Local Government Energy Audit:
Energy Audit Report

Pequannock Township High School

85 Sunset Rd.

Pompton Plains, NJ 07444

Pequannock Township BOE

October 31, 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 building's energy using equipment and systems. Approximate saving are included in this report to help make decisions about reducing energy use at the building. 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 building 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 building should review available program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

Table of Contents

Table of Figures

1 EXECUTIVE SUMMARY

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

The goal of an LGEA report is to provide you with information on how your building 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 public schools in controlling energy costs and protecting our environment by offering a wide range of energy management options and advice.

1.1 Building Summary

Pequannock Township High School is a 130,547 square-foot building comprised of various space types including classrooms, offices, an auditorium, two gymnasiums, a weight room, media center, kitchen, cafeteria, as well as mechanical and storage spaces. Behind the building, there are three baseball fields, four tennis courts, and two football fields that double as soccer fields.

Lighting at Pequannock Township High School consists of aging and inefficient fluorescent and incandescent lighting. The small gymnasium and exterior light fixtures contains metal halide lamps. Heating is supplied mostly by condensing hot water boilers with hot water distribution piping. Cooling is supplied by a mixture of window air conditioners and packaged rooftop units. Domestic hot water is produced by a separate hot water boiler located in the boiler room. A thorough description of the building and our observations are in Section 2.

1.2 Your Cost Reduction Opportunities

Energy Conservation Measures

TRC recommends nine out of ten evaluated measures which together represent an opportunity for Pequannock Township High School to reduce annual energy costs by $41,907 and annual greenhouse gas emissions by 327,662 lbs. CO_2e. We estimate that if all measures were implemented as recommended, the project would pay for itself in 4.6 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 Pequannock Township High School's annual energy use by 9%.

Figure 1 – Previous 12 Month Utility Costs

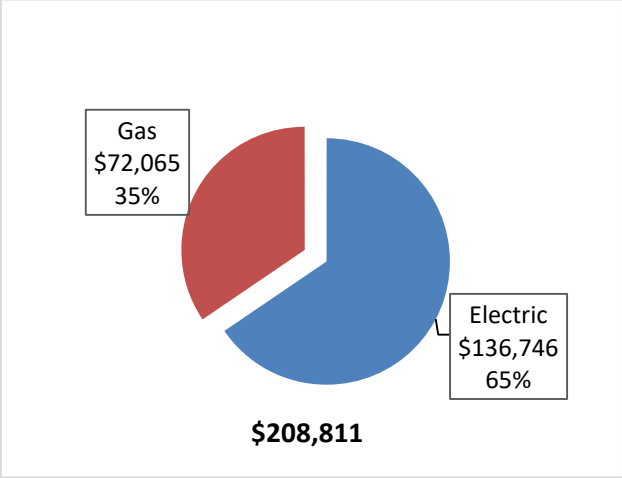
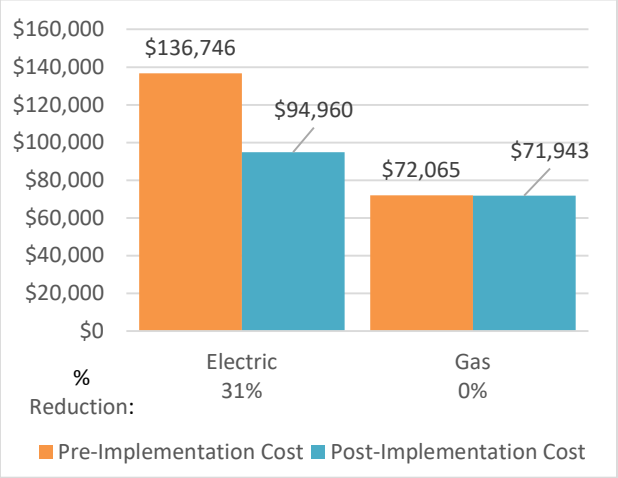


