*	1.5	cfm/LF	Cooling Unocc Enthalpy Setpoint	27.5	Btu/lb	Natural Gas	$ 1.20	$/therm
Proposed Infiltration Factor*	0.45	cfm/LF						

*Infiltration Factor per Carrier Handbook of Air Conditioning System Design based on average door seal gap calculated below.

					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	Door Infiltration Load BTUH	Door Infiltration Load BTUH	Door Infiltration Load BTUH	Door Infiltration Load BTUH	Existing Cooling Energy kWh	Proposed Cooling Energy kWh	Existing Heating Energy therms	Proposed Heating Energy therms
A		B	C	D	E	F	G	H	I	J	K	L
102.5	0.0	0	0	0	65,154	65,154	19,546	19,546	0	0	0	0
97.5	38.6	17	7	10	-26,328	-26,328	-7,899	-7,899	45	13	0	0
92.5	38.5	61	25	36	-25,946	-25,946	-7,784	-7,784	158	47	0	0
87.5	37.5	132	55	77	-23,808	-23,808	-7,142	-7,142	314	94	0	0
82.5	34.8	344	143	201	-17,233	-17,233	-5,170	-5,170	593	178	0	0
77.5	32.4	566	236	330	-11,518	-11,518	-3,456	-3,456	652	196	0	0
72.5	31.3	755	315	440	-9,041	0	-2,712	0	284	85	0	0
67.5	27.8	780	325	455	1,422	284	426	85	0	0	7	2
62.5	24.7	889	370	519	4,265	3,127	1,279	938	0	0	40	12
57.5	21.8	742	309	433	7,108	5,971	2,132	1,791	0	0	60	18
52.5	19.0	710	296	414	9,951	8,814	2,985	2,644	0	0	82	25
47.5	17.0	642	268	375	12,794	11,657	3,838	3,497	0	0	97	29
42.5	15.0	795	331	464	15,637	14,500	4,691	4,350	0	0	149	45
37.5	12.8	784	327	457	18,480	17,343	5,544	5,203	0	0	175	52
32.5	10.7	682	284	398	21,323	20,186	6,397	6,056	0	0	176	53
27.5	8.7	345	144	201	24,166	23,029	7,250	6,909	0	0	101	30
22.5	7.1	229	95	134	27,009	25,872	8,103	7,762	0	0	75	23
17.5	5.4	189	79	110	29,853	28,715	8,956	8,615	0	0	69	21
12.5	4.1	70	29	41	32,696	31,558	9,809	9,468	0	0	28	8
7.5	2.5	22	9	13	35,539	34,402	10,662	10,320	0	0	10	3
2.5	1.3	6	3	4	38,382	37,245	11,515	11,173	0	0	3	1
-2.5	0.0	0	0	0	41,225	40,088	12,367	12,026	0	0	0	0
-7.5	0.0	0	0	0	44,068	42,931	13,220	12,879	0	0	0	0
TOTALS		**8,760**	**3,650**	**5,110**					**2,046**	**614**	**1,073**	**322**

Existing Door Infiltration	**527**	**cfm**	**Savings**	**751**	**therms**	**$ 903**
Existing Unoccupied Door Infiltration	**527**	**cfm**		**1,433**	**kWh**	**$ 241**
Proposed Door Infiltration	**158**	**cfm**				**$ 1,145**
Proposed Unoccupied Door Infiltration	**158**	**cfm**				

Door	Width (ft)	Height (ft)	Linear Feet (LF)	gap (in)	gap location	LF of gap	% door w/ gap	Average gap for door (in)
1	3	7	20	0.125	3 Sides	13	65%	0.081
2	3	7	20	0.125	3 Sides	13	65%	0.081
3	3	7	20	0.125	3 Sides	13	65%	0.081
4	3	7	20	0.125	3 Sides	13	65%	0.081
5	3	7	20	0.125	3 Sides	13	65%	0.081
6	3	7	20	0.125	3 Sides	13	65%	0.081
7	3	7	20	0.125	3 Sides	13	65%	0.081
8	3	7	20	0.125	3 Sides	13	65%	0.081
9	3	7	20	0.125	3 Sides	13	65%	0.081
10	3	7	20	0.125	3 Sides	13	65%	0.081
11	3	7	20	0.125	3 Sides	13	65%	0.081
12	3	7	20	0.125	3 Sides	13	65%	0.081
13	3	7	20	0.125	3 Sides	13	65%	0.081
14	3	7	20	0.125	3 Sides	13	65%	0.081
15	3	7	20	0.125	3 Sides	13	65%	0.081
16	3	7	20	0.125	3 Sides	13	65%	0.081
17	3	7	20	0.125	3 Sides	13	65%	0.081
18	3	7	20	0.125	3 Sides	13	65%	0.081
19	3	7	20	0.125	3 Sides	13	65%	0.081
20	3	7	20	0.125	3 Sides	13	65%	0.081
21	3	7	20	0.125	3 Sides	13	65%	0.081
22	3	7	20	0.125	3 Sides	13	65%	0.081
23	3	7	20	0.125	3 Sides	13	65%	0.081
24 (courtyard)	3	7	20	0.167	3 Sides	13	65%	0.108
25 (courtyard)	3	7	20	0.167	3 Sides	13	65%	0.108
26 (courtyard)	3	7	20	0.167	3 Sides	13	65%	0.108
27 (courtyard)	3	7	20	0.167	3 Sides	13	65%	0.108
Total	**81**	**189**	**540**	**0.131**		**351**	**65%**	**0.085**

Note: Doors labeled 'a', 'b', etc. are a part of the same door assembly.

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ECM-1: Install Door Seals - 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.		
									$ -	
Door Weatherization Seals & Sweeps	27	EA	$ 40	$ 115	$ -	$ 1,109	$ 3,869	$ -	$ 4,978	RS Means 2012
						$ -	$ -	$ -	$ -	

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

$ 4,978	Subtotal
$ 1,244	25% Contingency
$ 6,222	**Total**

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Toms River High School South

ECM-2A: Install High Efficiency Condensing HW Boiler to Replace Steam to HW Heat Exchangers

Description: This ECM evaluates the replacement of an existing steam to hot water heat exchanger which is estimated to have a system efficiency of 60% (combined with 29 year old steam boiler efficiency) with a high efficiency condensing hot water boiler which will generate HHW directly. Modern condensing hot water boilers will operate minimally at 88% efficient and as high as 96% depending on return water temperatures. In this calculation 90% is used in order to remain conservative

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.20	/ Therm	Natural Gas
FORMULA CONSTANTS			
Oversize Factor	0.8		NJ Protocols
Hours per Day	24		
Design Outdoor Temp	13	F	NJ Protocols
Infrared Conversion Factor	1.0		1.0 if Boiler, 0.8 if Infrared Heater
EXISTING			
Capacity	3,000,000	btu/hr	Est boiler load
Heating Combustion Efficiency	60%		Estimated
Heating Degree-Day	2,792	Degree-day	NJ Protocols
Design Temperature Difference	57	F	Average occ and unoccupied
Fuel Conversion	100,000	btu/therm	
PROPOSED			
Capacity	3,000,000	btu/hr	Based on Aerco BM 3.0
Efficiency	90%		
SAVINGS			
Fuel Savings	15,674	Therms	NJ Protocols Calculation
Fuel Cost Savings	$ 18,857		

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

Algorithms

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

Definition of Variables

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

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

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

HDD_{mod} = HDD by zone and building type

24 = Hours/Day

ΔT = design temperature difference

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

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

EFF_B = Efficiency of baseline heaters (AFUE %)

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

:rm;

Furnaces and Boilers

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

Sources:

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

Adjusted Heating Degree Days by Building Type

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

Heating Degree Days and Outdoor Design Temperature by Zone

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

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Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

ECM-2A: Install High Efficiency Condensing HW Boiler to Replace Steam to HW Heat Exchangers - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
3000 MBH NG Condensing Boiler	1	EA	$ 47,500	$ 15,000		$ 48,783	$ 18,690	$ -	$ 67,473	Vendor Estimate
Flue Installation	1	LS	$ 10,000	$ 5,000		$ 10,270	$ 6,230	$ -	$ 16,500	Vendor Estimate
Controls	1	EA	$ 1,500	$ 1,500		$ 1,541	$ 1,869	$ -	$ 3,410	RS Means 2012
Electrical	1	LS	$ 1,500	$ 1,500		$ 1,541	$ 1,869	$ -	$ 3,410	RS Means 2012
Pumps	1	LS	$ 3,500	$ 1,500		$ 3,595	$ 1,869	$ -	$ 5,464	RS Means 2012
Piping and Valves	1	LS	$ 5,000	$ 2,500		$ 5,135	$ 3,115	$ -	$ 8,250	RS Means 2012
						$ -	$ -	$ -	$ -	

$ 104,505	Subtotal
$ 26,126	25% Contingency
$ 130,631	**Total**

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

Toms River Regional Schools
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Toms River High School South

ECM-2B: Convert Entire Steam System to Hot Water and Install Condensing HW Boilers

Description: This ECM evaluates the replacement of the three (3) existing 29 year old steam boilers and steam sytem which is estimated to have a system efficiency of 65%. This system serves approximately 50% of the building. Three (3) high efficiency condensing type boilers (90% overall eff), primary/ secondary pumps and full hydronic heating system will be installed.

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.20	/ Therm	Natural Gas
FORMULA CONSTANTS			
Oversize Factor	0.8		NJ Protocols
Hours per Day	24		
Design Outdoor Temp	13	F	NJ Protocols
Infrared Conversion Factor	1.0		1.0 if Boiler, 0.8 if Infrared Heater
EXISTING			
Capacity	5,021,000	btu/hr	Peak load
Heating Combustion Efficiency	65%		Estimated
Heating Degree-Day	2,792	Degree-day	NJ Protocols
Design Temperature Difference	57	F	Ave occ and unoccupied
Fuel Conversion	100,000	btu/therm	
PROPOSED			
Capacity	5,021,000	btu/hr	Based on Aerco BM 3.0 X 3
Efficiency	90%		
SAVINGS			
Fuel Savings	20,180	Therms	NJ Protocols Calculation
Fuel Cost Savings	$ 24,277		

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

Algorithms

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

Definition of Variables

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

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

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

HDD_{mod} = HDD by zone and building type

24 = Hours/Day

ΔT = design temperature difference

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

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

EFF_B = Efficiency of baseline heaters (AFUE %)

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

Furnaces and Boilers

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

Sources:

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

Adjusted Heating Degree Days by Building Type

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

Heating Degree Days and Outdoor Design Temperature by Zone

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

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ECM-2B: Convert Entire Steam System to Hot Water and Install Condensing HW Boilers - 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.		
Demolition	1	LS		$ 15,000	$ 2,500	$ -	$ 18,690	$ 2,810	$ 21,500	RS Means 2012
3,000 MBH NG Condensing Boiler	3	EA	$ 47,500	$ 15,000		$ 146,348	$ 56,070	$ -	$ 202,418	Vendor Estimate
Flue Installation	3	EA	$ 5,000.0	$ 5,000.00		$ 15,405	$ 18,690	$ -	$ 34,095	RS Means 2012
Controls	3	EA	$ 1,500.0	$ 1,500.00		$ 4,622	$ 5,607	$ -	$ 10,229	RS Means 2012
Primary pumps	3	EA	$ 3,500	$ 1,500		$ 10,784	$ 5,607	$ -	$ 16,391	RS Means 2012
Secondary pumps	2	EA	$ 7,500	$ 2,500		$ 15,405	$ 6,230	$ -	$ 21,635	RS Means 2012
Hydronic Specialties	1	LS	$ 25,000	$ 15,000		$ 25,675	$ 18,690	$ -	$ 44,365	RS Means 2012
Piping (2" Ave size)	5600	LF	$ 15	$ 25		$ 86,268	$ 174,440	$ -	$ 260,708	RS Means 2012
Valves 1" Ave size)	150	EA	$ 50	$ 100		$ 7,703	$ 18,690	$ -	$ 26,393	RS Means 2012
Insulation (2" Ave size)	5600	LF	$ 2	$ 5		$ 11,502	$ 34,888	$ -	$ 46,390	RS Means 2012
Unit Vents	40	EA	$ 7,500	$ 7,500		$ 308,100	$ 373,800	$ -	$ 681,900	RS Means 2012
Convectors	15	LS	$ 1,500	$ 500		$ 23,108	$ 9,345	$ -	$ 32,453	RS Means 2012
Electrical work	1	LS	$ 100,000	$ 15,000		$ 102,700	$ 18,690	$ -	$ 121,390	RS Means 2012
General construction	1	LS	$ 5,000	$ 5,000		$ 5,135	$ 6,230	$ -	$ 11,365	RS Means 2012
						$ -	$ -	$ -	$ -	

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

$ 1,509,730	Subtotal
$ 377,432	25% Contingency
$ 1,887,162	**Total**

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-3: Replace Unitary HVAC Equipment With More Efficient Unitary Equipment

Description: This ECM evaluates the energy savings associated with replacing older less efficient heating and cooling equipment with modern high efficiency unitary equipment havings the same capacity. There is no savings associated with replacement of units with natural gas fired heat, as the new units will have the same efficiency as old units. Therefore measure savings are presented as electricity only.

Equipment Tag	Location	Equipment Description	General Type	Cooling Capacity (Btu/h)	Heating Capacity (Btu/h)
CU	E-3	Split System	HVAC	24,000	
CU	E-1	Split System	HVAC	48,000	
CU	E-1	Split System	HVAC	48,000	
CU	F04	Split System	HVAC	18,000	
CU	Unknown (near girl's locker)	Split System	HVAC	9,000	
CU	Coach's Office (near boy's locker)	Split System	HVAC	18,000	
CU	Coach's Office (Team Locker Room)	Split System	HVAC	18,000	
CU	Coach's Office (Boy's Locker Room)	Split System	HVAC	18,000	
CU	Coach's Office (Boy's Locker Room)	Split System	HVAC	18,000	
CU	C-5S	Split System	HVAC	18,000	
CU	D-13	Split System	HVAC	30,000	
CU	E-4	Split System	HVAC	90,000	
CU	E-2	Split System	HVAC	96,000	
RT-1	Cafeteria	Packaged RTU	HVAC	180,000	292,000
RT-2	Cafeteria	Packaged RTU	HVAC	180,000	292,000
RT-3	Cafeteria	Packaged RTU	HVAC	180,000	292,000
RT-4	Cafeteria	Packaged RTU	HVAC	180,000	292,000
RT-5	Stage	Packaged RTU	HVAC	120,000	144,000
RT-6	Stage	Packaged RTU	HVAC	120,000	144,000

Item	Value	Units	Formula/Comments	
Demand Rate	$ 5.94	/ kW		
Electricity Rate	$ 0.15	/kWh		
FORMULA CONSTANTS				
Coincidence Factor	0.67		NJ Protocols	
Conversion	3.412	btu/kW		
COOLING - HVAC				
Cooling Capacity	1,413,000	btu/hr		btuh
Baseline EER	9.6		Average of all units	EERb
Proposed EER	14.0		Based on AAON	EERq
Equivalent Full Load Hours	1,131	hrs	NJ Protocols	
Demand Savings	30.99	kW		
Energy Savings	52,319	kWh		
SAVINGS				
Demand Savings	30.99	kW		
Energy Savings	52,319	kWh		
Cost Savings	$ 9,992			

Savings calculation formulas are taken from NJ Protocols document for Electric HVAC Equipment

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-3: Replace Unitary HVAC Equipment With More Efficient Unitary Equipment - 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.		
						$ -	$ -	$ -	$ -	
Existing (4) Acs & CUs demolition	19	EA	$ 100	$ 250		$ 1,951	$ 5,919	$ -	$ 7,870	RS Means 2012
High Efficiency Condensing Unit - 0.75 Ton	1	EA	$ 1,708	$ 290		$ 1,754	$ 361	$ -	$ 2,115	RS Means 2012
High Efficiency Condensing Unit - 1.5 Ton	6	EA	$ 2,125	$ 320		$ 13,094	$ 2,392	$ -	$ 15,487	RS Means 2012
High Efficiency Condensing Unit - 2 Ton	1	EA	$ 2,350	$ 380		$ 2,413	$ 473	$ -	$ 2,887	RS Means 2012
High Efficiency Condensing Unit - 2.5 Ton	1	EA	$ 2,481	$ 508		$ 2,548	$ 632	$ -	$ 3,181	RS Means 2012
High Efficiency Condensing Unit - 4 Ton	2	EA	$ 2,875	$ 890		$ 5,905	$ 2,218	$ -	$ 8,123	RS Means 2012
High Efficiency Condensing Unit - 7.5 Ton	1	EA	$ 4,700	$ 1,450		$ 4,827	$ 1,807	$ -	$ 6,634	RS Means 2012
High Efficiency Condensing Unit - 8 Ton	1	EA	$ 4,950	$ 1,480		$ 5,084	$ 1,844	$ -	$ 6,928	RS Means 2012
High Efficiency Packaged RTU - 10 Ton	2	EA	$ 15,700	$ 6,288		$ 32,248	$ 15,668	$ -	$ 47,916	RS Means 2012
High Efficiency Packaged RTU - 15 Ton	4	EA	$ 20,127	$ 7,044		$ 82,680	$ 35,106	$ -	$ 117,786	RS Means 2012
- Reprogram DDC system for (4) CUs	19	EA	$ 75	$ 300		$ 1,463	$ 7,102	$ -	$ 8,566	RS Means 2012
Electrical - misc.	19	LS	$ 1,000	$ 5,000		$ 19,513	$ 118,370	$ -	$ 137,883	RS Means 2012

$ 365,375	Subtotal
$ 91,344	25% Contingency
$ 456,700	**Total**

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

Toms River Regional Schools
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Capacity	Quantity	AREA/EQUIPMENT SERVED	COOLING CAPACITY (btu/h)
8,000	1	Window A/C	8,000
12,000	1	Window A/C	12,000
18,000	3	Window A/C	54,000
24,000	1	Window A/C	24,000
		Total btu/h of all window A/C Units:	*98,000* *btu/h*

ECM-4: Window A/C Controller

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

ASSUMPTIONS			Comments
Electric Cost	$0.168	/ kWh	
Average run hours per Week	70	Hours	
Space Balance Point	55	F	
Space Temperature Setpoint	70	deg F	Setpoint.
BTU/Hr Rating of existing DX equipment	98,000	Btu / Hr	Total BTU/hr of DX cooling equipment to be replaced.
Average EER	10.7		Estimated
Existing Annual Electric Usage	7,155	kWh	

Item	Value	Units	Comments
Proposed Annual Electric Usage	3,431	kWh	Unit will cycle on w/ temp of room. Possible operating time shown below

ANNUAL SAVINGS		
Annual Electrical Usage Savings	3,724	kWh
Annual Cost Savings	$627	
Total Project Cost	$1,200	
Simple Payback	1.9	years

OAT - DB Bin Temp F	Annual Hours	**Existing Hours of Operation**	Proposed % of time of operation	**Proposed hrs of Operation**
102.5	0	0	100%	0
97.5	17	7	89%	6
92.5	61	25	79%	20
87.5	132	55	68%	38
82.5	344	143	58%	83
77.5	566	236	47%	112
72.5	755	315	37%	116
67.5	780	0	0%	0
62.5	889	0	0%	0
57.5	742	0	0%	0
52.5	710	0	0%	0
47.5	642	0	0%	0
42.5	795	0	0%	0
37.5	784	0	0%	0
32.5	682	0	0%	0
27.5	345	0	0%	0
22.5	229	0	0%	0
17.5	189	0	0%	0
12.5	70	0	0%	0
7.5	22	0	0%	0
2.5	6	0	0%	0
-2.5	0	0	0%	0
-7.5	0	0	0%	0
Total	8,760	**781**	48%	**375**

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-4: Window A/C Controller - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						0	$ -	$ -	$ -	
Window AC Controller	6	EA	$ 150	$ -	$ -	924.3	$ -	$ -	$ 924	Estimated
						$ -	$ -	$ -	$ -	

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

$ 924		Subtotal
$ 231	25%	Contingency
$ 1,200		**Total**

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ECM-6: Extend Energy Management System

Description: This ECM evaluates the energy savings associated extending the existing Building management system (BMS) such that all equipment in the building will be enabled for remote automatic control, monitoiring and alarming. Specific energy savings sequences would include optium Start/ Stop, night setback, temporary occupied set back, economizer control of UVs and AHU's. This energy savings percentage is based on past performance of similar buildings which have a fully functioning DDC control system.

Note: It is estimated that approximately 10% of the building square footage is controlled by the current Building Management System (BMS); with roughly 10% on stand alone controls and 80% not controlled.

Building Information:

Building SF	172,344	ft^2	$0.17	$/kWh Blended
Extend BMS	17,234	ft^2	$1.20	$/Therm
	Y	Cooling		
	Y	Heating		

FULL DDC - ADDITIONAL CONTROLS SAVINGS CALCULATION

EXISTING CONDITIONS		
Existing non-EM Total Electric usage	83,357	kWh
Existing non-EM Total Gas usage	6,652	Therms
Existing non-EM Cooling Electric usage	25,007	kWh[1]
Existing non-EM Heating Natural Gas usage	6,519	Therms[2]
PROPOSED CONDITIONS		
Proposed Facility Cooling Electric Savings	2,501	kWh
Proposed Facility Natural Gas Savings	652	Therms
SAVINGS		
Electric Savings	2,501	**kWh**
Natural Gas Savings	652	**Therms**

Assumptions

1		30% of non-BMS area electricity dedicated to Cooling; estimated
2		98% of non-BMS area natural gas dedicated to Heating; estimated
3	10%	Typical Savings associated with installation of DDC controls

COMBINED SAVINGS		
Natural Gas Savings	652	Therms
Cooling Electricity Savings	2,501	kWh
Total Cost Savings	$ 1,206	
Estimated Total Project Cost	$ 239,855	
Simple Payback	199.0	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

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School East

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

ECM-6: Extend Energy Management System - Cost

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
						$ -	$ -	$ -	$ -	
RTU Controls	7	ea		$ 5,000		$ -	$ 43,610	$ -	$ 43,610	Vendor Quote
CU Controls	12	ea		$ 4,500		$ -	$ 67,284	$ -	$ 67,284	Vendor Quote
Exhaust Fan Control (Group of 4)	10	ea		$ 3,300		$ -	$ 41,118	$ -	$ 41,118	Vendor Quote
Head End Controller & Programming	1	ls		$ 32,000		$ -	$ 39,872	$ -	$ 39,872	Vendor Quote
						$ -	$ -	$ -	$ -	

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

$ 191,884	Subtotal
$ 47,971	25% Contingency
$ 239,855	**Total**

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-6: Replace Domestic Hot Water Heater System

Description: This ECM evaluates the energy savings associated with replacing two gas fired tank type water heaters with an equivalent capacity high efficiency water heaters with reduce storage capacity.

