



Local Government Energy Audit: Energy Audit Report



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Hammonton High School

566 Old Forks Road

Hammonton, New Jersey 08037

Hammonton Board of Education

December 17, 2018

Final Report by:

TRC Energy Services

Disclaimer

The intent of this energy analysis report is to identify energy savings opportunities and recommend upgrades to the facility's energy using equipment and systems. Approximate savings are included in this report to help make decisions about reducing energy use at the facility. This report, however, is not intended to serve as a detailed engineering design document. Further design and analysis may be necessary in order to implement some of the measures recommended in this report.

The energy conservation measures and estimates of energy savings have been reviewed for technical accuracy. However, estimates of final energy savings are not guaranteed, because final savings may depend on behavioral factors and other uncontrollable variables. TRC Energy Services (TRC) and New Jersey Board of Public Utilities (NJBPU) shall in no event be liable should the actual energy savings vary.

Estimated installation costs are based on TRC's experience at similar facilities, pricing from local contractors and vendors, and/or cost estimates from *RS Means*. The owner of the facility is encouraged to independently confirm these cost estimates and to obtain multiple estimates when considering measure installations. Since actual installed costs can vary widely for certain measures and conditions, TRC and NJBPU do not guarantee installed cost estimates and shall in no event be held liable should actual installed costs vary from estimates.

New Jersey's Clean Energy Program (NJCEP) incentive values provided in this report are estimates based on program information available at the time of the report. Incentive levels are not guaranteed. The NJBPU reserves the right to extend, modify, or terminate programs without prior notice. The owner of the facility should review available program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

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I EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPUB) has sponsored this Local Government Energy Audit (LGEA) Report for Hammonton High School.

The goal of an LGEA report is to provide you with information on how your facility uses energy, identify energy conservation measures (ECMs) that can reduce your energy use, and provide information and assistance to help facilities implement ECMs. The LGEA report also contains valuable information on financial incentives from New Jersey's Clean Energy Program (NJCEP) for implementing ECMs.

This study was conducted by TRC Energy Services (TRC), as part of a comprehensive effort to assist New Jersey school districts in controlling energy costs and protecting our environment by offering a wide range of energy management options and advice.

I.1 Facility Summary

Hammonton High School is a 190,641 square foot facility comprised of various space types within a single building. The school has two floors and includes classrooms, a media center, a performing arts center, an auditorium, administrative offices, a large kitchen and cafeteria, locker rooms, gym areas, and a boiler room.

Lighting at Hammonton High School primarily consists of T8 and T5 linear fluorescent lighting, but also has a few compact fluorescent, metal halide, halogen incandescent, high-pressure sodium, and LED fixtures. An absorption chiller provides chilled water as well as heating and domestic hot water to the facility. Eight large air-handlers on the roof and five smaller air-handlers in the ceilings distribute heating, cooling and ventilation throughout the facility. A thorough description of the facility and our observations are located in Section 2.

I.2 Your Cost Reduction Opportunities

Energy Conservation Measures

TRC evaluated 15 measures which together represent an opportunity for Hammonton High School to reduce annual energy costs by roughly \$132,608 and annual greenhouse gas emissions by 1,000,806 lbs CO₂e. We estimate that if all measures were implemented as recommended, the project would pay for itself in 2.7 years. The breakdown of existing and potential utility costs after project implementation are illustrated in Figure 1 and Figure 2, respectively. Together these measures represent an opportunity to reduce Hammonton High School's annual energy use by 13%.

Figure 1 – Previous 12 Month Utility Costs

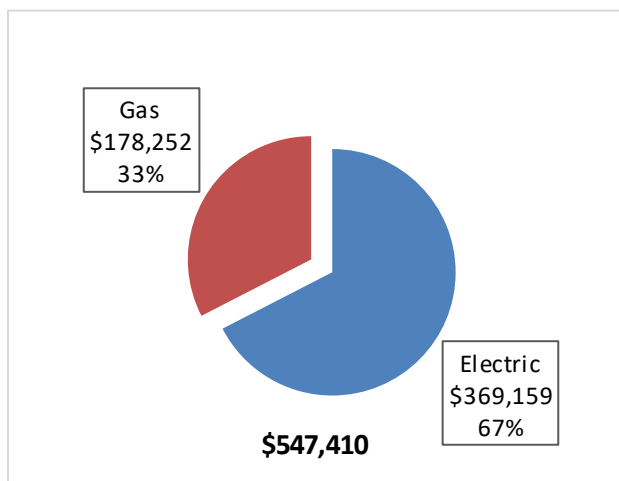
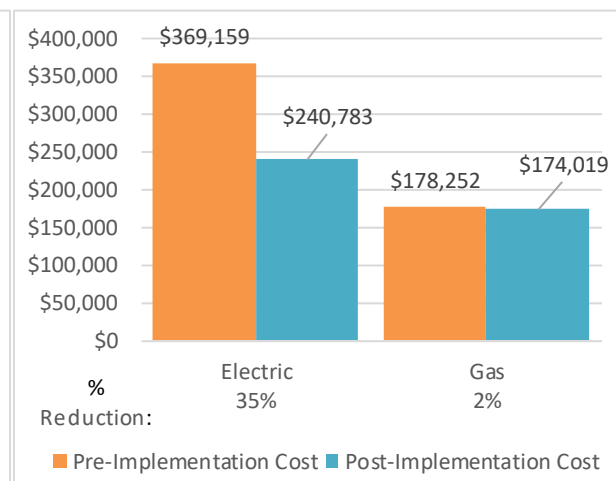


Figure 2 – Potential Post-Implementation Costs



A detailed description of Hammonton High School’s existing energy use can be found in Section 3.

Estimates of the total cost, energy savings, and financial incentives for the proposed energy efficient upgrades are summarized below in Figure 3. A brief description of each category can be found below and a description of savings opportunities can be found in Section 4.

Figure 3 – Summary of Energy Reduction Opportunities

Energy Conservation Measure	Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)	
Lighting Upgrades		402,020	51.0	0.0	\$54,736.31	\$122,868.96	\$20,080.00	\$102,788.96	1.9	404,831	
ECM 1	Install LED Fixtures	Yes	55,692	6.3	0.0	\$7,582.65	\$35,649.54	\$1,200.00	\$34,449.54	4.5	56,081
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	295	0.0	0.0	\$40.17	\$68.77	\$10.00	\$58.77	1.5	297
ECM 3	Retrofit Fixtures with LED Lamps	Yes	336,397	44.0	0.0	\$45,801.53	\$79,184.94	\$18,870.00	\$60,314.94	1.3	338,749
ECM 4	Install LED Exit Signs	Yes	9,636	0.6	0.0	\$1,311.97	\$7,965.71	\$0.00	\$7,965.71	6.1	9,703
Lighting Control Measures		109,065	12.8	0.0	\$14,849.58	\$71,140.00	\$8,225.00	\$62,915.00	4.2	109,828	
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	95,187	11.2	0.0	\$12,960.04	\$64,940.00	\$8,225.00	\$56,715.00	4.4	95,853
ECM 6	Install High/Low Lighting Controls	Yes	13,878	1.6	0.0	\$1,889.53	\$6,200.00	\$0.00	\$6,200.00	3.3	13,975
Motor Upgrades		9,034	2.0	0.0	\$1,230.07	\$32,404.48	\$0.00	\$32,404.48	26.3	9,098	
ECM 7	Premium Efficiency Motors	Yes	9,034	2.0	0.0	\$1,230.07	\$32,404.48	\$0.00	\$32,404.48	26.3	9,098
Variable Frequency Drive (VFD) Measures		409,945	48.2	0.0	\$55,815.36	\$168,547.19	\$27,920.00	\$140,627.19	2.5	412,811	
ECM 8	Install VFDs on Constant Volume (CV) HVAC	Yes	60,372	17.5	0.0	\$8,219.78	\$85,864.64	\$10,520.00	\$75,344.64	9.2	60,794
ECM 9	Install VFDs on Chilled Water Pumps	Yes	181,270	23.6	0.0	\$24,680.47	\$40,322.30	\$12,000.00	\$28,322.30	1.1	182,537
ECM 10	Install VFDs on Hot Water Pumps	Yes	42,076	7.2	0.0	\$5,728.78	\$16,944.10	\$0.00	\$16,944.10	3.0	42,370
ECM 11	Install VFDs on Cooling Tower Fans	Yes	126,228	0.0	0.0	\$17,186.33	\$25,416.15	\$5,400.00	\$20,016.15	1.2	127,110
Electric Unitary HVAC Measures		5,333	0.7	0.0	\$726.15	\$5,478.99	\$0.00	\$5,478.99	7.5	5,371	
ECM 12	Install High Efficiency Electric AC	Yes	5,333	0.7	0.0	\$726.15	\$5,478.99	\$0.00	\$5,478.99	7.5	5,371
HVAC System Improvements		0	0.0	420.9	\$4,062.56	\$10,875.36	\$0.00	\$10,875.36	2.7	49,279	
ECM 13	Implement Demand Control Ventilation	Yes	0	0.0	420.9	\$4,062.56	\$10,875.36	\$0.00	\$10,875.36	2.7	49,279
Domestic Water Heating Upgrade		0	0.0	17.6	\$169.91	\$1,875.30	\$0.00	\$1,875.30	11.0	2,061	
ECM 14	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	17.6	\$169.91	\$1,875.30	\$0.00	\$1,875.30	11.0	2,061
Plug Load Equipment Control - Vending Machine		7,475	0.0	0.0	\$1,017.73	\$1,610.00	\$0.00	\$1,610.00	1.6	7,527	
ECM 15	Vending Machine Control	Yes	7,475	0.0	0.0	\$1,017.73	\$1,610.00	\$0.00	\$1,610.00	1.6	7,527
TOTALS FOR HIGH PRIORITY MEASURES		942,873	114.7	438.5	\$132,607.67	\$414,800.27	\$56,225.00	\$358,575.27	2.7	1,000,806	
TOTALS FOR ALL EVALUATED MEASURES		942,873	114.7	438.5	\$132,607.67	\$414,800.27	\$56,225.00	\$358,575.27	2.7	1,000,806	

* - All incentives presented in this table are based on NJ Smart Start Building equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Lighting Upgrades generally involve the replacement of existing lighting components such as lamps and ballasts (or the entire fixture) with higher efficiency lighting components. These measures save energy by reducing the power used by the lighting components due to improved electrical efficiency.

Lighting Controls measures generally involve the installation of automated controls to turn off lights or reduce light output when not needed. Automated control reduces reliance on occupant behavior for adjusting lights. These measures save energy by reducing the amount of time lights are on.

Motor Upgrades generally involve replacing older standard efficiency motors with high efficiency standard (NEMA Premium®). Motors replacements generally assume the same size motors, just higher efficiency. Although occasionally additional savings can be achieved by downsizing motors to better meet current load requirements. This measure saves energy by reducing the power used by the motors, due to improved electrical efficiency.

Variable Frequency Drives (VFDs) are motor control devices. These measures control the speed of a motor so that the motor spins at peak efficiency during partial load conditions. Sensors adapt the speed to flow, temperature, or pressure settings which is much more efficient than usage a valve or damper to control flow rates, or running the motor at full speed when only partial power is needed. These measures save energy by controlling motor usage more efficiently.

Electric Unitary HVAC measures generally involve replacing older inefficient air conditioning systems with modern energy efficient systems. New air conditioning systems can provide equivalent cooling to older air conditioning systems at a reduced energy cost. These measures save energy by reducing the power used by the air conditioning systems, due to improved electrical efficiency.

HVAC System Improvements generally involve the installation of automated controls to reduce heating and cooling demand during periods of reduced demand. These measures could encompass changing temperature setpoints, using outside air for free cooling, or limiting excessive outside air during extreme outdoor air temperature conditions. These measures save energy by reducing the demand on HVAC systems and the amount of time systems operate.

Domestic Hot Water upgrade measures generally involve replacing older inefficient domestic water heating systems with modern energy efficient systems. New domestic hot water heating systems can provide equivalent, or greater, water heating capacity compared to older systems at a reduced energy cost. These measures save energy by reducing the fuel used for domestic hot water heating due to improved heating efficiency or reducing standby losses.

Plug Load Equipment control measures generally involve installing automated devices that limit the power usage or operation of equipment that is plugged into an electric outlet when not in use.

Energy Efficient Practices

TRC also identified four low cost or no cost energy efficient practices. A facility’s energy performance can be significantly improved by employing certain behavioral or operational adjustments and by performing better routine maintenance on building systems. These practices can extend equipment lifetime, improve occupant comfort, provide better health and safety, as well as reduce annual energy and O&M costs. Potential opportunities identified at Hammonton High School include:

- Perform Proper Lighting Maintenance
- Develop a Lighting Maintenance Schedule
- Perform Proper Boiler Maintenance
- Water Conservation

For details on these energy efficient practices, please refer to Section 5.

On-Site Generation Measures

TRC evaluated the potential for installing on-site generation for Hammonton High School. Based on the configuration of the site and its loads there is a high potential for installing a photovoltaic (PV) array and moderate potential for installing a CHP system.

Figure 4 – Photovoltaic Potential

Potential	High	
System Potential	475	kW DC STC
Electric Generation	565,901	kWh/yr
Displaced Cost	\$49,230	/yr
Installed Cost	\$1,605,500	

Figure 5 – Combined Heat and Power Potential

Potential	Medium	
System Type	Fuel Cell	
System Potential	90	kW
Electric Generation	665,708	kWh/yr
Thermal Generation	9,029,550	MBtu/yr
Displaced Cost	\$38,721	/yr
Installed Cost	\$357,000	

For details on our evaluation and on-site generation potential, please refer to Section 6.

I.3 Implementation Planning

To realize the energy savings from the ECMs listed in this report, a project implementation plan must be developed. Available capital must be considered and decisions need to be made whether it is best to pursue individual ECMs separately, groups of ECMs, or a comprehensive approach where all ECMs are implemented together, possibly in conjunction with other facility upgrades or improvements.

Rebates, incentives, and financing are available from NJCEP, as well as other sources, to help reduce the costs associated with the implementation of energy efficiency projects. Prior to implementing any measure, please review the relevant incentive program guidelines before proceeding. This is important because in most cases you will need to submit applications for the incentives prior to purchasing materials or commencing with installation.

The ECMs outlined in this report may qualify under the following program(s):

- SmartStart
- Pay for Performance - Existing Building (P4P EB)
- Combined Heat and Power Program
- SREC (Solar Renewable Energy Certificate) Registration Program (SRP)

For facilities wanting to pursue only selected individual measures (or planning to phase implementation of selected measures over multiple years), incentives are available through the SmartStart program. To participate in this program you may utilize internal resources, or an outside firm or contractor, to do the final design of the ECM(s) and do the installation. Program pre-approval is required for some SmartStart incentives, so only after receiving pre-approval should you proceed with ECM installation. The incentive estimates listed above in Figure 3 are based on the SmartStart program. More details on this program and others are available in Section 8.

The Combined Heat & Power Program can be a significant source of funding for this facility since it was identified as a good candidate for CHP on-site generation. As with other programs, please be sure to check the NJCEP website for latest details on current program availability and incentive levels.

Additional information on relevant incentive programs is located in Section 8. You may also check the following website for more details: www.njcleanenergy.com/ci.

2 FACILITY INFORMATION AND EXISTING CONDITIONS

2.1 Project Contacts

Figure 6 – Project Contacts

Name	Role	E-Mail	Phone #
Customer			
Barbara Prettyman	Business Administrator	bprettyman@hammtonps.org	609-567-7053
TRC Energy Services			
Alex Klieverik	Auditor	AKlieverik@trcsolutions.com	(732) 855-0033

2.2 General Site Information

On June 20, 2018, TRC performed an energy audit at Hammonton High School located in Hammonton, New Jersey. TRC’s team met with Barbara Prettyman to review the facility operations and help focus our investigation on specific energy-using systems.

Hammonton High School is a 190,641 square foot facility comprised of various space types within a single building. The school has two floors and includes classrooms, a media center, a performing arts center, an auditorium, administrative offices, a large kitchen and cafeteria, locker rooms, gym areas, and a boiler room.

Lighting at Hammonton High School primarily consists of T8 and T5 linear fluorescent lighting, but also has a few compact fluorescent, metal halide, halogen incandescent, high-pressure sodium, and LED fixtures. An absorption chiller provides chilled water as well as heating and domestic hot water to the facility. Eight large air-handlers on the roof and five smaller air-handlers in the ceilings distribute heating, cooling and ventilation throughout the facility.