Figure 2 – Potential Post-Implementation Costs



A detailed description of Pequannock Township 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_2e Emissions Reduction (lbs)
Lighting Upgrades			231,754	42.3	0.0	$29,912.25	$149,651.12	$20,705.00	$128,946.12	4.3	233,375
ECM 1	Install LED Fixtures	Yes	46,345	8.3	0.0	$5,981.73	$55,074.19	$5,500.00	$49,574.19	8.3	46,669
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	1,864	0.3	0.0	$240.59	$819.00	$70.00	$749.00	3.1	1,877
ECM 3	Retrofit Fixtures with LED Lamps	Yes	183,545	33.6	0.0	$23,689.93	$93,757.94	$15,135.00	$78,622.94	3.3	184,828
Lighting Control Measures			55,221	9.9	0.0	$7,127.30	$43,228.00	$3,955.00	$39,273.00	5.5	55,607
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	49,055	8.8	0.0	$6,331.45	$39,628.00	$3,955.00	$35,673.00	5.6	49,398
ECM 5	Install High/Low Lighitng Controls	Yes	6,166	1.1	0.0	$795.85	$3,600.00	$0.00	$3,600.00	4.5	6,209
Motor Upgrades			1,986	0.5	0.0	$256.36	$5,991.82	$0.00	$5,991.82	23.4	2,000
	Premium Efficiency Motors	No	1,986	0.5	0.0	$256.36	$5,991.82	$0.00	$5,991.82	23.4	2,000
Variable Frequency Drive (VFD) Measures			23,071	3.5	0.0	$2,977.79	$20,317.00	$800.00	$19,517.00	6.6	23,233
ECM 6	Install VFDs on Constant Volume (CV) HVAC	Yes	4,118	1.4	0.0	$531.56	$6,551.70	$800.00	$5,751.70	10.8	4,147
ECM 7	Install VFDs on Hot Water Pumps	Yes	18,953	2.2	0.0	$2,446.23	$13,765.30	$0.00	$13,765.30	5.6	19,085
Domestic Water Heating Upgrade			0	0.0	14.1	$121.46	$1,085.94	$0.00	$1,085.94	8.9	1,651
ECM 8	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	14.1	$121.46	$1,085.94	$0.00	$1,085.94	8.9	1,651
Plug Load Equipment Control - Vending Machine			13,701	0.0	0.0	$1,768.32	$2,070.00	$0.00	$2,070.00	1.2	13,796
ECM 9	Vending Machine Control	Yes	13,701	0.0	0.0	$1,768.32	$2,070.00	$0.00	$2,070.00	1.2	13,796
TOTAL FOR RECOMMENDED MEASURES			323,747	55.7	14.1	$41,907.12	$216,352.06	$25,460.00	$190,892.06	4.6	327,662
TOTAL FOR ALL MEASURES			325,734	56.2	14.1	$42,163.48	$222,343.88	$25,460.00	$196,883.88	4.7	329,662

* - 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 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 that 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.

Domestic Hot Water upgrade measures 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 include 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 15 low cost (or no cost) energy efficient practices. A building'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 Pequannock Township High School include:

- Reduce Air Leakage
- Perform Proper Lighting Maintenance
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Perform Routine Motor Maintenance
- Use Fans to Reduce Cooling Load
- Clean Evaporator/Condenser Coils on AC Systems
- Clean and/or Replace HVAC Filters
- Check for and Seal Duct Leakage
- Perform Proper Boiler Maintenance
- Perform Proper Furnace Maintenance
- Perform Proper Water Heater Maintenance
- Install Plug Load Controls
- Replace Computer Monitors
- 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 Pequannock Township High School. Based on the configuration of the site and its loads there is a high potential for installing a photovoltaic (PV) array.

Figure 4 – Photovoltaic Potential

Potential	High	
System Potential	202	kW DC STC
Electric Generation	240,657	kWh/yr
Displaced Cost	$20,940	/yr
Installed Cost	$525,200	

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

1.3 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 building 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
- SREC (Solar Renewable Energy Certificate) Registration Program (SRP)
- Energy Savings Improvement Program (ESIP)

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.

This building may also qualify for incentives through the Large Energy Users Program (LEUP). This program provides facilities with greater energy usage added flexibility in the types of measures to be installed, where they are installed, and when. You may use internal resources or an outside contractor. Depending on your facilities' annual energy consumption and ECMs, LEUP incentives may be significantly higher compared to other programs.

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the Energy Savings Improvement Program (ESIP). Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as, attractive financing for implementing ECMs. An LGEA report (or other approved energy audit) is required for participation in ESIP. Please refer to Section 8.3 for additional information on the ESIP Program.

The Demand Response Energy Aggregator is a (non-NJCEP) program designed to reduce electric loads at commercial facilities, when wholesale electricity prices are high or when the reliability of the electric grid is threatened due to peak power demand. Demand Response (DR) 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 commercial facilities to reduce their 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 facilities receive payments whether or not they are called upon to curtail their load during times of peak demand. Refer to Section 7 for additional information on this program.

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

2 BUILDING INFORMATION AND EXISTING CONDITIONS

2.1 Project Contacts

Figure 5 – Project Contacts

Name	Role	E-Mail	Phone #
Customer			
Kathy Bechtel	Business Administrator	kathy.bechtel@pequannock.org	973-616-6030
Designated Representative			
Peter Riffel	Grounds Supervisor	peter.riffel@pequannock.org	973-479-6860
TRC Energy Services			
Alexander Klieverik	Auditor	aklieverik@trcsolutions.com	(732) 855-0033

2.2 General Site Information

On January 9 and 10, 2018, TRC performed an energy audit at Pequannock Township High School located in Pompton Plains, New Jersey. TRC's team met with Peter Riffel, Grounds Supervisor to review the building operations and help focus our investigation on specific energy-using systems.

Pequannock Township High School is a 130,547 square foot building comprised of various space types including classrooms, offices, an auditorium, two gymnasiums, a weight room, media center, kitchen, cafeteria, as well as mechanical and storage spaces. Behind the building, there are three baseball fields, four tennis courts, and two football fields that double as soccer fields.

The building was constructed in 1957. Over the last six years the building has replaced all of its existing T12 fluorescent fixtures with T8 fluorescent fixtures.

2.3 Building Occupancy

The school building is open Monday through Friday and as needed on weekends. Most weekend's activity happens on Saturday, but the building is occasionally used on Sundays for community events. The typical schedule is presented in the table below. The entire building is used year round by the community and camps are run throughout the summer. During a typical day, the building is occupied by 100 staff and 700 students.

Figure 6 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
Pequannock High School	Weekday	9:00 AM to 6:00 PM
Pequannock High School	Weekend	As Needed

2.4 Building Envelope

The building is constructed of concrete block, and structural steel with a brick facade. The building has mostly flat roofs covered with black membrane and gravel ballast that is in fair condition. There is one section of the building with a pitched roof over the gymnasium. The buildings have double-pane windows which are in good condition and show little sign of excessive infiltration. The exterior doors are constructed of aluminum and in good condition.