Item	Value	Units	Formula/Comments
Avg. Monthly Utility Demand by Water Heater	**485**	Therms/month	Calculated from utility bill
Total Annual Utility Demand by Water Heater	582,000	MBTU/yr	1therm = 100 MBTU
Existing DHW Heater Efficiency	78%		Per manufacturer nameplate
Total Annual Hot Water Demand (w/ standby losses)	453,960	MBTU/yr	
Existing Tank Size	1,000	Gallons	Estimates
Hot Water Piping System Capacity	200	Gallons	Estimated Per existing system (includes HWR piping)
Hot Water Temperature	140	˚F	Per building personnel
Room Temperature	72	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	17.0	MBH	
Annual Standby Hot Water Load	148,920	MBTU/yr	
New Tank Size	500	Gallons	
Hot Water Piping System Capacity	200	Gallons	Estimated Per existing system (includes HWR piping)
Hot Water Temperature	140	˚F	
Room Temperature	72	˚F	
Standby Losses (% by Volume)	2.5%		(2.5% of stored capacity per hour, per U.S. Department of Energy)
Standby Losses (Heat Loss)	9.9	MBH	
Annual Standby Hot Water Load	86,870	MBTU/yr	
Total Annual Hot Water Demand	391,910	MBTU/yr	
Proposed Avg. Hot water heater efficiency	96%		Based on AO Smith Cyclone
Proposed Fuel Use	4,082	Therns	Standby Losses and inefficient DHW heater eliminated
Utility Cost	$1.20	$/Therm	
Existing Operating Cost of DHW	$7,002	$/yr	
Proposed Operating Cost of DHW	$4,911	$/yr	

Savings Summary:

Utility	Energy Savings	Cost Savings
Therms/yr	1,738	$2,090

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-6: Replace Domestic Hot Water Heater System - 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.		
						$ -	$ -	$ -	$ -	
High Efficiency Gas-Fired DHW Heater	2	EA	$ 7,500	$ 1,500		$ 15,405	$ 3,738	$ -	$ 19,143	RS Means 2012
Storage tank	1	EA	$ 2,500	$ 1,500		$ 2,568	$ 1,869	$ -	$ 4,437	RS Means 2012
Electrical	2	LS	$ 500	$ 1,500		$ 1,027	$ 3,738	$ -	$ 4,765	RS Means 2012
Venting/ combustion air	2	EA	$ 500	$ 1,000		$ 1,027	$ 2,492	$ -	$ 3,519	RS Means 2012
Miscellaneous Piping and Valves	2	LS	$ 500	$ 1,000		$ 1,027	$ 2,492	$ -	$ 3,519	RS Means 2012

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

$ 35,383	Subtotal
$ 8,846	25% Contingency
$ 44,228	**Total**

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-7: Kitchen Hood Control

Description: This ECM evaluates the thermal and electrical energy savings associated with the implementation of a variable flow controlled exhaust hood (Fan) and make-up air unit. The Hood controller uses infrared heat sensors to detect the level of smoke produced by the cooking operations and automatically adjsustes the

Item	Value	Units	Formula/Comments	
Fuel Cost	$ 1.20	/ 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	1			Q
Kitchen Hood Fan Motor HP	3.0	HP		HP
Motor Load Factor	0.90		NJ Protocols	LF
Efficiency of Fan Motor(s)	89.5%			FEFF
Kitchen Hood Fan Run Hours	2,080			RH
Fan Motor Power Reduction (From VFD)	0.584			PR
Fan Electricity Savings	2,733	kWh		
HEATING SAVINGS				
Kitchen is Heated?	N			
Square Footage of Kitchen	1,000	ft^2	Estimated	SF
Code Required Ventilation Rate	-	CFM/ft^2	NJ Protocols	CFM/SF
Ventilation Oversize Factor	-		NJ Protocols	OF
Flow Reductuion (from VFD/Control)	-			FR
Heating Degree Day	-		NJ Protocols Table	HDD
Heating System Efficiency	0%		AFUE (%)	HEFF
Heating Savings	-	MMbtu		
Heating Savings	-	Therms		
COOLING SAVINGS				
Kitchen is Cooled?	N			
Cooling Degree Day	-		NJ Protocols Table	CDD
Cooling System Efficiency	-		COP	CEFF
Cooling Savings	-	kWh		
TOTAL SAVINGS				
Electricity Savings	2,733	kWh		
Fuel Savings	-	Therms		
Cost Savings	$ 461			

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

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-7: Kitchen Hood Control - Cost

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

Description	QTY	UNIT	UNIT COSTS			SUBTOTAL COSTS			TOTAL COST	REMARKS
			MAT.	LABOR	EQUIP.	MAT.	LABOR	EQUIP.		
Me-Link Kitchen Hood Control System	1	ea	$ 15,000	$ 2,000		$ 15,405	$ 2,492	$ -	$ 17,897	Vendor Estimation
5.0 HP VFDs (1-exhaust fan)	1	ea	$ 1,485	$ 490		$ 1,525	$ 611	$ -	$ 2,136	RS Means 2012
5.0 HP Motor	1	ea	$ 525	$ 85		$ 539	$ 106	$ -	$ 645	RS Means 2012
Reprogram DDC system	1	ea	$ 100	$ 1,200		$ 103	$ 1,495	$ -	$ 1,598	RS Means 2012
Electrical - misc.	1	ls	$ 200	$ 500		$ 205	$ 623	$ -	$ 828	RS Means 2012
Remote bulb thermostat	2	ea	$ 500	$ 200		$ 1,027	$ 498	$ -	$ 1,525	RS Means 2012
						$ -	$ -	$ -	$ -	

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

$ 24,629	Subtotal
$ 6,157	25% Contingency
$ 30,787	**Total**

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

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

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

Utility Cost

$0.17 $/kWh Blended

EXISTING CONDITIONS			
Walk-In Freezer(s)			
Existing Freezer Controls?	N		
Quantity of Walk-In Freezers	1		
Nameplate Amps of Freezer Evaporator Fan	4		AmpsEF
Nameplate Volts of Freezer Evaporator Fan	280		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)	3,157	kWh	kWhEF
Electricity Savings (Evaporator Fan Reduced Heat)	1,414	kWh	kWhRH
Total Walk-In Freezer(s) Electricity Savings	4,571	kWh	
Walk-In Cooler(s)			
Existing Cooler Controls?	N		
Quantity of Walk-In Coolers	1		
Nameplate Amps of Cooler Evaporator Fan	4		
Nameplate Volts of Cooler Evaporator Fan	280		
Phase of Evaporator Fan	1		
Power Factor of Evaporator Fan	0.55		
Operating Hours	8,760	hrs	
Load Reduction	65%		
Electricity Savings (Evaporator Fan)	3,157	kWh	
Electricity Savings (Evaporator Fan Reduced Heat)	1,414	kWh	
Total Walk-In Cooler(s) Electricity Savings	4,571	kWh	
SAVINGS			
Total Electricity Savings	**9,142**	**kWh**	
Total Cost Savings	**$ 1,540**		
Estimated Cost	$ 20,625		
Simple Payback	13.4	**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

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

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

Multipliers	
Material:	1.03
Labor:	1.25
Equipment:	1.12

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

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

$ 16,500	Subtotal
$ 4,125	25% Contingency
$ 20,625	**Total**

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-9: Dishwasher Booster Heater Conversion

Description: This ECM evaluates the energy savings associated with replacing an electrically powered dishwasher booster heater with and equivalently sized natural gas booster heater

Item	Value	Units	Formula/Comments
Baseline Fuel Cost	$ 1.20	/ Therm	
Electricity Cost	$ 0.15	$/kWh	
Demand Cost	$ 5.94	$/kWh	
FORMULA CONSTANTS			
CF	0.3		Coincidence Factor (NJ Protocols)
EFLH	1,000		Equivalent Full Load Hours (NJ Protocols)
PROPOSED EQUIPMENT			
Input Rating	100,000	btu/hr	
Efficiency	80%		
SAVINGS			
Electricity Savings	23,447	kWh	
Demand Savings	7	kW	
Fuel Usage	(1,000)	Therms	
Fuel Cost Savings	$ 2,786		

Savings calculation formulas are taken from NJ Protocols document for Booster Heater

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-9: Dishwasher Booster Heater Conversion - 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.		
						$ -	$ -	$ -	$ -	
Natural Gas Fired Booster Heater	1	EA	$ 5,000	$ 2,500		$ 5,135	$ 3,115	$ -	$ 8,250	RS Means 2012
Venting	1	LS	$ 1,500	$ 500		$ 1,541	$ 623	$ -	$ 2,164	RS Means 2012
Piping	1	LS	$ 500	$ 1,000		$ 514	$ 1,246	$ -	$ 1,760	RS Means 2012
Electrical	1	LS	$ 500	$ 1,000		$ 514	$ 1,246	$ -	$ 1,760	RS Means 2012

$ 13,933	Subtotal
$ 3,483	25% Contingency
$ 17,400	**Total**

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

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-10: Install Vending Machine Controls

Description : Vending machines generally operate 24/7 regardless of the actual usage. This measure proposes installing vending machine controls to reduce the total run time of these units. Cold beverage machines will cycle on for 15 minutes every two hours in order to keep beverages at a desired temperature. The result is a reduction in total electrical energy usage.

Unit Cost: $0.168 $/kWh blended

Energy Savings Calculations:

	Existing	
Cold Beverage Vending Machine Electric usage	24,528	kWh[1,4,7]
Snack Vending Machine Electric usage	8,760	kWh[2,5,7]
Dual Vending Machine Electric Usage	-	kWh[3,6,7]
Total Vending Machine Electric Usage	33,288	kWh
	Proposed	
Cold Beverage Vending Machine Electric usage	3,859	kWh[8]
Snack Vending Machine Electric usage	1,575	kWh
Dual Vending Machine Electric Usage	0	kWh
Total Vending Machine Electric Usage	5,434	kWh
Vending Machine Controls Usage Savings	**27,854**	**kWh**
Total cost savings	**$ 4,693**	
Estimated Total Project Cost	**$ 3,361**	[9]
Simple Payback	**1**	**years**

Assumptions

1	7	Number of cold beverage vending machines
2	5	Number of snack vending machines
3	0	Number of dual snack/beverage vending machines
4	400	Average wattage, typical of cold beverage machines based on prior project experience
5	200	Average wattage, typical of snack machines based on prior project experience
6	300	Average wattage, typical of dual snack/beverage machines based on prior project experience
7	8760	Hours per year vending machine plugged in
8	3150	Building Occupied Hours
9	0.50	Vending Machine Traffic Factor (0.75 for High Traffic, 0.5 for Medium, 0.25 for low)

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-10: Install Vending Machine Controls - 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.		
									$ -	
Vending Miser	12	EA	$ 200	$ 15	$ -	$ 2,465	$ 224	$ -	$ 2,689	Vendor Estimation
						$ -	$ -	$ -	$ -	

$ 2,689	Subtotal
$ 672	25% Contingency
$ 3,361	**Total**

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

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-11: Replace CRT Monitors with LCD

Description : CRT monitors typically use more electricity than equivalently sized liquid crystal display (LCD) monitors for computers and televisions. This ECM evaluates replacing CRT monitors ith LCDs in order to save energy. The basis of this savings is justified by an EPA Energy Star study which found that a typical LCD monitor can save 100 kWh annually (for an 8 hour work day)

Unit Cost: $0.168 $/kWh blended

Energy Savings Calculations:

	Existing	Proposed		
Quantity of CRT Monitors	90			
Quanitity of be Replaced by LCD		90		
Usage Savings			**9,000**	**kWh**
Total cost savings			**$ 1,516**	
Estimated Total Project Cost			**$ 18,732**	[9]
Simple Payback			**12.4**	**years**

Assumptions

1	100	kWh savings per monitor per year
		Source: http://www.eu-energystar.org/en/en_023.shtml

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-11: Replace CRT Monitors with LCD - 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.		
									$ -	
LCD Computer Monitor	90	EA	$ 150	$ 10	$ -	$ 13,865	$ 1,121	$ -	$ 14,986	Vendor Estimation
						$ -	$ -	$ -	$ -	

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

$ 14,986	Subtotal
$ 3,746	25% Contingency
$ 18,732	**Total**

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-12: Replace urinals and flush valves with low flow

Description: This ECM evaluates the water savings associated with replacing/ upgrading urinals with 0.125 GPF urinals and or flush valves.

EXISTING CONDITIONS		
Cost of Water / 1000 Gallons	$18.74	$ / kGal
Urinals in Building to be replaced	20	
Average Flushes / Urinal (per Day)	15	Based on # of occupants
Average Gallons / Flush	2.5	Gal

PROPOSED CONDITIONS		
Proposed Urinals to be Replaced	20	
Proposed Gallons / Flush	0.125	Gal
Proposed Material Cost of new urinal & valve	$1,200	RS Means 2012
Proposed Installation Cost of new urinal & valve	$1,000	RS Means 2012
Total cost of new urinals & valves		

SAVINGS		
Current Urinal Water Use	273.75	kGal / year
Proposed Urinal Water Use	13.69	kGal / year
Water Savings	260.06	kGal / year
Cost Savings	$4,874	/ year

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

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-12: Replace toilets and flush valves with low flow

Description: This ECM evaluates the water savings associated with repalcing/ upgrading toilets to 1.28 GPF fixtures and/or flush valves.

EXISTING CONDITIONS		
Cost of Water / 1000 Gallons	$18.74	$ / kGal
Toilets in Building	35	
Average Flushes / Toilet (per Day)	18	Based on # of occupants
Average Gallons / Flush	3.5	Gal

PROPOSED CONDITIONS		
Proposed Toilets to be Replaced	35	
Proposed Gallons / Flush	1.28	Gal

SAVINGS		
Current Toilet Water Use	804.83	kGal / year
Proposed Toilet Water Use	294.34	kGal / year
Water Savings	510.49	kGal / year
Cost Savings	$9,568	/ year

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

ECM-12: Install Low Flow Plumbing Fixtures - 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.		
									$ -	
Low-Flow Urinal	20	EA	$ 1,200	$ 1,000	$ -	$ 24,648	$ 24,920	$ -	$ 49,568	Vendor Estimate
Low-Flow Toilet	35	EA	$ 1,400	$ 1,000	$ -	$ 50,323	$ 43,610	$ -	$ 93,933	Vendor Estimate
						$ -	$ -	$ -	$ -	

$ 143,501	Subtotal
$ 35,875	25% Contingency
$ 179,376	**Total**

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

Toms River Regional Schools
CHA Project Number: 28485
Toms River High School South

New Jersey Pay For Performance Incentive Program

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

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

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

Total Building Area (Square Feet)	172,344
Is this audit funded by NJ BPU (Y/N)	Yes

Board of Public Utilites (BPU)

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

	Annual Utilities	
	kWh	Therms
Existing Cost (from utility)	$172,344	$140,449
Existing Usage (from utility)	833,573	66,518
Proposed Savings	423,765	17,163
Existing Total MMBtus	9,497	
Proposed Savings MMBtus	3,163	
% Energy Reduction	**33.3%**	
Proposed Annual Savings	$108,356	

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

	Incentives $		
	Elec	Gas	Total
Incentive #1	$0	$0	$8,617
Incentive #2	$46,614	$21,454	$68,068
Incentive #3	$46,614	$21,454	$68,068
Total All Incentives	**$93,228**	**$42,907**	**$144,753**

Total Project Cost	$1,314,019

		Allowable Incentive
% Incentives #1 of Utility Cost*	2.8%	$8,617
% Incentives #2 of Project Cost**	5.2%	$68,068
% Incentives #3 of Project Cost**	5.2%	$68,068
Total Eligible Incentives***	**$144,753**	
Project Cost w/ Incentives	$1,169,267	

Project Payback (years)	
w/o Incentives	w/ Incentives
12.1	10.8

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

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

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

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
ECM-L1 Lighting Replacements