The building was constructed in 2002.

2.3 Building Occupancy

The school building is open Monday through Friday 6:30 AM to 10:00 PM during the school year and most of the summer for a summer program. Most faculty, students and staff occupy the facility from 7:00 AM to 4:00 PM. Most weekday evenings and about half the weekends throughout the year the school also hosts events for parents, students, or staff. The typical schedule is presented in the table below.

Figure 7 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
Hammonton High School	Weekday	6:30AM - 10:00PM
Hammonton High School	Weekend	7:00AM - 4:00PM

2.4 Building Envelope

The building is constructed of concrete block, and structural steel with a stone facade. The building has both flat roofs covered with black membrane and pitched roofs with asphalt shingles. The building has double pane windows which are in good condition and show little sign of excessive infiltration. The exterior doors are constructed of aluminum, some with large window panes, and all are in good condition.

Figure 8 - Building Envelope



2.5 Energy-Using Systems

Please see Appendix A: Equipment Inventory & Recommendations for an inventory of the facility's equipment.

Lighting System

Interior lighting at the facility is provided mostly by 32-Watt linear fluorescent T8 lamps with electronic ballasts as well as some linear 28-Watt T5 fixtures. Most of the fixtures are 2-lamp or 4-lamp, 4-foot long troffers with diffusers. There are also a variety of other lighting technologies such as metal halides, compact fluorescents, halogen incandescent, and LEDs some of which provide lighting in special use areas such as the performing arts center, media center, and auditorium. The main gym area and the performing arts center had an LED retrofit in 2017. School representatives have expressed frustration with having to frequently replace lamps in the facility.

Interior lighting control in most spaces is provided by wall switches, but a few areas, such as gym B and administrative conference rooms, have occupancy sensors which are either wall or ceiling mounted depending on the layout.

The building's exterior lighting consists of compact fluorescent lamps (CFLs) that are controlled by photocells. There are also high-pressure sodium lamps which provide lighting to the adjacent athletic field during evening events.

Figure 9 – Lighting Technologies



Chilled and Condenser Water Systems

The facility is served by a hybrid chilled water and hot water plant. The plant consists of a 650 ton, Broad direct-fired absorption chiller. The chiller is supplied by one of two 100 hp constant flow pumps with a design flow of 1,560 gallons per minute (gpm). Chilled water pumps are rotated weekly. Chilled water is distributed to the facility at 44°F.

The chiller supplies chilled water to eight roof top air handlers and five ceiling mounted air-handlers in the facility.

The chiller was manufactured in 2010 and has been well maintained. It was noted, however, that facility personnel would prefer variable frequency drives on the chilled water pumps.

The condenser water system consists of one BAC three-cell cooling tower. The tower has three fan motors; each at 30 hp. Condenser water is supplied to the chiller by one of two 50 hp, 2,800 gpm constant flow pumps. The condenser water temperature is set to supply water at 85°F.

Figure 10 – Chilled Water Equipment



Hot Water Heating System

The hot water system consists of the same direct-fired absorption chiller. The absorption chiller has a rated heating COP of about 0.90. The chiller has a 14 hp gas burner fan. Heating hot water is distributed at a design flow rate of 700 gpm by one of two 30 hp pumps. Each pump is rotated weekly. It was noted, however, that facility personnel would prefer variable frequency drives on the heating hot water pumps.

Hot water is supplied at 180°F to the same eight rooftop air handlers and five ceiling mounted air-handlers, as well as to various hot water unit heaters throughout the facility.

Figure 11 – Hot Water Heating Equipment



Heating, Ventilation and Air Conditioning System (HVAC)

There are eight roof top air handling units (AHU 1-8) that serve the auditorium, cafeteria, gym A, B, and D, and the locker rooms. Each AHU draws air from its own return air shaft and supplies air to its own air shaft. There are also five ceiling mounted air-handlers which serve the remaining areas of the school.

All air-handlers have constant volume supply and return fans. The roof top units have either 5 hp, 15 hp, or 16 hp supply fan motors and either 1.5 hp, 3 hp, or 5 hp return fan motors. The ceiling mounted units have 2 hp supply and 1 hp return fan motors.

The units are controlled by thermostats located in their respective zones. The thermostats are set to maintain a heating setpoint between 68°F and 70°F and a cooling setpoint between 72 °F and 74 °F. At night the heating setpoint is setback to 65°F and the cooling setpoint is setback to 80 °F.

The units operate based on an occupancy schedule, and typically start daily at 6:30 AM (about half an hour before occupancy) and turn off at 10:30 PM when school is in session and over the summer for a small summer program. The units operate most weeknights and about half of the weekends throughout the year due to events or to accommodate faculty and staff occupancy.

Figure 12 – Air Conditioning Equipment



Direct Expansion Air Conditioning System (DX)

There is a Sanyo 2 ton ductless mini-split air conditioning system which provides cooling to the server room. The unit is controlled by a thermostat located on the unit. The air conditioner operates to maintain the space temperature around 72°F. The unit is original equipment and appears in good condition.

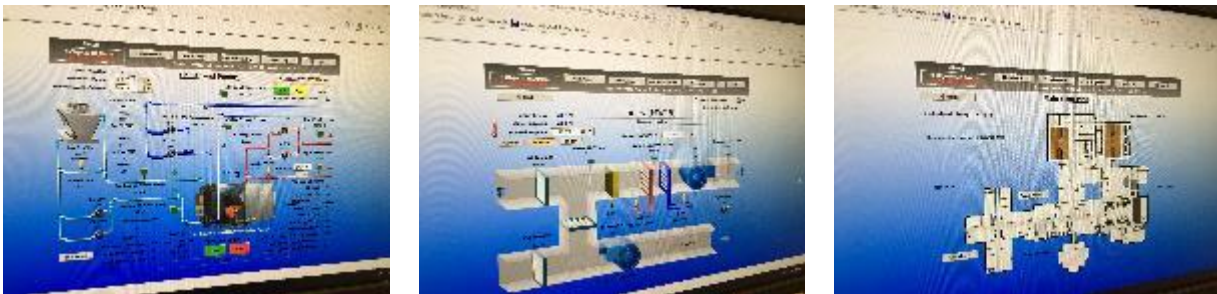
Figure 13 – Air Conditioning Equipment



Building Energy Management System (BEMS)

The majority of the facility is controlled with a Tridium Niagara four building energy management system (BEMS). The BEMS aggregates points from equipment throughout the building. The BEMS monitors and controls equipment based on points such as chilled water and heating hot water supply and return temperatures, supply and return air temperatures, zone temperatures, and valve or damper positions. The system is capable of providing trends for individual points.

Figure 14 – Building Energy Management System



Domestic Hot Water Heating System

Domestic hot water heating is supplied to the facility by an indirect system which is fed by the hybrid direct-fired absorption chiller/boiler. The system has an approximate heating capacity of 120 kBtu/hr and a 100-gallon storage tank capacity. Hot water is stored at 140°F and mixed down to 110°F for use. Two 0.75 hp recirculation pumps distribute 110°F water to the entire site. The recirculation pumps operate continuously.

Figure 15 – Domestic Hot Water Equipment



Food Service and Laundry Equipment

The school has an all-electric kitchen that is used to prepare breakfast and lunches during the school year for the students and staff. The kitchen is active between 7:00 AM and 2:00 PM. Most of the cooking is done using convection ovens and combination oven/steamers.

There is a conveyor dishwasher with an electric booster heater that provides rinse water. The dishwasher operates from 7:00 AM to 2:00 PM when the kitchen is open.

The school has two top-loading washing machines and two electric dryers. One set is in the training room storage and the other in the home economics classroom.

Figure 16 – Food Service Equipment



Refrigeration

The facility has two different cold storage areas: a walk-in cooler and a walk-in freezer. The cooler area is maintained at a constant temperature of about 40°F and freezer area is maintained at a constant 5°F. The cooler area is served by two evaporator fans and freezer area is served by five evaporator fans each having a 91-Watt motor.

The kitchen also has six free-standing commercial size refrigerators and two milk coolers. There are also two ice making machines, one in the kitchen and one in the training room.

Figure 17 – Refrigeration Equipment



Building Plug Load

There are roughly 450 computer work stations, laptops, and Chromebooks throughout the facility. There is no centralized PC power management software installed. In addition to computers and laptops, the school has a large number of other plug load appliances such as refrigerators, LCD TVs, projectors, smart boards, photo copiers, electric kilns, electric and induction ranges, microwaves, coffee makers, portable fans, exercise equipment, and woodshop equipment.

The facility also has four refrigerated beverage vending machines and three non-refrigerated vending machines.

Figure 18 – Building Plug Load Appliances



2.6 Water-Using Systems

The school has seven locker room areas. In total, the school has 21 showerheads across all locker rooms. All of the showerheads are rated at 2.5 gpm. The showers in the locker rooms are only used during the school year for after school sports teams.

Figure 19 – Water Using Equipment



3 SITE ENERGY USE AND COSTS

Utility data for electricity and natural gas was analyzed to identify opportunities for savings. In addition, data for electricity and natural gas was evaluated to determine the annual energy performance metrics for the building in energy cost per square foot and energy usage per square foot. These metrics are an estimate of the relative energy efficiency of this building. There are a number of factors that could cause the energy use of this building to vary from the “typical” energy usage profile for facilities with similar characteristics. Local weather conditions, building age and insulation levels, equipment efficiency, daily occupancy hours, changes in occupancy throughout the year, equipment operating hours, and energy efficient behavior of occupants all contribute to benchmarking scores. Please refer to the Benchmarking section within Section 3.4 for additional information.

3.1 Total Cost of Energy

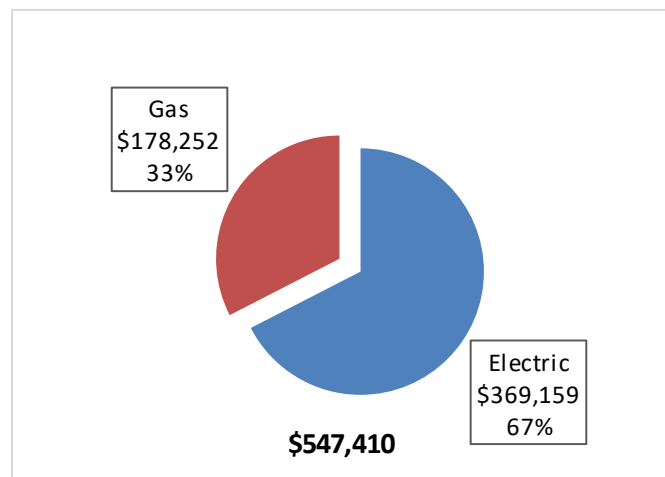
The following energy consumption and cost data is based on the last 12-month period of utility billing data that was provided for each utility. A profile of the annual energy consumption and energy cost of the facility was developed from this information.

Figure 20 - Utility Summary

Utility Summary for Hammonton High School		
Fuel	Usage	Cost
Electricity	2,711,347 kWh	\$369,159
Natural Gas	184,666 Therms	\$178,252
Total		\$547,410

The current annual energy cost for this facility is \$547,410 as shown in the chart below.

Figure 21 - Energy Cost Breakdown



3.2 Electricity Usage

Electricity is provided by Atlantic City Electric. The average electric cost over the past 12 months was \$0.136/kWh, which is the blended rate that includes energy supply, distribution, and other charges. This rate is used throughout the analyses in this report to assess energy costs and savings. Electricity consumption and demand increase in summer months due to increased cooling demand provided by electric cooling equipment, such as the cooling tower. The monthly electricity consumption and peak demand are shown in the chart below.

Figure 22 - Electric Usage & Demand

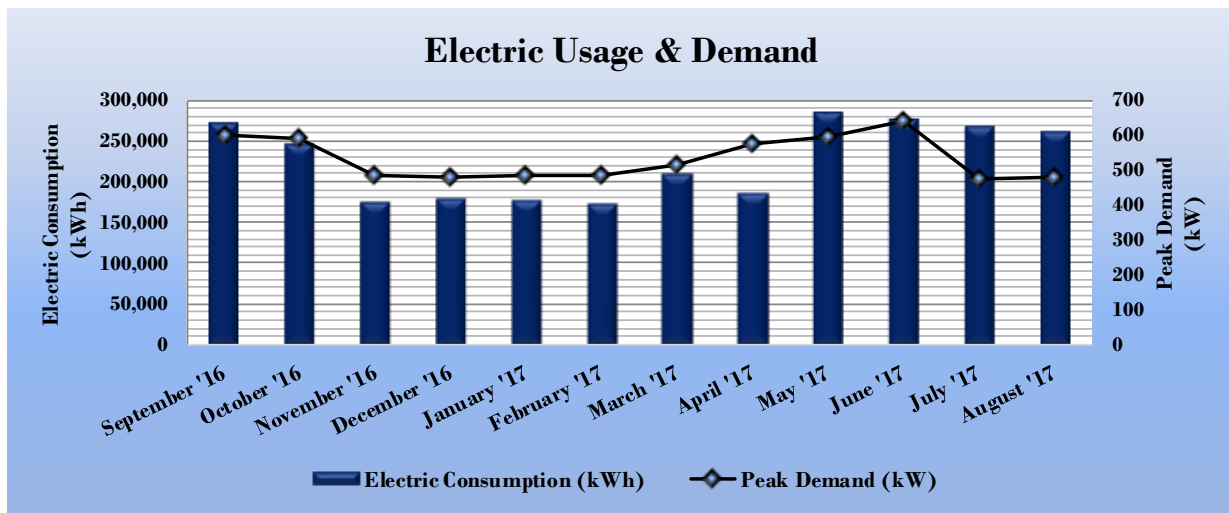


Figure 23 - Electric Usage & Demand

Electric Billing Data for Hammonton High School						
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost	TRC Estimated Usage?
9/29/16	30	271,838	599		\$39,029	No
10/30/16	31	246,935	590		\$34,849	No
11/29/16	30	174,315	483		\$25,809	No
12/28/16	29	180,465	479		\$26,524	No
1/30/17	33	177,070	482		\$25,809	Yes
2/27/17	28	173,674	486		\$25,093	No
3/20/17	21	210,899	516		\$29,947	No
4/27/17	38	185,563	575		\$27,000	No
5/30/17	33	285,624	595		\$39,428	No
6/29/17	30	275,738	641		\$33,170	No
7/30/17	31	268,141	476		\$31,547	No
8/30/17	31	261,085	479		\$30,955	No
Totals	365	2,711,347	640.98	\$0	\$369,159	
Annual	365	2,711,347	640.98	\$0	\$369,159	

3.3 Natural Gas Usage

Natural gas is provided by South Jersey Gas. The average gas cost for the past 12 months is \$0.965/therm, which is the blended rate used throughout the analyses in this report. The monthly gas consumption is shown in the chart below. Gas consumption is greatest in the summer months due to the cooling load provided by the direct-fired absorption chiller.

Figure 24 - Months Natural Gas Usage

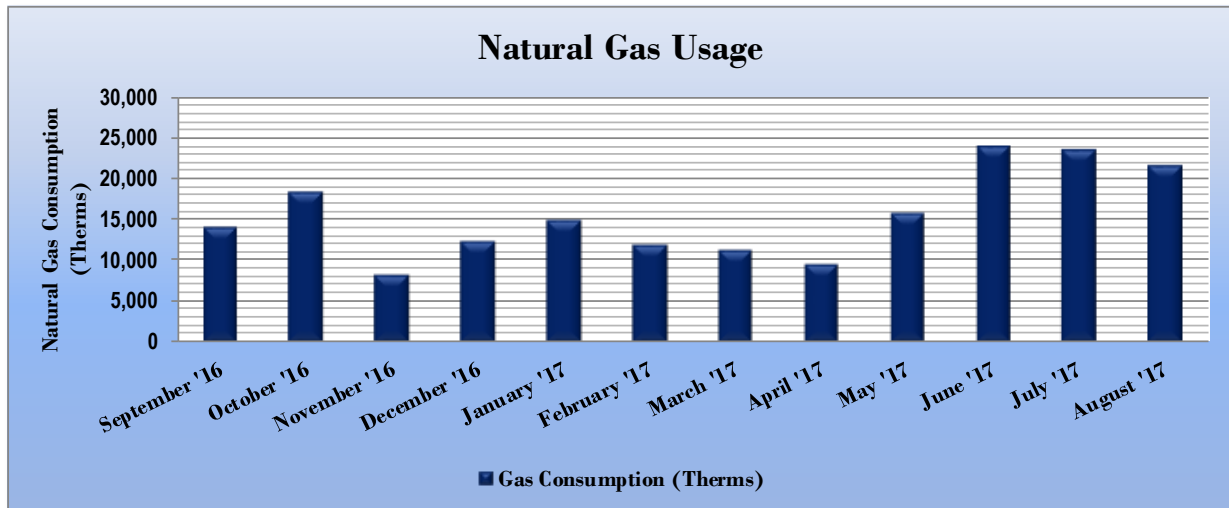


Figure 25 - Natural Gas Usage

Gas Billing Data for Hammonton High School			
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost
9/21/16	34	14,082	\$10,976
10/18/16	27	18,470	\$14,589
11/17/16	30	8,351	\$7,213
12/19/16	32	12,466	\$11,095
1/19/17	31	15,030	\$21,143
2/16/17	28	12,033	\$16,739
3/17/17	29	11,368	\$15,082
4/19/17	33	9,620	\$8,590
5/19/17	30	15,920	\$13,910
6/21/17	33	23,950	\$20,707
7/19/17	28	23,685	\$20,873
8/22/17	34	21,715	\$19,289
Totals	369	186,690	\$180,205
Annual	365	184,666	\$178,252

3.4 Benchmarking

This facility was benchmarked using Portfolio Manager[®], an online tool created and managed by the United States Environmental Protection Agency (EPA) through the ENERGY STAR[®] program. Portfolio Manager[®] analyzes your building’s consumption data, cost information, and operational use details and then compares its performance against a national median for similar buildings of its type. Metrics provided by this analysis are Energy Use Intensity (EUI) and an ENERGY STAR[®] score for select building types.