2.5 On-Site Generation

Pequannock Township High School does not have any on-site electric generation capacity.

2.6 Energy-Using Systems

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

Lighting System

Lighting at the building is provided mostly by 32-Watt linear and U-bend fluorescent T8 lamps with electronic ballasts as well as some compact fluorescent lamps (CFL). Most of the fixtures are 2-lamp, 4-foot long troffers or ceiling-mounted fixtures with diffusers, but the building also has some 1-lamp, 3-lamp, and 4-lamp fluorescent fixtures.



A small area of the building has LED fixtures or lamps installed. The maintenance shop, main gymnasium, two classrooms, and three hallway fixtures have LED lighting technology.

Lighting control in most spaces is provided by wall switches. Occupancy sensors are installed in the media center, band room, and vocal room. Stairwells, corridors, and main lobby areas do not contain any occupancy sensors and are on when the building is open. Only when custodial staff leaves at the end of the day, are the stairwell, hallway, and lobby lights turned off.





The building's exterior lighting consists of high pressure sodium (HPS) fixtures, compact fluorescent lamps, metal halide fixtures, and LED fixtures. Exterior lighting is controlled by either timers or photocell sensors on the fixture itself.

Hot Water Heating System

The hot water system consists of five AERCO Benchmark 3.0 condensing hot water boilers with a rated combustion efficiency of 90%. The boilers are configured in a constant flow primary distribution with two separate distribution loops which serve most of the building. One loop has two 5 HP pumps, and one 1.5 HP backup pump; the second loop has a 7.5 HP pump, and one backup pump of the same size. Hot water is supplied at 160°F when the outside air temperature is below 50°F and the setpoint is reset to 145°F when the outside air is above 65°F. The boilers provide hot water to unit ventilators in classrooms and air handler units on the roof.


The boilers operate in a lead/lag configuration. Most of the year, only two boilers are required to heat the building. All five boilers are required during extremely cold weather. The lead boiler is rotated weekly.

The boilers are in good condition and well maintained.

Direct Expansion Cooling (DX)

There are 19 window air conditioners providing cooling for classrooms and offices throughout the building. Window ACs vary in size from 8,000 Btuh to 12,000 Btuh and have a SEER of 9 or 10 depending on the age of the unit. There are a few spaces of the building that are cooled via split-system ACs located on the roof. The professional development room and classroom 303, are cooled by a 3.5 ton Trane split-system cooling unit. The guidance office is cooled by a Carrier unit with a capacity of 3 tons. Both units are more than 20 years old, and nearing the end of their useful life.


Central Air Distribution and Conditioning System

There are nine Trane air handler units with hot water coils that provide heat to various spaces in the building. Each AHU has its own supply and return. Spaces that are served by these units include the shop room, gymnasium, five classrooms, the weight room, the 500 section, and the kitchen. The air handlers serving the gymnasium and five classrooms have variable frequency drives (VFDs) installed.



Local Direct Expansion Air Conditioning System (DX) and Heating Systems

The majority of the building is heated via the hot water system. Areas not served by the hot water system are heated and cooled by rooftop units with direct expansion cooling and gas-fired burner components. The media center, IT office, and four classrooms are served by rooftop units.

The media center is served by two Trane rooftop units. The unit serving the main area has a cooling capacity of 15 tons, and a heating output capacity of 203 kBtu/h. The second unit serves two smaller rooms attached to the media center, and has a cooling capacity of 4 tons, and a heating output capacity of 64 kBtu/h.


The unit serving the IT office has a cooling capacity of 2 tons, and a heating output capacity of 80 kBtu/h. Classrooms 401 and 402 are heated and cooled by a 6-ton Trane unit with a heating output capacity of 120 kBtu/h, and a 10-ton Trane unit with a heating output capacity of 200 kBtu/h. Classrooms 507 and 509 share a single Trane unit which has a cooling capacity of 5 tons, and a heating output capacity of 104kBtu/h.

The locker rooms are not cooled, but heated separately by four individual gas-fired 250 kBtu/h RTUs with thermal efficiencies of 80%.

Domestic Hot Water Heating System

The domestic hot water heating system for the building consists of one Laars gas-fired hot water heater with an input rating of 750 kBtu/hr. each and a nominal efficiency of 85%. The water heater has a separate 1,750 gallon storage tank. Two ½ HP recirculation pumps distribute 120°F water throughout the whole building. The recirculation pumps operate based on an aquastat. All hot water piping has fiberglass insulation installed, and observed to be continuous and in good condition.

Food Service & Laundry Equipment

The building has a commercial kitchen that is used to prepare meals for the students and staff. The ovens, range tops and griddle are all gas fired. There are six insulated heating cabinets that are used every day to store prepared food. The ovens and griddle are turned on at 7:00 AM when the kitchen staff arrive and turned off at 1:30 PM when lunch service stops. There is a conveyor dishwasher with an electric booster heater that provides 145°F rinse water.

Refrigeration

There is a variety of refrigeration equipment in the building. Throughout the building there are eight refrigerators with a top freezer, and ten compact refrigerators. The kitchen contains three reach-in refrigerated cases, two reach-in freezer cases, four compact refrigerated cases with a glass front, and a chest freezer used for storing ice cream.