	EXISTING CONDITIONS									RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
Field Code	Area Description: Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of Fixtures: No. of fixtures before the retrofit	Standard Fixture Code: "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Fixture Code: Code from Table of Standard Fixture Wattages	Watts per Fixture: Value from Table of Standard Fixture Wattages	kW/Space: (Watts/Fixt) * (Fixt No.)	Exist Control: Pre-inst. control device	Annual Hours: Estimated daily hours for the usage group	Annual kWh: (kW/space) * (Annual Hours)	Number of Fixtures: No. of fixtures after the retrofit	Standard Fixture Code: "Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Fixture Code: Code from Table of Standard Fixture Wattages	Watts per Fixture: Value from Table of Standard Fixture Wattages	kW/Space: (Watts/Fixt) * (Number of Fixtures)	Retrofit Control: Retrofit control device	Annual Hours: Estimated annual hours for the usage group	Annual kWh: (kW/space) * (Annual Hours)	Annual kWh Saved: (Original Annual kWh) - (Retrofit Annual kWh)	Annual kW Saved: (Original Annual kW) - (Retrofit Annual kW)	Annual $ Saved: (kWh Saved) * ($/kWh)	Retrofit Cost: Cost for renovations to lighting system	NJ Smart Start Lighting Incentive: Prescriptive Lighting Measures	Simple Payback With Out Incentive: Length of time for renovations cost to be recovered	Simple Payback: Length of time for renovations cost to be recovered
32LED	Athletic Trainer	17	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	2600	2,652	17	4 ft LED Tube	200732x2	30	0.5	SW	2,600	1,326	1,326	0.5	$ 233.58	$ 2,776.95	$0	11.9	11.9
18LED	Athletic Trainer	5	T 32 R F 4 (ELE)	F44ILL	112	0.6	SW	2600	1,456	5	T 50 R LED	RTLED50	50	0.3	SW	2,600	650	806	0.3	$ 141.98	$ 1,181.25	$0	8.3	8.3
13LED	Electrical Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1560	94	1	T 38 R LED	RTLED38	38	0.0	SW	1,560	59	34	0.0	$ 6.67	$ 236.25	$0	35.4	35.4
18LED	Men's Restroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	3120	699	2	T 50 R LED	RTLED50	50	0.1	SW	3,120	312	387	0.1	$ 66.38	$ 472.50	$0	7.1	7.1
18LED	Women's Restroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	3120	699	2	T 50 R LED	RTLED50	50	0.1	SW	3,120	312	387	0.1	$ 66.38	$ 472.50	$0	7.1	7.1
32LED	Custodial Room	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	1560	94	1	4 ft LED Tube	200732x2	30	0.0	SW	1,560	47	47	0.0	$ 9.10	$ 163.35	$0	18.0	18.0
32LED	Women's Faculty Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3120	187	1	4 ft LED Tube	200732x2	30	0.0	SW	3,120	94	94	0.0	$ 16.06	$ 163.35	$0	10.2	10.2
32LED	Men's Faculty Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3120	187	1	4 ft LED Tube	200732x2	30	0.0	SW	3,120	94	94	0.0	$ 16.06	$ 163.35	$0	10.2	10.2
X5	Storage Room (locked - no entry	1	CF42/1	CF42/1-I	48	0.0	SW	1560	75	1	CF42/1	CF42/1-I	48	0.0	SW	1,560	75	-	0.0	$ -	$ -	$0		#DIV/0!
18LED	G-10	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,170	1,451	0.6	$ 255.57	$ 2,126.25	$0	8.3	8.3
18LED	H-1 (No Entry)	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,170	1,451	0.6	$ 255.57	$ 2,126.25	$0	8.3	8.3
18LED	H-2 (No Entry)	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,170	1,451	0.6	$ 255.57	$ 2,126.25	$0	8.3	8.3
X5	Custodial Room (locked - no entry	1	CF42/1	CF42/1-I	48	0.0	SW	1560	75	1	CF42/1	CF42/1-I	48	0.0	SW	1,560	75	-	0.0	$ -	$ -	$0		#DIV/0!
32LED	W-1	11	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	2600	1,716	11	4 ft LED Tube	200732x2	30	0.3	SW	2,600	858	858	0.3	$ 151.14	$ 1,796.85	$0	11.9	11.9
40LED	H hallway	13	T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3640	2,839	13	T 38 R LED	RTLED38	38	0.5	SW	3,640	1,798	1,041	0.3	$ 175.23	$ 3,071.25	$0	17.5	17.5
32LED	W-1 Storage	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	1560	94	1	4 ft LED Tube	200732x2	30	0.0	SW	1,560	47	47	0.0	$ 9.10	$ 163.35	$0	18.0	18.0
40LED	W-1 Office	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2600	624	4	T 38 R LED	RTLED38	38	0.2	SW	2,600	395	229	0.1	$ 40.30	$ 945.00	$0	23.4	23.4
46LED	Back Gym Corridor	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	3640	1,747	8	4 ft LED Tube	200732x2	30	0.2	SW	3,640	874	874	0.2	$ 147.04	$ 1,306.80	$0	8.9	8.9
46LED	Gym Storage	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	1560	1,123	12	4 ft LED Tube	200732x2	30	0.4	SW	1,560	562	562	0.4	$ 109.20	$ 1,960.20	$0	18.0	18.0
46LED	Exit	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3640	655	3	4 ft LED Tube	200732x2	30	0.1	SW	3,640	328	328	0.1	$ 55.14	$ 490.05	$0	8.9	8.9
13LED	W-3	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2600	1,092	7	T 38 R LED	RTLED38	38	0.3	SW	2,600	692	400	0.2	$ 70.53	$ 1,653.75	$0	23.4	23.4
13LED	W-2	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2600	1,404	9	T 38 R LED	RTLED38	38	0.3	SW	2,600	889	515	0.2	$ 90.69	$ 2,126.25	$0	23.4	23.4
18LED	Corridor Front + Gym	29	T 32 R F 4 (ELE)	F44ILL	112	3.2	SW	3640	11,823	29	T 50 R LED	RTLED50	50	1.5	SW	3,640	5,278	6,545	1.8	$ 1,101.61	$ 6,851.25	$0	6.2	6.2
13LED	Weight Room	28	S 32 P F 2 (ELE)	F42LL	60	1.7	SW	3120	5,242	28	T 38 R LED	RTLED38	38	1.1	SW	3,120	3,320	1,922	0.6	$ 329.77	$ 6,615.00	$0	20.1	20.1
46LED	Weight Room Corridor	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3640	874	4	4 ft LED Tube	200732x2	30	0.1	SW	3,640	437	437	0.1	$ 73.52	$ 653.40	$0	8.9	8.9
141LED	Wrestling Room	10	HPS 250	HPS250/1	295	3.0	SW	3120	9,204	10	FXLED78	FXLED78/1	78	0.8	SW	3,120	2,434	6,770	2.2	$ 1,161.70	$ 8,441.96	$1,000	7.3	6.4
32LED	Boys' Baseball Locker Room	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3120	2,246	12	4 ft LED Tube	200732x2	30	0.4	SW	3,120	1,123	1,123	0.4	$ 192.72	$ 1,960.20	$0	10.2	10.2
18LED	Baseball Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2600	1,165	4	T 50 R LED	RTLED50	50	0.2	SW	2,600	520	645	0.2	$ 113.59	$ 945.00	$0	8.3	8.3
32LED	Locker Room Restroom	3	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3120	562	3	4 ft LED Tube	200732x2	30	0.1	SW	3,120	281	281	0.1	$ 48.18	$ 490.05	$0	10.2	10.2
32LED	Locker Room Corridor	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3640	2,184	10	4 ft LED Tube	200732x2	30	0.3	SW	3,640	1,092	1,092	0.3	$ 183.81	$ 1,633.50	$0	8.9	8.9
32LED	Boys' Locker Room	7	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3120	1,310	7	4 ft LED Tube	200732x2	30	0.2	SW	3,120	655	655	0.2	$ 112.42	$ 1,143.45	$0	10.2	10.2
18LED	Boys' Locker Room Office	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	322	0.1	$ 56.79	$ 472.50	$0	8.3	8.3
32LED	Locker Room Entrance	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3640	218	1	4 ft LED Tube	200732x2	30	0.0	SW	3,640	109	109	0.0	$ 18.38	$ 163.35	$0	8.9	8.9
141LED	Large Gymnasium	36	HPS 250	HPS250/1	295	10.6	SW	3120	33,134	36	FXLED78	FXLED78/1	78	2.8	SW	3,120	8,761	24,373	7.8	$ 4,182.12	$ 30,391.04	$3,600	7.3	6.4
18LED	Physical Education Office (locked - no entry	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2600	1,165	4	T 50 R LED	RTLED50	50	0.2	SW	2,600	520	645	0.2	$ 113.59	$ 945.00	$0	8.3	8.3
18LED	Boys' Locker Room (locked - no entry	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	3120	3,494	10	T 50 R LED	RTLED50	50	0.5	SW	3,120	1,560	1,934	0.6	$ 331.91	$ 2,362.50	$0	7.1	7.1
X5	Storage Room (locked - no entry	3	CF42/1	CF42/1-I	48	0.1	SW	1560	225	3	CF42/1	CF42/1-I	48	0.1	SW	1,560	225	-	0.0	$ -	$ -	$0		#DIV/0!
141LED	Auxilary Basketball Practice	10	HPS 250	HPS250/1	295	3.0	SW	3120	9,204	10	FXLED78	FXLED78/1	78	0.8	SW	3,120	2,434	6,770	2.2	$ 1,161.70	$ 8,441.96	$1,000	7.3	6.4
X5	Basketball Storage Room (locked - no entry	2	CF42/1	CF42/1-I	48	0.1	SW	1560	150	2	CF42/1	CF42/1-I	48	0.1	SW	1,560	150	-	0.0	$ -	$ -	$0		#DIV/0!
X5	Storage Room (locked - no entry	2	CF42/1	CF42/1-I	48	0.1	SW	1560	150	2	CF42/1	CF42/1-I	48	0.1	SW	1,560	150	-	0.0	$ -	$ -	$0		#DIV/0!
32LED	Athletic Coordinator	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2600	624	4	4 ft LED Tube	200732x2	30	0.1	SW	2,600	312	312	0.1	$ 54.96	$ 653.40	$0	11.9	11.9
32LED	M-1 Team Room	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	2600	1,560	10	4 ft LED Tube	200732x2	30	0.3	SW	2,600	780	780	0.3	$ 137.40	$ 1,633.50	$0	11.9	11.9
32LED	M-1 Restroom	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3120	749	4	4 ft LED Tube	200732x2	30	0.1	SW	3,120	374	374	0.1	$ 64.24	$ 653.40	$0	10.2	10.2
32LED	Girls' Locker Room	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3120	1,872	10	4 ft LED Tube	200732x2	30	0.3	SW	3,120	936	936	0.3	$ 160.60	$ 1,633.50	$0	10.2	10.2
257	Media Center	37	CFT55	CFT50/1-BX	54	2.0	SW	3120	6,234	37	CFT55	CFT50/1-BX	54	2.0	SW	3,120	6,234	-	0.0	$ -	$ -	$0		#DIV/0!
256	Media Center	3	CFT55/12-BX	CFT55/12-BX	672	2.0	SW	3120	6,290	3	CFT55/12-BX	CFT55/12-BX	672	2.0	SW	3,120	6,290	-	0.0	$ -	$ -	$0		#DIV/0!
102	Media Center	12	O CF 26	CFQ26/1-L	27	0.3	SW	3120	1,011	12	O CF 26	CFQ26/1-L	27	0.3	SW	3,120	1,011	-	0.0	$ -	$ -	$0		#DIV/0!
257	Media Technology Lab	9	CFT55	CFT50/1-BX	54	0.5	SW	3120	1,516	9	CFT55	CFT50/1-BX	54	0.5	SW	3,120	1,516	-	0.0	$ -	$ -	$0		#DIV/0!
257	Technology Lab	14	CFT55	CFT50/1-BX	54	0.8	SW	2600	1,966	14	CFT55	CFT50/1-BX	54	0.8	SW	2,600	1,966	-	0.0	$ -	$ -	$0		#DIV/0!
6LED	D-20	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118	11	T 50 R LED	RTLED50	50	0.6	SW	2,600	1,430	2,688	1.0	$ 473.58	$ 2,598.75	$0	5.5	5.5
18LED	D-20	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291	1	T 50 R LED	RTLED50	50	0.1	SW	2,600	130	161	0.1	$ 28.40	$ 236.25	$0	8.3	8.3
6LED	D-21	9	T 34 R F 4 (MAG)	F44EE	144	1.3	SW	2600	3,370	9	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,170	2,200	0.8	$ 387.47	$ 2,126.25	$0	5.5	5.5
18LED	D-21	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	874	3	T 50 R LED	RTLED50	50	0.2	SW	2,600	390	484	0.2	$ 85.19	$ 708.75	$0	8.3	8.3
6LED	D-22	8	T 34 R F 4 (MAG)	F44EE	144	1.2	SW	2600	2,995	8	T 50 R LED	RTLED50	50	0.4	SW	2,600	1,040	1,955	0.8	$ 344.42	$ 1,890.00	$0	5.5	5.5
18LED	D-22	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291	1	T 50 R LED	RTLED50	50	0.1	SW	2,600	130	161	0.1	$ 28.40	$ 236.25	$0	8.3	8.3
7LED	D-22	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156	1	2T 25 R LED	2RTLED	25	0.0	SW	2,600	65	91	0.0	$ 16.03	$ 202.50	$0	12.6	12.6
6LED	D-23	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	2600	1,498	4	T 50 R LED	RTLED50	50	0.2	SW	2,600	520	978	0.4	$ 172.21	$ 945.00	$0	5.5	5.5
18LED	D-23	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	322	0.1	$ 56.79	$ 472.50	$0	8.3	8.3
7LED	D-23	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468	3	2T 25 R LED	2RTLED	25	0.1	SW	2,600	195	273	0.1	$ 48.09	$ 607.50	$0	12.6	12.6
6LED	D-24	7	T 34 R F 4 (MAG)	F44EE	144	1.0	SW	2600	2,621	7	T 50 R LED	RTLED50	50	0.4	SW	2,600	910	1,711	0.7	$ 301.37	$ 1,653.75	$0	5.5	5.5
18LED	D-24	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	322	0.1	$ 56.79	$ 472.50	$0	8.3	8.3
7LED	D-24	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156	1	2T 25 R LED	2RTLED	25	0.0	SW	2,600	65	91	0.0	$ 16.03	$ 202.50	$0	12.6	12.6
18LED	D-25 (locked - no entry	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,170	1,451	0.6	$ 255.57	$ 2,126.25	$0	8.3	8.3
18LED	D-27	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,170	1,451	0.6	$ 255.57	$ 2,126.25	$0	8.3	8.3
7LED	D-27	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156	1	2T 25 R LED	2RTLED	25	0.0	SW	2,600	65	91	0.0	$ 16.03	$ 202.50	$0	12.6	12.6
52LED	Boys' Restroom	3	W 34 C F 2 (MAG)	F42EE	72	0.2	SW	3120	674	3	4 ft LED Tube	200732x2	30	0.1	SW	3,120	281	393	0.1	$ 67.45	$ 490.05	$0	7.3	7.3
52LED	Girls' Restroom	3	W 34 C F 2 (MAG)	F42EE	72	0.2	SW	3120	674	3	4 ft LED Tube	200732x2	30	0.1	SW	3,120	281	393	0.1	$ 67.45	$ 490.05	$0	7.3	7.3
6LED	D-28	6	T 34 R F 4 (MAG)	F44EE	144	0.9	SW	2600	2,246	6	T 50 R LED	RTLED50	50	0.3	SW	2,600	780	1,466	0.6	$ 258.32	$ 1,417.50	$0	5.5	5.5
18LED	D-28	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	874	3	T 50 R LED	RTLED50	50	0.2	SW	2,600	390	484	0.2	$ 85.19	$ 708.75	$0	8.3	8.3
4LED	D-28	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	2600	187	1	2T 25 R LED	2RTLED	25	0.0	SW	2,600	65	122	0.0	$ 21.53	$ 202.50	$0	9.4	9.4
18LED	D-29 (locked - no entry	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,170	1,451	0.6	$ 255.57	$ 2,126.25	$0	8.3	8.3
6LED	D-30	10	T 34 R F 4 (MAG)	F44EE	144	1.4	SW	2600	3,744	10	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,300	2,444	0.9	$ 430.53	$ 2,362.50	$0	5.5	5.5
18LED	D-30	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	322	0.1	$ 56.79	$ 472.50	$0	8.3	8.3
6LED	D-31	9	T 34 R F 4 (MAG)	F44EE	144	1.3	SW	2600	3,370	9	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,170	2,200	0.8	$ 387.47	$ 2,126.25	$0	5.5	5.5
4LED	D-31	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	2600	187	1	2T 25 R LED	2RTLED	25	0.0	SW	2,600	65	122	0.0	$ 21.53	$ 202.50	$0	9.4	9.4
52LED	Supervisor Office	6	W 34 C F 2 (MAG)	F42EE	72	0.4	SW	2600	1,123	6	4 ft LED Tube	200732x2	30	0.2	SW	2,600	468	655	0.3	$ 115.42	$ 980.10	$0	8.5	8.5
20LED	Faculty Restroom	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	3120	100	1	4 ft LED Tube	200732x1	15	0.0	SW	3,120	47	53	0.0	$ 9.10	$ 81.68	$0	9.0	9.0
6LED	D-32	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118	11	T 50 R LED	RTLED50	50	0.6	SW	2,600	1,430	2,688	1.0	$ 473.58	$ 2,598.75	$0	5.5	5.5
18LED	D-32	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291	1	T 50 R LED	RTLED50	50	0.1	SW	2,600	130	161	0.1	$ 28.40	$ 236.25	$0	8.3	8.3
6LED	D-32 Prep Area	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	1560	674	3	T 50 R LED	RTLED50	50	0.2	SW	1,560	234	440	0.3	$ 85.54	$ 708.75	$0	8.3	8.3
6LED	D-33	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,493	12	T 50 R LED	RTLED50	50	0.6	SW	2,600	1,560	2,933	1.1	$ 516.63	$ 2,835.00	$0	5.5	5.5
7LED	D-33	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	312	2	2T 25 R LED	2RTLED	25	0.1	SW	2,600	130	182	0.1	$ 32.06	$ 405.00	$0	12.6	12.6
4LED	D-33	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	2600	187	1	2T 25 R LED	2RTLED	25	0.0	SW	2,600	65	122	0.0	$ 21.53	$ 202.50	$0	9.4	9.4
20LED	Faculty Restroom	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	3120	100	1	4 ft LED Tube	200732x1	15	0.0	SW	3,120	47	53	0.0	$ 9.10	$ 81.68	$0	9.0	9.0
X5	Custodial Room	1	CF42/1	CF42/1-I	48	0.0	SW	1560	75	1	CF42/1	CF42/1-I	48	0.0	SW	1,560	75	-	0.0	$ -	$ -	$0		#DIV/0!
6LED	D-35	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867	13	T 50 R LED	RTLED50	50	0.7	SW	2,600	1,690	3,177	1.2	$ 559.68	$ 3,071.25	$0	5.5	5.5
18LED	D-35	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	322	0.1	$ 56.79	$ 472.50	$0	8.3	8.3
41LED	D-36	6	1B 40 R F 2 (MAG)	F42SS	94	0.6	SW	2600	1,466	6	4 ft LED Tube	200732x2	30	0.2	SW	2,600	468	998	0.4	$ 175.87	$ 980.10	$0	5.6	5.6
6LED	D-34	5	T 34 R F 4 (MAG)	F44EE	144	0.7	SW	2600	1,872	5	T 50 R LED	RTLED50	50	0.3	SW	2,600	650	1,222	0.5	$ 215.26	$ 1,181.25	$0	5.5	5.5
18LED	D-34	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2600	1,165	4	T 50 R LED	RTLED50	50	0.2	SW	2,600	520	645	0.2	$ 113.59	$ 945.00	$0	8.3	8.3
7LED	D-34	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156	1	2T 25 R LED	2RTLED	25	0.0	SW	2,600	65	91	0.0	$ 16.03	$ 202.50	$0	12.6	12.6
18LED	2nd Floor Corridor	18	T 32 R F 4 (ELE)	F44ILL	112	2.0	SW	3640	7,338	18	T 50 R LED	RTLED50	50	0.9	SW	3,640	3,276	4,062	1.1	$ 683.76	$ 4,252.50	$0	6.2	6.2
6LED	2nd Floor Corridor	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	3640	1,572	3	T 50 R LED	RTLED50	50	0.2	SW	3,640	546	1,026	0.3	$ 172.78	$ 708.75	$0	4.1	4.1
6LED	D-27	7	T 34 R F 4 (MAG)	F44EE	144	1.0	SW	2600	2,621	7	T 50 R LED	RTLED50	50	0.4	SW	2,600	910	1,711	0.7	$ 301.37	$ 1,653.75	$0	5.5	5.5
18LED	D-27	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	322	0.1	$ 56.79	$ 472.50	$0	8.3	8.3
261LED	Cafeteria	25	PAR 38 SP	H100/1	100	2.5	SW	2600	6,500	25	EVO35/10	EVO35/10	39	1.0	SW	2,600	2,535	3,965	1.5	$ 698.46	$ 10,968.75	$0	15.7	15.7
18LED	Cafeteria	85	T 32 R F 4 (ELE)	F44ILL	112	9.5	SW	2600	24,752	85	T 50 R LED	RTLED50	50	4.3	SW	2,600	11,050	13,702	5.3	$ 2,413.69	$ 20,081.25	$0	8.3	8.3
15LED	Kitchen - Dishwasher Room	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	156	1	T 38 R LED	RTLED38	38	0.0	SW	2,600	99	57	0.0	$ 10.08	$ 236.25	$0	23.4	23.4
178LED	Kitchen - Dishwasher Room	2	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	374	2	4 ft LED Tube	200732x2	30	0.1	SW	2,600	156	218	0.1	$ 38.47	$ 326.70	$0	8.5	8.5
52LED	Kitchen - Restroom	2	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	3120	449	2	4 ft LED Tube	200732x2	30	0.1	SW	3,120	187	262	0.1	$ 44.97	$ 326.70	$0	7.3	7.3
178LED	Kitchen - Laundry	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187	1	4 ft LED Tube	200732x2	30	0.0	SW	2,600	78	109	0.0	$ 19.24	$ 163.35	$0	8.5	8.5
52LED	Kitchen - Laundry	1	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	2600	187	1	4 ft LED Tube	200732x2	30	0.0	SW	2,600	78	109	0.0	$ 19.24	$ 163.35	$0	8.5	8.5
4LED	Kitchen - Storage	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	1560	112	1	2T 25 R LED	2RTLED	25	0.0	SW	1,560	39	73	0.0	$ 14.26	$ 202.50	$0	14.2	14.2
15LED	Kitchen	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2600	1,248	8	T 38 R LED	RTLED38	38	0.3	SW	2,600	790	458	0.2	$ 80.61	$ 1,890.00	$0	23.4	23.4
15LED	Kitchen	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	624	4	T 38 R LED	RTLED38	38	0.2	SW	2,600	395	229	0.1	$ 40.30	$ 945.00	$0	23.4	23.4
178LED	Kitchen	28	B 34 R F 2 (MAG)	F42EE	72	2.0	SW	2600	5,242	28	4 ft LED Tube	200732x2	30	0.8	SW	2,600	2,184	3,058	1.2	$ 538.62	$ 4,573.80	$0	8.5	8.5
178LED	Kitchen - Office	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187	1	4 ft LED Tube	200732x2	30	0.0	SW	2,600	78	109	0.0	$ 19.24	$ 163.35	$0	8.5	8.5
178LED	Kitchen - Office	2	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	374	2	4 ft LED Tube	200732x2	30	0.1	SW	2,600	156	218	0.1	$ 38.47	$ 326.70	$0	8.5	8.5
52LED	Kitchen - Side Room	2	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	2600	374	2	4 ft LED Tube	200732x2	30	0.1	SW	2,600	156	218	0.1	$ 38.47	$ 326.70	$0	8.5	8.5
7LED	Exit	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	3640	218	1	2T 25 R LED	2RTLED	25	0.0	SW	3,640	91	127	0.0	$ 21.44	$ 202.50	$0	9.4	9.4
4LED	Exit	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	3640	262	1	2T 25 R LED	2RTLED	25	0.0	SW	3,640	91	171	0.0	$ 28.80	$ 202.50	$0	7.0	7.0
18LED	Teachers Room	5	T 32 R F 4 (ELE)	F44ILL	112	0.6	SW	2600	1,456	5	T 50 R LED	RTLED50	50	0.3	SW	2,600	650	806	0.3	$ 141.98	$ 1,181.25	$0	8.3	8.3
6LED	Teachers Room	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867	13	T 50 R LED	RTLED50	50	0.7	SW	2,600	1,690	3,177	1.2	$ 559.68	$ 3,071.25	$0	5.5	5.5
39	Mens Restroom	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	3120	103	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	3,120	103	-	0.0	$ -	$ -	$0		#DIV/0!
39	Womens Restroom	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	3120	103	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	3,120	103	-	0.0	$ -	$ -	$0		#DIV/0!
6LED	F-1	9	T 34 R F 4 (MAG)	F44EE	144	1.3	SW	2600	3,370	9	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,170	2,200	0.8	$ 387.47	$ 2,126.25	$0	5.5	5.5
7LED	Corridor Cafe to F-1	5	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.3	SW	3640	1,092	5	2T 25 R LED	2RTLED	25	0.1	SW	3,640	455	637	0.2	$ 107.22	$ 1,012.50	$0	9.4	9.4
18LED	Exit near F-1	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	3640	2,446	6	T 50 R LED	RTLED50	50	0.3	SW	3,640	1,092	1,354	0.4	$ 227.92	$ 1,417.50	$0	6.2	6.2
133	Corridor	6	CF 26	CFQ26/1-L	27	0.2	SW	3640	590	6	CF 26	CFQ26/1-L	27	0.2	SW	3,640	590	-	0.0	$ -	$ -	$0		#DIV/0!
18LED	Corridor past Chorus to Cafe	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	SW	3640	6,523	16	T 50 R LED	RTLED50	50	0.8	SW	3,640	2,912	3,611	1.0	$ 607.78	$ 3,780.00	$0	6.2	6.2
15LED	Boys Restroom	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	749	4	T 38 R LED	RTLED38	38	0.2	SW	3,120	474	275	0.1	$ 47.11	$ 945.00	$0	20.1	20.1
15LED	Girls Restroom (No Entry)	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	749	4	T 38 R LED	RTLED38	38	0.2	SW	3,120	474	275	0.1	$ 47.11	$ 945.00	$0	20.1	20.1