EUI is a measure of a facility’s energy consumption per square foot, and it is the standard metric for comparing buildings’ energy performance. Comparing the EUI of a building with the national median EUI for that building type illustrates whether that building uses more or less energy than similar buildings of its type on a square foot basis. EUI is presented in terms of “site energy” and “source energy.” Site energy is the amount of fuel and electricity consumed by a building as reflected in utility bills. Source energy includes fuel consumed to generate electricity consumed at the site, factoring in electric production and distribution losses for the region.

Figure 26 - Energy Use Intensity Comparison – Existing Conditions

Energy Use Intensity Comparison - Existing Conditions		
	Hammonton High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft ²)	254.1	141.4
Site Energy Use Intensity (kBtu/ft ²)	145.4	58.2

Implementation of all recommended measures in this report would improve the building’s estimated EUI significantly, as shown in the table below:

Figure 27 - Energy Use Intensity Comparison – Following Installation of Recommended Measures

Energy Use Intensity Comparison - Following Installation of Recommended Measures		
	Hammonton High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft ²)	198.7	141.4
Site Energy Use Intensity (kBtu/ft ²)	126.2	58.2

Many types of commercial buildings are also eligible to receive an ENERGY STAR[®] score. This score is a percentile ranking from 1 to 100. It compares your building’s energy performance to similar buildings nationwide. A score of 50 represents median energy performance, while a score of 75 means your building performs better than 75 percent of all similar buildings nationwide and may be eligible for ENERGY STAR[®] certification. This facility has a current score of 4.

A Portfolio Manager[®] Statement of Energy Performance (SEP) was generated for this facility, see Appendix B: ENERGY STAR[®] Statement of Energy Performance.

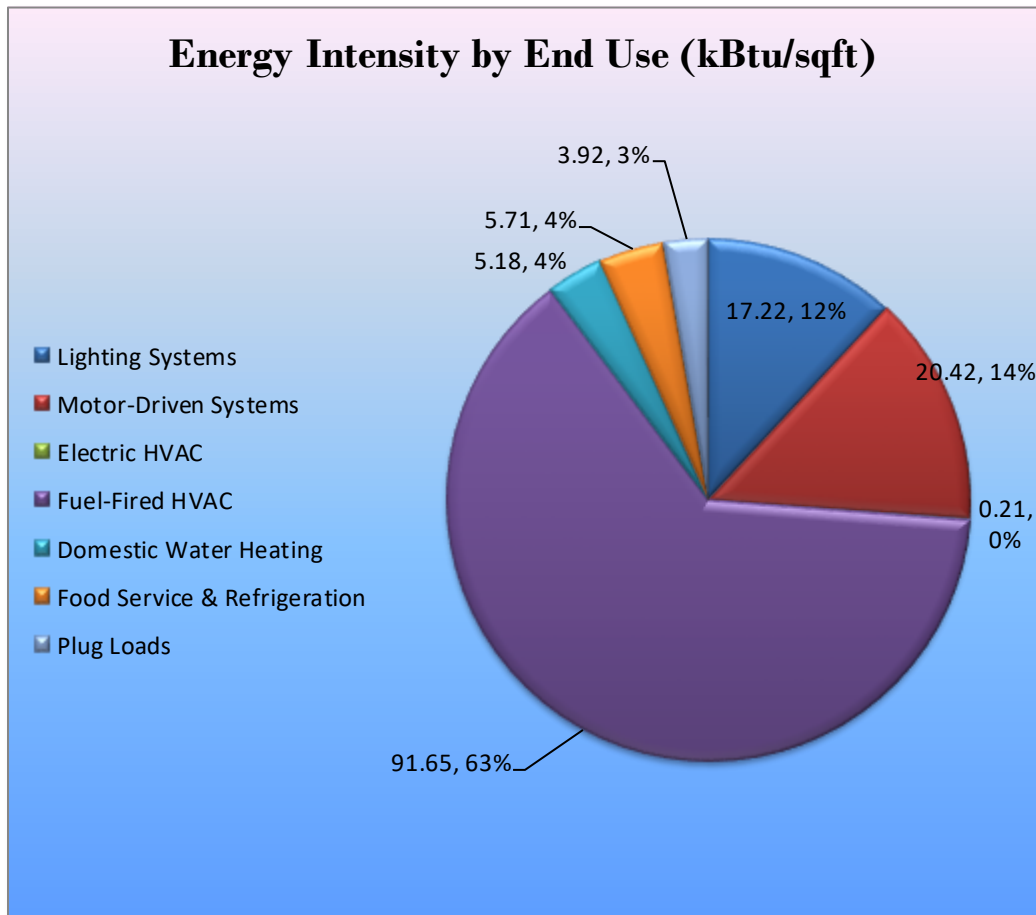
For more information on ENERGY STAR[®] certification go to: <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1>.

A Portfolio Manager[®] account has been created online for your facility and you will be provided with the login information for the account. We encourage you to update your utility information in Portfolio Manager[®] regularly, so that you can keep track of your building’s performance. Free online training is available to help you use ENERGY STAR[®] Portfolio Manager[®] to track your building’s performance at: <https://www.energystar.gov/buildings/training>

3.5 Energy End-Use Breakdown

In order to provide a complete overview of energy consumption across building systems, an energy balance was performed at this facility. An energy balance utilizes standard practice engineering methods to evaluate all components of the various electric and fuel-fired systems found in a building to determine their proportional contribution to overall building energy usage. This chart of energy end uses highlights the relative contribution of each equipment category to total energy usage. This can help determine where the greatest benefits might be found from energy efficiency measures.

Figure 28 - Energy Balance (% and kBtu/SF)



4 ENERGY CONSERVATION MEASURES

Level of Analysis

The goal of this audit report is to identify potential energy efficiency opportunities, help prioritize specific measures for implementation, and provide information to the Hammonton High School regarding financial incentives for which they may qualify to implement the recommended measures. For this audit report, most measures have received only a preliminary analysis of feasibility which identifies expected ranges of savings and costs. This level of analysis is usually considered sufficient to demonstrate project cost-effectiveness and help prioritize energy measures. Savings are based on the New Jersey Clean Energy Program Protocols to Measure Resource Savings dated June 29, 2016, approved by the New Jersey Board of Public Utilities. Further analysis or investigation may be required to calculate more precise savings based on specific circumstances. A higher level of investigation may be necessary to support any custom SmartStart or Pay for Performance, or Direct Install incentive applications. Financial incentives for the ECMs identified in this report have been calculated based the NJCEP prescriptive SmartStart program. Some measures and proposed upgrade projects may be eligible for higher incentives than those shown below through other NJCEP programs as described in Section 8.

The following sections describe the evaluated measures.

4.1 Recommended ECMs

The measures below have been evaluated by the auditor and are recommended for implementation at the facility.

Figure 29 – Summary of Recommended ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		402,020	51.0	0.0	\$54,736.31	\$122,868.96	\$20,080.00	\$102,788.96	1.9	404,831
ECM 1	Install LED Fixtures	55,692	6.3	0.0	\$7,582.65	\$35,649.54	\$1,200.00	\$34,449.54	4.5	56,081
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	295	0.0	0.0	\$40.17	\$68.77	\$10.00	\$58.77	1.5	297
ECM 3	Retrofit Fixtures with LED Lamps	336,397	44.0	0.0	\$45,801.53	\$79,184.94	\$18,870.00	\$60,314.94	1.3	338,749
ECM 4	Install LED Exit Signs	9,636	0.6	0.0	\$1,311.97	\$7,965.71	\$0.00	\$7,965.71	6.1	9,703
Lighting Control Measures		109,065	12.8	0.0	\$14,849.58	\$71,140.00	\$8,225.00	\$62,915.00	4.2	109,828
ECM 5	Install Occupancy Sensor Lighting Controls	95,187	11.2	0.0	\$12,960.04	\$64,940.00	\$8,225.00	\$56,715.00	4.4	95,853
ECM 6	Install High/Low Lighting Controls	13,878	1.6	0.0	\$1,889.53	\$6,200.00	\$0.00	\$6,200.00	3.3	13,975
Motor Upgrades		9,034	2.0	0.0	\$1,230.07	\$32,404.48	\$0.00	\$32,404.48	26.3	9,098
ECM 7	Premium Efficiency Motors	9,034	2.0	0.0	\$1,230.07	\$32,404.48	\$0.00	\$32,404.48	26.3	9,098
Variable Frequency Drive (VFD) Measures		409,945	48.2	0.0	\$55,815.36	\$168,547.19	\$27,920.00	\$140,627.19	2.5	412,811
ECM 8	Install VFDs on Constant Volume (CV) HVAC	60,372	17.5	0.0	\$8,219.78	\$85,864.64	\$10,520.00	\$75,344.64	9.2	60,794
ECM 9	Install VFDs on Chilled Water Pumps	181,270	23.6	0.0	\$24,680.47	\$40,322.30	\$12,000.00	\$28,322.30	1.1	182,537
ECM 10	Install VFDs on Hot Water Pumps	42,076	7.2	0.0	\$5,728.78	\$16,944.10	\$0.00	\$16,944.10	3.0	42,370
ECM 11	Install VFDs on Cooling Tower Fans	126,228	0.0	0.0	\$17,186.33	\$25,416.15	\$5,400.00	\$20,016.15	1.2	127,110
Electric Unitary HVAC Measures		5,333	0.7	0.0	\$726.15	\$5,478.99	\$0.00	\$5,478.99	7.5	5,371
ECM 12	Install High Efficiency Electric AC	5,333	0.7	0.0	\$726.15	\$5,478.99	\$0.00	\$5,478.99	7.5	5,371
HVAC System Improvements		0	0.0	420.9	\$4,062.56	\$10,875.36	\$0.00	\$10,875.36	2.7	49,279
ECM 13	Implement Demand Control Ventilation	0	0.0	420.9	\$4,062.56	\$10,875.36	\$0.00	\$10,875.36	2.7	49,279
Domestic Water Heating Upgrade		0	0.0	17.6	\$169.91	\$1,875.30	\$0.00	\$1,875.30	11.0	2,061
ECM 14	Install Low-Flow Domestic Hot Water Devices	0	0.0	17.6	\$169.91	\$1,875.30	\$0.00	\$1,875.30	11.0	2,061
Plug Load Equipment Control - Vending Machine		7,475	0.0	0.0	\$1,017.73	\$1,610.00	\$0.00	\$1,610.00	1.6	7,527
ECM 15	Vending Machine Control	7,475	0.0	0.0	\$1,017.73	\$1,610.00	\$0.00	\$1,610.00	1.6	7,527
TOTALS FOR HIGH PRIORITY MEASURES		942,873	114.7	438.5	\$132,607.67	\$414,800.27	\$56,225.00	\$358,575.27	2.7	1,000,806

4.1.1 Lighting Upgrades

Our recommendations for upgrades to existing lighting fixtures are summarized in Figure 30 below.

Figure 30 – Summary of Lighting Upgrade ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		402,020	51.0	0.0	\$54,736.31	\$122,868.96	\$20,080.00	\$102,788.96	1.9	404,831
ECM 1	Install LED Fixtures	55,692	6.3	0.0	\$7,582.65	\$35,649.54	\$1,200.00	\$34,449.54	4.5	56,081
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	295	0.0	0.0	\$40.17	\$68.77	\$10.00	\$58.77	1.5	297
ECM 3	Retrofit Fixtures with LED Lamps	336,397	44.0	0.0	\$45,801.53	\$79,184.94	\$18,870.00	\$60,314.94	1.3	338,749
ECM 4	Install LED Exit Signs	9,636	0.6	0.0	\$1,311.97	\$7,965.71	\$0.00	\$7,965.71	6.1	9,703

During lighting upgrade planning and design, we recommend a comprehensive approach that considers both the efficiency of the lighting fixtures and how they are controlled.

ECM 1: Install LED Fixtures

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	55,692	6.3	0.0	\$7,582.65	\$35,649.54	\$1,200.00	\$34,449.54	4.5	56,081
Exterior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0

Measure Description

We recommend replacing interior fixtures containing metal halide lamps with new high-performance LED light fixtures. Fixtures are located in the cafeteria, media center, gym C, and in numerous circulation areas. This measure saves energy by installing LEDs which use less power than other technologies with a comparable light output.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes nearly twice those of the fixtures recommended for replacement.

ECM 2: Retrofit Fluorescent Fixtures with LED Lamps and Drivers

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	295	0.0	0.0	\$40.17	\$68.77	\$10.00	\$58.77	1.5	297
Exterior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0

Measure Description

We recommend retrofitting linear fluorescent T12 fixtures by removing fluorescent tubes and ballasts and replacing them with LEDs and LED drivers (if necessary), which are designed to be used retrofitted fluorescent fixtures. The measure uses the existing fixture housing but replaces the rest of the components with more efficient lighting technology. This measure saves energy by installing LEDs which use less power than other lighting technologies yet provide equivalent lighting output for the space. These were noted as present in the greenhouse.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of fluorescent tubes.

ECM 3: Retrofit Fixtures with LED Lamps

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	331,141	43.3	0.0	\$45,085.98	\$77,564.94	\$18,870.00	\$58,694.94	1.3	333,457
Exterior	5,255	0.7	0.0	\$715.55	\$1,620.00	\$0.00	\$1,620.00	2.3	5,292

Measure Description

We recommend retrofitting interior linear fluorescent T8 and T5 and interior and exterior compact fluorescent lighting technologies with LED lamps. Many LED tube lamps are direct replacements for existing fluorescent lamps and can be installed while leaving the fluorescent fixture ballast in place. LED bulbs can be used in existing fixtures as a direct replacement for most other lighting technologies. This measure saves energy by installing LEDs which use less power than other lighting technologies yet provide equivalent lighting output for the space. The measure is generally applicable throughout the facility.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of fluorescent sources.

ECM 4: Install LED Exit Signs

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	9,636	0.6	0.0	\$1,311.97	\$7,965.71	\$0.00	\$7,965.71	6.1	9,703
Exterior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0

Measure Description

We recommend replacing all incandescent or compact fluorescent exit signs with LED exit signs. LED exit signs require virtually no maintenance and have a life expectancy of at least 20 years. This measure saves energy by installing LED fixtures, which use less power than other technologies with an equivalent lighting output.

4.1.2 Lighting Control Measures

Our recommendations for lighting control measures are summarized in the Figure 31 below.

Figure 31 – Summary of Lighting Control ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Lighting Control Measures		109,065	12.8	0.0	\$14,849.58	\$71,140.00	\$8,225.00	\$62,915.00	4.2	109,828
ECM 5	Install Occupancy Sensor Lighting Controls	95,187	11.2	0.0	\$12,960.04	\$64,940.00	\$8,225.00	\$56,715.00	4.4	95,853
ECM 6	Install High/Low Lighting Controls	13,878	1.6	0.0	\$1,889.53	\$6,200.00	\$0.00	\$6,200.00	3.3	13,975

During lighting upgrade planning and design, we recommend a comprehensive approach that considers both the efficiency of the lighting fixtures and how they are controlled.