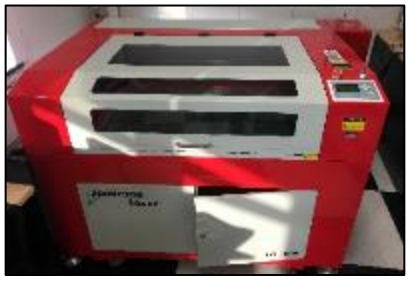
The kitchen has two different storage cold storage areas: a walk-in cooler area and a walk-in freezer area. The cooler area is maintained at a constant temperature of 40°F and freezer area is maintained at a constant 0°F. Cooler area is served by one evaporator and the freezer area is served by two evaporators each having a single 1/2 HP fan. There are two 5 hp condensing units with reciprocating compressors connected to evaporators serving the cooler section and the freezer area.



Building Plug Load

There are 220 computer work stations throughout the building. Ninety percent of the computers are desktop units with LCD monitors. There is no centralized PC power management software installed.

Typical classrooms contain a projector and smartboard, as well as a desk printer. Throughout the building, there are six large photocopiers, eleven microwave ovens, five coffee makers, and a clothes washer. The clothes washer is mainly used by kitchen staff approximately three to four times per week.


The building also has a laser cutter, two 3D printers, a driving simulator, and eight LCD TVs of varying sizes.

2.7 Water-Using Systems

There are 14 restrooms at this building. A sampling of restrooms found that the faucets are rated for 2.2 gallons per minute (gpm) or lower, the toilets are rated at 2.5 gallons per flush (gpf) and the urinals are rated at 2 gpf.

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

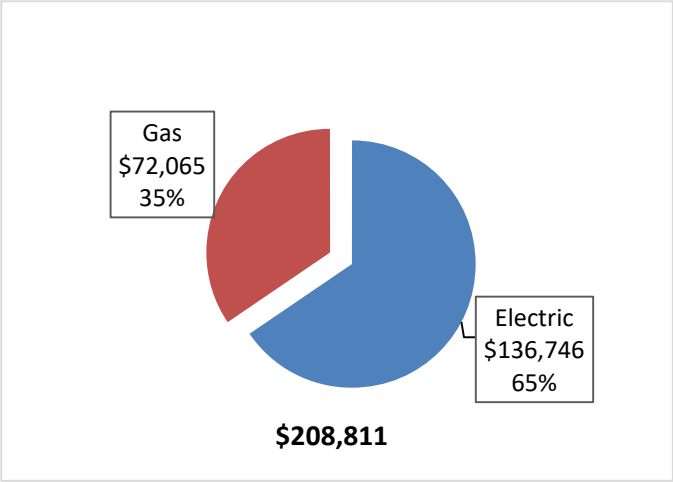
The following energy consumption and cost data is based on the last 12-month period of utility billing data that was provided for each utility. A profile of the annual energy consumption and energy cost of the building was developed from this information.

Figure 7 - Utility Summary

Utility Summary for Pequannock Township High School		
Fuel	Usage	Cost
Electricity	1,059,483 kWh	$136,746
Natural Gas	83,656 Therms	$72,065
Total		$208,811

The current annual energy cost for this building is $208,811 as shown in the chart below.

Figure 8 - Energy Cost Breakdown



3.2 Electricity Usage

Electricity is provided by JCP&L. The average electric cost over the past 12 months was $0.129/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. The monthly electricity consumption and peak demand are shown in the chart below. The energy use profile shown is normal for a school with air conditioning equipment and a school schedule including evening activities and summer programs.