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
6LED	F-2	19	T 34 R F 4 (MAG)	F44EE	144	2.7	SW	2600	7,114	19	T 50 R LED	RTLED50	50	1.0	SW	2,600	2,470	4,644	1.8	$ 818.00	$ 4,488.75	$0	5.5	5.5
7LED	Room between F-2 and F-	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	312	2	2T 25 R LED	2RTLED	25	0.1	SW	2,600	130	182	0.1	$ 32.06	$ 405.00	$0	12.6	12.6
6LED	Room between F-2 and F-	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	2600	1,123	3	T 50 R LED	RTLED50	50	0.2	SW	2,600	390	733	0.3	$ 129.16	$ 708.75	$0	5.5	5.5
7LED	Room between F-2 and F-	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468	3	2T 25 R LED	2RTLED	25	0.1	SW	2,600	195	273	0.1	$ 48.09	$ 607.50	$0	12.6	12.6
18LED	Room between F-2 and F-	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	874	3	T 50 R LED	RTLED50	50	0.2	SW	2,600	390	484	0.2	$ 85.19	$ 708.75	$0	8.3	8.3
7LED	Room between F-2 and F-	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468	3	2T 25 R LED	2RTLED	25	0.1	SW	2,600	195	273	0.1	$ 48.09	$ 607.50	$0	12.6	12.6
18LED	Room between F-2 and F-	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	874	3	T 50 R LED	RTLED50	50	0.2	SW	2,600	390	484	0.2	$ 85.19	$ 708.75	$0	8.3	8.3
7LED	Room between F-2 and F-	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468	3	2T 25 R LED	2RTLED	25	0.1	SW	2,600	195	273	0.1	$ 48.09	$ 607.50	$0	12.6	12.6
18LED	F-4	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	2600	4,077	14	T 50 R LED	RTLED50	50	0.7	SW	2,600	1,820	2,257	0.9	$ 397.55	$ 3,307.50	$0	8.3	8.3
7LED	F-6	9	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.5	SW	2600	1,404	9	2T 25 R LED	2RTLED	25	0.2	SW	2,600	585	819	0.3	$ 144.27	$ 1,822.50	$0	12.6	12.6
7LED	F-6 Storage	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	1560	281	3	2T 25 R LED	2RTLED	25	0.1	SW	1,560	117	164	0.1	$ 31.85	$ 607.50	$0	19.1	19.1
18LED	Exit near F-6	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	3640	815	2	T 50 R LED	RTLED50	50	0.1	SW	3,640	364	451	0.1	$ 75.97	$ 472.50	$0	6.2	6.2
133	Corridor near Exi	7	CF 26	CFQ26/1-L	27	0.2	SW	3640	688	7	CF 26	CFQ26/1-L	27	0.2	SW	3,640	688	-	0.0	$ -	$ -	$0		#DIV/0!
52LED	Corridor near Exi	8	W 34 C F 2 (MAG)	F42EE	72	0.6	SW	3640	2,097	8	4 ft LED Tube	200732x2	30	0.2	SW	3,640	874	1,223	0.3	$ 205.86	$ 1,306.80	$0	6.3	6.3
18LED	Corridor near Exi	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	3640	4,892	12	T 50 R LED	RTLED50	50	0.6	SW	3,640	2,184	2,708	0.7	$ 455.84	$ 2,835.00	$0	6.2	6.2
178LED	Cafeteria Side Roon	2	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	3640	524	2	4 ft LED Tube	200732x2	30	0.1	SW	3,640	218	306	0.1	$ 51.47	$ 326.70	$0	6.3	6.3
52LED	Cafeteria Side Roon	1	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	3640	262	1	4 ft LED Tube	200732x2	30	0.0	SW	3,640	109	153	0.0	$ 25.73	$ 163.35	$0	6.3	6.3
15LED	E-2	20	S 32 C F 2 (ELE)	F42LL	60	1.2	SW	2600	3,120	20	T 38 R LED	RTLED38	38	0.8	SW	2,600	1,976	1,144	0.4	$ 201.52	$ 4,725.00	$0	23.4	23.4
35LED	E-2	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	2600	4,680	20	T 38 R LED	RTLED38	38	0.8	SW	2,600	1,976	2,704	1.0	$ 476.33	$ 4,725.00	$0	9.9	9.9
35LED	E-2 Closet (No entry	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1560	702	5	T 38 R LED	RTLED38	38	0.2	SW	1,560	296	406	0.3	$ 78.87	$ 1,181.25	$0	15.0	15.0
18LED	E-4 (No Entry)	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2600	2,912	10	T 50 R LED	RTLED50	50	0.5	SW	2,600	1,300	1,612	0.6	$ 283.96	$ 2,362.50	$0	8.3	8.3
35LED	E-4 Closet	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1560	702	5	T 38 R LED	RTLED38	38	0.2	SW	1,560	296	406	0.3	$ 78.87	$ 1,181.25	$0	15.0	15.0
35LED	D-14	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2600	2,106	9	T 38 R LED	RTLED38	38	0.3	SW	2,600	889	1,217	0.5	$ 214.35	$ 2,126.25	$0	9.9	9.9
35LED	D-14 Side Room	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2600	936	4	T 38 R LED	RTLED38	38	0.2	SW	2,600	395	541	0.2	$ 95.27	$ 945.00	$0	9.9	9.9
6LED	D-11	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867	13	T 50 R LED	RTLED50	50	0.7	SW	2,600	1,690	3,177	1.2	$ 559.68	$ 3,071.25	$0	5.5	5.5
61LED	Room next to D-11	6	T 34 R F 3 (MAG)	F43EE	115	0.7	SW	1560	1,076	6	T 38 R LED	RTLED38	38	0.2	SW	1,560	356	721	0.5	$ 140.14	$ 1,417.50	$0	10.1	10.1
178LED	Exit	4	B 34 R F 2 (MAG)	F42EE	72	0.3	SW	3640	1,048	4	4 ft LED Tube	200732x2	30	0.1	SW	3,640	437	612	0.2	$ 102.93	$ 653.40	$0	6.3	6.3
15LED	Exit	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	3640	437	2	T 38 R LED	RTLED38	38	0.1	SW	3,640	277	160	0.0	$ 26.96	$ 472.50	$0	17.5	17.5
6LED	D-12	14	T 34 R F 4 (MAG)	F44EE	144	2.0	SW	2600	5,242	14	T 50 R LED	RTLED50	50	0.7	SW	2,600	1,820	3,422	1.3	$ 602.74	$ 3,307.50	$0	5.5	5.5
6LED	D-7	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118	11	T 50 R LED	RTLED50	50	0.6	SW	2,600	1,430	2,688	1.0	$ 473.58	$ 2,598.75	$0	5.5	5.5
6LED	D-10 (No Entry)	14	T 34 R F 4 (MAG)	F44EE	144	2.0	SW	2600	5,242	14	T 50 R LED	RTLED50	50	0.7	SW	2,600	1,820	3,422	1.3	$ 602.74	$ 3,307.50	$0	5.5	5.5
6LED	D-8	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,493	12	T 50 R LED	RTLED50	50	0.6	SW	2,600	1,560	2,933	1.1	$ 516.63	$ 2,835.00	$0	5.5	5.5
6LED	D-5 (No Entry)	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118	11	T 50 R LED	RTLED50	50	0.6	SW	2,600	1,430	2,688	1.0	$ 473.58	$ 2,598.75	$0	5.5	5.5
178LED	Exit	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	3640	262	1	4 ft LED Tube	200732x2	30	0.0	SW	3,640	109	153	0.0	$ 25.73	$ 163.35	$0	6.3	6.3
6LED	D-6 (No Entry)	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,493	12	T 50 R LED	RTLED50	50	0.6	SW	2,600	1,560	2,933	1.1	$ 516.63	$ 2,835.00	$0	5.5	5.5
15LED	Boys Restroom	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	562	3	T 38 R LED	RTLED38	38	0.1	SW	3,120	356	206	0.1	$ 35.33	$ 708.75	$0	20.1	20.1
15LED	Girls Restroom (No Entry)	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	562	3	T 38 R LED	RTLED38	38	0.1	SW	3,120	356	206	0.1	$ 35.33	$ 708.75	$0	20.1	20.1
7LED	Exit to Courtyard	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	3640	218	1	2T 25 R LED	2RTLED	25	0.0	SW	3,640	91	127	0.0	$ 21.44	$ 202.50	$0	9.4	9.4
6LED	Exit to Courtyard	1	T 34 R F 4 (MAG)	F44EE	144	0.1	SW	3640	524	1	T 50 R LED	RTLED50	50	0.1	SW	3,640	182	342	0.1	$ 57.59	$ 236.25	$0	4.1	4.1
61LED	D-3 (No Entry)	4	T 34 R F 3 (MAG)	F43EE	115	0.5	SW	2600	1,196	4	T 38 R LED	RTLED38	38	0.2	SW	2,600	395	801	0.3	$ 141.07	$ 945.00	$0	6.7	6.7
6LED	D-4 (No Entry)	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,493	12	T 50 R LED	RTLED50	50	0.6	SW	2,600	1,560	2,933	1.1	$ 516.63	$ 2,835.00	$0	5.5	5.5
6LED	D-2 (No Entry)	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,493	12	T 50 R LED	RTLED50	50	0.6	SW	2,600	1,560	2,933	1.1	$ 516.63	$ 2,835.00	$0	5.5	5.5
61LED	D-1	4	T 34 R F 3 (MAG)	F43EE	115	0.5	SW	2600	1,196	4	T 38 R LED	RTLED38	38	0.2	SW	2,600	395	801	0.3	$ 141.07	$ 945.00	$0	6.7	6.7
18LED	Corridor near E-2	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	3640	1,631	4	T 50 R LED	RTLED50	50	0.2	SW	3,640	728	903	0.2	$ 151.95	$ 945.00	$0	6.2	6.2
6LED	Corridor near E-4	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	3640	2,097	4	T 50 R LED	RTLED50	50	0.2	SW	3,640	728	1,369	0.4	$ 230.37	$ 945.00	$0	4.1	4.1
6LED	D- Corridor	25	T 34 R F 4 (MAG)	F44EE	144	3.6	SW	3640	13,104	25	T 50 R LED	RTLED50	50	1.3	SW	3,640	4,550	8,554	2.4	$ 1,439.81	$ 5,906.25	$0	4.1	4.1
15LED	Main Entrance	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3640	655	3	T 38 R LED	RTLED38	38	0.1	SW	3,640	415	240	0.1	$ 40.44	$ 708.75	$0	17.5	17.5
178LED	Main Entrance	3	B 34 R F 2 (MAG)	F42EE	72	0.2	SW	3640	786	3	4 ft LED Tube	200732x2	30	0.1	SW	3,640	328	459	0.1	$ 77.20	$ 490.05	$0	6.3	6.3
15LED	Corridor near Main Entrance	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	3640	437	2	T 38 R LED	RTLED38	38	0.1	SW	3,640	277	160	0.0	$ 26.96	$ 472.50	$0	17.5	17.5
4LED	D-Wing Stairwell	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	3640	1,048	4	2T 25 R LED	2RTLED	25	0.1	SW	3,640	364	684	0.2	$ 115.18	$ 810.00	$0	7.0	7.0
4LED	D-Wing Stairwell	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	3640	1,048	4	2T 25 R LED	2RTLED	25	0.1	SW	3,640	364	684	0.2	$ 115.18	$ 810.00	$0	7.0	7.0
4LED	D-Wing Stairwell	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	3640	1,048	4	2T 25 R LED	2RTLED	25	0.1	SW	3,640	364	684	0.2	$ 115.18	$ 810.00	$0	7.0	7.0
6LED	Nurse's Office	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	489	0.2	$ 86.11	$ 472.50	$0	5.5	5.5
6LED	Nurse's Office	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	2600	1,498	4	T 50 R LED	RTLED50	50	0.2	SW	2,600	520	978	0.4	$ 172.21	$ 945.00	$0	5.5	5.5
133	Nurse's Office	2	CF 26	CFQ26/1-L	27	0.1	SW	2600	140	2	CF 26	CFQ26/1-L	27	0.1	SW	2,600	140	-	0.0	$ -	$ -	$0		#DIV/0!
178LED	Storage	3	B 34 R F 2 (MAG)	F42EE	72	0.2	SW	1560	337	3	4 ft LED Tube	200732x2	30	0.1	SW	1,560	140	197	0.1	$ 38.22	$ 490.05	$0	12.8	12.8
6LED	Storage	1	T 34 R F 4 (MAG)	F44EE	144	0.1	SW	1560	225	1	T 50 R LED	RTLED50	50	0.1	SW	1,560	78	147	0.1	$ 28.51	$ 236.25	$0	8.3	8.3
6LED	Main Corridor	20	T 34 R F 4 (MAG)	F44EE	144	2.9	SW	3640	10,483	20	T 50 R LED	RTLED50	50	1.0	SW	3,640	3,640	6,843	1.9	$ 1,151.85	$ 4,725.00	$0	4.1	4.1
6LED	Exit	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	3640	2,097	4	T 50 R LED	RTLED50	50	0.2	SW	3,640	728	1,369	0.4	$ 230.37	$ 945.00	$0	4.1	4.1
15LED	Assistant Principal Office	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	468	3	T 38 R LED	RTLED38	38	0.1	SW	2,600	296	172	0.1	$ 30.23	$ 708.75	$0	23.4	23.4
15LED	Main Office - Office	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	468	3	T 38 R LED	RTLED38	38	0.1	SW	2,600	296	172	0.1	$ 30.23	$ 708.75	$0	23.4	23.4
15LED	Main Office - Office A	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	T 38 R LED	RTLED38	38	0.1	SW	2,600	198	114	0.0	$ 20.15	$ 472.50	$0	23.4	23.4
15LED	Main Office - Office B	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	T 38 R LED	RTLED38	38	0.1	SW	2,600	198	114	0.0	$ 20.15	$ 472.50	$0	23.4	23.4
15LED	Main Office - Office C	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	T 38 R LED	RTLED38	38	0.1	SW	2,600	198	114	0.0	$ 20.15	$ 472.50	$0	23.4	23.4
15LED	Main Office - Office D	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	T 38 R LED	RTLED38	38	0.1	SW	2,600	198	114	0.0	$ 20.15	$ 472.50	$0	23.4	23.4
15LED	Main Office - Office E	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	624	4	T 38 R LED	RTLED38	38	0.2	SW	2,600	395	229	0.1	$ 40.30	$ 945.00	$0	23.4	23.4
15LED	Main Office - Break Room	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	T 38 R LED	RTLED38	38	0.1	SW	2,600	198	114	0.0	$ 20.15	$ 472.50	$0	23.4	23.4
178LED	Main Office	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187	1	4 ft LED Tube	200732x2	30	0.0	SW	2,600	78	109	0.0	$ 19.24	$ 163.35	$0	8.5	8.5
178LED	Main Office	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187	1	4 ft LED Tube	200732x2	30	0.0	SW	2,600	78	109	0.0	$ 19.24	$ 163.35	$0	8.5	8.5
15LED	Main Office	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2600	1,248	8	T 38 R LED	RTLED38	38	0.3	SW	2,600	790	458	0.2	$ 80.61	$ 1,890.00	$0	23.4	23.4
7LED	Main Office - Storage A	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	1560	94	1	2T 25 R LED	2RTLED	25	0.0	SW	1,560	39	55	0.0	$ 10.62	$ 202.50	$0	19.1	19.1
133	Main Office - Storage B	1	CF 26	CFQ26/1-L	27	0.0	SW	1560	42	1	CF 26	CFQ26/1-L	27	0.0	SW	1,560	42	-	0.0	$ -	$ -	$0		#DIV/0!
6LED	Tech Lab	8	T 34 R F 4 (MAG)	F44EE	144	1.2	SW	2600	2,995	8	T 50 R LED	RTLED50	50	0.4	SW	2,600	1,040	1,955	0.8	$ 344.42	$ 1,890.00	$0	5.5	5.5
6LED	Tech Lab	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	489	0.2	$ 86.11	$ 472.50	$0	5.5	5.5
6LED	Tech Lab	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	2600	1,123	3	T 50 R LED	RTLED50	50	0.2	SW	2,600	390	733	0.3	$ 129.16	$ 708.75	$0	5.5	5.5
18LED	Offices 1	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291	1	T 50 R LED	RTLED50	50	0.1	SW	2,600	130	161	0.1	$ 28.40	$ 236.25	$0	8.3	8.3
6LED	Offices 2	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	489	0.2	$ 86.11	$ 472.50	$0	5.5	5.5
6LED	Offices 3	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	489	0.2	$ 86.11	$ 472.50	$0	5.5	5.5
6LED	Offices 4	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	489	0.2	$ 86.11	$ 472.50	$0	5.5	5.5
6LED	Offices 5	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	489	0.2	$ 86.11	$ 472.50	$0	5.5	5.5
6LED	Offices 6	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	489	0.2	$ 86.11	$ 472.50	$0	5.5	5.5
6LED	Offices 7	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	SW	2,600	260	489	0.2	$ 86.11	$ 472.50	$0	5.5	5.5
6LED	Guidance	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867	13	T 50 R LED	RTLED50	50	0.7	SW	2,600	1,690	3,177	1.2	$ 559.68	$ 3,071.25	$0	5.5	5.5
6LED	Guidance - Storage	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	1560	449	2	T 50 R LED	RTLED50	50	0.1	SW	1,560	156	293	0.2	$ 57.03	$ 472.50	$0	8.3	8.3
6LED	A-17	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867	13	T 50 R LED	RTLED50	50	0.7	SW	2,600	1,690	3,177	1.2	$ 559.68	$ 3,071.25	$0	5.5	5.5
133	A-17 - Side Area	2	CF 26	CFQ26/1-L	27	0.1	SW	2600	140	2	CF 26	CFQ26/1-L	27	0.1	SW	2,600	140	-	0.0	$ -	$ -	$0		#DIV/0!
133	A-17 - Side Area	1	CF 26	CFQ26/1-L	27	0.0	SW	2600	70	1	CF 26	CFQ26/1-L	27	0.0	SW	2,600	70	-	0.0	$ -	$ -	$0		#DIV/0!
133	A-17 - Kiln	2	CF 26	CFQ26/1-L	27	0.1	SW	1560	84	2	CF 26	CFQ26/1-L	27	0.1	SW	1,560	84	-	0.0	$ -	$ -	$0		#DIV/0!
15LED	A-17 - Storage	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1560	94	1	T 38 R LED	RTLED38	38	0.0	SW	1,560	59	34	0.0	$ 6.67	$ 236.25	$0	35.4	35.4
133	A-17 - Entrance	1	CF 26	CFQ26/1-L	27	0.0	SW	2600	70	1	CF 26	CFQ26/1-L	27	0.0	SW	2,600	70	-	0.0	$ -	$ -	$0		#DIV/0!
133	A-17 - Storage	2	CF 26	CFQ26/1-L	27	0.1	SW	1560	84	2	CF 26	CFQ26/1-L	27	0.1	SW	1,560	84	-	0.0	$ -	$ -	$0		#DIV/0!
4LED	A-17 - Storage	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	1560	112	1	2T 25 R LED	2RTLED	25	0.0	SW	1,560	39	73	0.0	$ 14.26	$ 202.50	$0	14.2	14.2
178LED	A-16	20	B 34 R F 2 (MAG)	F42EE	72	1.4	SW	2600	3,744	20	4 ft LED Tube	200732x2	30	0.6	SW	2,600	1,560	2,184	0.8	$ 384.73	$ 3,267.00	$0	8.5	8.5
7LED	Corridor	8	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.5	SW	3640	1,747	8	2T 25 R LED	2RTLED	25	0.2	SW	3,640	728	1,019	0.3	$ 171.55	$ 1,620.00	$0	9.4	9.4
15LED	Custodial Office	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	468	3	T 38 R LED	RTLED38	38	0.1	SW	2,600	296	172	0.1	$ 30.23	$ 708.75	$0	23.4	23.4
15LED	Grounds Shed	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	1560	374	4	T 38 R LED	RTLED38	38	0.2	SW	1,560	237	137	0.1	$ 26.69	$ 945.00	$0	35.4	35.4
15LED	Grounds Shed Garage	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	1560	374	4	T 38 R LED	RTLED38	38	0.2	SW	1,560	237	137	0.1	$ 26.69	$ 945.00	$0	35.4	35.4
33	Grounds Shed Garage - Storage	2	13 W CF 1	CFQ13/1-L	15	0.0	SW	1560	47	2	13 W CF 1	CFQ13/1-L	15	0.0	SW	1,560	47	-	0.0	$ -	$ -	$0		#DIV/0!
40LED	Field House Locker	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	1200	288	4	T 38 R LED	RTLED38	38	0.2	SW	1,200	182	106	0.1	$ 21.98	$ 945.00	$0	43.0	43.0
133	Field House Locker Restroom	1	CF 26	CFQ26/1-L	27	0.0	SW	1200	32	1	CF 26	CFQ26/1-L	27	0.0	SW	1,200	32	-	0.0	$ -	$ -	$0		#DIV/0!
40LED	Field House Locker 1	14	T 32 R F 2 (ELE)	F42LL	60	0.8	SW	1200	1,008	14	T 38 R LED	RTLED38	38	0.5	SW	1,200	638	370	0.3	$ 76.93	$ 3,307.50	$0	43.0	43.0
40LED	Field House Locker 2	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	1200	576	8	T 38 R LED	RTLED38	38	0.3	SW	1,200	365	211	0.2	$ 43.96	$ 1,890.00	$0	43.0	43.0
18LED	Field House Shower Room	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	1200	134	1	T 50 R LED	RTLED50	50	0.1	SW	1,200	60	74	0.1	$ 15.49	$ 236.25	$0	15.3	15.3
40LED	Field House Stairway	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	1200	288	4	T 38 R LED	RTLED38	38	0.2	SW	1,200	182	106	0.1	$ 21.98	$ 945.00	$0	43.0	43.0
40LED	Second Floor Corridor	9	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	1200	648	9	T 38 R LED	RTLED38	38	0.3	SW	1,200	410	238	0.2	$ 49.46	$ 2,126.25	$0	43.0	43.0
40LED	Team Room	11	T 32 R F 2 (ELE)	F42LL	60	0.7	SW	1200	792	11	T 38 R LED	RTLED38	38	0.4	SW	1,200	502	290	0.2	$ 60.45	$ 2,598.75	$0	43.0	43.0
40LED	Coaches Room	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	1200	432	6	T 38 R LED	RTLED38	38	0.2	SW	1,200	274	158	0.1	$ 32.97	$ 1,417.50	$0	43.0	43.0
33	Restroom	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	1200	18	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	1,200	18	-	0.0	$ -	$ -	$0		#DIV/0!
40LED	Conference Room	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	1200	576	8	T 38 R LED	RTLED38	38	0.3	SW	1,200	365	211	0.2	$ 43.96	$ 1,890.00	$0	43.0	43.0
133	Video Editing Room	1	CF 26	CFQ26/1-L	27	0.0	SW	1200	32	1	CF 26	CFQ26/1-L	27	0.0	SW	1,200	32	-	0.0	$ -	$ -	$0		#DIV/0!
33	Ticket Booth	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	520	8	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	520	8	-	0.0	$ -	$ -	$0		#DIV/0!
33	Ticket Booth	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	520	8	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	520	8	-	0.0	$ -	$ -	$0		#DIV/0!
15LED	Concessions	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	780	234	5	T 38 R LED	RTLED38	38	0.2	SW	780	148	86	0.1	$ 20.61	$ 1,181.25	$0	57.3	57.3
15LED	Concessions Storage (No Entry	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	780	47	1	T 38 R LED	RTLED38	38	0.0	SW	780	30	17	0.0	$ 4.12	$ 236.25	$0	57.3	57.3
133	Concessions - Exterior	4	CF 26	CFQ26/1-L	27	0.1	SW	3120	337	4	CF 26	CFQ26/1-L	27	0.1	SW	3,120	337	-	0.0	$ -	$ -	$0		#DIV/0!
15LED	Ladies Restroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	780	47	1	T 38 R LED	RTLED38	38	0.0	SW	780	30	17	0.0	$ 4.12	$ 236.25	$0	57.3	57.3
15LED	Mens Restroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	780	47	1	T 38 R LED	RTLED38	38	0.0	SW	780	30	17	0.0	$ 4.12	$ 236.25	$0	57.3	57.3
227LED	Exterior Building Lighting	23	70 W MH Wall Pack	MH70/1	95	2.2	SW	3120	6,817	23	FXLED18	FXLED18/1	18	0.4	SW	3,120	1,292	5,526	1.8	$ 948.10	$ 9,734.18	$2,300	10.3	7.8
237LED	Exterior Building Lighting	4	MV 100	MV100/1	125	0.5	SW	3120	1,560	4	WPLED20	WPLED20	22	0.1	SW	3,120	275	1,285	0.4	$ 220.56	$ 1,050.45	$400	4.8	2.9
s	Total	1,506				157.7			439,650	1,506			10,072	67.1			185,400	254,251	90.6	$44,277	$351,836	$8,300		
s																	Demand Savings			90.6	$6,463			
s																	kWh Savings			254,251	$37,814			

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
ECM-L1 Lighting Replacements

		EXISTING CONDITIONS								RETROFIT CONDITIONS							COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
s																	Total savings				$44,277		7.9	7.8

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
32LED	Athletic Trainer	17	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	2600	2,652.0	17	1T 32 R F 2 (ELE)	F42LL	60	1.0	C-OCC	1950	1,989.0	663.0	0.0	$98.61	$270.00	$35.00	2.7	2.4
18LED	Athletic Trainer	5	T 32 R F 4 (ELE)	F44ILL	112	0.6	SW	2600	1,456.0	5	T 32 R F 4 (ELE)	F44ILL	112	0.6	C-OCC	1950	1,092.0	364.0	0.0	$54.14	$270.00	$35.00	5.0	4.3
13LED	Electrical Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1560	93.6	1	S 32 P F 2 (ELE)	F42LL	60	0.1	NONE	1560	93.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Men's Restroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	3120	698.9	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	C-OCC	1560	349.4	349.4	0.0	$51.97	$270.00	$35.00	5.2	4.5
18LED	Women's Restroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	3120	698.9	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	C-OCC	1560	349.4	349.4	0.0	$51.97	$270.00	$35.00	5.2	4.5
32LED	Custodial Room	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	1560	93.6	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	NONE	1560	93.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
32LED	Women's Faculty Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3120	187.2	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1560	93.6	93.6	0.0	$13.92	$270.00	$35.00	19.4	16.9
32LED	Men's Faculty Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3120	187.2	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	1560	93.6	93.6	0.0	$13.92	$270.00	$35.00	19.4	16.9
X5	Storage Room (locked - no entry	1	CF42/1	CF42/1-I	48	0.0	SW	1560	74.9	1	CF42/1	CF42/1-I	48	0.0	C-OCC	780	37.4	37.4	0.0	$5.57	$270.00	$35.00	48.5	42.2
18LED	G-10	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,620.8	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1950	1,965.6	655.2	0.0	$97.45	$270.00	$35.00	2.8	2.4
18LED	H-1 (No Entry)	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,620.8	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1950	1,965.6	655.2	0.0	$97.45	$270.00	$35.00	2.8	2.4
18LED	H-2 (No Entry)	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,620.8	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1950	1,965.6	655.2	0.0	$97.45	$270.00	$35.00	2.8	2.4
X5	Custodial Room (locked - no entry	1	CF42/1	CF42/1-I	48	0.0	SW	1560	74.9	1	CF42/1	CF42/1-I	48	0.0	NONE	1560	74.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
32LED	W-1	11	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	2600	1,716.0	11	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	1950	1,287.0	429.0	0.0	$63.80	$270.00	$35.00	4.2	3.7
40LED	H hallway	13	T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3640	2,839.2	13	T 32 R F 2 (ELE)	F42LL	60	0.8	C-OCC	2912	2,271.4	567.8	0.0	$84.45	$270.00	$35.00	3.2	2.8
32LED	W-1 Storage	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	1560	93.6	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	780	46.8	46.8	0.0	$6.96	$270.00	$35.00	38.8	33.8
40LED	W-1 Office	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2600	624.0	4	T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	1950	468.0	156.0	0.0	$23.20	$270.00	$35.00	11.6	10.1
46LED	Back Gym Corridor	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	3640	1,747.2	8	W 32 C F 2 (ELE)	F42LL	60	0.5	C-OCC	2912	1,397.8	349.4	0.0	$51.97	$270.00	$35.00	5.2	4.5
46LED	Gym Storage	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	1560	1,123.2	12	W 32 C F 2 (ELE)	F42LL	60	0.7	C-OCC	780	561.6	561.6	0.0	$83.53	$270.00	$35.00	3.2	2.8
46LED	Exit	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3640	655.2	3	W 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	2912	524.2	131.0	0.0	$19.49	$270.00	$35.00	13.9	12.1
13LED	W-3	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2600	1,092.0	7	S 32 P F 2 (ELE)	F42LL	60	0.4	C-OCC	1950	819.0	273.0	0.0	$40.60	$270.00	$35.00	6.6	5.8
13LED	W-2	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2600	1,404.0	9	S 32 P F 2 (ELE)	F42LL	60	0.5	C-OCC	1950	1,053.0	351.0	0.0	$52.20	$270.00	$35.00	5.2	4.5
18LED	Corridor Front + Gym	29	T 32 R F 4 (ELE)	F44ILL	112	3.2	SW	3640	11,822.7	29	T 32 R F 4 (ELE)	F44ILL	112	3.2	C-OCC	2912	9,458.2	2,364.5	0.0	$351.68	$270.00	$35.00	0.8	0.7
13LED	Weight Room	28	S 32 P F 2 (ELE)	F42LL	60	1.7	SW	3120	5,241.6	28	S 32 P F 2 (ELE)	F42LL	60	1.7	NONE	3120	5,241.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
46LED	Weight Room Corridor	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3640	873.6	4	W 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	2912	698.9	174.7	0.0	$25.99	$270.00	$35.00	10.4	9.0
141LED	Wrestling Room	10	HPS 250	HPS250/1	295	3.0	SW	3120	9,204.0	10	HPS 250	HPS250/1	295	3.0	NONE	3120	9,204.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
32LED	Boys' Baseball Locker Room	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3120	2,246.4	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	C-OCC	2340	1,684.8	561.6	0.0	$83.53	$270.00	$35.00	3.2	2.8
18LED	Baseball Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2600	1,164.8	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	C-OCC	1950	873.6	291.2	0.0	$43.31	$270.00	$35.00	6.2	5.4
32LED	Locker Room Restroom	3	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3120	561.6	3	1T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	1560	280.8	280.8	0.0	$41.76	$270.00	$35.00	6.5	5.6
32LED	Locker Room Corridor	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3640	2,184.0	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	C-OCC	2912	1,747.2	436.8	0.0	$64.96	$270.00	$35.00	4.2	3.6
32LED	Boys' Locker Room	7	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3120	1,310.4	7	1T 32 R F 2 (ELE)	F42LL	60	0.4	C-OCC	2340	982.8	327.6	0.0	$48.72	$270.00	$35.00	5.5	4.8
18LED	Boys' Locker Room Office	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582.4	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	C-OCC	1950	436.8	145.6	0.0	$21.65	$270.00	$35.00	12.5	10.9
32LED	Locker Room Entrance	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3640	218.4	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	C-OCC	2912	174.7	43.7	0.0	$6.50	$270.00	$35.00	41.6	36.2
141LED	Large Gymnasium	36	HPS 250	HPS250/1	295	10.6	SW	3120	33,134.4	36	HPS 250	HPS250/1	295	10.6	NONE	3120	33,134.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Physical Education Office (locked - no entry	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2600	1,164.8	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	C-OCC	1950	873.6	291.2	0.0	$43.31	$270.00	$35.00	6.2	5.4
18LED	Boys' Locker Room (locked - no entry	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	3120	3,494.4	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	C-OCC	2340	2,620.8	873.6	0.0	$129.93	$270.00	$35.00	2.1	1.8
X5	Storage Room (locked - no entry	3	CF42/1	CF42/1-I	48	0.1	SW	1560	224.6	3	CF42/1	CF42/1-I	48	0.1	C-OCC	780	112.3	112.3	0.0	$16.71	$270.00	$35.00	16.2	14.1
141LED	Auxilary Basketball Practice	10	HPS 250	HPS250/1	295	3.0	SW	3120	9,204.0	10	HPS 250	HPS250/1	295	3.0	NONE	3120	9,204.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
X5	Basketball Storage Room (locked - no entry	2	CF42/1	CF42/1-I	48	0.1	SW	1560	149.8	2	CF42/1	CF42/1-I	48	0.1	C-OCC	780	74.9	74.9	0.0	$11.14	$270.00	$35.00	24.2	21.1
X5	Storage Room (locked - no entry	2	CF42/1	CF42/1-I	48	0.1	SW	1560	149.8	2	CF42/1	CF42/1-I	48	0.1	C-OCC	780	74.9	74.9	0.0	$11.14	$270.00	$35.00	24.2	21.1
32LED	Athletic Coordinator	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2600	624.0	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	1950	468.0	156.0	0.0	$23.20	$270.00	$35.00	11.6	10.1
32LED	M-1 Team Room	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	2600	1,560.0	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	C-OCC	1950	1,170.0	390.0	0.0	$58.00	$270.00	$35.00	4.7	4.1
32LED	M-1 Restroom	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3120	748.8	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	C-OCC	1560	374.4	374.4	0.0	$55.68	$270.00	$35.00	4.8	4.2
32LED	Girls' Locker Room	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3120	1,872.0	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	C-OCC	2340	1,404.0	468.0	0.0	$69.61	$270.00	$35.00	3.9	3.4
257	Media Center	37	CFT55	CFT50/1-BX	54	2.0	SW	3120	6,233.8	37	CFT55	CFT50/1-BX	54	2.0	C-OCC	2340	4,675.3	1,558.4	0.0	$231.79	$270.00	$35.00	1.2	1.0
256	Media Center	3	CFT55/12-BX	CFT55/12-BX	672	2.0	SW	3120	6,289.9	3	CFT55/12-BX	CFT55/12-BX	672	2.0	C-OCC	2340	4,717.4	1,572.5	0.0	$233.87	$270.00	$35.00	1.2	1.0
102	Media Center	12	O CF 26	CFQ26/1-L	27	0.3	SW	3120	1,010.9	12	O CF 26	CFQ26/1-L	27	0.3	C-OCC	2340	758.2	252.7	0.0	$37.59	$270.00	$35.00	7.2	6.3
257	Media Technology Lab	9	CFT55	CFT50/1-BX	54	0.5	SW	3120	1,516.3	9	CFT55	CFT50/1-BX	54	0.5	C-OCC	2340	1,137.2	379.1	0.0	$56.38	$270.00	$35.00	4.8	4.2
257	Technology Lab	14	CFT55	CFT50/1-BX	54	0.8	SW	2600	1,965.6	14	CFT55	CFT50/1-BX	54	0.8	C-OCC	1950	1,474.2	491.4	0.0	$73.09	$270.00	$35.00	3.7	3.2
6LED	D-20	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118.4	11	T 34 R F 4 (MAG)	F44EE	144	1.6	C-OCC	1950	3,088.8	1,029.6	0.0	$153.13	$270.00	$35.00	1.8	1.5
18LED	D-20	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291.2	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	C-OCC	1950	218.4	72.8	0.0	$10.83	$270.00	$35.00	24.9	21.7
6LED	D-21	9	T 34 R F 4 (MAG)	F44EE	144	1.3	SW	2600	3,369.6	9	T 34 R F 4 (MAG)	F44EE	144	1.3	C-OCC	1950	2,527.2	842.4	0.0	$125.29	$270.00	$35.00	2.2	1.9
18LED	D-21	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	873.6	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	C-OCC	1950	655.2	218.4	0.0	$32.48	$270.00	$35.00	8.3	7.2
6LED	D-22	8	T 34 R F 4 (MAG)	F44EE	144	1.2	SW	2600	2,995.2	8	T 34 R F 4 (MAG)	F44EE	144	1.2	C-OCC	1950	2,246.4	748.8	0.0	$111.37	$270.00	$35.00	2.4	2.1
18LED	D-22	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291.2	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	C-OCC	1950	218.4	72.8	0.0	$10.83	$270.00	$35.00	24.9	21.7
7LED	D-22	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156.0	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	C-OCC	1950	117.0	39.0	0.0	$5.80	$270.00	$35.00	46.5	40.5
6LED	D-23	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	2600	1,497.6	4	T 34 R F 4 (MAG)	F44EE	144	0.6	C-OCC	1950	1,123.2	374.4	0.0	$55.68	$270.00	$35.00	4.8	4.2
18LED	D-23	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582.4	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	C-OCC	1950	436.8	145.6	0.0	$21.65	$270.00	$35.00	12.5	10.9
7LED	D-23	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468.0	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	C-OCC	1950	351.0	117.0	0.0	$17.40	$270.00	$35.00	15.5	13.5
6LED	D-24	7	T 34 R F 4 (MAG)	F44EE	144	1.0	SW	2600	2,620.8	7	T 34 R F 4 (MAG)	F44EE	144	1.0	C-OCC	1950	1,965.6	655.2	0.0	$97.45	$270.00	$35.00	2.8	2.4
18LED	D-24	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582.4	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	C-OCC	1950	436.8	145.6	0.0	$21.65	$270.00	$35.00	12.5	10.9
7LED	D-24	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156.0	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	C-OCC	1950	117.0	39.0	0.0	$5.80	$270.00	$35.00	46.5	40.5
18LED	D-25 (locked - no entry	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,620.8	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1950	1,965.6	655.2	0.0	$97.45	$270.00	$35.00	2.8	2.4
18LED	D-27	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,620.8	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1950	1,965.6	655.2	0.0	$97.45	$270.00	$35.00	2.8	2.4
7LED	D-27	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156.0	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	C-OCC	1950	117.0	39.0	0.0	$5.80	$270.00	$35.00	46.5	40.5
52LED	Boys' Restroom	3	W 34 C F 2 (MAG)	F42EE	72	0.2	SW	3120	673.9	3	W 34 C F 2 (MAG)	F42EE	72	0.2	C-OCC	1560	337.0	337.0	0.0	$50.12	$270.00	$35.00	5.4	4.7
52LED	Girls' Restroom	3	W 34 C F 2 (MAG)	F42EE	72	0.2	SW	3120	673.9	3	W 34 C F 2 (MAG)	F42EE	72	0.2	C-OCC	1560	337.0	337.0	0.0	$50.12	$270.00	$35.00	5.4	4.7
6LED	D-28	6	T 34 R F 4 (MAG)	F44EE	144	0.9	SW	2600	2,246.4	6	T 34 R F 4 (MAG)	F44EE	144	0.9	C-OCC	1950	1,684.8	561.6	0.0	$83.53	$270.00	$35.00	3.2	2.8
18LED	D-28	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	873.6	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	C-OCC	1950	655.2	218.4	0.0	$32.48	$270.00	$35.00	8.3	7.2
4LED	D-28	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	2600	187.2	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	C-OCC	1950	140.4	46.8	0.0	$6.96	$270.00	$35.00	38.8	33.8
18LED	D-29 (locked - no entry	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,620.8	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	C-OCC	1950	1,965.6	655.2	0.0	$97.45	$270.00	$35.00	2.8	2.4
6LED	D-30	10	T 34 R F 4 (MAG)	F44EE	144	1.4	SW	2600	3,744.0	10	T 34 R F 4 (MAG)	F44EE	144	1.4	C-OCC	1950	2,808.0	936.0	0.0	$139.21	$270.00	$35.00	1.9	1.7
18LED	D-30	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582.4	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	C-OCC	1950	436.8	145.6	0.0	$21.65	$270.00	$35.00	12.5	10.9
6LED	D-31	9	T 34 R F 4 (MAG)	F44EE	144	1.3	SW	2600	3,369.6	9	T 34 R F 4 (MAG)	F44EE	144	1.3	C-OCC	1950	2,527.2	842.4	0.0	$125.29	$270.00	$35.00	2.2	1.9
4LED	D-31	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	2600	187.2	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	C-OCC	1950	140.4	46.8	0.0	$6.96	$270.00	$35.00	38.8	33.8
52LED	Supervisor Office	6	W 34 C F 2 (MAG)	F42EE	72	0.4	SW	2600	1,123.2	6	W 34 C F 2 (MAG)	F42EE	72	0.4	C-OCC	1950	842.4	280.8	0.0	$41.76	$270.00	$35.00	6.5	5.6
20LED	Faculty Restroom	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	3120	99.8	1	S 32 C F 1 (ELE)	F41LL	32	0.0	C-OCC	1560	49.9	49.9	0.0	$7.42	$270.00	$35.00	36.4	31.7
6LED	D-32	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118.4	11	T 34 R F 4 (MAG)	F44EE	144	1.6	C-OCC	1950	3,088.8	1,029.6	0.0	$153.13	$270.00	$35.00	1.8	1.5
18LED	D-32	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291.2	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	C-OCC	1950	218.4	72.8	0.0	$10.83	$270.00	$35.00	24.9	21.7
6LED	D-32 Prep Area	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	1560	673.9	3	T 34 R F 4 (MAG)	F44EE	144	0.4	C-OCC	780	337.0	337.0	0.0	$50.12	$270.00	$35.00	5.4	4.7
6LED	D-33	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,492.8	12	T 34 R F 4 (MAG)	F44EE	144	1.7	C-OCC	1950	3,369.6	1,123.2	0.0	$167.05	$270.00	$35.00	1.6	1.4
7LED	D-33	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	312.0	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	C-OCC	1950	234.0	78.0	0.0	$11.60	$270.00	$35.00	23.3	20.3
4LED	D-33	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	2600	187.2	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	C-OCC	1950	140.4	46.8	0.0	$6.96	$270.00	$35.00	38.8	33.8
20LED	Faculty Restroom	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	3120	99.8	1	S 32 C F 1 (ELE)	F41LL	32	0.0	C-OCC	1560	49.9	49.9	0.0	$7.42	$270.00	$35.00	36.4	31.7
X5	Custodial Room	1	CF42/1	CF42/1-I	48	0.0	SW	1560	74.9	1	CF42/1	CF42/1-I	48	0.0	NONE	1560	74.9	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
6LED	D-35	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867.2	13	T 34 R F 4 (MAG)	F44EE	144	1.9	C-OCC	1950	3,650.4	1,216.8	0.0	$180.97	$270.00	$35.00	1.5	1.3
18LED	D-35	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582.4	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	C-OCC	1950	436.8	145.6	0.0	$21.65	$270.00	$35.00	12.5	10.9
41LED	D-36	6	1B 40 R F 2 (MAG)	F42SS	94	0.6	SW	2600	1,466.4	6	1B 40 R F 2 (MAG)	F42SS	94	0.6	C-OCC	1950	1,099.8	366.6	0.0	$54.52	$270.00	$35.00	5.0	4.3
6LED	D-34	5	T 34 R F 4 (MAG)	F44EE	144	0.7	SW	2600	1,872.0	5	T 34 R F 4 (MAG)	F44EE	144	0.7	C-OCC	1950	1,404.0	468.0	0.0	$69.61	$270.00	$35.00	3.9	3.4
18LED	D-34	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2600	1,164.8	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	C-OCC	1950	873.6	291.2	0.0	$43.31	$270.00	$35.00	6.2	5.4
7LED	D-34	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156.0	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	C-OCC	1950	117.0	39.0	0.0	$5.80	$270.00	$35.00	46.5	40.5
18LED	2nd Floor Corridor	18	T 32 R F 4 (ELE)	F44ILL	112	2.0	SW	3640	7,338.2	18	T 32 R F 4 (ELE)	F44ILL	112	2.0	C-OCC	2912	5,870.6	1,467.6	0.0	$218.28	$270.00	$35.00	1.2	1.1
6LED	2nd Floor Corridor	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	3640	1,572.5	3	T 34 R F 4 (MAG)	F44EE	144	0.4	C-OCC	2912	1,258.0	314.5	0.0	$46.77	$270.00	$35.00	5.8	5.0
6LED	D-27	7	T 34 R F 4 (MAG)	F44EE	144	1.0	SW	2600	2,620.8	7	T 34 R F 4 (MAG)	F44EE	144	1.0	C-OCC	1950	1,965.6	655.2	0.0	$97.45	$270.00	$35.00	2.8	2.4
18LED	D-27	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582.4	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	C-OCC	1950	436.8	145.6	0.0	$21.65	$270.00	$35.00	12.5	10.9
261LED	Cafeteria	25	PAR 38 SP	H100/1	100	2.5	SW	2600	6,500.0	25	PAR 38 SP	H100/1	100	2.5	C-OCC	1950	4,875.0	1,625.0	0.0	$241.69	$270.00	$35.00	1.1	1.0
18LED	Cafeteria	85	T 32 R F 4 (ELE)	F44ILL	112	9.5	SW	2600	24,752.0	85	T 32 R F 4 (ELE)	F44ILL	112	9.5	C-OCC	1950	18,564.0	6,188.0	0.0	$920.34	$270.00	$35.00	0.3	0.3
15LED	Kitchen - Dishwasher Room	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	156.0	1	S 32 C F 2 (ELE)	F42LL	60	0.1	NONE	2600	156.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
178LED	Kitchen - Dishwasher Room	2	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	374.4	2	B 34 R F 2 (MAG)	F42EE	72	0.1	NONE	2600	374.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
52LED	Kitchen - Restroom	2	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	3120	449.3	2	W 34 C F 2 (MAG)	F42EE	72	0.1	C-OCC	1560	224.6	224.6	0.0	$33.41	$270.00	$35.00	8.1	7.0
178LED	Kitchen - Laundry	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187.2	1	B 34 R F 2 (MAG)	F42EE	72	0.1	NONE	2600	187.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
52LED	Kitchen - Laundry	1	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	2600	187.2	1	W 34 C F 2 (MAG)	F42EE	72	0.1	NONE	2600	187.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
4LED	Kitchen - Storage	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	1560	112.3	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	C-OCC	780	56.2	56.2	0.0	$8.35	$270.00	$35.00	32.3	28.1
15LED	Kitchen	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2600	1,248.0	8	S 32 C F 2 (ELE)	F42LL	60	0.5	NONE	2600	1,248.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
15LED	Kitchen	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	624.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	NONE	2600	624.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
178LED	Kitchen	28	B 34 R F 2 (MAG)	F42EE	72	2.0	SW	2600	5,241.6	28	B 34 R F 2 (MAG)	F42EE	72	2.0	NONE	2600	5,241.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
178LED	Kitchen - Office	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187.2	1	B 34 R F 2 (MAG)	F42EE	72	0.1	NONE	2600	187.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
178LED	Kitchen - Office	2	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	374.4	2	B 34 R F 2 (MAG)	F42EE	72	0.1	NONE	2600	374.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
52LED	Kitchen - Side Room	2	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	2600	374.4	2	W 34 C F 2 (MAG)	F42EE	72	0.1	NONE	2600	374.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
7LED	Exit	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	3640	218.4	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	C-OCC	2912	174.7	43.7	0.0	$6.50	$270.00	$35.00	41.6	36.2
4LED	Exit	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	3640	262.1	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	C-OCC	2912	209.7	52.4	0.0	$7.80	$270.00	$35.00	34.6	30.1
18LED	Teachers Room	5	T 32 R F 4 (ELE)	F44ILL	112	0.6	SW	2600	1,456.0	5	T 32 R F 4 (ELE)	F44ILL	112	0.6	C-OCC	1300	728.0	728.0	0.0	$108.27	$270.00	$35.00	2.5	2.2
6LED	Teachers Room	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867.2	13	T 34 R F 4 (MAG)	F44EE	144	1.9	C-OCC	1300	2,433.6	2,433.6	0.0	$361.95	$270.00	$35.00	0.7	0.6
39	Mens Restroom	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	3120	103.0	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	C-OCC	1560	51.5	51.5	0.0	$7.66	$270.00	$35.00	35.3	30.7
39	Womens Restroom	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	3120	103.0	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	C-OCC	1560	51.5	51.5	0.0	$7.66	$270.00	$35.00	35.3	30.7
6LED	F-1	9	T 34 R F 4 (MAG)	F44EE	144	1.3	SW	2600	3,369.6	9	T 34 R F 4 (MAG)	F44EE	144	1.3	C-OCC	1950	2,527.2	842.4	0.0	$125.29	$270.00	$35.00	2.2	1.9
7LED	Corridor Cafe to F-1	5	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.3	SW	3640	1,092.0	5	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.3	C-OCC	2912	873.6	218.4	0.0	$32.48	$270.00	$35.00	8.3	7.2
18LED	Exit near F-1	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	3640	2,446.1	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	C-OCC	2912	1,956.9	489.2	0.0	$72.76	$270.00	$35.00	3.7	3.2
133	Corridor	6	CF 26	CFQ26/1-L	27	0.2	SW	3640	589.7	6	CF 26	CFQ26/1-L	27	0.2	C-OCC	2912	471.7	117.9	0.0	$17.54	$270.00	$35.00	15.4	13.4
18LED	Corridor past Chorus to Cafe	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	SW	3640	6,522.9	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	C-OCC	2912	5,218.3	1,304.6	0.0	$194.03	$270.00	$35.00	1.4	1.2
15LED	Boys Restroom	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	748.8	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1560	374.4	374.4	0.0	$55.68	$270.00	$35.00	4.8	4.2
15LED	Girls Restroom (No Entry)	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	748.8	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1560	374.4	374.4	0.0	$55.68	$270.00	$35.00	4.8	4.2