ECM 5: Install Occupancy Sensor Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
95,187	11.2	0.0	\$12,960.04	\$64,940.00	\$8,225.00	\$56,715.00	4.4	95,853

Measure Description

We recommend installing occupancy sensors to control lighting fixtures that are currently controlled by manual switches in restrooms, locker rooms, conference spaces, offices, classrooms, gym areas, the cafeteria, kitchen, auditorium, media center, and performing arts center. Lighting sensors detect occupancy using ultrasonic and/or infrared sensors. For most spaces, we recommend lighting controls use dual technology sensors, which can eliminate the possibility of any lights turning off unexpectedly. Lighting systems are enabled when an occupant is detected. Fixtures are automatically turned off after an area has been vacant for a preset period. Some controls also provide dimming options and all modern occupancy controls can be easily over-ridden by room occupants to allow them to manually turn fixtures on or off, as desired. Energy savings results from only operating lighting systems when they are required.

Occupancy sensors may be mounted on the wall at existing switch locations, mounted on the ceiling, or in remote locations. In general, wall switch replacement sensors are recommended for single occupant offices and other small rooms. Ceiling-mounted or remote mounted sensors are used in locations without local switching or where wall switches are not in the line-of-sight of the main work area and in large spaces. We recommend a comprehensive approach to lighting design that upgrades both the lighting fixtures and the controls together for maximum energy savings and improved lighting for occupants.

ECM 6: Install High/Low Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
13,878	1.6	0.0	\$1,889.53	\$6,200.00	\$0.00	\$6,200.00	3.3	13,975

Measure Description

We recommend installing occupancy sensors to provide dual level lighting control for lighting fixtures in spaces that are infrequently occupied but may require some level of continuous lighting for safety or security reasons. Recommended areas for such lighting control are interior corridors, lobbies, and entrance areas.

Lighting fixtures with these controls operate at default low levels when the area is not occupied to provide minimal lighting to meet security or safety requirements. Sensors detect occupancy using ultrasonic and/or infrared sensors. The lighting systems are switched to full lighting levels whenever an occupant is detected. Fixtures are automatically switched back to low level after an area has been vacant for a preset period of time. Energy savings results from only providing full lighting levels when it is required.

For this type of measure the occupancy sensors will generally be ceiling or fixture mounted. Sufficient sensor coverage needs to be provided to ensure that lights turn on in each area as an occupant approaches.

Additional savings from reduced lighting maintenance may also result from this measure, due to reduced lamp operation.

4.1.3 Motor Upgrades

Our recommendations for motor upgrades are summarized in Figure 32 below.

Figure 32 - Summary of Motor Upgrade ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Motor Upgrades		9,034	2.0	0.0	\$1,230.07	\$32,404.48	\$0.00	\$32,404.48	26.3	9,098
ECM 7	Premium Efficiency Motors	9,034	2.0	0.0	\$1,230.07	\$32,404.48	\$0.00	\$32,404.48	26.3	9,098

ECM 7: Premium Efficiency Motors

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
9,034	2.0	0.0	\$1,230.07	\$32,404.48	\$0.00	\$32,404.48	26.3	9,098

Measure Description

The replacement of standard efficiency motors with NEMA Premium® efficiency motors has been proposed to account for costs associated with the requirement for upgrading to inverter duty rated motors when installing variable frequency drives. Due to the marginal payback of this measure, motor replacement should be reconsidered if variable frequency drives are not going to be installed. Our evaluation assumes that existing motors will be replaced with motors of equivalent size and type. Although occasionally additional savings can be achieved by downsizing motors to better meet the motor's current load requirements. The base case motor efficiencies are estimated from nameplate information and our best estimates of motor run hours. Efficiencies of proposed motor upgrades are obtained from the *New Jersey's Clean Energy Program Protocols to Measure Resource Savings (2016)*. Savings are based on the difference between baseline and proposed efficiencies and the assumed annual operating hours.

4.1.4 Variable Frequency Drive Measures

Our recommendations for variable frequency drive (VFD) measures are summarized in Figure 33 below.

Figure 33 – Summary of Variable Frequency Drive ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Variable Frequency Drive (VFD) Measures		409,945	48.2	0.0	\$55,815.36	\$168,547.19	\$27,920.00	\$140,627.19	2.5	412,811
ECM 8	Install VFDs on Constant Volume (CV) HVAC	60,372	17.5	0.0	\$8,219.78	\$85,864.64	\$10,520.00	\$75,344.64	9.2	60,794
ECM 9	Install VFDs on Chilled Water Pumps	181,270	23.6	0.0	\$24,680.47	\$40,322.30	\$12,000.00	\$28,322.30	1.1	182,537
ECM 10	Install VFDs on Hot Water Pumps	42,076	7.2	0.0	\$5,728.78	\$16,944.10	\$0.00	\$16,944.10	3.0	42,370
ECM 11	Install VFDs on Cooling Tower Fans	126,228	0.0	0.0	\$17,186.33	\$25,416.15	\$5,400.00	\$20,016.15	1.2	127,110

ECM 8: Install VFDs on Constant Volume (CV) HVAC

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
60,372	17.5	0.0	\$8,219.78	\$85,864.64	\$10,520.00	\$75,344.64	9.2	60,794

Measure Description

We recommend installing variable frequency drives (VFDs) to control supply fan motor speeds to convert constant-volume, single-zone air handling systems into a variable-air-volume (VAV) systems. This measure is applicable to all the major air handling units. A separate VFD is usually required to control the return fan motor or dedicated exhaust fan motor, if the air handler has one. Zone thermostats will cause the VFD to modulate fan speed to maintain the appropriate temperature in the zone, while maintaining a constant supply air temperature. Energy savings results from reducing fan speed (and power) when there is a reduced load required for the zone. The magnitude of energy savings is based on the estimated amount of time that fan motors operate at partial load.

VAV systems should not be controlled such that the supply air temperature is raised at the expense of the fan power. A common mistake is to reset the supply air temperature to achieve chiller energy savings, which can lead to additional air flow requirements. Supply air temperature should be kept low, e.g. 55°F, until the minimum fan speed (typically about 50%) is met. At this point, it is efficient to raise the supply air temperature as the load decreases, but not such that additional air flow and thus fan energy is required.

ECM 9: Install VFDs on Chilled Water Pumps

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
181,270	23.6	0.0	\$24,680.47	\$40,322.30	\$12,000.00	\$28,322.30	1.1	182,537

Measure Description

We recommend installing variable frequency drives (VFD) to control chilled water pumps. This measure requires that chilled water coils be served by 2-way valves and that a differential pressure sensor be installed in the chilled water loop. As the chilled water valves close, the differential pressure increases. The VFD modulates pump speed to maintain a differential pressure setpoint. Energy savings results from reducing pump motor speed (and power) as chilled water valves close. The magnitude of energy savings is based on the estimated amount of time that the system operates at reduced loads.

For systems with variable chilled water flow through the chiller, the minimum flow to prevent the chiller from tripping off will have to be determined during the final project design. The control system should be programmed to maintain the minimum flow through the chiller and to prevent pump cavitation.

ECM 10: Install VFDs on Hot Water Pumps

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
42,076	7.2	0.0	\$5,728.78	\$16,944.10	\$0.00	\$16,944.10	3.0	42,370

Measure Description

We recommend installing variable frequency drives (VFD) to control hot water pumps. This measure requires that a majority of the hot water coils be served by 2-way valves and that a differential pressure sensor is installed in the hot water loop. As the hot water valves close, the differential pressure increases. The VFD modulates pump speed to maintain a differential pressure setpoint. Energy savings results from reducing pump motor speed (and power) as hot water valves close. The magnitude of energy savings is based on the estimated amount of time that the system will operate at reduced load.

ECM 11: Install VFDs on Cooling Tower Fans

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
126,228	0.0	0.0	\$17,186.33	\$25,416.15	\$5,400.00	\$20,016.15	1.2	127,110

Measure Description

We recommend installing variable frequency drives (VFD) to control the cooling tower fan motors. The VFD will allow the cooling tower fan to operate at the minimum speed necessary to maintain the temperature of the condenser water returning to the chiller. Energy savings results from reducing fan speed (and power) when there is a reduced load on the chiller and outside air wet bulb temperatures are depressed. The magnitude of energy savings is based on the estimated amount of time that the system will operate at reduced load.

4.1.5 Electric Unitary HVAC Measures

Our recommendations for unitary HVAC measures are summarized in Figure 34 below.

Figure 34 - Summary of Unitary HVAC ECMs

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Electric Unitary HVAC Measures	5,333	0.7	0.0	\$726.15	\$5,478.99	\$0.00	\$5,478.99	7.5	5,371
ECM 12 Install High Efficiency Electric AC	5,333	0.7	0.0	\$726.15	\$5,478.99	\$0.00	\$5,478.99	7.5	5,371

ECM 12: Install High Efficiency Air Conditioning Units

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
5,333	0.7	0.0	\$726.15	\$5,478.99	\$0.00	\$5,478.99	7.5	5,371

Measure Description

We recommend replacing the server room's standard efficiency ductless mini-split air conditioning unit with a high efficiency unit. There have been significant improvements in both compressor and fan motor efficiencies over the past several years. Therefore, electricity savings can be achieved by replacing older units with new high efficiency units. A higher EER or SEER rating indicates a more efficient cooling system. The magnitude of energy savings for this measure depends on the relative efficiency of the older unit versus the new high efficiency unit, the average cooling load, and the estimated annual operating hours.

4.1.6 HVAC System Upgrades

Our recommendation for HVAC system improvement are summarized in Figure 35 below.

Figure 35 - Summary of HVAC System Improvement ECMs

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
HVAC System Improvements	0	0.0	420.9	\$4,062.56	\$10,875.36	\$0.00	\$10,875.36	2.7	49,279
ECM 13 Implement Demand Control Ventilation	0	0.0	420.9	\$4,062.56	\$10,875.36	\$0.00	\$10,875.36	2.7	49,279

ECM 13: Implement Demand Control Ventilation (DCV)

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
0	0.0	420.9	\$4,062.56	\$10,875.36	\$0.00	\$10,875.36	2.7	49,279

Measure Description

Demand control ventilation (DCV) monitors indoor air CO₂ content to measure room occupancy. This data is used to regulate the amount of outdoor air provided to the space for ventilation. In order to ensure adequate air quality, standard ventilation systems often provide outside air based on a space's estimated maximum occupancy. However, during low occupancy periods, the space may be over ventilated. This wastes energy through additional cost to heat and cool the excessive air flow. DCV reduces unnecessary outdoor air intake by regulating ventilation based on actual occupancy levels, saving significant amounts of energy. DCV is most suited for facilities where occupancy levels vary significantly hour to hour and day to day. Recommended areas for DCV are the auditorium, cafeteria, locker rooms and gyms A, B, and D.

Energy savings associated with DCV are based on hours of operation, space occupancy, system air flow, outside air reduction, and other factors. Energy savings results from eliminating unnecessary space conditioning.

4.1.7 Domestic Hot Water Heating System Upgrades

Our recommendations for domestic water heating system improvements are summarized in Figure 36 below.

Figure 36 - Summary of Domestic Water Heating ECMs

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Domestic Water Heating Upgrade	0	0.0	17.6	\$169.91	\$1,875.30	\$0.00	\$1,875.30	11.0	2,061
ECM 14 Install Low-Flow Domestic Hot Water Devices	0	0.0	17.6	\$169.91	\$1,875.30	\$0.00	\$1,875.30	11.0	2,061

ECM 14: Install Low-Flow DHW Devices

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
0	0.0	17.6	\$169.91	\$1,875.30	\$0.00	\$1,875.30	11.0	2,061

Measure Description

We recommend installing low-flow domestic hot water devices to reduce overall hot water demand. Energy demand from domestic hot water heating systems can be reduced by reducing water usage in general. Low-flow showerheads can reduce hot water usage, relative to standard showerheads and which saves energy.

Low-flow devices reduce the overall water flow from the fixture, while still adequate pressure for washing. This reduces the amount of water used per day resulting in energy and water savings.

4.1.8 Plug Load Equipment Control - Vending Machines

Our recommendations for plug load equipment measures are summarized in Figure 37 below.

Figure 37 - Summary of Plug Load Equipment Control ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Plug Load Equipment Control - Vending Machine		7,475	0.0	0.0	\$1,017.73	\$1,610.00	\$0.00	\$1,610.00	1.6	7,527
ECM 15	Vending Machine Control	7,475	0.0	0.0	\$1,017.73	\$1,610.00	\$0.00	\$1,610.00	1.6	7,527

ECM 15: Vending Machine Control

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
7,475	0.0	0.0	\$1,017.73	\$1,610.00	\$0.00	\$1,610.00	1.6	7,527

Measure Description

Vending machines operate continuously, even during non-business hours. It is recommended to install occupancy sensor controls to reduce the energy use. These controls power down vending machines when the vending machine area has been vacant for some time, then power up at regular intervals, as needed, to turn machine lights on or keep the product cool. Energy savings are a dependent on vending machine and activity level in the area surrounding the machines.

5 ENERGY EFFICIENT PRACTICES

In addition to the quantifiable savings estimated in Section 4, a facility's energy performance can also be improved through application of many low cost or no-cost energy efficiency strategies. By employing certain behavioral and operational changes and performing routine maintenance on building systems, equipment lifetime can be extended; occupant comfort, health and safety can be improved; and energy and O&M costs can be reduced. The recommendations below are provided as a framework for developing a whole building maintenance plan that is customized to your facility. Consult with qualified equipment specialists for details on proper maintenance and system operation.

Perform Proper Lighting Maintenance

In order to sustain optimal lighting levels, lighting fixtures should undergo routine maintenance. Light levels decrease over time due to lamp aging, lamp and ballast failure, and buildup of dirt and dust on lamps, fixtures and reflective surfaces. Together, these factors can reduce total illumination by 20% - 60% or more, while operating fixtures continue drawing full power. To limit this reduction, lamps, reflectors and diffusers should be thoroughly cleaned of dirt, dust, oil, and smoke film buildup approximately every 6 – 12 months.

Develop a Lighting Maintenance Schedule

In addition to routine fixture cleaning, development of a maintenance schedule can both ensure maintenance is performed regularly and can reduce the overall cost of fixture re-lamping and re-ballasting. By re-lamping and re-ballasting fixtures in groups, lighting levels are better maintained and the number of site visits by a lighting technician or contractor can be minimized, decreasing the overall cost of maintenance.

Perform Proper Boiler Maintenance

Many boiler problems develop slowly over time, so regular inspection and maintenance is essential to retain proper functionality and efficiency of the heating system. Fuel burning equipment should undergo yearly tune-ups to ensure they are operating as safely and efficiently as possible from a combustion standpoint. A tune-up should include a combustion analysis to analyze the exhaust from the boilers and to ensure the boiler is operating safely. Buildup of dirt, dust, or deposits on the internal surfaces of a boiler can greatly affect its heat transfer efficiency. These deposits can accumulate on the water side or fire side of the boiler. Boilers should be cleaned regularly according to the manufacturer's instructions to remove this build up in order to sustain efficiency and equipment life.

Water Conservation

Installing low-flow faucets or faucet aerators, low-flow showerheads, and kitchen sink pre-rinse spray valves saves both energy and water. These devices save energy by reducing the overall amount of hot water used hence reducing the energy used to heat the water. The flow ratings for EPA WaterSense™ (<http://www3.epa.gov/watersense/products>) labeled devices are 1.5 gpm for bathroom faucets, 2.0 gpm for showerheads, and 1.28 gpm for pre-rinse spray valves.

Installing dual flush or low-flow toilets and low-flow or waterless urinals are additional ways to reduce the sites water use, however, these devices do not provide energy savings at the site level. Any reduction in water use does however ultimately reduce grid level electricity use since a significant amount of electricity is used to deliver water from reservoirs to end users. The EPA WaterSense™ ratings for urinals is 0.5 gallons per flush (gpf) and toilets that use as little as 1.28 gallons per flush (gpf) (this is lower than the current 1.6 gpf federal standard).

Refer to Section 4.1.7 for any low-flow ECM recommendations.

6 ON-SITE GENERATION MEASURES

On-site generation measure options include both renewable (e.g., solar, wind) and non-renewable (e.g., fuel cells) on-site technologies that generate power to meet all or a portion of the electric energy needs of a facility, often repurposing any waste heat where applicable. Also referred to as distributed generation, these systems contribute to Greenhouse Gas (GHG) emission reductions, demand reductions and reduced customer electricity purchases, resulting in the electric system reliability through improved transmission and distribution system utilization.