Figure 9 - Electric Usage & Demand

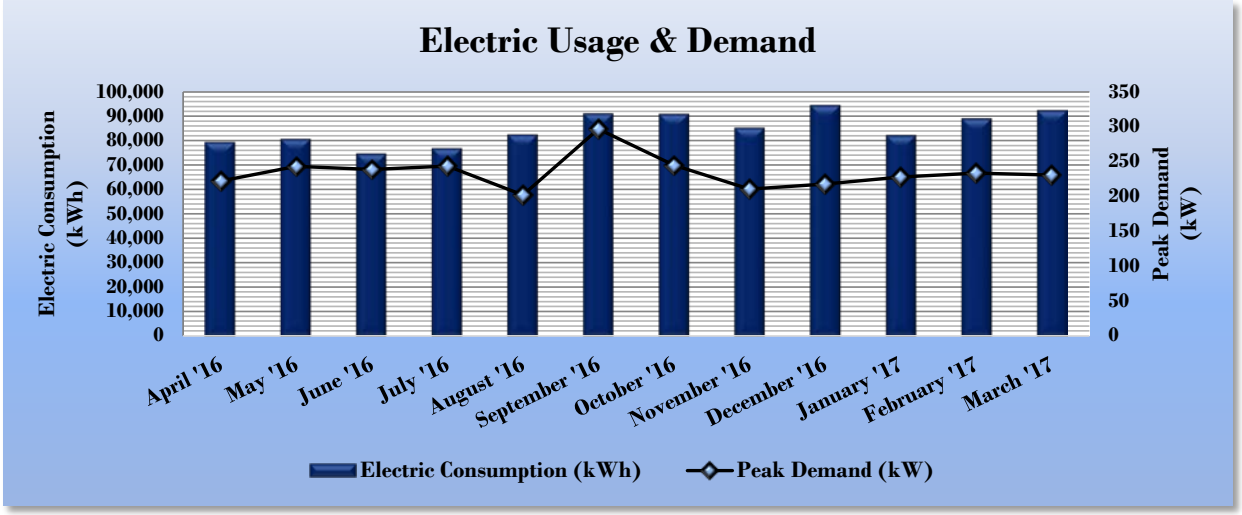


Figure 10 - Electric Usage & Demand

Electric Billing Data for Pequannock Township High School					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
5/6/16	27	79,633	222	$1,247	$9,877
6/7/16	31	80,812	243	$1,461	$10,252
7/7/16	29	74,895	239	$1,435	$9,871
8/5/16	28	77,063	244	$1,463	$10,155
9/6/16	31	82,737	202	$1,213	$10,518
10/5/16	28	91,330	297	$1,665	$12,002
11/4/16	29	91,057	245	$1,372	$11,669
12/6/16	31	85,430	210	$1,180	$10,885
1/9/17	33	94,636	218	$1,281	$11,786
2/6/17	27	82,333	228	$1,508	$10,858
3/8/17	29	89,261	233	$1,545	$11,916
4/7/17	29	92,561	231	$1,527	$12,087
Totals	352	1,021,748	296.8	$16,897	$131,876
Annual	365	1,059,483	296.8	$17,521	$136,746

3.3 Natural Gas Usage

Natural gas is provided by PSE&G. The average gas cost for the past 12 months is $0.861/therm, which is the blended rate used throughout the analyses in this report. The monthly gas consumption is shown in the chart below.

Figure 11 - Natural Gas Usage

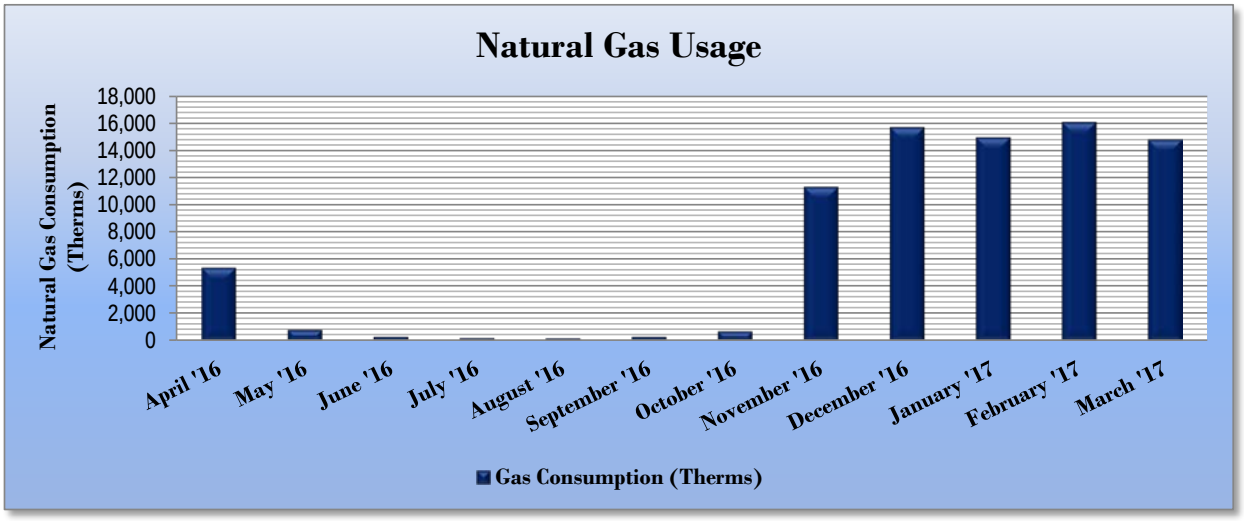


Figure 12 - Natural Gas Usage

Gas Billing Data for Pequannock Township High School			
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost
5/6/16	27	5,367	$3,003
6/7/16	31	792	$536
7/7/16	29	284	$261
8/5/16	28	190	$210
9/6/16	31	187	$208
10/5/16	28	281	$260
11/4/16	29	688	$485
12/6/16	31	11,320	$9,510
1/9/17	33	15,720	$13,435
2/6/17	27	14,966	$13,622
3/8/17	29	16,078	$14,467
4/7/17	29	14,803	$13,500
Totals	352	80,676	$69,498
Annual	365	83,656	$72,065

3.4 Benchmarking

This building 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.

The EUI is a measure of a building'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 13 - Energy Use Intensity Comparison – Existing Conditions

Energy Use Intensity Comparison - Existing Conditions		
	Pequannock Township High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	154.2	141.4
Site Energy Use Intensity (kBtu/ft^2)	91.8	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 14 - Energy Use Intensity Comparison – Following Installation of Recommended Measures

Energy Use Intensity Comparison - Following Installation of Recommended Measures		
	Pequannock Township High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	127.6	141.4
Site Energy Use Intensity (kBtu/ft^2)	83.2	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% of all similar buildings nationwide and may be eligible for ENERGY STAR® certification. This building has a current score of 59.