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
ECM-L2 Install Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	"Lighting Fixture Code" Example 2T 40 R F(U) = 2'x2' Troff 40 w Recess. Floor 2 lamps U shape	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kW Saved) * ($/kWh)	Cost for renovations to lighting system		Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
6LED	F-2	19	T 34 R F 4 (MAG)	F44EE	144	2.7	SW	2600	7,113.6	19	T 34 R F 4 (MAG)	F44EE	144	2.7	C-OCC	1950	5,335.2	1,778.4	0.0	$264.50	$270.00	$35.00	1.0	0.9
7LED	Room between F-2 and F-	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	312.0	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	C-OCC	1950	234.0	78.0	0.0	$11.60	$270.00	$35.00	23.3	20.3
6LED	Room between F-2 and F-	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	2600	1,123.2	3	T 34 R F 4 (MAG)	F44EE	144	0.4	C-OCC	1950	842.4	280.8	0.0	$41.76	$270.00	$35.00	6.5	5.6
7LED	Room between F-2 and F-	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468.0	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	C-OCC	1950	351.0	117.0	0.0	$17.40	$270.00	$35.00	15.5	13.5
18LED	Room between F-2 and F-	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	873.6	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	C-OCC	1950	655.2	218.4	0.0	$32.48	$270.00	$35.00	8.3	7.2
7LED	Room between F-2 and F-	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468.0	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	C-OCC	1950	351.0	117.0	0.0	$17.40	$270.00	$35.00	15.5	13.5
18LED	Room between F-2 and F-	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	873.6	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	C-OCC	1950	655.2	218.4	0.0	$32.48	$270.00	$35.00	8.3	7.2
7LED	Room between F-2 and F-	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468.0	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	C-OCC	1950	351.0	117.0	0.0	$17.40	$270.00	$35.00	15.5	13.5
18LED	F-4	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	2600	4,076.8	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	C-OCC	1950	3,057.6	1,019.2	0.0	$151.58	$270.00	$35.00	1.8	1.6
7LED	F-6	9	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.5	SW	2600	1,404.0	9	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.5	C-OCC	1950	1,053.0	351.0	0.0	$52.20	$270.00	$35.00	5.2	4.5
7LED	F-6 Storage	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	1560	280.8	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	C-OCC	780	140.4	140.4	0.0	$20.88	$270.00	$35.00	12.9	11.3
18LED	Exit near F-6	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	3640	815.4	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	C-OCC	2912	652.3	163.1	0.0	$24.25	$270.00	$35.00	11.1	9.7
133	Corridor near Exi	7	CF 26	CFQ26/1-L	27	0.2	SW	3640	688.0	7	CF 26	CFQ26/1-L	27	0.2	C-OCC	2912	550.4	137.6	0.0	$20.46	$270.00	$35.00	13.2	11.5
52LED	Corridor near Exi	8	W 34 C F 2 (MAG)	F42EE	72	0.6	SW	3640	2,096.6	8	W 34 C F 2 (MAG)	F42EE	72	0.6	C-OCC	2912	1,677.3	419.3	0.0	$62.37	$270.00	$35.00	4.3	3.8
18LED	Corridor near Exi	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	3640	4,892.2	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	C-OCC	2912	3,913.7	978.4	0.0	$145.52	$270.00	$35.00	1.9	1.6
178LED	Cafeteria Side Roon	2	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	3640	524.2	2	B 34 R F 2 (MAG)	F42EE	72	0.1	C-OCC	2912	419.3	104.8	0.0	$15.59	$270.00	$35.00	17.3	15.1
52LED	Cafeteria Side Roon	1	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	3640	262.1	1	W 34 C F 2 (MAG)	F42EE	72	0.1	C-OCC	2912	209.7	52.4	0.0	$7.80	$270.00	$35.00	34.6	30.1
15LED	E-2	20	S 32 C F 2 (ELE)	F42LL	60	1.2	SW	2600	3,120.0	20	S 32 C F 2 (ELE)	F42LL	60	1.2	C-OCC	1950	2,340.0	780.0	0.0	$116.01	$270.00	$35.00	2.3	2.0
35LED	E-2	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	2600	4,680.0	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	C-OCC	1950	3,510.0	1,170.0	0.0	$174.01	$270.00	$35.00	1.6	1.4
35LED	E-2 Closet (No entry	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1560	702.0	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	C-OCC	780	351.0	351.0	0.0	$52.20	$270.00	$35.00	5.2	4.5
18LED	E-4 (No Entry)	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2600	2,912.0	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	C-OCC	1950	2,184.0	728.0	0.0	$108.27	$270.00	$35.00	2.5	2.2
35LED	E-4 Closet	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1560	702.0	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	C-OCC	780	351.0	351.0	0.0	$52.20	$270.00	$35.00	5.2	4.5
35LED	D-14	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2600	2,106.0	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	C-OCC	1950	1,579.5	526.5	0.0	$78.31	$270.00	$35.00	3.4	3.0
35LED	D-14 Side Room	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2600	936.0	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	C-OCC	1950	702.0	234.0	0.0	$34.80	$270.00	$35.00	7.8	6.8
6LED	D-11	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867.2	13	T 34 R F 4 (MAG)	F44EE	144	1.9	C-OCC	1950	3,650.4	1,216.8	0.0	$180.97	$270.00	$35.00	1.5	1.3
61LED	Room next to D-1	6	T 34 R F 3 (MAG)	F43EE	115	0.7	SW	1560	1,076.4	6	T 34 R F 3 (MAG)	F43EE	115	0.7	C-OCC	780	538.2	538.2	0.0	$80.05	$270.00	$35.00	3.4	2.9
178LED	Exit	4	B 34 R F 2 (MAG)	F42EE	72	0.3	SW	3640	1,048.3	4	B 34 R F 2 (MAG)	F42EE	72	0.3	C-OCC	2912	838.7	209.7	0.0	$31.18	$270.00	$35.00	8.7	7.5
15LED	Exit	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	3640	436.8	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	2912	349.4	87.4	0.0	$12.99	$270.00	$35.00	20.8	18.1
6LED	D-12	14	T 34 R F 4 (MAG)	F44EE	144	2.0	SW	2600	5,241.6	14	T 34 R F 4 (MAG)	F44EE	144	2.0	C-OCC	1950	3,931.2	1,310.4	0.0	$194.89	$270.00	$35.00	1.4	1.2
6LED	D-7	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118.4	11	T 34 R F 4 (MAG)	F44EE	144	1.6	C-OCC	1950	3,088.8	1,029.6	0.0	$153.13	$270.00	$35.00	1.8	1.5
6LED	D-10 (No Entry)	14	T 34 R F 4 (MAG)	F44EE	144	2.0	SW	2600	5,241.6	14	T 34 R F 4 (MAG)	F44EE	144	2.0	C-OCC	1950	3,931.2	1,310.4	0.0	$194.89	$270.00	$35.00	1.4	1.2
6LED	D-8	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,492.8	12	T 34 R F 4 (MAG)	F44EE	144	1.7	C-OCC	1950	3,369.6	1,123.2	0.0	$167.05	$270.00	$35.00	1.6	1.4
6LED	D-5 (No Entry)	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118.4	11	T 34 R F 4 (MAG)	F44EE	144	1.6	C-OCC	1950	3,088.8	1,029.6	0.0	$153.13	$270.00	$35.00	1.8	1.5
178LED	Exit	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	3640	262.1	1	B 34 R F 2 (MAG)	F42EE	72	0.1	C-OCC	2912	209.7	52.4	0.0	$7.80	$270.00	$35.00	34.6	30.1
6LED	D-6 (No Entry)	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,492.8	12	T 34 R F 4 (MAG)	F44EE	144	1.7	C-OCC	1950	3,369.6	1,123.2	0.0	$167.05	$270.00	$35.00	1.6	1.4
15LED	Boys Restroom	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	561.6	3	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1560	280.8	280.8	0.0	$41.76	$270.00	$35.00	6.5	5.6
15LED	Girls Restroom (No Entry)	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	561.6	3	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1560	280.8	280.8	0.0	$41.76	$270.00	$35.00	6.5	5.6
7LED	Exit to Courtyarc	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	3640	218.4	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	C-OCC	2912	174.7	43.7	0.0	$6.50	$270.00	$35.00	41.6	36.2
6LED	Exit to Courtyarc	1	T 34 R F 4 (MAG)	F44EE	144	0.1	SW	3640	524.2	1	T 34 R F 4 (MAG)	F44EE	144	0.1	C-OCC	2912	419.3	104.8	0.0	$15.59	$270.00	$35.00	17.3	15.1
61LED	D-3 (No Entry)	4	T 34 R F 3 (MAG)	F43EE	115	0.5	SW	2600	1,196.0	4	T 34 R F 3 (MAG)	F43EE	115	0.5	C-OCC	1950	897.0	299.0	0.0	$44.47	$270.00	$35.00	6.1	5.3
6LED	D-4 (No Entry)	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,492.8	12	T 34 R F 4 (MAG)	F44EE	144	1.7	C-OCC	1950	3,369.6	1,123.2	0.0	$167.05	$270.00	$35.00	1.6	1.4
6LED	D-2 (No Entry)	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,492.8	12	T 34 R F 4 (MAG)	F44EE	144	1.7	C-OCC	1950	3,369.6	1,123.2	0.0	$167.05	$270.00	$35.00	1.6	1.4
61LED	D-1	4	T 34 R F 3 (MAG)	F43EE	115	0.5	SW	2600	1,196.0	4	T 34 R F 3 (MAG)	F43EE	115	0.5	C-OCC	1950	897.0	299.0	0.0	$44.47	$270.00	$35.00	6.1	5.3
18LED	Corridor near E-2	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	3640	1,630.7	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	C-OCC	2912	1,304.6	326.1	0.0	$48.51	$270.00	$35.00	5.6	4.8
6LED	Corridor near E-4	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	3640	2,096.6	4	T 34 R F 4 (MAG)	F44EE	144	0.6	C-OCC	2912	1,677.3	419.3	0.0	$62.37	$270.00	$35.00	4.3	3.8
6LED	D- Corridor	25	T 34 R F 4 (MAG)	F44EE	144	3.6	SW	3640	13,104.0	25	T 34 R F 4 (MAG)	F44EE	144	3.6	C-OCC	2912	10,483.2	2,620.8	0.0	$389.79	$270.00	$35.00	0.7	0.6
15LED	Main Entrance	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3640	655.2	3	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	2912	524.2	131.0	0.0	$19.49	$270.00	$35.00	13.9	12.1
178LED	Main Entrance	3	B 34 R F 2 (MAG)	F42EE	72	0.2	SW	3640	786.2	3	B 34 R F 2 (MAG)	F42EE	72	0.2	C-OCC	2912	629.0	157.2	0.0	$23.39	$270.00	$35.00	11.5	10.0
15LED	Corridor near Main Entrance	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	3640	436.8	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	2912	349.4	87.4	0.0	$12.99	$270.00	$35.00	20.8	18.1
4LED	D-Wing Stairwell	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	3640	1,048.3	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	NONE	3640	1,048.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
4LED	D-Wing Stairwell	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	3640	1,048.3	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	NONE	3640	1,048.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
4LED	D-Wing Stairwell	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	3640	1,048.3	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	NONE	3640	1,048.3	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
6LED	Nurse's Office	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	748.8	2	T 34 R F 4 (MAG)	F44EE	144	0.3	NONE	2600	748.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
6LED	Nurse's Office	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	2600	1,497.6	4	T 34 R F 4 (MAG)	F44EE	144	0.6	NONE	2600	1,497.6	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
133	Nurse's Office	2	CF 26	CFQ26/1-L	27	0.1	SW	2600	140.4	2	CF 26	CFQ26/1-L	27	0.1	NONE	2600	140.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
178LED	Storage	3	B 34 R F 2 (MAG)	F42EE	72	0.2	SW	1560	337.0	3	B 34 R F 2 (MAG)	F42EE	72	0.2	C-OCC	780	168.5	168.5	0.0	$25.06	$270.00	$35.00	10.8	9.4
6LED	Storage	1	T 34 R F 4 (MAG)	F44EE	144	0.1	SW	1560	224.6	1	T 34 R F 4 (MAG)	F44EE	144	0.1	C-OCC	780	112.3	112.3	0.0	$16.71	$270.00	$35.00	16.2	14.1
6LED	Main Corridor	20	T 34 R F 4 (MAG)	F44EE	144	2.9	SW	3640	10,483.2	20	T 34 R F 4 (MAG)	F44EE	144	2.9	C-OCC	2912	8,386.6	2,096.6	0.0	$311.83	$270.00	$35.00	0.9	0.8
6LED	Exit	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	3640	2,096.6	4	T 34 R F 4 (MAG)	F44EE	144	0.6	C-OCC	2912	1,677.3	419.3	0.0	$62.37	$270.00	$35.00	4.3	3.8
15LED	Assistant Principal Office	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	468.0	3	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1950	351.0	117.0	0.0	$17.40	$270.00	$35.00	15.5	13.5
15LED	Main Office - Office	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	468.0	3	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1950	351.0	117.0	0.0	$17.40	$270.00	$35.00	15.5	13.5
15LED	Main Office - Office A	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1950	234.0	78.0	0.0	$11.60	$270.00	$35.00	23.3	20.3
15LED	Main Office - Office B	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1950	234.0	78.0	0.0	$11.60	$270.00	$35.00	23.3	20.3
15LED	Main Office - Office C	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1950	234.0	78.0	0.0	$11.60	$270.00	$35.00	23.3	20.3
15LED	Main Office - Office D	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1950	234.0	78.0	0.0	$11.60	$270.00	$35.00	23.3	20.3
15LED	Main Office - Office E	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	624.0	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1950	468.0	156.0	0.0	$23.20	$270.00	$35.00	11.6	10.1
15LED	Main Office - Break Room	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312.0	2	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	1300	156.0	156.0	0.0	$23.20	$270.00	$35.00	11.6	10.1
178LED	Main Office	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187.2	1	B 34 R F 2 (MAG)	F42EE	72	0.1	C-OCC	1950	140.4	46.8	0.0	$6.96	$270.00	$35.00	38.8	33.8
178LED	Main Office	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187.2	1	B 34 R F 2 (MAG)	F42EE	72	0.1	C-OCC	1950	140.4	46.8	0.0	$6.96	$270.00	$35.00	38.8	33.8
15LED	Main Office	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2600	1,248.0	8	S 32 C F 2 (ELE)	F42LL	60	0.5	C-OCC	1950	936.0	312.0	0.0	$46.40	$270.00	$35.00	5.8	5.1
7LED	Main Office - Storage A	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	1560	93.6	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	C-OCC	780	46.8	46.8	0.0	$6.96	$270.00	$35.00	38.8	33.8
133	Main Office - Storage B	1	CF 26	CFQ26/1-L	27	0.0	SW	1560	42.1	1	CF 26	CFQ26/1-L	27	0.0	C-OCC	780	21.1	21.1	0.0	$3.13	$270.00	$35.00	86.2	75.0
6LED	Tech Lab	8	T 34 R F 4 (MAG)	F44EE	144	1.2	SW	2600	2,995.2	8	T 34 R F 4 (MAG)	F44EE	144	1.2	C-OCC	1950	2,246.4	748.8	0.0	$111.37	$270.00	$35.00	2.4	2.1
6LED	Tech Lab	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	748.8	2	T 34 R F 4 (MAG)	F44EE	144	0.3	C-OCC	1950	561.6	187.2	0.0	$27.84	$270.00	$35.00	9.7	8.4
6LED	Tech Lab	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	2600	1,123.2	3	T 34 R F 4 (MAG)	F44EE	144	0.4	C-OCC	1950	842.4	280.8	0.0	$41.76	$270.00	$35.00	6.5	5.6
18LED	Offices 1	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291.2	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	C-OCC	1950	218.4	72.8	0.0	$10.83	$270.00	$35.00	24.9	21.7
6LED	Offices 2	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	748.8	2	T 34 R F 4 (MAG)	F44EE	144	0.3	C-OCC	1950	561.6	187.2	0.0	$27.84	$270.00	$35.00	9.7	8.4
6LED	Offices 3	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	748.8	2	T 34 R F 4 (MAG)	F44EE	144	0.3	C-OCC	1950	561.6	187.2	0.0	$27.84	$270.00	$35.00	9.7	8.4
6LED	Offices 4	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	748.8	2	T 34 R F 4 (MAG)	F44EE	144	0.3	C-OCC	1950	561.6	187.2	0.0	$27.84	$270.00	$35.00	9.7	8.4
6LED	Offices 5	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	748.8	2	T 34 R F 4 (MAG)	F44EE	144	0.3	C-OCC	1950	561.6	187.2	0.0	$27.84	$270.00	$35.00	9.7	8.4
6LED	Offices 6	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	748.8	2	T 34 R F 4 (MAG)	F44EE	144	0.3	C-OCC	1950	561.6	187.2	0.0	$27.84	$270.00	$35.00	9.7	8.4
6LED	Offices 7	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	748.8	2	T 34 R F 4 (MAG)	F44EE	144	0.3	C-OCC	1950	561.6	187.2	0.0	$27.84	$270.00	$35.00	9.7	8.4
6LED	Guidance	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867.2	13	T 34 R F 4 (MAG)	F44EE	144	1.9	C-OCC	1950	3,650.4	1,216.8	0.0	$180.97	$270.00	$35.00	1.5	1.3
6LED	Guidance - Storage	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	1560	449.3	2	T 34 R F 4 (MAG)	F44EE	144	0.3	C-OCC	780	224.6	224.6	0.0	$33.41	$270.00	$35.00	8.1	7.0
6LED	A-17	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867.2	13	T 34 R F 4 (MAG)	F44EE	144	1.9	C-OCC	1950	3,650.4	1,216.8	0.0	$180.97	$270.00	$35.00	1.5	1.3
133	A-17 - Side Area	2	CF 26	CFQ26/1-L	27	0.1	SW	2600	140.4	2	CF 26	CFQ26/1-L	27	0.1	C-OCC	1950	105.3	35.1	0.0	$5.22	$270.00	$35.00	51.7	45.0
133	A-17 - Side Area	1	CF 26	CFQ26/1-L	27	0.0	SW	2600	70.2	1	CF 26	CFQ26/1-L	27	0.0	C-OCC	1950	52.7	17.6	0.0	$2.61	$270.00	$35.00	103.4	90.0
133	A-17 - Kiln	2	CF 26	CFQ26/1-L	27	0.1	SW	1560	84.2	2	CF 26	CFQ26/1-L	27	0.1	C-OCC	780	42.1	42.1	0.0	$6.26	$270.00	$35.00	43.1	37.5
15LED	A-17 - Storage	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1560	93.6	1	S 32 C F 2 (ELE)	F42LL	60	0.1	C-OCC	780	46.8	46.8	0.0	$6.96	$270.00	$35.00	38.8	33.8
133	A-17 - Entrance	1	CF 26	CFQ26/1-L	27	0.0	SW	2600	70.2	1	CF 26	CFQ26/1-L	27	0.0	C-OCC	1950	52.7	17.6	0.0	$2.61	$270.00	$35.00	103.4	90.0
133	A-17 - Storage	2	CF 26	CFQ26/1-L	27	0.1	SW	1560	84.2	2	CF 26	CFQ26/1-L	27	0.1	C-OCC	780	42.1	42.1	0.0	$6.26	$270.00	$35.00	43.1	37.5
4LED	A-17 - Storage	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	1560	112.3	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	C-OCC	780	56.2	56.2	0.0	$8.35	$270.00	$35.00	32.3	28.1
178LED	A-16	20	B 34 R F 2 (MAG)	F42EE	72	1.4	SW	2600	3,744.0	20	B 34 R F 2 (MAG)	F42EE	72	1.4	C-OCC	1950	2,808.0	936.0	0.0	$139.21	$270.00	$35.00	1.9	1.7
7LED	Corridor	8	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.5	SW	3640	1,747.2	8	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.5	C-OCC	2912	1,397.8	349.4	0.0	$51.97	$270.00	$35.00	5.2	4.5
15LED	Custodial Office	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	468.0	3	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1950	351.0	117.0	0.0	$17.40	$270.00	$35.00	15.5	13.5
15LED	Grounds Shed	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	1560	374.4	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1170	280.8	93.6	0.0	$13.92	$270.00	$35.00	19.4	16.9
15LED	Grounds Shed Garage	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	1560	374.4	4	S 32 C F 2 (ELE)	F42LL	60	0.2	C-OCC	1170	280.8	93.6	0.0	$13.92	$270.00	$35.00	19.4	16.9
33	Grounds Shed Garage - Storage	2	13 W CF 1	CFQ13/1-L	15	0.0	SW	1560	46.8	2	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	1170	35.1	11.7	0.0	$1.74	$270.00	$35.00	155.2	135.0
40LED	Field House Locker	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	1200	288.0	4	T 32 R F 2 (ELE)	F42LL	60	0.2	NONE	1200	288.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
133	Field House Locker Restroom	1	CF 26	CFQ26/1-L	27	0.0	SW	1200	32.4	1	CF 26	CFQ26/1-L	27	0.0	NONE	1200	32.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
40LED	Field House Locker 1	14	T 32 R F 2 (ELE)	F42LL	60	0.8	SW	1200	1,008.0	14	T 32 R F 2 (ELE)	F42LL	60	0.8	NONE	1200	1,008.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
40LED	Field House Locker 2	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	1200	576.0	8	T 32 R F 2 (ELE)	F42LL	60	0.5	NONE	1200	576.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
18LED	Field House Shower Room	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	1200	134.4	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	NONE	1200	134.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
40LED	Field House Stairway	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	1200	288.0	4	T 32 R F 2 (ELE)	F42LL	60	0.2	NONE	1200	288.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
40LED	Second Floor Corridor	9	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	1200	648.0	9	T 32 R F 2 (ELE)	F42LL	60	0.5	NONE	1200	648.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
40LED	Team Room	11	T 32 R F 2 (ELE)	F42LL	60	0.7	SW	1200	792.0	11	T 32 R F 2 (ELE)	F42LL	60	0.7	NONE	1200	792.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
40LED	Coaches Room	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	1200	432.0	6	T 32 R F 2 (ELE)	F42LL	60	0.4	NONE	1200	432.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
33	Restroom	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	1200	18.0	1	13 W CF 1	CFQ13/1-L	15	0.0	NONE	1200	18.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
40LED	Conference Room	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	1200	576.0	8	T 32 R F 2 (ELE)	F42LL	60	0.5	NONE	1200	576.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
133	Video Editing Room	1	CF 26	CFQ26/1-L	27	0.0	SW	1200	32.4	1	CF 26	CFQ26/1-L	27	0.0	NONE	1200	32.4	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
33	Ticket Booth	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	520	7.8	1	13 W CF 1	CFQ13/1-L	15	0.0	NONE	520	7.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
33	Ticket Booth	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	520	7.8	1	13 W CF 1	CFQ13/1-L	15	0.0	NONE	520	7.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
15LED	Concessions	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	780	234.0	5	S 32 C F 2 (ELE)	F42LL	60	0.3	NONE	780	234.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
15LED	Concessions Storage (No Entry	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	780	46.8	1	S 32 C F 2 (ELE)	F42LL	60	0.1	NONE	780	46.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
133	Concessions - Exterior	4	CF 26	CFQ26/1-L	27	0.1	SW	3120	337.0	4	CF 26	CFQ26/1-L	27	0.1	NONE	3120	337.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
15LED	Ladies Restroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	780	46.8	1	S 32 C F 2 (ELE)	F42LL	60	0.1	NONE	780	46.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
15LED	Mens Restroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	780	46.8	1	S 32 C F 2 (ELE)	F42LL	60	0.1	NONE	780	46.8	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
227LED	Exterior Building Lighting	23	70 W MH Wall Pack	MH70/1	95	2.2	SW	3120	6,817.2	23	70 W MH Wall Pack	MH70/1	95	2.2	NONE	3120	6,817.2	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
237LED	Exterior Building Lighting	4	MV 100	MV100/1	125	0.5	SW	3120	1,560.0	4	MV 100	MV100/1	125	0.5	NONE	3120	1,560.0	0.0	0.0	$0.00	$0.00	$0.00		#DIV/0!
s	Total	1,506				157.7			439650.2	1506.0				157.7			350024.8	89625.5	0.0	13329.9	52920.0	6860.0		