The State of New Jersey's Energy Master Plan (EMP) encourages new distributed generation of all forms and specifically focuses on expanding use of combined heat and power (CHP) by reducing financial, regulatory and technical barriers and identifying opportunities for new entries. The EMP also outlines a goal of 70% of the State's electrical needs to be met by renewable sources by 2050.

Preliminary screenings were performed to determine the potential that a generation project could provide a cost-effective solution for your facility. Before making a decision to implement, a feasibility study should be conducted that would take a detailed look at existing energy profiles, siting, interconnection, and the costs associated with the generation project including interconnection costs, departing load charges, and any additional special facilities charges.

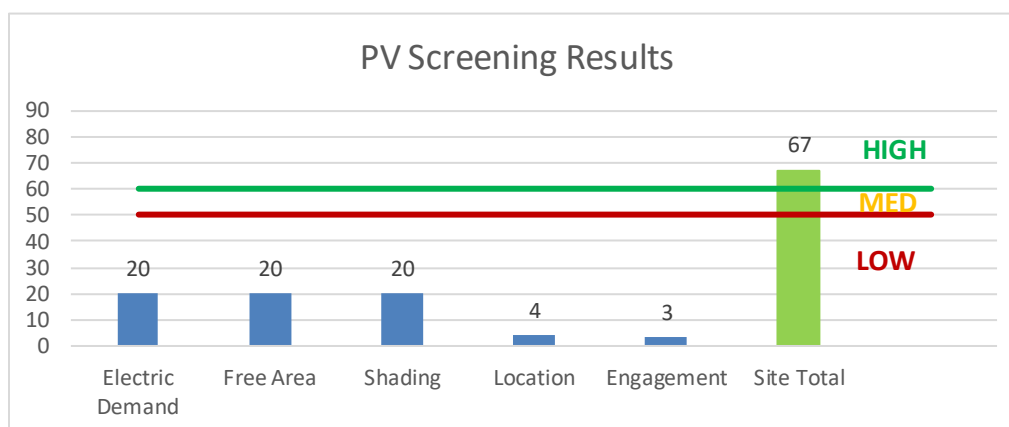
6.1 Photovoltaic

Sunlight can be converted into electricity using photovoltaics (PV) modules. Modules are racked together into an array that produces direct current (DC) electricity. The DC current is converted to alternating current (AC) through an inverter. The inverter is interconnected to the facility’s electrical distribution system. The amount of unobstructed area available determines how large of a solar array can be installed. The size of the array combined with the orientation, tilt, and shading elements determines the energy produced.

A preliminary screening based on the facility’s electric demand, size and location of free area, and shading elements shows that the facility has a **high** potential for installing a PV array.

The amount of free area, ease of installation (location), and the lack of shading elements contribute to the high potential for PV at the site. A PV array located on the over the main parking lot may be feasible. If Hammonton High School is interested in pursuing the installation of PV, we recommended a full feasibility study be conducted.

Figure 38 - Photovoltaic Screening



Solar projects must register their projects in the SREC (Solare Renewable Energy Certificate) Registration Program (SRP) prior to the start of construction in order to establish the project’s eligibility to earn SRECs. Registration of the intent to participate in New Jersey’s solar marketplace provides market participants with information about developed new solar projects and insight into future SREC pricing. Refer to Section 8.4 for additional information.

For more information on solar PV technology and commercial solar markets in New Jersey, or to find a qualified solar installer, who can provide a more detailed assessment of the specific costs and benefits of solar develop of the site, please visit the following links below:

- **Basic Info on Solar PV in NJ:** <http://www.njcleanenergy.com/whysolar>
- **NJ Solar Market FAQs:** <http://www.njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-transition/solar-market-fags>
- **Approved Solar Installers in the NJ Market:** http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/?id=60&start=1

6.2 Combined Heat and Power

Combined heat and power (CHP) is the on-site generation of electricity along with the recovery of heat energy, which is put to beneficial use. Common technologies for CHP include reciprocating engines, microturbines, fuel cells, backpressure steam turbines, and (at large facilities) gas turbines. Electric generation from a CHP system is typically interconnected to local power distribution systems. Heat is recovered from exhaust and ancillary cooling systems and interconnected to the existing hot water (or steam) distribution systems.

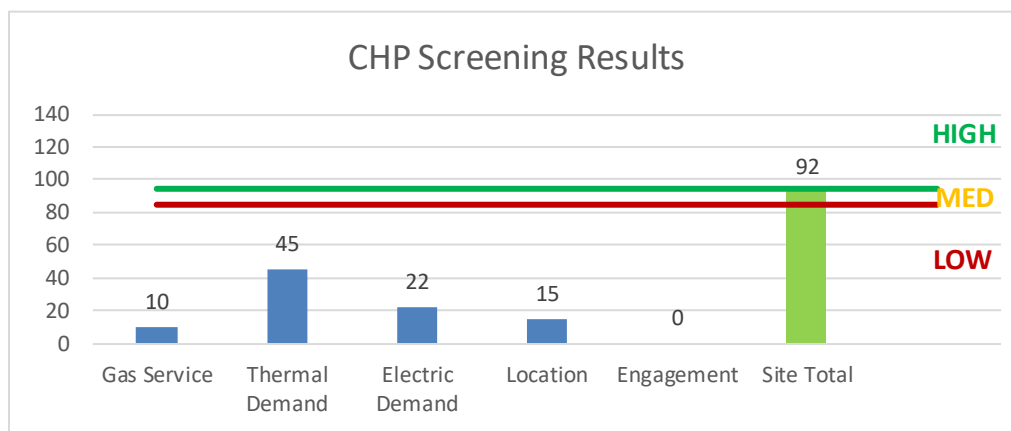
CHP systems are typically used to produce a portion of the electric power used onsite by a facility, with the balance of electric power needs supplied by grid purchases. The heat is used to supplement (or supplant) existing boilers for the purpose of space heating and/or domestic hot water heating. Waste heat can also be routed through absorption chillers for the purpose of space cooling. The key criteria used for screening, however, is the amount of time the system operates at full load and the facility's ability to use the recovered heat. Facilities with continuous use for large quantities of waste heat are the best candidates for CHP.

A preliminary screening based on heating and electrical demand, siting, and interconnection shows that the facility has a **medium** potential for installing a cost-effective CHP system.

The magnitude, type, and duration of the thermal demand, the coincident electric load, and the ease of interconnection contribute to the potential for CHP at the site. Based on the amount of hot water used throughout the year and the concurrent electric demand a fuel cell may be feasible. If Hammonton High School is interested in pursuing the installation of CHP, we recommended a more detailed feasibility study be conducted.

For a list of qualified firms in New Jersey specializing in commercial CHP cost assessment and installation, go to: http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/.

Figure 39 - Combined Heat and Power Screening



Please see Section 8.3 for additional information in the Combined Heat & Power Program.

7 DEMAND RESPONSE

Demand Response (DR) is a program designed to reduce the electric load of commercial facilities when electric wholesale prices are high or when the reliability of the electric grid is threatened due to peak demand. Demand Response service providers (a.k.a. Curtailment Service Providers) are registered with PJM, the independent system operator (ISO) for mid-Atlantic state region that is charged with maintaining electric grid reliability.

By enabling grid operators to call upon Curtailment Service Providers and commercial facilities to reduce electric usage during times of peak demand, the grid is made more reliable and overall transmission costs are reduced for all ratepayers. Curtailment Service Providers provide regular payments to medium and large consumers of electric power for their participation in DR programs. Program participation is voluntary and participants receive payments whether or not their facility is called upon to curtail their electric usage.

Typically an electric customer needs to be capable of reducing their electric demand, within minutes, by at least 100 kW or more in order to participate in a DR program. Customers with a greater capability to quickly curtail their demand during peak hours will receive higher payments. Customers with back-up generators onsite may also receive additional DR payments for their generating capacity if they agree to run the generators for grid support when called upon. Eligible customers who have chosen to participate in a DR programs often find it to be a valuable source of revenue for their facility because the payments can significantly offset annual electric costs.

Participating customers can often quickly reduce their peak load through simple measures, such as temporarily raising temperature set points on thermostats, so that air conditioning units run less frequently, or agreeing to dim or shut off less critical lighting. This usually requires some level of building automation and controls capability to ensure rapid load reduction during a DR curtailment event. DR program participants may need to install smart meters or may need to also sub-meter larger energy-using equipment, such as chillers, in order to demonstrate compliance with DR program requirements.

DR does not include the reduction of electricity consumption based on normal operating practice or behavior. For example, if a company's normal schedule is to close for a holiday, the reduction of electricity due to this closure or scaled-back operation is not considered a demand response activity in most situations.

The first step toward participation in a DR program is to contact a Curtailment Service Provider. A list of these providers is available on PJM's website and it includes contact information for each company, as well as the states where they have active business (www.pjm.com/markets-and-operations/demand-response/csps.aspx). PJM also posts training materials that are developed for program members interested in specific rules and requirements regarding DR activity (<http://www.pjm.com/training/training%20material.aspx>), along with a variety of other DR program information.

Curtailment Service Providers typically offer free assessments to determine a facility's eligibility to participate in a DR program. They will provide details regarding program rules and requirements for metering and controls, assess a facility's ability to temporarily reduce electric load, and provide details on payments to be expected for participation in the program. Providers usually offer multiple options for DR to larger facilities and may also install controls or remote monitoring equipment of their own to help ensure compliance with all terms and conditions of a DR contract.

In our opinion, DR is not a viable option for this facility.

8 PROJECT FUNDING / INCENTIVES

The NJCEP is able to provide the incentive programs described below, and other benefits to ratepayers, because of the Societal Benefits Charge (SBC) Fund. The SBC was created by the State of New Jersey’s Electricity Restructuring Law (1999), which requires all customers of investor-owned electric and gas utilities to pay a surcharge on their monthly energy bills. As a customer of a state-regulated electric or gas utility and therefore a contributor to the fund your organization is eligible to participate in the LGEA program and also eligible to receive incentive payment for qualifying energy efficiency measures. Also available through the NJBPU are some alternative financing programs described later in this section. Please refer to Figure 40 for a list of the eligible programs identified for each recommended ECM.

Figure 40 - ECM Incentive Program Eligibility

Energy Conservation Measure		SmartStart Prescriptive	SmartStart Custom	Direct Install	Pay For Performance Existing Buildings	Large Energy Users Program
ECM 1	Install LED Fixtures	X	X		X	
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	X	X		X	
ECM 3	Retrofit Fixtures with LED Lamps	X	X		X	
ECM 4	Install LED Exit Signs		X		X	
ECM 5	Install Occupancy Sensor Lighting Controls	X	X		X	
ECM 6	Install High/Low Lighting Controls		X		X	
ECM 7	Premium Efficiency Motors		X		X	
ECM 8	Install VFDs on Constant Volume (CV) HVAC	X	X		X	
ECM 9	Install VFDs on Chilled Water Pumps	X	X		X	
ECM 10	Install VFDs on Hot Water Pumps		X		X	
ECM 11	Install VFDs on Cooling Tower Fans	X	X		X	
ECM 12	Install High Efficiency Electric AC		X		X	
ECM 13	Implement Demand Control Ventilation		X		X	
ECM 14	Install Low-Flow Domestic Hot Water Devices		X		X	
ECM 15	Vending Machine Control		X		X	

SmartStart is generally well-suited for implementation of individual measures or small group of measures. It provides flexibility to install measures at your own pace using in-house staff or a preferred contractor. Direct Install caters to small to mid-size facilities that can bundle multiple ECMs together. This can greatly simplify participation and may lead to higher incentive amounts, but requires the use of pre-approved contractors. The Pay for Performance (P4P) program is a “whole-building” energy improvement program designed for larger facilities. It requires implementation of multiple measures meeting minimum savings thresholds, as well as use of pre-approved consultants. The Large Energy Users Program (LEUP) is available to New Jersey’s largest energy users giving them flexibility to install as little or as many measures, in a single facility or several facilities, with incentives capped based on the entity’s annual energy consumption. LEUP applicants can use in-house staff or a preferred contractor.

Generally, the incentive values provided throughout the report assume the SmartStart program is utilized because it provides a consistent basis for comparison of available incentives for various measures, though in many cases incentive amounts may be higher through participation in other programs.

Brief descriptions of all relevant financing and incentive programs are located in the sections below. Further information, including most current program availability, requirements, and incentive levels can be found at: www.njcleanenergy.com/ci.

8.1 SmartStart

Overview

The SmartStart program offers incentives for installing prescriptive and custom energy efficiency measures at your facility. Routinely the program adds, removes or modifies incentives from year to year for various energy efficiency equipment based on market trends and new technologies.

Equipment with Prescriptive Incentives Currently Available:

Electric Chillers

Electric Unitary HVAC

Gas Cooling

Gas Heating

Gas Water Heating

Ground Source Heat Pumps

Lighting

Lighting Controls

Refrigeration Doors

Refrigeration Controls

Refrigerator/Freezer Motors

Food Service Equipment

Variable Frequency Drives

Most equipment sizes and types are served by this program. This program provides an effective mechanism for securing incentives for energy efficiency measures installed individually or as part of a package of energy upgrades.

Incentives

The SmartStart prescriptive incentive program provides fixed incentives for specific energy efficiency measures, whereas the custom SmartStart program provides incentives for more unique or specialized technologies or systems that are not addressed through prescriptive incentive offerings for specific devices.

Since your facility is an existing building, only the retrofit incentives have been applied in this report. Custom measure incentives are calculated at \$0.16/kWh and \$1.60/therm based on estimated annual savings, capped at 50% of the total installed incremental project cost, or a project cost buy down to a one year payback (whichever is less). Program incentives are capped at \$500,000 per electric account and \$500,000 per natural gas account, per fiscal year.

How to Participate

To participate in the SmartStart program you will need to submit an application for the specific equipment to be installed. Many applications are designed as rebates, although others require application approval prior to installation. Applicants may work with a contractor of their choosing and can also utilize internal personnel, which provides added flexibility to the program. Using internal personnel also helps improve the economics of the ECM by reducing the labor cost that is included in the tables in this report.

Detailed program descriptions, instructions for applying and applications can be found at: www.njcleanenergy.com/SSB.

8.2 Pay for Performance - Existing Buildings

Overview

The Pay for Performance – Existing Buildings (P4P EB) program is designed for larger customers with a peak demand over 200 kW in any of the preceding 12 months. Under this program the minimum installed scope of work must include at least two unique measures resulting in at least 15% energy savings, where lighting cannot make up the majority of the savings. P4P is a generally a good option for medium to large sized facilities looking to implement as many measures as possible under a single project in order to achieve deep energy savings. This program has an added benefit of evaluating a broad spectrum of measures that may not otherwise qualify under other programs. Many facilities pursuing an Energy Savings Improvement Program (ESIP) loan also utilize the P4P program.

Incentives

Incentives are calculated based on estimated and achieved energy savings ranging from \$0.18-\$0.22/kWh and \$1.80-\$2.50/therm, capped at the lesser of 50% total project cost, or \$1 million per electric account and \$1 million per natural gas account, per fiscal year, not to exceed \$2 million per project. An incentive of \$0.15/square foot is also available to offset the cost of developing the Energy Reduction Plan (see below) contingent on the project moving forward with measure installation.

How to Participate

To participate in the P4B EB program you will need to contact one of the pre-approved consultants and contractors (“Partners”). Under direct contract to you, the Partner will help further evaluate the measures identified in this report through development of the Energy Reduction Plan (ERP), assist you in implementing selected measures, and verify actual savings one year after the installation. At each of these three milestones your Partner will also facilitate securing program incentives.

Approval of the final scope of work is required by the program prior to installation completion. Although installation can be accomplished by a contractor of your choice (some P4P Partners are also contractors) or by internal personnel, the Partner must remain involved to ensure compliance with the program guidelines and requirements.

Detailed program descriptions, instructions for applying, applications and list of Partners can be found at: www.njcleanenergy.com/P4P.

8.3 Combined Heat and Power and Fuel Cell

Overview

One of the goals of the State of New Jersey is to enhance energy efficiency through on-site power generation with recovery and productive use of waste heat, and to reduce existing and new demands to the electric power grid. The Combined Heat & Power (CHP) program provides incentives for eligible CHP or Waste Heat to Power (WHP) projects. Eligible CHP or Waste Heat to Power (WHP) projects must achieve an annual system efficiency of at least 65% (Lower Heating Value - LHV), based on total energy input and total utilized energy output. Mechanical energy may be included in the efficiency evaluation.