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

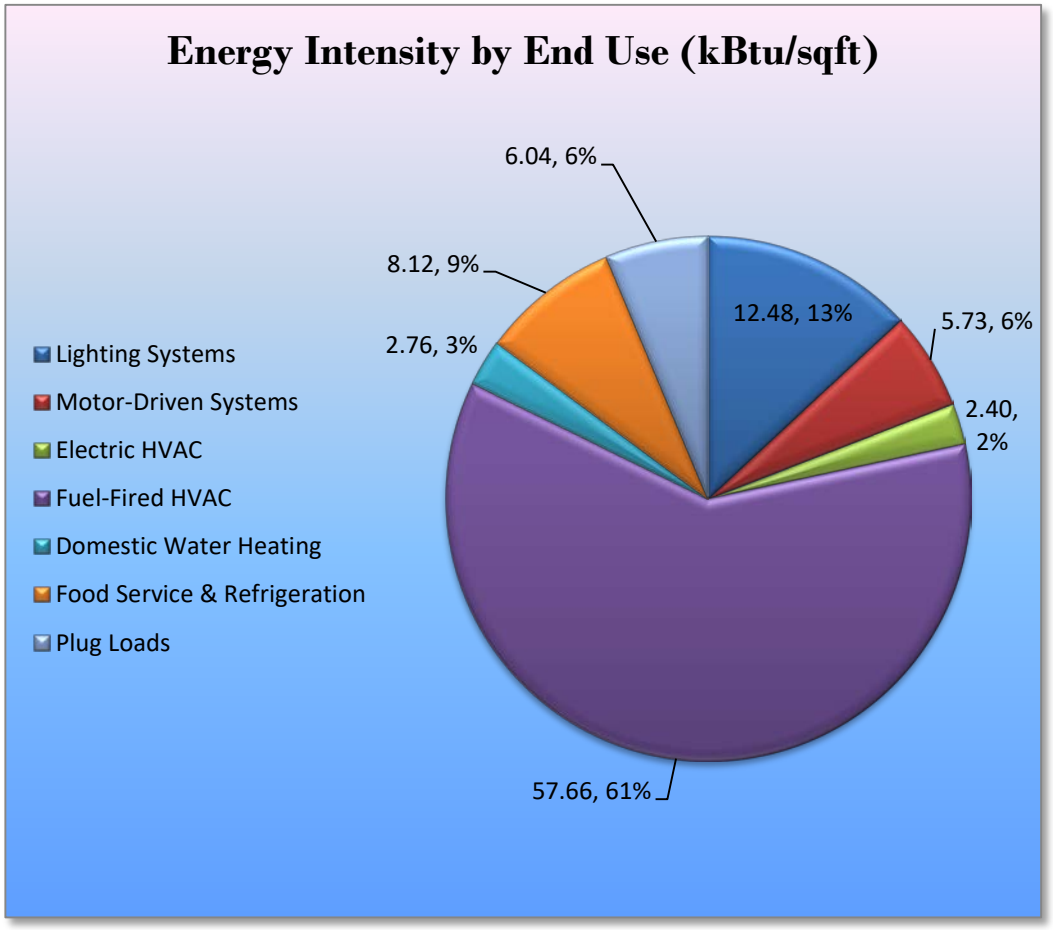
For more information on ENERGY STAR® certification go to: https://www.energystar.gov/buildings/building-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1.

A Portfolio Manager® account has been created online for your building 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 building. 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 15 - 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 Pequannock Township 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 building.

Figure 16 – 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_2e Emissions Reduction (lbs)
Lighting Upgrades		231,754	42.3	0.0	$29,912.25	$149,651.12	$20,705.00	$128,946.12	4.3	233,375
ECM 1	Install LED Fixtures	46,345	8.3	0.0	$5,981.73	$55,074.19	$5,500.00	$49,574.19	8.3	46,669
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,864	0.3	0.0	$240.59	$819.00	$70.00	$749.00	3.1	1,877
ECM 3	Retrofit Fixtures with LED Lamps	183,545	33.6	0.0	$23,689.93	$93,757.94	$15,135.00	$78,622.94	3.3	184,828
Lighting Control Measures		55,221	9.9	0.0	$7,127.30	$43,228.00	$3,955.00	$39,273.00	5.5	55,607
ECM 4	Install Occupancy Sensor Lighting Controls	49,055	8.8	0.0	$6,331.45	$39,628.00	$3,955.00	$35,673.00	5.6	49,398
ECM 5	Install High/Low Lighitng Controls	6,166	1.1	0.0	$795.85	$3,600.00	$0.00	$3,600.00	4.5	6,209
Variable Frequency Drive (VFD) Measures		23,071	3.5	0.0	$2,977.79	$20,317.00	$800.00	$19,517.00	6.6	23,233
ECM 6	Install VFDs on Constant Volume (CV) HVAC	4,118	1.4	0.0	$531.56	$6,551.70	$800.00	$5,751.70	10.8	4,147
ECM 7	Install VFDs on Hot Water Pumps	18,953	2.2	0.0	$2,446.23	$13,765.30	$0.00	$13,765.30	5.6	19,085
Domestic Water Heating Upgrade		0	0.0	14.1	$121.46	$1,085.94	$0.00	$1,085.94	8.9	1,651
ECM 8	Install Low-Flow Domestic Hot Water Devices	0	0.0	14.1	$121.46	$1,085.94	$0.00	$1,085.94	8.9	1,651
Plug Load Equipment Control - Vending Machine		13,701	0.0	0.0	$1,768.32	$2,070.00	$0.00	$2,070.00	1.2	13,796
ECM 9	Vending Machine Control	13,701	0.0	0.0	$1,768.32	$2,070.00	$0.00	$2,070.00	1.2	13,796
TOTALS		323,747	55.7	14.1	$41,907.12	$216,352.06	$25,460.00	$190,892.06	4.6	327,662

* - 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).