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
32LED	Athletic Trainer	17	1T 32 R F 2 (ELE)	F42LL	60	1.0	SW	2600	2,652	17	4 ft LED Tube	200732x2	30	0.5	C-OCC	1,950	995	1,658	0.5	$ 282.89	$ 3,046.95	$ 35	10.8	10.6
18LED	Athletic Trainer	5	T 32 R F 4 (ELE)	F44ILL	112	0.6	SW	2600	1,456	5	T 50 R LED	RTLED50	50	0.3	C-OCC	1,950	488	969	0.3	$ 166.15	$ 1,451.25	$ 35	8.7	8.5
13LED	Electrical Closet	1	S 32 P F 2 (ELE)	F42LL	60	0.1	SW	1560	94	1	T 38 R LED	RTLED38	38	0.0	NONE	1,560	59	34	0.0	$ 6.67	$ 236.25	$ -	35.4	35.4
18LED	Men's Restroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	3120	699	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,560	156	543	0.1	$ 89.58	$ 742.50	$ 35	8.3	7.9
18LED	Women's Restroom	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	3120	699	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,560	156	543	0.1	$ 89.58	$ 742.50	$ 35	8.3	7.9
32LED	Custodial Room	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	1560	94	1	4 ft LED Tube	200732x2	30	0.0	NONE	1,560	47	47	0.0	$ 9.10	$ 163.35	$ -	18.0	18.0
32LED	Women's Faculty Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3120	187	1	4 ft LED Tube	200732x2	30	0.0	C-OCC	1,560	47	140	0.0	$ 23.02	$ 433.35	$ 35	18.8	17.3
32LED	Men's Faculty Restroom	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3120	187	1	4 ft LED Tube	200732x2	30	0.0	C-OCC	1,560	47	140	0.0	$ 23.02	$ 433.35	$ 35	18.8	17.3
X5	Storage Room (locked - no entry	1	CF42/1	CF42/1-I	48	0.0	SW	1560	75	1	CF42/1	CF42/1-I	48	0.0	C-OCC	780	37	37	0.0	$ 5.57	$ 270.00	$ 35	48.5	42.2
18LED	G-10	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	878	1,743	0.6	$ 299.07	$ 2,396.25	$ 35	8.0	7.9
18LED	H-1 (No Entry)	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	878	1,743	0.6	$ 299.07	$ 2,396.25	$ 35	8.0	7.9
18LED	H-2 (No Entry)	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	878	1,743	0.6	$ 299.07	$ 2,396.25	$ 35	8.0	7.9
X5	Custodial Room (locked - no entry	1	CF42/1	CF42/1-I	48	0.0	SW	1560	75	1	CF42/1	CF42/1-I	48	0.0	NONE	1,560	75	-	0.0	$ -	$ -	$ -		
32LED	W-1	11	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	2600	1,716	11	4 ft LED Tube	200732x2	30	0.3	C-OCC	1,950	644	1,073	0.3	$ 183.04	$ 2,066.85	$ 35	11.3	11.1
40LED	H hallway	13	T 32 R F 2 (ELE)	F42LL	60	0.8	SW	3640	2,839	13	T 38 R LED	RTLED38	38	0.5	C-OCC	2,912	1,439	1,401	0.3	$ 228.72	$ 3,341.25	$ 35	14.6	14.5
32LED	W-1 Storage	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	1560	94	1	4 ft LED Tube	200732x2	30	0.0	C-OCC	780	23	70	0.0	$ 12.58	$ 433.35	$ 35	34.4	31.7
40LED	W-1 Office	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2600	624	4	T 38 R LED	RTLED38	38	0.2	C-OCC	1,950	296	328	0.1	$ 55.00	$ 1,215.00	$ 35	22.1	21.5
46LED	Back Gym Corridor	8	W 32 C F 2 (ELE)	F42LL	60	0.5	SW	3640	1,747	8	4 ft LED Tube	200732x2	30	0.2	C-OCC	2,912	699	1,048	0.2	$ 173.03	$ 1,576.80	$ 35	9.1	8.9
46LED	Gym Storage	12	W 32 C F 2 (ELE)	F42LL	60	0.7	SW	1560	1,123	12	4 ft LED Tube	200732x2	30	0.4	C-OCC	780	281	842	0.4	$ 150.96	$ 2,230.20	$ 35	14.8	14.5
46LED	Exit	3	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3640	655	3	4 ft LED Tube	200732x2	30	0.1	C-OCC	2,912	262	393	0.1	$ 64.89	$ 760.05	$ 35	11.7	11.2
13LED	W-3	7	S 32 P F 2 (ELE)	F42LL	60	0.4	SW	2600	1,092	7	T 38 R LED	RTLED38	38	0.3	C-OCC	1,950	519	573	0.2	$ 96.25	$ 1,923.75	$ 35	20.0	19.6
13LED	W-2	9	S 32 P F 2 (ELE)	F42LL	60	0.5	SW	2600	1,404	9	T 38 R LED	RTLED38	38	0.3	C-OCC	1,950	667	737	0.2	$ 123.75	$ 2,396.25	$ 35	19.4	19.1
18LED	Corridor Front + Gym	29	T 32 R F 4 (ELE)	F44ILL	112	3.2	SW	3640	11,823	29	T 50 R LED	RTLED50	50	1.5	C-OCC	2,912	4,222	7,600	1.8	$ 1,258.61	$ 7,121.25	$ 35	5.7	5.6
13LED	Weight Room	28	S 32 P F 2 (ELE)	F42LL	60	1.7	SW	3120	5,242	28	T 38 R LED	RTLED38	38	1.1	NONE	3,120	3,320	1,922	0.6	$ 329.77	$ 6,615.00	$ -	20.1	20.1
46LED	Weight Room Corridor	4	W 32 C F 2 (ELE)	F42LL	60	0.2	SW	3640	874	4	4 ft LED Tube	200732x2	30	0.1	C-OCC	2,912	349	524	0.1	$ 86.52	$ 923.40	$ 35	10.7	10.3
141LED	Wrestling Room	10	HPS 250	HPS250/1	295	3.0	SW	3120	9,204	10	FXLED78	FXLED78/1	78	0.8	NONE	3,120	2,434	6,770	2.2	$ 1,161.70	$ 8,441.96	$ 1,000	7.3	6.4
32LED	Boys' Baseball Locker Room	12	1T 32 R F 2 (ELE)	F42LL	60	0.7	SW	3120	2,246	12	4 ft LED Tube	200732x2	30	0.4	C-OCC	2,340	842	1,404	0.4	$ 234.49	$ 2,230.20	$ 35	9.5	9.4
18LED	Baseball Office	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2600	1,165	4	T 50 R LED	RTLED50	50	0.2	C-OCC	1,950	390	775	0.2	$ 132.92	$ 1,215.00	$ 35	9.1	8.9
32LED	Locker Room Restroom	3	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3120	562	3	4 ft LED Tube	200732x2	30	0.1	C-OCC	1,560	140	421	0.1	$ 69.06	$ 760.05	$ 35	11.0	10.5
32LED	Locker Room Corrido	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3640	2,184	10	4 ft LED Tube	200732x2	30	0.3	C-OCC	2,912	874	1,310	0.3	$ 216.29	$ 1,903.50	$ 35	8.8	8.6
32LED	Boys' Locker Room	7	1T 32 R F 2 (ELE)	F42LL	60	0.4	SW	3120	1,310	7	4 ft LED Tube	200732x2	30	0.2	C-OCC	2,340	491	819	0.2	$ 136.78	$ 1,413.45	$ 35	10.3	10.1
18LED	Boys' Locker Room Office	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	387	0.1	$ 66.46	$ 742.50	$ 35	11.2	10.6
32LED	Locker Room Entrance	1	1T 32 R F 2 (ELE)	F42LL	60	0.1	SW	3640	218	1	4 ft LED Tube	200732x2	30	0.0	C-OCC	2,912	87	131	0.0	$ 21.63	$ 433.35	$ 35	20.0	18.4
141LED	Large Gymnasium	36	HPS 250	HPS250/1	295	10.6	SW	3120	33,134	36	FXLED78	FXLED78/1	78	2.8	NONE	3,120	8,761	24,373	7.8	$ 4,182.12	$ 30,391.04	$ 3,600	7.3	6.4
18LED	Physical Education Office (locked - no entry	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2600	1,165	4	T 50 R LED	RTLED50	50	0.2	C-OCC	1,950	390	775	0.2	$ 132.92	$ 1,215.00	$ 35	9.1	8.9
18LED	Boys' Locker Room (locked - no entry	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	3120	3,494	10	T 50 R LED	RTLED50	50	0.5	C-OCC	2,340	1,170	2,324	0.6	$ 389.92	$ 2,632.50	$ 35	6.8	6.7
X5	Storage Room (locked - no entry	3	CF42/1	CF42/1-I	48	0.1	SW	1560	225	3	CF42/1	CF42/1-I	48	0.1	C-OCC	780	112	112	0.0	$ 16.71	$ 270.00	$ 35	16.2	14.1
141LED	Auxilary Basketball Practice	10	HPS 250	HPS250/1	295	3.0	SW	3120	9,204	10	FXLED78	FXLED78/1	78	0.8	NONE	3,120	2,434	6,770	2.2	$ 1,161.70	$ 8,441.96	$ 1,000	7.3	6.4
X5	Basketball Storage Room (locked - no entry	2	CF42/1	CF42/1-I	48	0.1	SW	1560	150	2	CF42/1	CF42/1-I	48	0.1	C-OCC	780	75	75	0.0	$ 11.14	$ 270.00	$ 35	24.2	21.1
X5	Storage Room (locked - no entry	2	CF42/1	CF42/1-I	48	0.1	SW	1560	150	2	CF42/1	CF42/1-I	48	0.1	C-OCC	780	75	75	0.0	$ 11.14	$ 270.00	$ 35	24.2	21.1
32LED	Athletic Coordinator	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	2600	624	4	4 ft LED Tube	200732x2	30	0.1	C-OCC	1,950	234	390	0.1	$ 66.56	$ 923.40	$ 35	13.9	13.3
32LED	M-1 Team Room	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	2600	1,560	10	4 ft LED Tube	200732x2	30	0.3	C-OCC	1,950	585	975	0.3	$ 166.40	$ 1,903.50	$ 35	11.4	11.2
32LED	M-1 Restroom	4	1T 32 R F 2 (ELE)	F42LL	60	0.2	SW	3120	749	4	4 ft LED Tube	200732x2	30	0.1	C-OCC	1,560	187	562	0.1	$ 92.08	$ 923.40	$ 35	10.0	9.6
32LED	Girls' Locker Room	10	1T 32 R F 2 (ELE)	F42LL	60	0.6	SW	3120	1,872	10	4 ft LED Tube	200732x2	30	0.3	C-OCC	2,340	702	1,170	0.3	$ 195.41	$ 1,903.50	$ 35	9.7	9.6
257	Media Center	37	CFT55	CFT50/1-BX	54	2.0	SW	3120	6,234	37	CFT55	CFT50/1-BX	54	2.0	C-OCC	2,340	4,675	1,558	0.0	$ 231.79	$ 270.00	$ 35	1.2	1.0
256	Media Center	3	CFT55/12-BX	CFT55/12-BX	672	2.0	SW	3120	6,290	3	CFT55/12-BX	CFT55/12-BX	672	2.0	C-OCC	2,340	4,717	1,572	0.0	$ 233.87	$ 270.00	$ 35	1.2	1.0
102	Media Center	12	O CF 26	CFQ26/1-L	27	0.3	SW	3120	1,011	12	O CF 26	CFQ26/1-L	27	0.3	C-OCC	2,340	758	253	0.0	$ 37.59	$ 270.00	$ 35	7.2	6.3
257	Media Technology Lab	9	CFT55	CFT50/1-BX	54	0.5	SW	3120	1,516	9	CFT55	CFT50/1-BX	54	0.5	C-OCC	2,340	1,137	379	0.0	$ 56.38	$ 270.00	$ 35	4.8	4.2
257	Technology Lab	14	CFT55	CFT50/1-BX	54	0.8	SW	2600	1,966	14	CFT55	CFT50/1-BX	54	0.8	C-OCC	1,950	1,474	491	0.0	$ 73.09	$ 270.00	$ 35	3.7	3.2
6LED	D-20	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118	11	T 50 R LED	RTLED50	50	0.6	C-OCC	1,950	1,073	3,046	1.0	$ 526.75	$ 2,868.75	$ 35	5.4	5.4
18LED	D-20	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291	1	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	98	194	0.1	$ 33.23	$ 506.25	$ 35	15.2	14.2
6LED	D-21	9	T 34 R F 4 (MAG)	F44EE	144	1.3	SW	2600	3,370	9	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	878	2,492	0.8	$ 430.98	$ 2,396.25	$ 35	5.6	5.5
18LED	D-21	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	874	3	T 50 R LED	RTLED50	50	0.2	C-OCC	1,950	293	581	0.2	$ 99.69	$ 978.75	$ 35	9.8	9.5
6LED	D-22	8	T 34 R F 4 (MAG)	F44EE	144	1.2	SW	2600	2,995	8	T 50 R LED	RTLED50	50	0.4	C-OCC	1,950	780	2,215	0.8	$ 383.09	$ 2,160.00	$ 35	5.6	5.5
18LED	D-22	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291	1	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	98	194	0.1	$ 33.23	$ 506.25	$ 35	15.2	14.2
7LED	D-22	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,950	49	107	0.0	$ 18.45	$ 472.50	$ 35	25.6	23.7
6LED	D-23	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	2600	1,498	4	T 50 R LED	RTLED50	50	0.2	C-OCC	1,950	390	1,108	0.4	$ 191.55	$ 1,215.00	$ 35	6.3	6.2
18LED	D-23	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	387	0.1	$ 66.46	$ 742.50	$ 35	11.2	10.6
7LED	D-23	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468	3	2T 25 R LED	2RTLED	25	0.1	C-OCC	1,950	146	322	0.1	$ 55.34	$ 877.50	$ 35	15.9	15.2
6LED	D-24	7	T 34 R F 4 (MAG)	F44EE	144	1.0	SW	2600	2,621	7	T 50 R LED	RTLED50	50	0.4	C-OCC	1,950	683	1,938	0.7	$ 335.20	$ 1,923.75	$ 35	5.7	5.6
18LED	D-24	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	387	0.1	$ 66.46	$ 742.50	$ 35	11.2	10.6
7LED	D-24	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,950	49	107	0.0	$ 18.45	$ 472.50	$ 35	25.6	23.7
18LED	D-25 (locked - no entry	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	878	1,743	0.6	$ 299.07	$ 2,396.25	$ 35	8.0	7.9
18LED	D-27	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	878	1,743	0.6	$ 299.07	$ 2,396.25	$ 35	8.0	7.9
7LED	D-27	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,950	49	107	0.0	$ 18.45	$ 472.50	$ 35	25.6	23.7
52LED	Boys' Restroom	3	W 34 C F 2 (MAG)	F42EE	72	0.2	SW	3120	674	3	4 ft LED Tube	200732x2	30	0.1	C-OCC	1,560	140	534	0.1	$ 88.34	$ 760.05	$ 35	8.6	8.2
52LED	Girls' Restroom	3	W 34 C F 2 (MAG)	F42EE	72	0.2	SW	3120	674	3	4 ft LED Tube	200732x2	30	0.1	C-OCC	1,560	140	534	0.1	$ 88.34	$ 760.05	$ 35	8.6	8.2
6LED	D-28	6	T 34 R F 4 (MAG)	F44EE	144	0.9	SW	2600	2,246	6	T 50 R LED	RTLED50	50	0.3	C-OCC	1,950	585	1,661	0.6	$ 287.32	$ 1,687.50	$ 35	5.9	5.8
18LED	D-28	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	874	3	T 50 R LED	RTLED50	50	0.2	C-OCC	1,950	293	581	0.2	$ 99.69	$ 978.75	$ 35	9.8	9.5
4LED	D-28	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	2600	187	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,950	49	138	0.0	$ 23.94	$ 472.50	$ 35	19.7	18.3
18LED	D-29 (locked - no entry	9	T 32 R F 4 (ELE)	F44ILL	112	1.0	SW	2600	2,621	9	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	878	1,743	0.6	$ 299.07	$ 2,396.25	$ 35	8.0	7.9
6LED	D-30	10	T 34 R F 4 (MAG)	F44EE	144	1.4	SW	2600	3,744	10	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	975	2,769	0.9	$ 478.86	$ 2,632.50	$ 35	5.5	5.4
18LED	D-30	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	387	0.1	$ 66.46	$ 742.50	$ 35	11.2	10.6
6LED	D-31	9	T 34 R F 4 (MAG)	F44EE	144	1.3	SW	2600	3,370	9	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	878	2,492	0.8	$ 430.98	$ 2,396.25	$ 35	5.6	5.5
4LED	D-31	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	2600	187	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,950	49	138	0.0	$ 23.94	$ 472.50	$ 35	19.7	18.3
52LED	Supervisor Office	6	W 34 C F 2 (MAG)	F42EE	72	0.4	SW	2600	1,123	6	4 ft LED Tube	200732x2	30	0.2	C-OCC	1,950	351	772	0.3	$ 132.82	$ 1,250.10	$ 35	9.4	9.1
20LED	Faculty Restroom	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	3120	100	1	4 ft LED Tube	200732x1	15	0.0	C-OCC	1,560	23	76	0.0	$ 12.58	$ 351.68	$ 35	28.0	25.2
6LED	D-32	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118	11	T 50 R LED	RTLED50	50	0.6	C-OCC	1,950	1,073	3,046	1.0	$ 526.75	$ 2,868.75	$ 35	5.4	5.4
18LED	D-32	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291	1	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	98	194	0.1	$ 33.23	$ 506.25	$ 35	15.2	14.2
6LED	D-32 Prep Area	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	1560	674	3	T 50 R LED	RTLED50	50	0.2	C-OCC	780	117	557	0.3	$ 102.94	$ 978.75	$ 35	9.5	9.2
6LED	D-33	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,493	12	T 50 R LED	RTLED50	50	0.6	C-OCC	1,950	1,170	3,323	1.1	$ 574.64	$ 3,105.00	$ 35	5.4	5.3
7LED	D-33	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	312	2	2T 25 R LED	2RTLED	25	0.1	C-OCC	1,950	98	215	0.1	$ 36.89	$ 675.00	$ 35	18.3	17.3
4LED	D-33	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	2600	187	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,950	49	138	0.0	$ 23.94	$ 472.50	$ 35	19.7	18.3
20LED	Faculty Restroom	1	S 32 C F 1 (ELE)	F41LL	32	0.0	SW	3120	100	1	4 ft LED Tube	200732x1	15	0.0	C-OCC	1,560	23	76	0.0	$ 12.58	$ 351.68	$ 35	28.0	25.2
X5	Custodial Room	1	CF42/1	CF42/1-I	48	0.0	SW	1560	75	1	CF42/1	CF42/1-I	48	0.0	NONE	1,560	75	-	0.0	$ -	$ -	$ -		
6LED	D-35	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867	13	T 50 R LED	RTLED50	50	0.7	C-OCC	1,950	1,268	3,600	1.2	$ 622.52	$ 3,341.25	$ 35	5.4	5.3
18LED	D-35	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	387	0.1	$ 66.46	$ 742.50	$ 35	11.2	10.6
41LED	D-36	6	1B 40 R F 2 (MAG)	F42SS	94	0.6	SW	2600	1,466	6	4 ft LED Tube	200732x2	30	0.2	C-OCC	1,950	351	1,115	0.4	$ 193.28	$ 1,250.10	$ 35	6.5	6.3
6LED	D-34	5	T 34 R F 4 (MAG)	F44EE	144	0.7	SW	2600	1,872	5	T 50 R LED	RTLED50	50	0.3	C-OCC	1,950	488	1,385	0.5	$ 239.43	$ 1,451.25	$ 35	6.1	5.9
18LED	D-34	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	2600	1,165	4	T 50 R LED	RTLED50	50	0.2	C-OCC	1,950	390	775	0.2	$ 132.92	$ 1,215.00	$ 35	9.1	8.9
7LED	D-34	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	156	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	1,950	49	107	0.0	$ 18.45	$ 472.50	$ 35	25.6	23.7
18LED	2nd Floor Corridor	18	T 32 R F 4 (ELE)	F44ILL	112	2.0	SW	3640	7,338	18	T 50 R LED	RTLED50	50	0.9	C-OCC	2,912	2,621	4,717	1.1	$ 781.20	$ 4,522.50	$ 35	5.8	5.7
6LED	2nd Floor Corridor	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	3640	1,572	3	T 50 R LED	RTLED50	50	0.2	C-OCC	2,912	437	1,136	0.3	$ 189.02	$ 978.75	$ 35	5.2	5.0
6LED	D-27	7	T 34 R F 4 (MAG)	F44EE	144	1.0	SW	2600	2,621	7	T 50 R LED	RTLED50	50	0.4	C-OCC	1,950	683	1,938	0.7	$ 335.20	$ 1,923.75	$ 35	5.7	5.6
18LED	D-27	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	2600	582	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	387	0.1	$ 66.46	$ 742.50	$ 35	11.2	10.6
261LED	Cafeteria	25	PAR 38 SP	H100/1	100	2.5	SW	2600	6,500	25	EVO35/10	EVO35/10	39	1.0	C-OCC	1,950	1,901	4,599	1.5	$ 792.72	$ 11,238.75	$ 35	14.2	14.1
18LED	Cafeteria	85	T 32 R F 4 (ELE)	F44ILL	112	9.5	SW	2600	24,752	85	T 50 R LED	RTLED50	50	4.3	C-OCC	1,950	8,288	16,465	5.3	$ 2,824.56	$ 20,351.25	$ 35	7.2	7.2
15LED	Kitchen - Dishwasher Room	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	156	1	T 38 R LED	RTLED38	38	0.0	NONE	2,600	99	57	0.0	$ 10.08	$ 236.25	$ -	23.4	23.4
178LED	Kitchen - Dishwasher Room	2	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	374	2	4 ft LED Tube	200732x2	30	0.1	NONE	2,600	156	218	0.1	$ 38.47	$ 326.70	$ -	8.5	8.5
52LED	Kitchen - Restroom	2	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	3120	449	2	4 ft LED Tube	200732x2	30	0.1	C-OCC	1,560	94	356	0.1	$ 58.89	$ 596.70	$ 35	10.1	9.5
178LED	Kitchen - Laundry	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187	1	4 ft LED Tube	200732x2	30	0.0	NONE	2,600	78	109	0.0	$ 19.24	$ 163.35	$ -	8.5	8.5
52LED	Kitchen - Laundry	1	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	2600	187	1	4 ft LED Tube	200732x2	30	0.0	NONE	2,600	78	109	0.0	$ 19.24	$ 163.35	$ -	8.5	8.5
4LED	Kitchen - Storage	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	1560	112	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	780	20	93	0.0	$ 17.16	$ 472.50	$ 35	27.5	25.5
15LED	Kitchen	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2600	1,248	8	T 38 R LED	RTLED38	38	0.3	NONE	2,600	790	458	0.2	$ 80.61	$ 1,890.00	$ -	23.4	23.4
15LED	Kitchen	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	624	4	T 38 R LED	RTLED38	38	0.2	NONE	2,600	395	229	0.1	$ 40.30	$ 945.00	$ -	23.4	23.4
178LED	Kitchen	28	B 34 R F 2 (MAG)	F42EE	72	2.0	SW	2600	5,242	28	4 ft LED Tube	200732x2	30	0.8	NONE	2,600	2,184	3,058	1.2	$ 538.62	$ 4,573.80	$ -	8.5	8.5
178LED	Kitchen - Office	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187	1	4 ft LED Tube	200732x2	30	0.0	NONE	2,600	78	109	0.0	$ 19.24	$ 163.35	$ -	8.5	8.5
178LED	Kitchen - Office	2	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	374	2	4 ft LED Tube	200732x2	30	0.1	NONE	2,600	156	218	0.1	$ 38.47	$ 326.70	$ -	8.5	8.5
52LED	Kitchen - Side Room	2	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	2600	374	2	4 ft LED Tube	200732x2	30	0.1	NONE	2,600	156	218	0.1	$ 38.47	$ 326.70	$ -	8.5	8.5
7LED	Exit	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	3640	218	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	2,912	73	146	0.0	$ 24.15	$ 472.50	$ 35	19.6	18.1
4LED	Exit	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	3640	262	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	2,912	73	189	0.0	$ 31.50	$ 472.50	$ 35	15.0	13.9
18LED	Teachers Room	5	T 32 R F 4 (ELE)	F44ILL	112	0.6	SW	2600	1,456	5	T 50 R LED	RTLED50	50	0.3	C-OCC	1,300	325	1,131	0.3	$ 190.32	$ 1,451.25	$ 35	7.6	7.4
6LED	Teachers Room	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867	13	T 50 R LED	RTLED50	50	0.7	C-OCC	1,300	845	4,022	1.2	$ 685.36	$ 3,341.25	$ 35	4.9	4.8
39	Mens Restroom	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	3120	103	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	C-OCC	1,560	51	51	0.0	$ 7.66	$ 270.00	$ 35	35.3	30.7
39	Womens Restroom	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	SW	3120	103	1	2' 17 W F 2 (ELE)	F22ILL	33	0.0	C-OCC	1,560	51	51	0.0	$ 7.66	$ 270.00	$ 35	35.3	30.7
6LED	F-1	9	T 34 R F 4 (MAG)	F44EE	144	1.3	SW	2600	3,370	9	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	878	2,492	0.8	$ 430.98	$ 2,396.25	$ 35	5.6	5.5
7LED	Corridor Cafe to F-1	5	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.3	SW	3640	1,092	5	2T 25 R LED	2RTLED	25	0.1	C-OCC	2,912	364	728	0.2	$ 120.75	$ 1,282.50	$ 35	10.6	10.3
18LED	Exit near F-1	6	T 32 R F 4 (ELE)	F44ILL	112	0.7	SW	3640	2,446	6	T 50 R LED	RTLED50	50	0.3	C-OCC	2,912	874	1,572	0.4	$ 260.40	$ 1,687.50	$ 35	6.5	6.3
133	Corridor	6	CF 26	CFQ26/1-L	27	0.2	SW	3640	590	6	CF 26	CFQ26/1-L	27	0.2	C-OCC	2,912	472	118	0.0	$ 17.54	$ 270.00	$ 35	15.4	13.4
18LED	Corridor past Chorus to Cafe	16	T 32 R F 4 (ELE)	F44ILL	112	1.8	SW	3640	6,523	16	T 50 R LED	RTLED50	50	0.8	C-OCC	2,912	2,330	4,193	1.0	$ 694.40	$ 4,050.00	$ 35	5.8	5.8
15LED	Boys Restroom	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	749	4	T 38 R LED	RTLED38	38	0.2	C-OCC	1,560	237	512	0.1	$ 82.38	$ 1,215.00	$ 35	14.7	14.3
15LED	Girls Restroom (No Entry)	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	749	4	T 38 R LED	RTLED38	38	0.2	C-OCC	1,560	237	512	0.1	$ 82.38	$ 1,215.00	$ 35	14.7	14.3