Incentives

Eligible Technologies	Size (Installed Rated Capacity)	Incentive (\$/kW)	% of Total Cost Cap per Project ³	\$ Cap per Project ³	
Powered by non-renewable or renewable fuel source ⁴	≤500 kW	\$2,000	30-40% ²	\$2 million	
	Gas Internal Combustion Engine	>500 kW - 1 MW			\$1,000
	Gas Combustion Turbine	> 1 MW - 3 MW	\$550	30%	\$3 million
	Microturbine	>3 MW	\$350		
	Fuel Cells with Heat Recovery				
Waste Heat to Power*	<1 MW	\$1,000	30%	\$2 million	
	> 1MW	\$500		\$3 million	

*Waste Heat to Power: Powered by non-renewable fuel source, heat recovery or other mechanical recovery from existing equipment utilizing new electric generation equipment (e.g. steam turbine).

Check the NJCEP website for details on program availability, incentive levels, and requirements.

How to Participate

You work with a qualified developer or consulting firm to complete the CHP Application. Once the application is approved the project can be installed. Information about the CHP program can be found at: www.njcleanenergy.com/CHP.

8.4 SREC Registration Program

The SREC (Solar Renewable Energy Certificate) Registration Program (SRP) is used to register the intent to install solar projects in New Jersey. Rebates are not available for solar projects, but owners of solar projects MUST register their projects in the SRP prior to the start of construction in order to establish the project's eligibility to earn SRECs. Registration of the intent to participate in New Jersey's solar marketplace provides market participants with information about the pipeline of anticipated new solar capacity and insight into future SREC pricing.

After the registration is accepted, construction is complete, and final paperwork has been submitted and is deemed complete, the project is issued a New Jersey certification number which enables it to generate New Jersey SRECs. SREC's are generated once the solar project has been authorized to be energized by the Electric Distribution Company (EDC).

Each time a solar installation generates 1,000 kilowatt-hours (kWh) of electricity, an SREC is earned. Solar project owners report the energy production to the SREC Tracking System. This reporting allows SREC's to be placed in the customer's electronic account. SRECs can then be sold on the SREC Tracking System, providing revenue for the first 15 years of the project's life.

Electricity suppliers, the primary purchasers of SRECs, are required to pay a Solar Alternative Compliance Payment (SACP) if they do not meet the requirements of New Jersey's Solar RPS. One way they can meet the RPS requirements is by purchasing SRECs. As SRECs are traded in a competitive market, the price may vary significantly. The actual price of an SREC during a trading period can and will fluctuate depending on supply and demand.

Information about the SRP can be found at: www.njcleanenergy.com/srec.

9 ENERGY PURCHASING AND PROCUREMENT STRATEGIES

9.1 Retail Electric Supply Options

In 1999, New Jersey State Legislature passed the Electric Discount & Energy Competition Act (EDECA) to restructure the electric power industry in New Jersey. This law deregulated the retail electric markets, allowing all consumers to shop for service from competitive electric suppliers. The intent was to create a more competitive market for electric power supply in New Jersey. As a result, utilities were allowed to charge Cost of Service and customers were given the ability to choose a third-party (i.e. non-utility) energy supplier.

Energy deregulation in New Jersey has increased energy buyers' options by separating the function of electricity distribution from that of electricity supply. So, though you may choose a different company from which to buy your electric power, responsibility for your facility's interconnection to the grid and repair to local power distribution will still reside with the traditional utility company serving your region.

If your facility is not purchasing electricity from a third-party supplier, consider shopping for a reduced rate from third-party electric suppliers. If your facility is purchasing electricity from a third-party supplier, review and compare prices at the end of the current contract or every couple years.

A list of third-party electric suppliers, who are licensed by the state to provide service in New Jersey, can be found online at: www.state.nj.us/bpu/commercial/shopping.html.

9.2 Retail Natural Gas Supply Options

The natural gas market in New Jersey has also been deregulated. Most customers that remain with the utility for natural gas service pay rates that are market-based and that fluctuate on a monthly basis. The utility provides basic gas supply service (BGSS) to customers who choose not to buy from a third-party supplier for natural gas commodity.

A customer's decision about whether to buy natural gas from a retail supplier is typically dependent upon whether a customer seeks budget certainty and/or longer-term rate stability. Customers can secure longer-term fixed prices by signing up for service through a third-party retail natural gas supplier. Many larger natural gas customers may seek the assistance of a professional consultant to assist in their procurement process.

If your facility is not purchasing natural gas from a third-party supplier, consider shopping for a reduced rate from third-party natural gas suppliers. If your facility is purchasing natural gas from a third-party supplier, review and compare prices at the end of the current contract or every couple years.

A list of third-party natural gas suppliers, who are licensed by the state to provide service in New Jersey, can be found online at: www.state.nj.us/bpu/commercial/shopping.html.

Appendix A: Equipment Inventory & Recommendations

Lighting Inventory & Recommendations

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.08	734	0.0	\$99.94	\$416.06	\$75.00	3.41
Boiler Room	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.22	1,898	0.0	\$258.35	\$365.15	\$100.00	1.03
Boiler Room	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Elec Panel Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.09	759	0.0	\$103.34	\$146.06	\$40.00	1.03
Elec Panel Room	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Kitchen Area	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.05	447	0.0	\$60.91	\$414.92	\$35.00	6.24
Kitchen Area	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.38	3,376	0.0	\$459.71	\$854.24	\$195.00	1.43
Kitchen Area	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Kitchen wash area	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.07	644	0.0	\$87.68	\$146.06	\$40.00	1.21
Kitchen Custodial Closet	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.02	167	0.0	\$22.70	\$72.46	\$0.00	3.19
Kitchen Storage Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.07	644	0.0	\$87.68	\$146.06	\$40.00	1.21
Kitchen Locker/Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Kitchen Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Food Service Area	14	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	14	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.67	5,909	0.0	\$804.49	\$1,562.42	\$350.00	1.51
Counter Service Area 1	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.05	447	0.0	\$60.91	\$414.92	\$35.00	6.24
Dishwash Area	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$292.12	\$115.00	0.77
Counter Service Area 2	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.05	447	0.0	\$60.91	\$144.92	\$35.00	1.80
Cafeteria	34	Metal Halide: (1) 100W Lamp	Wall Switch	128	5,000	Fixture Replacement	Yes	34	LED - Fixtures: Close to Ceiling Mount	Occupancy Sensor	38	3,500	2.25	19,769	0.0	\$2,691.61	\$11,180.70	\$480.00	3.98
Cafeteria	12	Metal Halide: (1) 100W Lamp	Wall Switch	128	5,000	Fixture Replacement	Yes	12	LED - Fixtures: Close to Ceiling Mount	Occupancy Sensor	38	3,500	0.80	6,977	0.0	\$949.98	\$4,104.95	\$190.00	4.12
Cafeteria	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Cafeteria	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Cafeteria School Store	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$292.12	\$115.00	0.77
Cafeteria Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Faculty Dining	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Yearbook Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Yearbook Office	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Electrical Room D	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.04	380	0.0	\$51.67	\$73.03	\$20.00	1.03
Storage Area	36	LED - Fixtures: Ambient 2x4 Fixture	Wall Switch	43	5,000	None	Yes	36	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	43	3,500	0.30	2,670	0.0	\$363.57	\$1,350.00	\$175.00	3.23
Woodshop 2	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.55	4,796	0.0	\$652.92	\$1,540.30	\$305.00	1.89
Woodshop 2	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Woodshop 2	10	Compact Fluorescent: Task lighting	Wall Switch	13	2,500	Relamp	No	10	LED Screw-In Lamps: Screw-in lamps for task lights	Wall Switch	9	2,500	0.03	115	0.0	\$15.66	\$172.25	\$0.00	11.00
Men's Dressing Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Men's Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Women's Dressing Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Women's Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Stage Area	3	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	302	0.0	\$41.15	\$217.25	\$0.00	5.28
Stage Area	4	LED - Fixtures: Wall-Wash Lights	Wall Switch	16	5,000	None	No	4	LED - Fixtures: Wall-Wash Lights	Wall Switch	16	5,000	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Woodshop 2 Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.05	422	0.0	\$57.46	\$73.03	\$55.00	0.31
Woodshop 2 Storage	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$35.00	1.23
Woodshop 2 Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Board Room 127	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$489.09	\$95.00	2.29
Board Room 127	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Board Room 127	10	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	Yes	10	LED - Fixtures: Close to Ceiling Mount	Occupancy Sensor	29	3,500	0.49	4,315	0.0	\$587.55	\$3,240.80	\$135.00	5.29
Room 127 Rehearsal	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.44	3,836	0.0	\$522.34	\$1,124.24	\$230.00	1.71
Room 127 Storage	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	5	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.24	2,110	0.0	\$287.32	\$635.15	\$135.00	1.74
Room 127 Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$489.09	\$95.00	2.29
Room 127 Costume Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Chorus Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.05	422	0.0	\$57.46	\$343.03	\$55.00	5.01
Chorus Room	18	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.47	4,109	0.0	\$559.45	\$927.27	\$215.00	1.27
Chorus Room	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Chorus Room Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Ticket Booth	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Auditorium	30	LED - Fixtures: Track or Mono-Point Directional Lighting Fixtures	Wall Switch	120	2,000	None	Yes	30	LED - Fixtures: Track or Mono-Point Directional Lighting Fixtures	Occupancy Sensor	120	1,400	0.71	2,484	0.0	\$338.20	\$810.00	\$105.00	2.08
Auditorium	24	Halogen Incandescent: Large Ellipsoidal Spotlights	Wall Switch	750	2,000	Relamp	No	24	LED Screw-In Lamps: Other	Wall Switch	113	2,000	10.03	35,190	0.0	\$4,791.23	\$725.04	\$120.00	0.13
Auditorium	6	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	6	LED Exit Signs: 2 W Lamp	None	6	8,760	0.04	604	0.0	\$82.30	\$434.49	\$0.00	5.28
Auditorium	2	Halogen Incandescent: Small Ellipsoidal lights	Wall Switch	375	2,000	Relamp	No	2	LED Screw-In Lamps: Other	Wall Switch	56	2,000	0.42	1,466	0.0	\$199.63	\$60.42	\$10.00	0.25
Resource Officer	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$489.09	\$95.00	2.29
Gym A	36	LED - Fixtures: High-Bay	Wall Switch	300	5,000	None	Yes	36	LED - Fixtures: High-Bay	Occupancy Sensor	300	3,500	2.12	18,630	0.0	\$2,536.54	\$1,080.00	\$140.00	0.37
Gym A	5	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	5	LED Exit Signs: 2 W Lamp	None	6	8,760	0.03	504	0.0	\$68.58	\$362.08	\$0.00	5.28
Women's Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Men's Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Gym A Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Gym A vestibule	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Men's Locker F	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Men's Locker F	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	10	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.48	4,221	0.0	\$574.63	\$1,000.30	\$235.00	1.33
Men's Locker F Showers	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.11	959	0.0	\$130.58	\$416.06	\$75.00	2.61
Men's Locker F	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.05	480	0.0	\$65.29	\$343.03	\$55.00	4.41
Men's Locker F Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Men's Locker F	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.05	447	0.0	\$60.91	\$144.92	\$35.00	1.80
Men's Locker F Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Couch's Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Men's Locker E	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$342.46	\$35.00	10.10
Men's Locker E	11	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	11	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.53	4,643	0.0	\$632.10	\$1,073.33	\$255.00	1.29
Locker E Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Locker E Office	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Men's Locker G	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$35.00	1.23
Men's Locker G	7	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	7	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.34	2,954	0.0	\$402.24	\$781.21	\$175.00	1.51
Locker G Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Coach's Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Men's Locker G	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Men's Locker G	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.05	480	0.0	\$65.29	\$343.03	\$55.00	4.41
Locker G Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.05	422	0.0	\$57.46	\$73.03	\$55.00	0.31
Locker G Showers	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.05	480	0.0	\$65.29	\$73.03	\$55.00	0.28
Electrical Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Women's Locker D	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$35.00	1.23
Women's Locker D	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.58	5,065	0.0	\$689.56	\$1,146.36	\$275.00	1.26
Women's Locker D	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Locker D Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Locker D Coach's Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Locker D Showers	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.14	1,199	0.0	\$163.23	\$452.58	\$85.00	2.25
Women's Locker C	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.29	2,532	0.0	\$344.78	\$708.18	\$155.00	1.60
Women's Locker C	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.05	447	0.0	\$60.91	\$144.92	\$35.00	1.80
Women's Locker C	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Women's Locker B	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.38	3,376	0.0	\$459.71	\$854.24	\$195.00	1.43
Women's Locker B	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Women's Locker B	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$35.00	1.23
Locker B separate room	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Locker B Coach's Restroom	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.02	167	0.0	\$22.70	\$72.46	\$0.00	3.19
Women's Locker A	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$35.00	1.23
Women's Locker A	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Locker A Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Women's Locker A	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.38	3,376	0.0	\$459.71	\$854.24	\$195.00	1.43
Locker A Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$146.06	\$75.00	0.62
Main Gym Entry	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.04	334	0.0	\$45.41	\$144.92	\$0.00	3.19
Gym B	4	LED - Fixtures: High-Bay	Occupancy Sensor	300	5,000	None	No	4	LED - Fixtures: High-Bay	Occupancy Sensor	300	5,000	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Gym B	4	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	4	LED Exit Signs: 2 W Lamp	None	6	8,760	0.03	403	0.0	\$54.86	\$289.66	\$0.00	5.28
Gym B Storage Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Gym B Storage Room	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Gym C	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Gym C	8	Metal Halide: (1) 150W Lamp	Wall Switch	190	5,000	Fixture Replacement	Yes	8	LED - Fixtures: Close to Ceiling Mount	Occupancy Sensor	57	3,500	0.79	6,905	0.0	\$940.08	\$4,136.64	\$360.00	4.02
Gym C Storage Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.04	380	0.0	\$51.67	\$73.03	\$20.00	1.03
Gym B Entry Vestibule	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.02	167	0.0	\$22.70	\$72.46	\$0.00	3.19
Athletic Director's Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Athletic Director's Office	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$35.00	1.23
Athletic Director's Restroom	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.02	167	0.0	\$22.70	\$72.46	\$0.00	3.19
Athletic Director's Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$146.06	\$75.00	0.62
Gym D	18	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.47	4,109	0.0	\$559.45	\$1,197.27	\$250.00	1.69
Gym D	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Custodial Closet	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.02	167	0.0	\$22.70	\$72.46	\$0.00	3.19
Trainer's Room	6	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.16	1,370	0.0	\$186.48	\$489.09	\$95.00	2.11
Trainer's Room	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Trainer's Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Health Room 122	12	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.31	2,739	0.0	\$372.96	\$978.18	\$190.00	2.11
Classroom 123 Art	16	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.42	3,652	0.0	\$497.29	\$1,124.24	\$230.00	1.80
Art Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Art Kilm Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Art Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$489.09	\$95.00	2.29
Health Room 121	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.33	2,877	0.0	\$391.75	\$978.18	\$190.00	2.01
Classroom 120 Graphic Arts	10	Metal Halide: (1) 175W Lamp	Wall Switch	215	5,000	Fixture Replacement	Yes	10	LED - Fixtures: Close to Ceiling Mount	Occupancy Sensor	65	3,500	1.11	9,766	0.0	\$1,329.72	\$3,240.80	\$135.00	2.34
Classroom 120 Graphic Arts	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Graphic Arts Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Graphic Arts computer Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Classroom 124: Computer lab	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.58	5,065	0.0	\$689.56	\$1,416.36	\$310.00	1.60
Classroom 124: Computer lab	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Computer Lab Green Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Computer Lab Control Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Computer Lab Studio	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$489.09	\$95.00	2.29
Computer Lab Studio	8	Halogen Incandescent: PAR 38 lights	Wall Switch	150	4,393	Relamp	No	8	LED Screw-In Lamps: Track or Mono-Point Directional Lighting Fixtures	Wall Switch	23	4,393	0.67	5,153	0.0	\$701.60	\$241.68	\$40.00	0.29
Room 124/125 Foyer	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Room 124/125 Foyer	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Classroom 125: Computer Lab	16	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.42	3,652	0.0	\$497.29	\$1,124.24	\$230.00	1.80
Classroom 125: Computer Lab	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Archive Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Copy Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Women's Restroom South	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$35.00	1.23
Women's Restroom South	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Women's Restroom Custodial Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.02	190	0.0	\$25.84	\$36.52	\$10.00	1.03
Men's Restroom South	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Men's Restroom South	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$35.00	1.23
Men's Restroom Custodial Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.02	190	0.0	\$25.84	\$36.52	\$10.00	1.03