4.1.1 Lighting Upgrades

Our recommendations for upgrades to existing lighting fixtures are summarized in Figure 17 below.

Figure 17 – 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_2e Emissions Reduction (lbs)
Lighting Upgrades		231,754	42.3	0.0	$29,912.25	$149,651.12	$20,705.00	$128,946.12	4.3	233,375
ECM 1	Install LED Fixtures	46,345	8.3	0.0	$5,981.73	$55,074.19	$5,500.00	$49,574.19	8.3	46,669
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,864	0.3	0.0	$240.59	$819.00	$70.00	$749.00	3.1	1,877
ECM 3	Retrofit Fixtures with LED Lamps	183,545	33.6	0.0	$23,689.93	$93,757.94	$15,135.00	$78,622.94	3.3	184,828

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_2e Emissions Reduction (lbs)
Interior	19,727	3.5	0.0	$2,546.18	$42,963.20	$2,400.00	$40,563.20	15.9	19,865
Exterior	26,618	4.8	0.0	$3,435.55	$12,110.99	$3,100.00	$9,010.99	2.6	26,804

Measure Description

We recommend replacing existing fixtures containing fluorescent, HID, or incandescent lamps with new high performance LED light fixtures. LED fixtures use less power than other technologies with a comparable light output.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of a fluorescent tubes and more than ten times longer than many incandescent lamps.

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_2e Emissions Reduction (lbs)
Interior	1,864	0.3	0.0	$240.59	$819.00	$70.00	$749.00	3.1	1,877
Exterior	0	0.0	0.0	$0.00	$0.00	$0.00	$0.00	0.0	0

Measure Description

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

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of a fluorescent tubes and more than ten times longer than many incandescent lamps.

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_2e Emissions Reduction (lbs)
Interior	183,385	33.6	0.0	$23,669.22	$93,166.65	$15,135.00	$78,031.65	3.3	184,667
Exterior	161	0.0	0.0	$20.72	$591.28	$0.00	$591.28	28.5	162

Measure Description

We recommend retrofitting existing incandescent, fluorescent, HID or other 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.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of a fluorescent tubes and more than ten times longer than many incandescent lamps.

4.1.2 Lighting Control Measures

Our recommendations for upgrades to existing lighting controls are summarized in Figure 18 below

Figure 18 – 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_2e Emissions Reduction (lbs)
Lighting Control Measures		55,221	9.9	0.0	$7,127.30	$43,228.00	$3,955.00	$39,273.00	5.5	55,607
ECM 4	Install Occupancy Sensor Lighting Controls	49,055	8.8	0.0	$6,331.45	$39,628.00	$3,955.00	$35,673.00	5.6	49,398
ECM 5	Install High/Low Lighitng Controls	6,166	1.1	0.0	$795.85	$3,600.00	$0.00	$3,600.00	4.5	6,209

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 4: 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_2e Emissions Reduction (lbs)
49,055	8.8	0.0	$6,331.45	$39,628.00	$3,955.00	$35,673.00	5.6	49,398

Measure Description

We recommend installing occupancy sensors to control lighting fixtures that are currently controlled by manual switches in all restrooms, storage rooms, classrooms, offices areas, etc. 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 5: 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_2e Emissions Reduction (lbs)
6,166	1.1	0.0	$795.85	$3,600.00	$0.00	$3,600.00	4.5	6,209

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. Typical areas for such lighting control are stairwells, interior corridors, parking lots, and parking garages.

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 Variable Frequency Drive Measures

Our recommendations for variable frequency drive (VFD) measures are summarized in Figure 19 below.

Figure 19 – 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_2e Emissions Reduction (lbs)
Variable Frequency Drive (VFD) Measures		23,071	3.5	0.0	$2,977.79	$20,317.00	$800.00	$19,517.00	6.6	23,233
ECM 6	Install VFDs on Constant Volume (CV) HVAC	4,118	1.4	0.0	$531.56	$6,551.70	$800.00	$5,751.70	10.8	4,147
ECM 7	Install VFDs on Hot Water Pumps	18,953	2.2	0.0	$2,446.23	$13,765.30	$0.00	$13,765.30	5.6	19,085

ECM 6: 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_2e Emissions Reduction (lbs)
4,118	1.4	0.0	$531.56	$6,551.70	$800.00	$5,751.70	10.8	4,147

Measure Description

We recommend installing variable frequency drives (VFDs) to control supply fan motor speeds to convert a constant-volume, single-zone air handling system into a variable-air-volume (VAV) system. For Pequannock High School, we recommend the installation of VFDs on two rooftop Trane units; model YSC120 serving rooms 401 and 402, as well as model YCH181 serving the media center. 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.

For air handlers with direct expansion (DX) cooling systems, the minimum air flow across the cooling coil required to prevent the coil from freezing will have to be determined during the final project design. The control system should be programmed to maintain the minimum air flow whenever the compressor is operating.

ECM 7: 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_2e Emissions Reduction (lbs)
18,953	2.2	0.0	$2,446.23	$13,765.30	$0.00	$13,765.30	5.6	19,085

Measure Description

We recommend installing a variable frequency drives (VFD) to control heating 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.