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS								COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
6LED	F-2	19	T 34 R F 4 (MAG)	F44EE	144	2.7	SW	2600	7,114	19	T 50 R LED	RTLED50	50	1.0	C-OCC	1,950	1,853	5,261	1.8	$ 909.84	$ 4,758.75	$ 35	5.2	5.2
7LED	Room between F-2 and F-4	2	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	2600	312	2	2T 25 R LED	2RTLED	25	0.1	C-OCC	1,950	98	215	0.1	$ 36.89	$ 675.00	$ 35	18.3	17.3
6LED	Room between F-2 and F-4	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	2600	1,123	3	T 50 R LED	RTLED50	50	0.2	C-OCC	1,950	293	831	0.3	$ 143.66	$ 978.75	$ 35	6.8	6.6
7LED	Room between F-2 and F-4	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468	3	2T 25 R LED	2RTLED	25	0.1	C-OCC	1,950	146	322	0.1	$ 55.34	$ 877.50	$ 35	15.9	15.2
18LED	Room between F-2 and F-4	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	874	3	T 50 R LED	RTLED50	50	0.2	C-OCC	1,950	293	581	0.2	$ 99.69	$ 978.75	$ 35	9.8	9.5
7LED	Room between F-2 and F-4	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468	3	2T 25 R LED	2RTLED	25	0.1	C-OCC	1,950	146	322	0.1	$ 55.34	$ 877.50	$ 35	15.9	15.2
18LED	Room between F-2 and F-4	3	T 32 R F 4 (ELE)	F44ILL	112	0.3	SW	2600	874	3	T 50 R LED	RTLED50	50	0.2	C-OCC	1,950	293	581	0.2	$ 99.69	$ 978.75	$ 35	9.8	9.5
7LED	Room between F-2 and F-4	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	2600	468	3	2T 25 R LED	2RTLED	25	0.1	C-OCC	1,950	146	322	0.1	$ 55.34	$ 877.50	$ 35	15.9	15.2
18LED	F-4	14	T 32 R F 4 (ELE)	F44ILL	112	1.6	SW	2600	4,077	14	T 50 R LED	RTLED50	50	0.7	C-OCC	1,950	1,365	2,712	0.9	$ 465.22	$ 3,577.50	$ 35	7.7	7.6
7LED	F-6	9	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.5	SW	2600	1,404	9	2T 25 R LED	2RTLED	25	0.2	C-OCC	1,950	439	965	0.3	$ 166.02	$ 2,092.50	$ 35	12.6	12.4
7LED	F-6 Storage	3	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.2	SW	1560	281	3	2T 25 R LED	2RTLED	25	0.1	C-OCC	780	59	222	0.1	$ 40.55	$ 877.50	$ 35	21.6	20.8
18LED	Exit near F-6	2	T 32 R F 4 (ELE)	F44ILL	112	0.2	SW	3640	815	2	T 50 R LED	RTLED50	50	0.1	C-OCC	2,912	291	524	0.1	$ 86.80	$ 742.50	$ 35	8.6	8.2
133	Corridor near Exit	7	CF 26	CFQ26/1-L	27	0.2	SW	3640	688	7	CF 26	CFQ26/1-L	27	0.2	C-OCC	2,912	550	138	0.0	$ 20.46	$ 270.00	$ 35	13.2	11.5
52LED	Corridor near Exit	8	W 34 C F 2 (MAG)	F42EE	72	0.6	SW	3640	2,097	8	4 ft LED Tube	200732x2	30	0.2	C-OCC	2,912	699	1,398	0.3	$ 231.85	$ 1,576.80	$ 35	6.8	6.7
18LED	Corridor near Exit	12	T 32 R F 4 (ELE)	F44ILL	112	1.3	SW	3640	4,892	12	T 50 R LED	RTLED50	50	0.6	C-OCC	2,912	1,747	3,145	0.7	$ 520.80	$ 3,105.00	$ 35	6.0	5.9
178LED	Cafeteria Side Room	2	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	3640	524	2	4 ft LED Tube	200732x2	30	0.1	C-OCC	2,912	175	349	0.1	$ 57.96	$ 596.70	$ 35	10.3	9.7
52LED	Cafeteria Side Room	1	W 34 C F 2 (MAG)	F42EE	72	0.1	SW	3640	262	1	4 ft LED Tube	200732x2	30	0.0	C-OCC	2,912	87	175	0.0	$ 28.98	$ 433.35	$ 35	15.0	13.7
15LED	E-2	20	S 32 C F 2 (ELE)	F42LL	60	1.2	SW	2600	3,120	20	T 38 R LED	RTLED38	38	0.8	C-OCC	1,950	1,482	1,638	0.4	$ 275.00	$ 4,995.00	$ 35	18.2	18.0
35LED	E-2	20	T 32 R F 3 (ELE)	F43ILL/2	90	1.8	SW	2600	4,680	20	T 38 R LED	RTLED38	38	0.8	C-OCC	1,950	1,482	3,198	1.0	$ 549.80	$ 4,995.00	$ 35	9.1	9.0
35LED	E-2 Closet (No entry)	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1560	702	5	T 38 R LED	RTLED38	38	0.2	C-OCC	780	148	554	0.3	$ 100.91	$ 1,451.25	$ 35	14.4	14.0
18LED	E-4 (No Entry)	10	T 32 R F 4 (ELE)	F44ILL	112	1.1	SW	2600	2,912	10	T 50 R LED	RTLED50	50	0.5	C-OCC	1,950	975	1,937	0.6	$ 332.30	$ 2,632.50	$ 35	7.9	7.8
35LED	E-4 Closet	5	T 32 R F 3 (ELE)	F43ILL/2	90	0.5	SW	1560	702	5	T 38 R LED	RTLED38	38	0.2	C-OCC	780	148	554	0.3	$ 100.91	$ 1,451.25	$ 35	14.4	14.0
35LED	D-14	9	T 32 R F 3 (ELE)	F43ILL/2	90	0.8	SW	2600	2,106	9	T 38 R LED	RTLED38	38	0.3	C-OCC	1,950	667	1,439	0.5	$ 247.41	$ 2,396.25	$ 35	9.7	9.5
35LED	D-14 Side Room	4	T 32 R F 3 (ELE)	F43ILL/2	90	0.4	SW	2600	936	4	T 38 R LED	RTLED38	38	0.2	C-OCC	1,950	296	640	0.2	$ 109.96	$ 1,215.00	$ 35	11.0	10.7
6LED	D-11	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867	13	T 50 R LED	RTLED50	50	0.7	C-OCC	1,950	1,268	3,600	1.2	$ 622.52	$ 3,341.25	$ 35	5.4	5.3
61LED	Room next to D-11	6	T 34 R F 3 (MAG)	F43EE	115	0.7	SW	1560	1,076	6	T 38 R LED	RTLED38	38	0.2	C-OCC	780	178	899	0.5	$ 166.59	$ 1,687.50	$ 35	10.1	9.9
178LED	Exit	4	B 34 R F 2 (MAG)	F42EE	72	0.3	SW	3640	1,048	4	4 ft LED Tube	200732x2	30	0.1	C-OCC	2,912	349	699	0.2	$ 115.92	$ 923.40	$ 35	8.0	7.7
15LED	Exit	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	3640	437	2	T 38 R LED	RTLED38	38	0.1	C-OCC	2,912	221	215	0.0	$ 35.19	$ 742.50	$ 35	21.1	20.1
6LED	D-12	14	T 34 R F 4 (MAG)	F44EE	144	2.0	SW	2600	5,242	14	T 50 R LED	RTLED50	50	0.7	C-OCC	1,950	1,365	3,877	1.3	$ 670.41	$ 3,577.50	$ 35	5.3	5.3
6LED	D-7	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118	11	T 50 R LED	RTLED50	50	0.6	C-OCC	1,950	1,073	3,046	1.0	$ 526.75	$ 2,868.75	$ 35	5.4	5.4
6LED	D-10 (No Entry)	14	T 34 R F 4 (MAG)	F44EE	144	2.0	SW	2600	5,242	14	T 50 R LED	RTLED50	50	0.7	C-OCC	1,950	1,365	3,877	1.3	$ 670.41	$ 3,577.50	$ 35	5.3	5.3
6LED	D-8	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,493	12	T 50 R LED	RTLED50	50	0.6	C-OCC	1,950	1,170	3,323	1.1	$ 574.64	$ 3,105.00	$ 35	5.4	5.3
6LED	D-5 (No Entry)	11	T 34 R F 4 (MAG)	F44EE	144	1.6	SW	2600	4,118	11	T 50 R LED	RTLED50	50	0.6	C-OCC	1,950	1,073	3,046	1.0	$ 526.75	$ 2,868.75	$ 35	5.4	5.4
178LED	Exit	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	3640	262	1	4 ft LED Tube	200732x2	30	0.0	C-OCC	2,912	87	175	0.0	$ 28.98	$ 433.35	$ 35	15.0	13.7
6LED	D-6 (No Entry)	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,493	12	T 50 R LED	RTLED50	50	0.6	C-OCC	1,950	1,170	3,323	1.1	$ 574.64	$ 3,105.00	$ 35	5.4	5.3
15LED	Boys Restroom	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	562	3	T 38 R LED	RTLED38	38	0.1	C-OCC	1,560	178	384	0.1	$ 61.78	$ 978.75	$ 35	15.8	15.3
15LED	Girls Restroom (No Entry)	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3120	562	3	T 38 R LED	RTLED38	38	0.1	C-OCC	1,560	178	384	0.1	$ 61.78	$ 978.75	$ 35	15.8	15.3
7LED	Exit to Courtyard	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	3640	218	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	2,912	73	146	0.0	$ 24.15	$ 472.50	$ 35	19.6	18.1
6LED	Exit to Courtyard	1	T 34 R F 4 (MAG)	F44EE	144	0.1	SW	3640	524	1	T 50 R LED	RTLED50	50	0.1	C-OCC	2,912	146	379	0.1	$ 63.01	$ 506.25	$ 35	8.0	7.5
61LED	D-3 (No Entry)	4	T 34 R F 3 (MAG)	F43EE	115	0.5	SW	2600	1,196	4	T 38 R LED	RTLED38	38	0.2	C-OCC	1,950	296	900	0.3	$ 155.76	$ 1,215.00	$ 35	7.8	7.6
6LED	D-4 (No Entry)	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,493	12	T 50 R LED	RTLED50	50	0.6	C-OCC	1,950	1,170	3,323	1.1	$ 574.64	$ 3,105.00	$ 35	5.4	5.3
6LED	D-2 (No Entry)	12	T 34 R F 4 (MAG)	F44EE	144	1.7	SW	2600	4,493	12	T 50 R LED	RTLED50	50	0.6	C-OCC	1,950	1,170	3,323	1.1	$ 574.64	$ 3,105.00	$ 35	5.4	5.3
61LED	D-1	4	T 34 R F 3 (MAG)	F43EE	115	0.5	SW	2600	1,196	4	T 38 R LED	RTLED38	38	0.2	C-OCC	1,950	296	900	0.3	$ 155.76	$ 1,215.00	$ 35	7.8	7.6
18LED	Corridor near E-2	4	T 32 R F 4 (ELE)	F44ILL	112	0.4	SW	3640	1,631	4	T 50 R LED	RTLED50	50	0.2	C-OCC	2,912	582	1,048	0.2	$ 173.60	$ 1,215.00	$ 35	7.0	6.8
6LED	Corridor near E-4	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	3640	2,097	4	T 50 R LED	RTLED50	50	0.2	C-OCC	2,912	582	1,514	0.4	$ 252.02	$ 1,215.00	$ 35	4.8	4.7
6LED	D- Corridor	25	T 34 R F 4 (MAG)	F44EE	144	3.6	SW	3640	13,104	25	T 50 R LED	RTLED50	50	1.3	C-OCC	2,912	3,640	9,464	2.4	$ 1,575.15	$ 6,176.25	$ 35	3.9	3.9
15LED	Main Entrance	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	3640	655	3	T 38 R LED	RTLED38	38	0.1	C-OCC	2,912	332	323	0.1	$ 52.78	$ 978.75	$ 35	18.5	17.9
178LED	Main Entrance	3	B 34 R F 2 (MAG)	F42EE	72	0.2	SW	3640	786	3	4 ft LED Tube	200732x2	30	0.1	C-OCC	2,912	262	524	0.1	$ 86.94	$ 760.05	$ 35	8.7	8.3
15LED	Corridor near Main Entrance	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	3640	437	2	T 38 R LED	RTLED38	38	0.1	C-OCC	2,912	221	215	0.0	$ 35.19	$ 742.50	$ 35	21.1	20.1
4LED	D-Wing Stairwell	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	3640	1,048	4	2T 25 R LED	2RTLED	25	0.1	NONE	3,640	364	684	0.2	$ 115.18	$ 810.00	$ -	7.0	7.0
4LED	D-Wing Stairwell	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	3640	1,048	4	2T 25 R LED	2RTLED	25	0.1	NONE	3,640	364	684	0.2	$ 115.18	$ 810.00	$ -	7.0	7.0
4LED	D-Wing Stairwell	4	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.3	SW	3640	1,048	4	2T 25 R LED	2RTLED	25	0.1	NONE	3,640	364	684	0.2	$ 115.18	$ 810.00	$ -	7.0	7.0
6LED	Nurse's Office	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	NONE	2,600	260	489	0.2	$ 86.11	$ 472.50	$ -	5.5	5.5
6LED	Nurse's Office	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	2600	1,498	4	T 50 R LED	RTLED50	50	0.2	NONE	2,600	520	978	0.4	$ 172.21	$ 945.00	$ -	5.5	5.5
133	Nurse's Office	2	CF 26	CFQ26/1-L	27	0.1	SW	2600	140	2	CF 26	CFQ26/1-L	27	0.1	NONE	2,600	140	-	0.0	$ -	$ -	$ -		
178LED	Storage	3	B 34 R F 2 (MAG)	F42EE	72	0.2	SW	1560	337	3	4 ft LED Tube	200732x2	30	0.1	C-OCC	780	70	267	0.1	$ 48.66	$ 760.05	$ 35	15.6	14.9
6LED	Storage	1	T 34 R F 4 (MAG)	F44EE	144	0.1	SW	1560	225	1	T 50 R LED	RTLED50	50	0.1	C-OCC	780	39	186	0.1	$ 34.31	$ 506.25	$ 35	14.8	13.7
6LED	Main Corridor	20	T 34 R F 4 (MAG)	F44EE	144	2.9	SW	3640	10,483	20	T 50 R LED	RTLED50	50	1.0	C-OCC	2,912	2,912	7,571	1.9	$ 1,260.12	$ 4,995.00	$ 35	4.0	3.9
6LED	Exit	4	T 34 R F 4 (MAG)	F44EE	144	0.6	SW	3640	2,097	4	T 50 R LED	RTLED50	50	0.2	C-OCC	2,912	582	1,514	0.4	$ 252.02	$ 1,215.00	$ 35	4.8	4.7
15LED	Assistant Principal Office	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	468	3	T 38 R LED	RTLED38	38	0.1	C-OCC	1,950	222	246	0.1	$ 41.25	$ 978.75	$ 35	23.7	22.9
15LED	Main Office - Office	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	468	3	T 38 R LED	RTLED38	38	0.1	C-OCC	1,950	222	246	0.1	$ 41.25	$ 978.75	$ 35	23.7	22.9
15LED	Main Office - Office A	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	T 38 R LED	RTLED38	38	0.1	C-OCC	1,950	148	164	0.0	$ 27.50	$ 742.50	$ 35	27.0	25.7
15LED	Main Office - Office B	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	T 38 R LED	RTLED38	38	0.1	C-OCC	1,950	148	164	0.0	$ 27.50	$ 742.50	$ 35	27.0	25.7
15LED	Main Office - Office C	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	T 38 R LED	RTLED38	38	0.1	C-OCC	1,950	148	164	0.0	$ 27.50	$ 742.50	$ 35	27.0	25.7
15LED	Main Office - Office D	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	T 38 R LED	RTLED38	38	0.1	C-OCC	1,950	148	164	0.0	$ 27.50	$ 742.50	$ 35	27.0	25.7
15LED	Main Office - Office E	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	624	4	T 38 R LED	RTLED38	38	0.2	C-OCC	1,950	296	328	0.1	$ 55.00	$ 1,215.00	$ 35	22.1	21.5
15LED	Main Office - Break Room	2	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	2600	312	2	T 38 R LED	RTLED38	38	0.1	C-OCC	1,300	99	213	0.0	$ 34.85	$ 742.50	$ 35	21.3	20.3
178LED	Main Office	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187	1	4 ft LED Tube	200732x2	30	0.0	C-OCC	1,950	59	129	0.0	$ 22.14	$ 433.35	$ 35	19.6	18.0
178LED	Main Office	1	B 34 R F 2 (MAG)	F42EE	72	0.1	SW	2600	187	1	4 ft LED Tube	200732x2	30	0.0	C-OCC	1,950	59	129	0.0	$ 22.14	$ 433.35	$ 35	19.6	18.0
15LED	Main Office	8	S 32 C F 2 (ELE)	F42LL	60	0.5	SW	2600	1,248	8	T 38 R LED	RTLED38	38	0.3	C-OCC	1,950	593	655	0.2	$ 110.00	$ 2,160.00	$ 35	19.6	19.3
7LED	Main Office - Storage A	1	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.1	SW	1560	94	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	780	20	74	0.0	$ 13.52	$ 472.50	$ 35	35.0	32.4
133	Main Office - Storage B	1	CF 26	CFQ26/1-L	27	0.0	SW	1560	42	1	CF 26	CFQ26/1-L	27	0.0	C-OCC	780	21	21	0.0	$ 3.13	$ 270.00	$ 35	86.2	75.0
6LED	Tech Lab	8	T 34 R F 4 (MAG)	F44EE	144	1.2	SW	2600	2,995	8	T 50 R LED	RTLED50	50	0.4	C-OCC	1,950	780	2,215	0.8	$ 383.09	$ 2,160.00	$ 35	5.6	5.5
6LED	Tech Lab	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	554	0.2	$ 95.77	$ 742.50	$ 35	7.8	7.4
6LED	Tech Lab	3	T 34 R F 4 (MAG)	F44EE	144	0.4	SW	2600	1,123	3	T 50 R LED	RTLED50	50	0.2	C-OCC	1,950	293	831	0.3	$ 143.66	$ 978.75	$ 35	6.8	6.6
18LED	Offices 1	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	2600	291	1	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	98	194	0.1	$ 33.23	$ 506.25	$ 35	15.2	14.2
6LED	Offices 2	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	554	0.2	$ 95.77	$ 742.50	$ 35	7.8	7.4
6LED	Offices 3	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	554	0.2	$ 95.77	$ 742.50	$ 35	7.8	7.4
6LED	Offices 4	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	554	0.2	$ 95.77	$ 742.50	$ 35	7.8	7.4
6LED	Offices 5	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	554	0.2	$ 95.77	$ 742.50	$ 35	7.8	7.4
6LED	Offices 6	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	554	0.2	$ 95.77	$ 742.50	$ 35	7.8	7.4
6LED	Offices 7	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	2600	749	2	T 50 R LED	RTLED50	50	0.1	C-OCC	1,950	195	554	0.2	$ 95.77	$ 742.50	$ 35	7.8	7.4
6LED	Guidance	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867	13	T 50 R LED	RTLED50	50	0.7	C-OCC	1,950	1,268	3,600	1.2	$ 622.52	$ 3,341.25	$ 35	5.4	5.3
6LED	Guidance - Storage	2	T 34 R F 4 (MAG)	F44EE	144	0.3	SW	1560	449	2	T 50 R LED	RTLED50	50	0.1	C-OCC	780	78	371	0.2	$ 68.63	$ 742.50	$ 35	10.8	10.3
6LED	A-17	13	T 34 R F 4 (MAG)	F44EE	144	1.9	SW	2600	4,867	13	T 50 R LED	RTLED50	50	0.7	C-OCC	1,950	1,268	3,600	1.2	$ 622.52	$ 3,341.25	$ 35	5.4	5.3
133	A-17 - Side Area	2	CF 26	CFQ26/1-L	27	0.1	SW	2600	140	2	CF 26	CFQ26/1-L	27	0.1	C-OCC	1,950	105	35	0.0	$ 5.22	$ 270.00	$ 35	51.7	45.0
133	A-17 - Side Area	1	CF 26	CFQ26/1-L	27	0.0	SW	2600	70	1	CF 26	CFQ26/1-L	27	0.0	C-OCC	1,950	53	18	0.0	$ 2.61	$ 270.00	$ 35	103.4	90.0
133	A-17 - Kiln	2	CF 26	CFQ26/1-L	27	0.1	SW	1560	84	2	CF 26	CFQ26/1-L	27	0.1	C-OCC	780	42	42	0.0	$ 6.26	$ 270.00	$ 35	43.1	37.5
15LED	A-17 - Storage	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	1560	94	1	T 38 R LED	RTLED38	38	0.0	C-OCC	780	30	64	0.0	$ 11.08	$ 506.25	$ 35	45.7	42.5
133	A-17 - Entrance	1	CF 26	CFQ26/1-L	27	0.0	SW	2600	70	1	CF 26	CFQ26/1-L	27	0.0	C-OCC	1,950	53	18	0.0	$ 2.61	$ 270.00	$ 35	103.4	90.0
133	A-17 - Storage	2	CF 26	CFQ26/1-L	27	0.1	SW	1560	84	2	CF 26	CFQ26/1-L	27	0.1	C-OCC	780	42	42	0.0	$ 6.26	$ 270.00	$ 35	43.1	37.5
4LED	A-17 - Storage	1	2B 34 R F 2 (u) (MAG)	FU2EE	72	0.1	SW	1560	112	1	2T 25 R LED	2RTLED	25	0.0	C-OCC	780	20	93	0.0	$ 17.16	$ 472.50	$ 35	27.5	25.5
178LED	A-16	20	B 34 R F 2 (MAG)	F42EE	72	1.4	SW	2600	3,744	20	4 ft LED Tube	200732x2	30	0.6	C-OCC	1,950	1,170	2,574	0.8	$ 442.73	$ 3,537.00	$ 35	8.0	7.9
7LED	Corridor	8	2T 32 R F 2 (u) (ELE) Thin Tube	FU2LL	60	0.5	SW	3640	1,747	8	2T 25 R LED	2RTLED	25	0.2	C-OCC	2,912	582	1,165	0.3	$ 193.21	$ 1,890.00	$ 35	9.8	9.6
15LED	Custodial Office	3	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	2600	468	3	T 38 R LED	RTLED38	38	0.1	C-OCC	1,950	222	246	0.1	$ 41.25	$ 978.75	$ 35	23.7	22.9
15LED	Grounds Shed	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	1560	374	4	T 38 R LED	RTLED38	38	0.2	C-OCC	1,170	178	197	0.1	$ 35.51	$ 1,215.00	$ 35	34.2	33.2
15LED	Grounds Shed Garage	4	S 32 C F 2 (ELE)	F42LL	60	0.2	SW	1560	374	4	T 38 R LED	RTLED38	38	0.2	C-OCC	1,170	178	197	0.1	$ 35.51	$ 1,215.00	$ 35	34.2	33.2
33	Grounds Shed Garage - Storage	2	13 W CF 1	CFQ13/1-L	15	0.0	SW	1560	47	2	13 W CF 1	CFQ13/1-L	15	0.0	C-OCC	1,170	35	12	0.0	$ 1.74	$ 270.00	$ 35	155.2	135.0
40LED	Field House Locker	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	1200	288	4	T 38 R LED	RTLED38	38	0.2	NONE	1,200	182	106	0.1	$ 21.98	$ 945.00	$ -	43.0	43.0
133	Field House Locker Restroom	1	CF 26	CFQ26/1-L	27	0.0	SW	1200	32	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,200	32	-	0.0	$ -	$ -	$ -		
40LED	Field House Locker 1	14	T 32 R F 2 (ELE)	F42LL	60	0.8	SW	1200	1,008	14	T 38 R LED	RTLED38	38	0.5	NONE	1,200	638	370	0.3	$ 76.93	$ 3,307.50	$ -	43.0	43.0
40LED	Field House Locker 2	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	1200	576	8	T 38 R LED	RTLED38	38	0.3	NONE	1,200	365	211	0.2	$ 43.96	$ 1,890.00	$ -	43.0	43.0
18LED	Field House Shower Room	1	T 32 R F 4 (ELE)	F44ILL	112	0.1	SW	1200	134	1	T 50 R LED	RTLED50	50	0.1	NONE	1,200	60	74	0.1	$ 15.49	$ 236.25	$ -	15.3	15.3
40LED	Field House Stairway	4	T 32 R F 2 (ELE)	F42LL	60	0.2	SW	1200	288	4	T 38 R LED	RTLED38	38	0.2	NONE	1,200	182	106	0.1	$ 21.98	$ 945.00	$ -	43.0	43.0
40LED	Second Floor Corridor	9	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	1200	648	9	T 38 R LED	RTLED38	38	0.3	NONE	1,200	410	238	0.2	$ 49.46	$ 2,126.25	$ -	43.0	43.0
40LED	Team Room	11	T 32 R F 2 (ELE)	F42LL	60	0.7	SW	1200	792	11	T 38 R LED	RTLED38	38	0.4	NONE	1,200	502	290	0.2	$ 60.45	$ 2,598.75	$ -	43.0	43.0
40LED	Coaches Room	6	T 32 R F 2 (ELE)	F42LL	60	0.4	SW	1200	432	6	T 38 R LED	RTLED38	38	0.2	NONE	1,200	274	158	0.1	$ 32.97	$ 1,417.50	$ -	43.0	43.0
33	Restroom	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	1200	18	1	13 W CF 1	CFQ13/1-L	15	0.0	NONE	1,200	18	-	0.0	$ -	$ -	$ -		
40LED	Conference Room	8	T 32 R F 2 (ELE)	F42LL	60	0.5	SW	1200	576	8	T 38 R LED	RTLED38	38	0.3	NONE	1,200	365	211	0.2	$ 43.96	$ 1,890.00	$ -	43.0	43.0
133	Video Editing Room	1	CF 26	CFQ26/1-L	27	0.0	SW	1200	32	1	CF 26	CFQ26/1-L	27	0.0	NONE	1,200	32	-	0.0	$ -	$ -	$ -		
33	Ticket Booth	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	520	8	1	13 W CF 1	CFQ13/1-L	15	0.0	NONE	520	8	-	0.0	$ -	$ -	$ -		
33	Ticket Booth	1	13 W CF 1	CFQ13/1-L	15	0.0	SW	520	8	1	13 W CF 1	CFQ13/1-L	15	0.0	NONE	520	8	-	0.0	$ -	$ -	$ -		
15LED	Concessions	5	S 32 C F 2 (ELE)	F42LL	60	0.3	SW	780	234	5	T 38 R LED	RTLED38	38	0.2	NONE	780	148	86	0.1	$ 20.61	$ 1,181.25	$ -	57.3	57.3
15LED	Concessions Storage (No Entry)	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	780	47	1	T 38 R LED	RTLED38	38	0.0	NONE	780	30	17	0.0	$ 4.12	$ 236.25	$ -	57.3	57.3
133	Concessions - Exterior	4	CF 26	CFQ26/1-L	27	0.1	SW	3120	337	4	CF 26	CFQ26/1-L	27	0.1	NONE	3,120	337	-	0.0	$ -	$ -	$ -		
15LED	Ladies Restroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	780	47	1	T 38 R LED	RTLED38	38	0.0	NONE	780	30	17	0.0	$ 4.12	$ 236.25	$ -	57.3	57.3
15LED	Mens Restroom	1	S 32 C F 2 (ELE)	F42LL	60	0.1	SW	780	47	1	T 38 R LED	RTLED38	38	0.0	NONE	780	30	17	0.0	$ 4.12	$ 236.25	$ -	57.3	57.3
227LED	Exterior Building Lighting	23	70 W MH Wall Pack	MH70/1	95	2.2	SW	3120	6,817	23	FXLED18	FXLED18/1	18	0.4	NONE	3,120	1,292	5,526	1.8	$ 948.10	$ 9,734.18	$ 2,300	10.3	7.8
237LED	Exterior Building Lighting	4	MV 100	MV100/1	125	0.5	SW	3120	1,560	4	WPLED20	WPLED20	22	0.1	NONE	3,120	275	1,285	0.4	$ 220.56	$ 1,050.45	$ 400	4.8	2.9
S	Total	1,506				157.7			439,650	1,506				67.1			145,537		90.6	50,206	404,756	$15,160		
S																	Demand Savings			90.6	$6,463			
S																	kWh Savings			294,114	$43,743			