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical Room B	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Assistant Superintendent's Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
District Office	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.10	895	0.0	\$121.82	\$289.84	\$35.00	2.09
District Office	15	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	15	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.72	6,331	0.0	\$861.95	\$1,635.45	\$370.00	1.47
District Office	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	5	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.24	2,110	0.0	\$287.32	\$635.15	\$135.00	1.74
District Office	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
District Office Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
District Office Kitchen	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
District Office Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Safe	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.02	190	0.0	\$25.84	\$36.52	\$10.00	1.03
District Office 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
BA Pettyman's Office	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	5	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.24	2,110	0.0	\$287.32	\$635.15	\$135.00	1.74
BA Pettyman's Office	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
BA Pettyman's Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Jones Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
District Office 3	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
District Office 3	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$35.00	1.23
Media Center	8	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	Yes	8	LED - Fixtures: Close to Ceiling Mount	Occupancy Sensor	29	3,500	0.39	3,452	0.0	\$470.04	\$2,646.64	\$115.00	5.39
Media Center	10	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	Yes	10	LED - Fixtures: Close to Ceiling Mount	Occupancy Sensor	29	3,500	0.49	4,315	0.0	\$587.55	\$3,240.80	\$135.00	5.29
Media Center	11	Metal Halide: (2) 70W Lamp	Wall Switch	189	5,000	Fixture Replacement	Yes	11	LED - Fixtures: Close to Ceiling Mount	Occupancy Sensor	57	3,500	1.08	9,444	0.0	\$1,285.81	\$3,537.87	\$145.00	2.64
Media Center	3	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	302	0.0	\$41.15	\$217.25	\$0.00	5.28
Media Center	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.29	2,532	0.0	\$344.78	\$708.18	\$155.00	1.60
Medica Center Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Server Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$489.09	\$95.00	2.29
Medica Center attendant's office	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$489.09	\$95.00	2.29

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Periodical Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$489.09	\$95.00	2.29
Guidance Suite	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Guidance Suite	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Guidance Suite Office 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.05	480	0.0	\$65.29	\$343.03	\$20.00	4.95
Guidance Suite Office 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.05	480	0.0	\$65.29	\$343.03	\$20.00	4.95
Guidance Suite Office 3	3	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.08	685	0.0	\$93.24	\$379.55	\$65.00	3.37
Guidance Suite Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Guidance Suite Office 4	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.05	480	0.0	\$65.29	\$343.03	\$20.00	4.95
Guidance Suite Office 5	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.05	480	0.0	\$65.29	\$343.03	\$20.00	4.95
Guidance Suite Office 6	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.05	480	0.0	\$65.29	\$343.03	\$20.00	4.95
Guidance Suite Office 7	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Guidance Suite Kitchen	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Guidance Suite	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$219.09	\$95.00	0.72
Guidance Suite	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Guidance Suite Office 8	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.05	480	0.0	\$65.29	\$343.03	\$20.00	4.95
Guidance Suite Office 9	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Guidance Suite Office 10	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.05	480	0.0	\$65.29	\$343.03	\$20.00	4.95
Career Center	8	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.21	1,826	0.0	\$248.64	\$562.12	\$115.00	1.80
Career Center	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Career Center Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Main Office	3	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	3	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.08	671	0.0	\$91.36	\$217.38	\$35.00	2.00
Main Office	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Main Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Main Office Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Assistant Principal Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Attendance Officer Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Conference Room	5	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.13	1,141	0.0	\$155.40	\$452.58	\$85.00	2.37
Mail Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Small Conference Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	5,000	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	5,000	0.07	644	0.0	\$87.68	\$146.06	\$40.00	1.21
Nurse's Suite	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Exam Room C	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
File Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Haine's Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Exam Room A	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Exam Room B	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Cof Room A	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Cof Room B	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Women's Restroom North	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Men's Restroom North	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Custodial Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.02	190	0.0	\$25.84	\$36.52	\$10.00	1.03
Classroom 101	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 102	12	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.31	2,739	0.0	\$372.96	\$978.18	\$190.00	2.11
Classroom 103	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 104	15	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.39	3,424	0.0	\$466.21	\$1,087.73	\$220.00	1.86
Classroom 105	6	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.16	1,370	0.0	\$186.48	\$489.09	\$95.00	2.11
Classroom 106	8	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.21	1,826	0.0	\$248.64	\$562.12	\$115.00	1.80
Classroom 107	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 108	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 109	8	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.21	1,826	0.0	\$248.64	\$562.12	\$115.00	1.80
Classroom 110	6	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.16	1,370	0.0	\$186.48	\$489.09	\$95.00	2.11

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Classroom 111	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Elevator Room A	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.02	167	0.0	\$22.70	\$72.46	\$0.00	3.19
Electrical Room A	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Unisex Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Classroom 112	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 113	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 114	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 115	8	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.21	1,826	0.0	\$248.64	\$562.12	\$115.00	1.80
Classroom 115	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Classroom 116	11	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	11	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.29	2,511	0.0	\$341.88	\$671.67	\$145.00	1.54
Classroom 116	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Classroom 116 Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.02	190	0.0	\$25.84	\$36.52	\$10.00	1.03
Unisex Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.02	190	0.0	\$25.84	\$36.52	\$10.00	1.03
Faculty Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.19	1,688	0.0	\$229.85	\$562.12	\$115.00	1.95
Technology Coordinator Office	6	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.16	1,370	0.0	\$186.48	\$489.09	\$95.00	2.11
Classroom 117	19	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	19	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.49	4,337	0.0	\$590.53	\$1,233.79	\$260.00	1.65
Classroom 117	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Classroom 117 Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Classroom 117 Storage	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.02	167	0.0	\$22.70	\$72.46	\$0.00	3.19
Classroom 118	18	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.47	4,109	0.0	\$559.45	\$1,197.27	\$250.00	1.69
Classroom 118 Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Classroom 118 Storage	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Connected Office	3	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.08	685	0.0	\$93.24	\$379.55	\$65.00	3.37
Classroom 119	23	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	23	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.60	5,250	0.0	\$714.85	\$1,649.85	\$335.00	1.84
Classroom 119	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
2nd Flr Men's Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
2nd Flr Storage Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Classroom 226	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 227	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 228	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 229	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 230	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 231	12	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.31	2,739	0.0	\$372.96	\$978.18	\$190.00	2.11
Admin Office	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	5	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.24	2,110	0.0	\$287.32	\$635.15	\$135.00	1.74
2nd Flr Assitant Principal Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$489.09	\$95.00	2.29
Principal's Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.14	1,266	0.0	\$172.39	\$489.09	\$95.00	2.29
Marina's Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
2nd Flr Office Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Admin Office Kitchen	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Admin Kitchen Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Admin Kitchen Restroom	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Admin Faculty Room	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 232	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 233	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Admin Women's Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
2nd Flr Custodial Closet	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.02	167	0.0	\$22.70	\$72.46	\$0.00	3.19
Calsroom 201	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Calsroom 202	12	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.31	2,739	0.0	\$372.96	\$978.18	\$190.00	2.11
Calsroom 203	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Calsroom 204	15	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.39	3,424	0.0	\$466.21	\$1,087.73	\$220.00	1.86

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Classroom 205	6	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.16	1,370	0.0	\$186.48	\$489.09	\$95.00	2.11
Classroom 206	8	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.21	1,826	0.0	\$248.64	\$562.12	\$115.00	1.80
2nd Flr Men's Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Classroom 207	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 208	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 209	8	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.21	1,826	0.0	\$248.64	\$562.12	\$115.00	1.80
Classroom 210	6	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.16	1,370	0.0	\$186.48	\$489.09	\$95.00	2.11
Classroom 211	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Electrical Room B	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.02	167	0.0	\$22.70	\$72.46	\$0.00	3.19
Faculty Women's Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Faculty Men's Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	5,000	0.04	322	0.0	\$43.84	\$73.03	\$20.00	1.21
Classroom 212	8	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.21	1,826	0.0	\$248.64	\$562.12	\$115.00	1.80
Classroom 213	15	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.39	3,424	0.0	\$466.21	\$1,087.73	\$220.00	1.86
Classroom 214	15	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.39	3,424	0.0	\$466.21	\$1,087.73	\$220.00	1.86
Classroom 215	15	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.39	3,424	0.0	\$466.21	\$1,087.73	\$220.00	1.86
Cooperative Education	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Office/Server/Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Office/Server/Storage	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$35.00	1.23
Classroom 216	12	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.31	2,739	0.0	\$372.96	\$978.18	\$190.00	2.11
Classroom 217	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 218	10	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.26	2,283	0.0	\$310.80	\$635.15	\$135.00	1.61
Classroom 219	15	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.39	3,424	0.0	\$466.21	\$1,087.73	\$220.00	1.86
Prep room A	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Room 219 Greenhouse	2	U-Bend Fluorescent - RW8T8: U RW8T8 (28W) - 2L	Wall Switch	49	5,000	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	5,000	0.02	184	0.0	\$25.05	\$144.92	\$0.00	5.78
Room 219 Greenhouse	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	88	5,000	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.04	339	0.0	\$46.19	\$68.77	\$10.00	1.27

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Classroom 220	16	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.42	3,652	0.0	\$497.29	\$1,124.24	\$230.00	1.80
Classroom 221	17	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	17	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.44	3,881	0.0	\$528.37	\$1,160.76	\$240.00	1.74
Prep Room B	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Classroom 222	17	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	17	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.44	3,881	0.0	\$528.37	\$1,160.76	\$240.00	1.74
Classroom 223	17	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	17	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.44	3,881	0.0	\$528.37	\$1,160.76	\$240.00	1.74
Prep Room C	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Classroom 224	17	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	17	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.44	3,881	0.0	\$528.37	\$1,160.76	\$240.00	1.74
Classroom 225	16	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	5,000	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.42	3,652	0.0	\$497.29	\$1,124.24	\$230.00	1.80
Prep Room D	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Women's Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,500	0.10	844	0.0	\$114.93	\$416.06	\$75.00	2.97
Custodial Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.02	190	0.0	\$25.84	\$36.52	\$10.00	1.03
Projection Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,500	0.11	959	0.0	\$130.58	\$416.06	\$75.00	2.61
Projection Room	2	Halogen Incandescent: Spotlights	Wall Switch	375	4,393	Relamp	No	2	LED Screw-In Lamps: Track or Mono-Point Directional Lighting Fixtures	Wall Switch	56	4,393	0.42	3,221	0.0	\$438.50	\$60.42	\$10.00	0.11
North Hall	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.19	1,688	0.0	\$229.85	\$492.12	\$80.00	1.79
North Hall	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
North Hall Intersection	8	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	8	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	3,500	0.20	1,789	0.0	\$243.63	\$779.68	\$0.00	3.20
East Hall	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.29	2,532	0.0	\$344.78	\$638.18	\$120.00	1.50
East Hall	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
East Stairwell	2	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	No	2	LED - Fixtures: Close to Ceiling Mount	Wall Switch	29	5,000	0.09	765	0.0	\$104.12	\$594.16	\$20.00	5.51
East Stairwell	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
East Stairwell	1	Compact Fluorescent PL type 2 Lamp fixtures	Wall Switch	84	5,000	Relamp	No	1	LED Screw-In Lamps: PL type 2 lamp	Wall Switch	58	5,000	0.02	150	0.0	\$20.35	\$22.00	\$0.00	1.08
West Stairwell	2	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	No	2	LED - Fixtures: Close to Ceiling Mount	Wall Switch	29	5,000	0.09	765	0.0	\$104.12	\$594.16	\$20.00	5.51
West Stairwell	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
West Stairwell	1	Compact Fluorescent PL type 2 Lamp fixtures	Wall Switch	84	5,000	Relamp	No	1	LED Screw-In Lamps: PL type 2 lamp	Wall Switch	58	5,000	0.02	150	0.0	\$20.35	\$22.00	\$0.00	1.08
West Hall	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	5	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.24	2,110	0.0	\$287.32	\$565.15	\$100.00	1.62

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
West Hall	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Main Hallway	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.43	3,798	0.0	\$517.17	\$857.27	\$180.00	1.31
Entry Lobby	9	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	9	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	3,500	0.23	2,013	0.0	\$274.09	\$852.14	\$0.00	3.11
Entry Lobby	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Emergency Stairwell	1	LED - Fixtures: Wall-Wash Lights	None	16	8,760	None	No	1	LED - Fixtures: Wall-Wash Lights	None	16	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Main Entrance	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	3,500	0.05	447	0.0	\$60.91	\$344.92	\$0.00	5.66
Main Entrance	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	3,500	0.05	447	0.0	\$60.91	\$344.92	\$0.00	5.66
Main Entrance	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Center Stairs	2	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	No	2	LED - Fixtures: Close to Ceiling Mount	Wall Switch	29	5,000	0.09	765	0.0	\$104.12	\$594.16	\$20.00	5.51
Center Stairs	1	Compact Fluorescent PL type 2 Lamp fixtures	Wall Switch	84	5,000	Relamp	No	1	LED Screw-In Lamps: PL type 2 lamp	Wall Switch	58	5,000	0.02	150	0.0	\$20.35	\$22.00	\$0.00	1.08
Center Stairs	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Gym Intersection	8	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	8	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	3,500	0.20	1,789	0.0	\$243.63	\$779.68	\$0.00	3.20
Media Center Hall	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Media Center Hall	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.14	1,266	0.0	\$172.39	\$419.09	\$60.00	2.08
1st Flr South Hall	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.19	1,688	0.0	\$229.85	\$492.12	\$80.00	1.79
1st Flr South Hall	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Gym Hall	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.43	3,798	0.0	\$517.17	\$857.27	\$180.00	1.31
Gym Hall	11	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	11	LED Exit Signs: 2 W Lamp	None	6	8,760	0.07	1,108	0.0	\$150.88	\$796.57	\$0.00	5.28
Gym Intersection	9	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	9	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	3,500	0.23	2,013	0.0	\$274.09	\$852.14	\$0.00	3.11
Gym Intersection	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.10	844	0.0	\$114.93	\$346.06	\$40.00	2.66
Gym Intersection	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Gym A+B Hall	7	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	7	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.34	2,954	0.0	\$402.24	\$711.21	\$140.00	1.42
Gym A+B Hall	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Locker Room Hall	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.14	1,266	0.0	\$172.39	\$419.09	\$60.00	2.08
Gym Lobby	16	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	16	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	3,500	0.41	3,579	0.0	\$487.27	\$1,559.36	\$0.00	3.20

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Gym Lobby	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Display Case 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	5,000	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	5,000	0.01	101	0.0	\$13.70	\$18.26	\$5.00	0.97
Display Case 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	5,000	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	5,000	0.01	101	0.0	\$13.70	\$18.26	\$5.00	0.97
Display Case 3	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	5,000	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	5,000	0.01	101	0.0	\$13.70	\$18.26	\$5.00	0.97
Display Case 4	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	5,000	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	5,000	0.01	101	0.0	\$13.70	\$18.26	\$5.00	0.97
Display Case 5	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	5,000	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	5,000	0.01	101	0.0	\$13.70	\$18.26	\$5.00	0.97
Cafeteria Hall	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Cafeteria Hall	13	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	13	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.63	5,487	0.0	\$747.03	\$1,349.39	\$260.00	1.46
Loading Dock Hall	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	10	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.48	4,221	0.0	\$574.63	\$930.30	\$200.00	1.27
Loading Dock Hall	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
PAC Lobby	2	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	Yes	2	LED - Fixtures: Close to Ceiling Mount	High/Low Control	29	3,500	0.10	863	0.0	\$117.51	\$794.16	\$20.00	6.59
PAC Lobby	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
PAC Lobby Display Cases	6	U-Bend Fluorescent - T8: U T8 (32W) - 1L	Wall Switch	39	5,000	Relamp	No	6	LED - Linear Tubes: (1) U-Lamp	Wall Switch	17	5,000	0.09	776	0.0	\$105.69	\$217.38	\$0.00	2.06
PAC Lobby	2	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	Yes	2	LED - Fixtures: Close to Ceiling Mount	High/Low Control	29	3,500	0.10	863	0.0	\$117.51	\$794.16	\$20.00	6.59
PAC Lobby	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.14	1,266	0.0	\$172.39	\$419.09	\$60.00	2.08
Musicroom Hall	2	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	201	0.0	\$27.43	\$144.83	\$0.00	5.28
Musicroom Hall	7	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	7	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.34	2,954	0.0	\$402.24	\$711.21	\$140.00	1.42
Musicroom Hall	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	3,500	0.03	224	0.0	\$30.45	\$72.46	\$0.00	2.38
Main Entrance Display Case	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	5,000	Relamp	No	3	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	5,000	0.03	302	0.0	\$41.10	\$54.77	\$15.00	0.97
PAC Entry	3	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	3	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	3,500	0.08	671	0.0	\$91.36	\$417.38	\$0.00	4.57
PAC Storage/Electrical	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	5,000	0.02	190	0.0	\$25.84	\$36.52	\$10.00	1.03
Center Main Stairwell	3	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	No	3	LED - Fixtures: Close to Ceiling Mount	Wall Switch	29	5,000	0.13	1,147	0.0	\$156.18	\$891.24	\$30.00	5.51
Center Main Stairwell	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Center Main Stairwell	2	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	No	2	LED - Fixtures: Close to Ceiling Mount	Wall Switch	29	5,000	0.09	765	0.0	\$104.12	\$594.16	\$20.00	5.51
2nd Fir Hall	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	5	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	0.24	2,110	0.0	\$287.32	\$565.15	\$100.00	1.62