Energy Audit of Toms River Regional Schools - High School South
CHA Project No. 28485
ECM-L3 Lighting Replacements with Occupancy Sensors

		EXISTING CONDITIONS								RETROFIT CONDITIONS							COST & SAVINGS ANALYSIS						
	Area Description	No. of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Exist Control	Annual Hours	Annual kWh	Number of Fixtures	Standard Fixture Code	Fixture Code	Watts per Fixture	kW/Space	Retrofit Control	Annual Hours	Annual kWh	Annual kWh Saved	Annual kW Saved	Annual $ Saved	Retrofit Cost	NJ Smart Start Lighting Incentive	Simple Payback With Out Incentive	Simple Payback
Field Code	Unique description of the location - Room number/Room name: Floor number (if applicable)	No. of fixtures before the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Fixt No.)	Pre-inst. control device	Estimated daily hours for the usage group	(kW/space) * (Annual Hours)	No. of fixtures after the retrofit	Lighting Fixture Code	Code from Table of Standard Fixture Wattages	Value from Table of Standard Fixture Wattages	(Watts/Fixt) * (Number of Fixtures)	Retrofit control device	Estimated annual hours for the usage group	(kW/space) * (Annual Hours)	(Original Annual kWh) - (Retrofit Annual kWh)	(Original Annual kW) - (Retrofit Annual kW)	(kWh Saved) * ($/kWh)	Cost for renovations to lighting system	Prescriptive Lighting Measures	Length of time for renovations cost to be recovered	Length of time for renovations cost to be recovered
S																	Total Savings				$50,206		8.1	7.8

APPENDIX D

New Jersey Board of Public Utilities Incentives

i. **Smart Start**

ii. **Direct Install**

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

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

I. SMART START

NJ SmartStart Buildings

Program Overview

With New Jersey SmartStart Buildings ...

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

Special Notice

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

Visit the Sandy web page for details and important links.

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

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

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

Getting Started

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

PAST PROGRAMS

TOOLS AND RESOURCES

PROGRAM UPDATES

CONTACT US

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

Support for Custom Energy-Efficiency Measures

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

Incentives for Qualifying Equipment and Projects

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

Find out more about equipment incentives

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

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COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

HURRICANE SANDY

PROGRAMS

NJ SMARTSTART BUILDINGS

EQUIPMENT INCENTIVES

FOOD SERVICE EQUIPMENT

APPLICATION FORMS

TOOLS AND RESOURCES

PAY FOR PERFORMANCE

COMBINED HEAT & POWER AND FUEL CELLS

LOCAL GOVERNMENT ENERGY AUDIT

LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT PROGRAM

DIRECT INSTALL

ENERGY BENCHMARKING

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM

Home » Commercial & Industrial » Programs » NJ SmartStart Buildings

Equipment Incentives

Special Notice

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

Visit the Sandy web page for details and important links.

More reasons for a smart start on your next project!

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

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

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

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

Electric Chillers

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

Gas Cooling

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

PAST PROGRAMS

TOOLS AND RESOURCES

PROGRAM UPDATES

CONTACT US

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

Electric Unitary HVAC

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

Ground Source Heat Pumps

Closed Loop ($450-750 per ton)

Gas Heating

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

Variable Frequency Drives

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

Natural Gas Water Heating

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

Premium Motors

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

Refrigerator/Freezer Case Premium Efficiency Motors (ECM)

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

Prescriptive Lighting

New Linear Fluorescent

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

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

Lighting Controls

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

Refrigeration

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

Food Service Equipment

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

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

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

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

Other Equipment Incentives*

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

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

II. DIRECT INSTALL

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

HURRICANE SANDY

PROGRAMS

NJ SMARTSTART BUILDINGS

PAY FOR PERFORMANCE

COMBINED HEAT & POWER AND FUEL CELLS

LOCAL GOVERNMENT ENERGY AUDIT

LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT PROGRAM

DIRECT INSTALL

PARTICIPATION STEPS

PARTICIPATING CONTRACTORS

SUSTAINABLE JERSEY

ENERGY BENCHMARKING

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM

Direct Install

NEW JERSEY'S CLEAN ENERGY PROGRAM
DIRECT Install

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

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

ELIGIBILITY

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

SYSTEMS & EQUIPMENT ADDRESSED BY THE PROGRAM

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

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

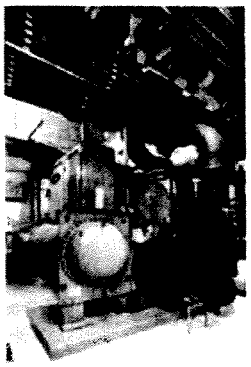
III. PAY FOR PERFORMANCE (P4P)

Pay for Performance - Existing Buildings

Download program applications and incentive forms.

The Greater the Savings, the Greater Your Incentives

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



Eligibility

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

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

ENERGY STAR Portfolio Manager

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

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

Incentives

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM

PAST PROGRAMS

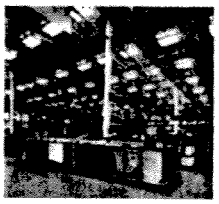
TOOLS AND RESOURCES

PROGRAM UPDATES

CONTACT US

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

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



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

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

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

Steps to Participation

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

Home | Residential | Commercial & Industrial | Renewable Energy
About Us | Press Room | Library | FAQs | Calendar | Newsletters | Contact Us | Site

New Jersey's Clean Energy PROGRAM
Your Power to Save
njcleanenergy.com

BPU

PAY FOR PERFORMANCE APPLICATION FORM

July 1, 2013 - June 30, 2014

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

Instructions

1. Read the 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.
6. Provide brief description of facility.
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

*Incentives/Requirements subject to change.

Pay For Performance-Existing Buildings

Participation Agreement

Definitions:

Design Incentives – Incentives that may be offered to design professionals by the Program.

Design Services – Services that may be offered to design professionals under the Program.

Energy-Efficient Measures – Any device eligible to receive a Program Incentive payment through the NJ Clean Energy Commercial and Industrial Program (New Jersey SmartStart Buildings).

New Jersey Utilities – 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.

Administrator – New Jersey Board of Public Utilities, Office of Clean Energy

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

Product Installation or Equipment Installation – Installation of the Energy-Efficient Measures.

Projects with a contract threshold of $14,187 (increasing to $15,444 effective July 1, 2014) 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 – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

Program Incentives – Refers to the amount or level of incentive that the Program provides to Participating Customers pursuant to the Program offered herein (see description under "Incentive Amount" heading).

Program Offer – Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities identified above.

Program Manager – TRC Energy Services.

Application and Eligibility Process – The Program pays incentives after the installation of qualified energy-efficient measures that were pre-approved (for exceptions to this condition, please refer to "Exceptions for Approval".) In order to be eligible for Program Incentives, a Customer, or an agent (contractor/vendor) authorized by a Customer, must submit a properly completed application package. The package must include an application signed by the customer; a complete (current) utility bill; and technology worksheet and manufacturer's cut sheets (where appropriate). This information must be submitted to the Program Manager before equipment is installed. Applications for measures that are self installed by customers must be submitted by the customer and not the sales vendor of the measure, however, the customer may elect to assign payment of the incentive to the sales vendor. This application package must be received by the Program Manager on or before June 30, 2014 in order to be eligible for the fiscal year July 1, 2013-June 30, 2014 incentives. The Program Manager will review the application package to determine if the project is eligible for a Program Incentive. If eligible, the Customer will receive an approval letter with the estimated authorized incentive amount and the date by which the equipment must be installed in order for the approval to remain in effect. Upon receipt of an approval letter, the Customer may then proceed to install the equipment listed on the approved application. Equipment installed prior to the date of the Program Manager's approval letter is not eligible for an incentive. The Program Manager 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 approval letter. All equipment must be purchased within 12 months of date of application. **Any Customer and/ or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Exceptions for Approval – The Application and Eligibility Process pertains to all projects except for those involving either Gas Heating, Unitary HVAC or Motors having an incentive amount less than $5,000 that were installed within 12 months of receipt of the application. These measures, at this incentive level, may be installed without prior approval. In addition, but at the sole discretion of the Program Manager, emergency replacement of equipment may not require a prior approval determination and letter. **In such cases, please notify the Program Manager of such emergencies as early as possible, that an application will soon be sent in that was not pre-approved.**

Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager's initial approval letter.

Please refer to the program guide on the NJCleanEnergy.com/ssb website for the complete Application and Eligibility Process.

The Program Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing product 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 a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

Equipment procured by Participating Customers through another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, is not eligible for incentives through this program. Customers who have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility are not be eligible for incentives offered through this program.

Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to $500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program 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 to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

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

Warranties – THE PROGRAM 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.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program 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 Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

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 Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, 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.

CUSTOMER'S SIGNATURE
PARTNER SIGNATURE
By signing, I certify that I have read, understand and agree to the Participation Agreement listed above.

IV. ENERGY SAVINGS IMPROVEMENT PLAN (ESIP)

COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT

HURRICANE SANDY

PROGRAMS

NJ SMARTSTART BUILDINGS

PAY FOR PERFORMANCE

COMBINED HEAT & POWER AND FUEL CELLS

LOCAL GOVERNMENT ENERGY AUDIT

LARGE ENERGY USERS PROGRAM

ENERGY SAVINGS IMPROVEMENT PROGRAM

DIRECT INSTALL

ENERGY BENCHMARKING

OIL, PROPANE & MUNICIPAL ELECTRIC CUSTOMERS

EDA PROGRAMS

SBC CREDIT PROGRAM

PAST PROGRAMS

TOOLS AND RESOURCES

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CONTACT US

Home » Commercial & Industrial » Programs

Energy Savings Improvement Program

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

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

Local Government
School Districts (K-12)

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

The Board also adopted protocols to measure energy savings:

Measuring Energy Savings
Procedures for Implementation

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

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

FIRST STEP – ENERGY AUDIT

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

ENERGY REDUCTION PLANS

If you have an ESIP plan that needs to be submitted to the Board of Public Utilities, plea to ESIP@bpu.state.nj.us. Please limit the file size to 3MB (or break it into smaller files).

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

ESIP PROGRAM

Final version 42413

BPU RULES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX E

Photovoltaic Analysis

TOMS RIVER REGIONAL SCHOOL DISTRICT
HIGH SCHOOL EAST

Cost of Electricity	$0.15	/kWh
Electricity Usage	833,573	kWh/yr
System Unit Cost	$4,000	/kW

NO FURTHER PV RECOMMENDED

Photovoltaic (PV) Solar Power Generation - Screening Assessment

Budgetary Cost	Annual Utility Savings				Estimated Maintenance Savings	Total Savings	Federal Tax Credit	New Jersey Renewable ** SREC	Payback (without SREC	Payback (with SREC
$	kW	kWh	therms	$	$	$	$	$	Years	Years
$0	**0.0**	**0**	**0**	**$0**	**0**	**$0**	**$0**	**$0**	**#DIV/0!**	**#DIV/0!**

** Estimated Solar Renewable Energy Certificate Program (SREC) SREC for 15 Years= $165 /1000kwh

-Based on price for July 2014

Area Output*
m2
0 ft2

Perimeter Output*
m
0 ft

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

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

8	watt/ft2	
0	DC watts	
0	kW	Enter into PV Watts

PV Watts Inputs***

Array Tilt Angle	20	Enter into PV Watts (always 20 if flat, if pitched - enter estimated roof angle)
Array Azimuth	180	Enter into PV Watts (default)
Zip Code	08753	Enter into PV Watts
DC/AC Derate Factor	0.83	Enter info PV Watts

PV Watts Output
annual kWh calculated in PV Watts program

% Offset Calc

Usage	833,573	(from utilities)
PV Generation	0	(generated using PV Watts)
% offset	0%	

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

APPENDIX F

EPA Benchmarking Report

ENERGY STAR® Statement of Energy Performance

98

ENERGY STAR® Score[1]

Toms River High School South

Primary Property Function: K-12 School
Gross Floor Area (ft²): 172,344
Built: 1951

For Year Ending: December 31, 2013
Date Generated: June 18, 2014

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

Property & Contact Information

Property Address	Property Owner	Primary Contact
Toms River High School South 55 Hyers Street Toms River, New Jersey 08753	_____ , (____)____-_____	Mark Wagner 125 Walnut St Toms River, NJ 08753 973-267-9029 cbuttitta@chacompanies.com

Property ID: 4075998

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
57.6 kBtu/ft²

Source EUI
66.9 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	592,869 (6%)
Natural Gas (kBtu)	6,651,600 (67%)
Electric - Solar (kBtu)	2,682,013 (27%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	125.5
National Median Source EUI (kBtu/ft²)	145.8
% Diff from National Median Source EUI	-54%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	428

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)