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Stairwell End	3	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	302	0.0	\$41.15	\$217.25	\$0.00	5.28
Main Section Hall	30	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	5,000	Relamp	Yes	30	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,500	1.44	12,662	0.0	\$1,723.90	\$2,790.90	\$600.00	1.27
Main Section Hall	5	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	5	LED Exit Signs: 2 W Lamp	None	6	8,760	0.03	504	0.0	\$68.58	\$362.08	\$0.00	5.28
Main Section Intersection	8	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	5,000	Relamp	Yes	8	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	3,500	0.20	1,789	0.0	\$243.63	\$779.68	\$0.00	3.20
North Stairwell	2	Metal Halide: (1) 70W Lamp	Wall Switch	95	5,000	Fixture Replacement	No	2	LED - Fixtures: Close to Ceiling Mount	Wall Switch	29	5,000	0.09	765	0.0	\$104.12	\$594.16	\$20.00	5.51
North Stairwell	1	Compact Fluorescent: PL type 2 Lamp fixtures	Wall Switch	84	5,000	Relamp	No	1	LED Screw-In Lamps: PL type 2 lamp	Wall Switch	58	5,000	0.02	150	0.0	\$20.35	\$22.00	\$0.00	1.08
North Stairwell	1	Exit Signs: Fluorescent	None	16	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	101	0.0	\$13.72	\$72.42	\$0.00	5.28
Field Lights	44	High-Pressure Sodium: (1) 1000W Lamp	None	1,100	3,000	None	No	44	High-Pressure Sodium: (1) 1000W Lamp	None	1,100	3,000	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Main Entry	2	Compact Fluorescent: PL type 1 Lamp fixture	None	42	4,300	Relamp	No	2	LED Screw-In Lamps: PL type 1 lamp fixture	None	29	4,300	0.02	125	0.0	\$16.97	\$36.00	\$0.00	2.12
PAC Entrance	3	Compact Fluorescent: Ceiling Full Round	None	84	4,300	Relamp	No	3	LED Screw-In Lamps: Ceiling Full Round	None	59	4,300	0.05	374	0.0	\$50.90	\$66.00	\$0.00	1.30
Wall lights	77	Compact Fluorescent: Half Round Wall Packs	None	42	4,300	Relamp	No	77	LED Screw-In Lamps: Half Round Wall Packs	None	29	4,300	0.64	4,798	0.0	\$653.21	\$1,386.00	\$0.00	2.12
Gym Entrance	3	Compact Fluorescent: Ceiling Full Round	None	84	4,300	Relamp	No	3	LED Screw-In Lamps: Ceiling Full Round	None	59	4,300	0.05	374	0.0	\$50.90	\$66.00	\$0.00	1.30
Gym Side Entrance	3	Compact Fluorescent: Ceiling Full Round	None	84	4,300	Relamp	No	3	LED Screw-In Lamps: Ceiling Full Round	None	59	4,300	0.05	374	0.0	\$50.90	\$66.00	\$0.00	1.30

Motor Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions						Proposed Conditions				Energy Impact & Financial Analysis						
		Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Annual Operating Hours	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof	Entire Facility	20	Exhaust Fan	0.5	76.2%	No	2,745	No	76.2%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	Absorption Chiller Burner	1	Combustion Air Fan	14.0	91.0%	No	3,391	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium	1	Supply Fan	16.0	91.0%	No	3,391	Yes	93.0%	Yes	1	2.22	8,480	0.0	\$1,154.51	\$7,041.17	\$1,280.00	4.99
Roof	Auditorium	1	Return Fan	5.0	87.5%	No	2,745	Yes	89.5%	Yes	1	0.72	2,236	0.0	\$304.40	\$4,076.22	\$400.00	12.08
Boiler Room	Entire Facility	1	Condenser Water Pump	50.0	94.1%	No	4,067	No	94.1%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	Entire Facility	1	Chilled Water Pump	100.0	95.4%	No	5,329	Yes	95.4%	Yes	1	11.79	181,270	0.0	\$24,680.47	\$27,202.60	\$6,000.00	0.86
Boiler Room	Entire Facility	1	Heating Hot Water Pump	30.0	94.1%	No	4,067	Yes	94.1%	Yes	1	3.59	42,076	0.0	\$5,728.78	\$11,575.50	\$0.00	2.02
Boiler Room	Entire Facility (DHW)	2	Heating Hot Water Pump	0.8	81.8%	No	2,745	No	81.8%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Entire Facility	3	Cooling Tower Fan	30.0	92.4%	No	4,067	Yes	94.1%	Yes	3	0.66	129,832	0.0	\$17,676.98	\$34,726.50	\$5,400.00	1.66
Roof	Cafeteria, Gym D	3	Supply Fan	5.0	87.5%	No	2,745	Yes	89.5%	Yes	3	2.17	6,707	0.0	\$913.20	\$12,228.66	\$1,200.00	12.08
Roof	Cafeteria, Gym D	3	Return Fan	1.5	84.0%	No	2,745	Yes	86.5%	Yes	3	0.69	2,132	0.0	\$290.22	\$10,171.82	\$360.00	33.81
Roof	Gym A, Gym B, Locker Rooms	4	Supply Fan	15.0	91.0%	No	3,391	Yes	93.0%	Yes	4	8.33	31,798	0.0	\$4,329.43	\$28,164.68	\$4,800.00	5.40
Roof	Gym A	2	Return Fan	5.0	87.5%	No	2,745	Yes	89.5%	Yes	2	1.45	4,471	0.0	\$608.80	\$8,152.44	\$800.00	12.08
Roof	Gym B, Locker Rooms	2	Return Fan	3.0	86.5%	No	2,745	Yes	89.5%	Yes	2	0.90	2,792	0.0	\$380.20	\$7,768.02	\$480.00	19.17
Roof	Air Handler Freeze Pumps	8	Other	0.8	81.8%	No	2,000	No	81.8%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Elevator Room	Elevators	3	Other	20.0	72.0%	No	1,000	No	72.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Ceilings	Air Handlers	5	Supply Fan	2.0	84.0%	No	2,745	Yes	86.5%	Yes	5	1.53	4,737	0.0	\$644.94	\$16,305.12	\$800.00	24.04
Various	Unit Ventilators	70	Supply Fan	0.3	68.5%	No	2,745	No	68.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Ceilings	Air Handlers	5	Return Fan	1.0	82.5%	No	2,745	Yes	85.5%	Yes	5	0.79	2,449	0.0	\$333.51	\$15,050.64	\$400.00	43.93
Boiler Room	Entire Facility	1	Condenser Water Pump	50.0	94.1%	No	0	No	94.1%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

		Existing Conditions						Proposed Conditions				Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Annual Operating Hours	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	Entire Facility	1	Chilled Water Pump	100.0	95.4%	No	0	Yes	95.4%	Yes	1	0.00	0	0.0	\$0.00	\$27,202.60	\$6,000.00	0.00
Boiler Room	Entire Facility	1	Heating Hot Water Pump	30.0	94.1%	No	0	Yes	94.1%	Yes	1	0.00	0	0.0	\$0.00	\$11,575.50	\$0.00	0.00

Electric HVAC Inventory & Recommendations

		Existing Conditions				Proposed Conditions						Energy Impact & Financial Analysis								
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Cooling Mode Efficiency (SEER/EER)	Heating Mode Efficiency (COP)	Install Dual Enthalpy Economizer?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Server Room	Server Room	1	Ductless Mini-Split AC	2.00		Yes	1	Ductless Mini-Split AC	2.00		18.00		No	0.71	5,333	0.0	\$726.15	\$5,478.99	\$0.00	7.55

Electric Chiller Inventory & Recommendations

		Existing Conditions				Proposed Conditions						Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Chiller Quantity	System Type	Cooling Capacity per Unit (Tons)	Install High Efficiency Chillers?	Chiller Quantity	System Type	Constant/ Variable Speed	Cooling Capacity (Tons)	Full Load Efficiency (kW/Ton)	IPLV Efficiency (kW/Ton)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	Entire Facility	1	Absorption Chiller	650.00	No							0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Fuel Heating Inventory & Recommendations

		Existing Conditions				Proposed Conditions						Energy Impact & Financial Analysis					
Location	Area(s)/System(s) Served	System Quantity	System Type	Output Capacity per Unit (MBh)	Install High Efficiency System?	System Quantity	System Type	Output Capacity per Unit (MBh)	Heating Efficiency	Heating Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	Entire Facility	1	Hybrid System	8,500.00	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Demand Control Ventilation Recommendations

Location	Area(s)/System(s) Affected	Recommendation Inputs				Energy Impact & Financial Analysis						
		Number of Zones	Cooling Capacity of Controlled System (Tons)	Electric Heating Capacity of Controlled System (kBtu/hr)	Output Heating Capacity of Controlled System (MBh)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Cafeteria	Cafeteria AirHandlers	2	30.00		450.00	0.00	0	46.3	\$446.43	\$2,718.84	\$0.00	6.09
Gym A	Gym A Air Handlers	2	105.00		1,350.00	0.00	0	138.8	\$1,339.30	\$2,718.84	\$0.00	2.03
Gym B	Gym B Air Handler	1	50.00		675.00	0.00	0	69.4	\$669.65	\$1,359.42	\$0.00	2.03
Gym D	Gym D Air Handler	1	20.00		225.00	0.00	0	23.1	\$223.22	\$1,359.42	\$0.00	6.09
Auditorium	Auditorium Air Handler	1	55.00		720.00	0.00	0	74.0	\$714.30	\$1,359.42	\$0.00	1.90
Locker Rooms	Locker Room Air Handler	1	50.00		675.00	0.00	0	69.4	\$669.65	\$1,359.42	\$0.00	2.03

DHW Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions		Proposed Conditions						Energy Impact & Financial Analysis						
		System Quantity	System Type	Replace?	System Quantity	System Type	Fuel Type	System Efficiency	Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	DHW System	1	Indirect System	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Low-Flow Device Recommendations

Location	Recommendation Inputs				Energy Impact & Financial Analysis						
	Device Quantity	Device Type	Existing Flow Rate (gpm)	Proposed Flow Rate (gpm)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Locker Rooms	21	Showerhead	2.50	2.00	0.00	0	17.6	\$169.91	\$1,875.30	\$0.00	11.04

Walk-In Cooler/Freezer Inventory & Recommendations

Location	Existing Conditions		Proposed Conditions			Energy Impact & Financial Analysis						
	Cooler/Freezer Quantity	Case Type/Temperature	Install EC Evaporator Fan Motors?	Install Electric Defrost Control?	Install Evaporator Fan Control?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	1	Medium Temp Freezer (0F to 30F)	No	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	1	Cooler (35F to 55F)	No	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Commercial Refrigerator/Freezer Inventory & Recommendations

Location	Existing Conditions			Proposed Condi	Energy Impact & Financial Analysis						
	Quantity	Refrigerator/ Freezer Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	4	Stand-Up Refrigerator, Solid Door (31 - 50 cu. ft.)	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	2	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Commercial Ice Maker Inventory & Recommendations

Location	Existing Conditions			Proposed Condi	Energy Impact & Financial Analysis						
	Quantity	Ice Maker Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	1	Ice Making Head (≥450 lbs/day), Batch	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Trainers Room	1	Ice Making Head (≥450 lbs/day), Batch	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Cooking Equipment Inventory & Recommendations

Location	Existing Conditions			Proposed Conditions	Energy Impact & Financial Analysis						
	Quantity	Equipment Type	High Efficiency Equipment?	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	3	Electric Steamer	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	4	Electric Convection Oven (Full Size)	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	4	Electric Combination Oven/Steam Cooker (<15 Pans)	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	2	Electric Combination Oven/Steam Cooker (<15 Pans)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Dishwasher Inventory & Recommendations

Location	Existing Conditions					Proposed Conditions	Energy Impact & Financial Analysis						
	Quantity	Dishwasher Type	Water Heater Fuel Type	Booster Heater Fuel Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Payback w/ Incentives in Years
Kitchen	1	Single Tank Conveyor (High Temp)	Electric	Electric	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Plug Load Inventory

Existing Conditions				
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?
Multiple Locations	397	desktops	75.0	
Multiple Locations	66	desk printers	20.0	
Multiple Locations	37	projectors	200.0	
Multiple Locations	10	photo copiers	515.0	
Multiple Locations	74	LC TVs	120.0	
Multiple Locations	5	CRT TVs	120.0	
Multiple Locations	8	Refrigerators	600.0	
Multiple Locations	15	Mini-friges	28.0	
Multiple Locations	23	microwaves	1,000.0	
Multiple Locations	3	laptops	40.0	
Multiple Locations	6	shredders	360.0	
Classroom	1	smart board	200.0	
Classroom	1	scanner	360.0	
Multiple Locations	49	chromebook carts	40.0	
Office Area	1	small aquarium	3.0	
Office Area	1	laminator	360.0	
Cafeteria	4	registers	100.0	
Multiple Locations	9	wall occilating fans	100.0	
Multiple Locations	2	washer	900.0	
Multiple Locations	2	dryer	1,600.0	
Office Area	1	floor fan	100.0	
Gym Area	1	treadmill	600.0	
Multiple Locations	2	kiln	11,520.0	
Kitchen	3	Coffee Makers	400.0	
Kitchen	1	Toaster	850.0	
Classroom	5	Electric range	3,000.0	
Classroom	2	Induction Range	2,000.0	
Woodshop	4	Bandsaw	1,000.0	
Woodshop	2	Table Saw	1,800.0	
Woodshop	2	Drill Press	1,400.0	
Woodshop	5	Sander	1,200.0	

Vending Machine Inventory & Recommendations

Location	Existing Conditions		Proposed Conditions	Energy Impact & Financial Analysis						
	Quantity	Vending Machine Type	Install Controls?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Cafeteria	2	Refrigerated	Yes	0.00	3,224	0.0	\$438.91	\$460.00	\$0.00	1.05
Faculty Dining	2	Non-Refrigerated	Yes	0.00	685	0.0	\$93.27	\$460.00	\$0.00	4.93
Faculty Dining	1	Refrigerated	Yes	0.00	1,612	0.0	\$219.46	\$230.00	\$0.00	1.05
Faculty Room	1	Refrigerated	Yes	0.00	1,612	0.0	\$219.46	\$230.00	\$0.00	1.05
Faculty Room	1	Non-Refrigerated	Yes	0.00	343	0.0	\$46.63	\$230.00	\$0.00	4.93

Appendix B: ENERGY STAR® Statement of Energy Performance

ENERGY STAR® Statement of Energy Performance

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4

ENERGY STAR®
Score¹

Hammonton High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 190,641
Built: 2002

For Year Ending: July 31, 2017
Date Generated: September 11, 2018

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 Hammonton High School 566 Old Forks Road Hammonton, New Jersey 08037	Property Owner Hammonton Board of Education 566 Old Forks Road Hammonton, NJ 08037 (609) 567-7053	Primary Contact Barbara Prettyman 566 Old Forks Road Hammonton, NJ 08037 (609) 567-7053 bprettyman@hammontonps.org
Property ID: 6398317		

Energy Consumption and Energy Use Intensity (EUI)			
Site EUI	Annual Energy by Fuel	National Median Comparison	
144.8 kBtu/ft²	Natural Gas (kBtu) 18,407,728 (87%) Electric - Grid (kBtu) 9,196,846 (33%)	National Median Site EUI (kBtu/ft²)	76.7
Source EUI		National Median Source EUI (kBtu/ft²)	125.3
236.5 kBtu/ft²		% Diff from National Median Source EUI	89%
		Annual Emissions	
		Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,910

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)