4.1.4 Domestic Hot Water Heating System Upgrades

Our recommendation for domestic water heating system improvements is summarized in Figure 20 below.

Figure 20 - 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_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		0	0.0	14.1	$121.46	$1,085.94	$0.00	$1,085.94	8.9	1,651
ECM 8	Install Low-Flow Domestic Hot Water Devices	0	0.0	14.1	$121.46	$1,085.94	$0.00	$1,085.94	8.9	1,651

ECM 8: 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_2e Emissions Reduction (lbs)
0	0.0	14.1	$121.46	$1,085.94	$0.00	$1,085.94	8.9	1,651

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. Faucet aerators and low-flow showerheads can reduce hot water usage, relative to standard showerheads and aerators, which saves energy.

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

4.1.5 Plug Load Equipment Control - Vending Machines

Our recommendation for plug load equipment control – vending machines is summarized in Figure 21 below.

Figure 21 - 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_2e Emissions Reduction (lbs)
Plug Load Equipment Control - Vending Machine		13,701	0.0	0.0	$1,768.32	$2,070.00	$0.00	$2,070.00	1.2	13,796
ECM 9	Vending Machine Control	13,701	0.0	0.0	$1,768.32	$2,070.00	$0.00	$2,070.00	1.2	13,796

ECM 9: 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_2e Emissions Reduction (lbs)
13,701	0.0	0.0	$1,768.32	$2,070.00	$0.00	$2,070.00	1.2	13,796

Measure Description

Vending machines operate continuously, even during non-business hours. We recommend installing 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.

4.2 ECMs Evaluated But Not Recommended

The measures below have been evaluated by the auditor but are not recommended for implementation at the building. Reasons for exclusion can be found in each measure description section.

Figure 22 – Summary of Measures Evaluated, But Not Recommended

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_2e Emissions Reduction (lbs)
Motor Upgrades	1,986	0.5	0.0	$256.36	$5,991.82	$0.00	$5,991.82	23.4	2,000
Premium Efficiency Motors	1,986	0.5	0.0	$256.36	$5,991.82	$0.00	$5,991.82	23.4	2,000
TOTALS	1,986	0.5	0.0	$256.36	$5,991.82	$0.00	$5,991.82	23.4	2,000

* - 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).

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_2e Emissions Reduction (lbs)
1,986	0.5	0.0	$256.36	$5,991.82	$0.00	$5,991.82	23.4	2,000

Measure Description

We do not recommend replacing standard efficiency motors with *NEMA Premium™* efficiency motors. 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.

Reasons for not Recommending

Due to the long payback period, we do not recommend replacing motors with NEMA Premium efficiency motors at this time.

5 ENERGY EFFICIENT PRACTICES

In addition to the quantifiable savings estimated in Section 4, a building'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 building. Consult with qualified equipment specialists for details on proper maintenance and system operation.

Reduce Air Leakage

Air leakage, or infiltration, occurs when outside air enters a building uncontrollably through cracks and openings. Properly sealing such cracks and openings can significantly reduce heating and cooling costs, improve building durability, and create a healthier indoor environment. This includes caulking or installing weather stripping around leaky doors and windows allowing for better control of indoor air quality through controlled ventilation.

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.

Ensure Lighting Controls Are Operating Properly

Lighting controls are very cost effective energy efficient devices, when installed and operating correctly. As part of a lighting maintenance schedule, lighting controls should be tested annually to ensure proper functioning. For occupancy sensors, this requires triggering the sensor and verifying that the sensor's timer settings are correct. For daylight sensors, maintenance involves cleaning of sensor lenses and confirming setpoints and sensitivity are appropriately configured.

Perform Routine Motor Maintenance

Motors consist of many moving parts whose collective degradation can contribute to a significant loss of motor efficiency. In order to prevent damage to motor components, routine maintenance should be performed. This maintenance consists of cleaning surfaces and ventilation openings on motors to prevent overheating, lubricating moving parts to reduce friction, inspecting belts and pulleys for wear and to ensure they are at proper alignment and tension, and cleaning and lubricating bearings. Consult a licensed technician to assess these and other motor maintenance strategies.

Use Fans to Reduce Cooling Load

Utilizing ceiling fans to supplement cooling is a low cost strategy to reduce cooling load considerably. Thermostat settings can be increased by 4°F with no change in overall occupant comfort when the wind chill effect of moving air is employed for cooling.

Clean Evaporator/Condenser Coils on AC Systems

Dirty evaporators and condensers coils cause a restriction to air flow and restrict heat transfer. This results in increased evaporator and condenser fan load and a decrease in cooling system performance. Keeping the coils clean allows the fans and cooling system to operate more efficiently.

Clean and/or Replace HVAC Filters

Air filters work to reduce the amount of indoor air pollution and increase occupant comfort. Over time, filters become less and less effective as particulate buildup increases. In addition to health concerns related to clogged filters, filters that have reached saturation also restrict air flow through the building's air conditioning or heat pump system, increasing the load on the distribution fans and decreasing occupant comfort levels. Filters should be checked monthly and cleaned or replaced when appropriate.

Check for and Seal Duct Leakage

Duct leakage in commercial buildings typically accounts for 5% to 25% of the supply airflow. In the case of rooftop air handlers, duct leakage can occur to the outside of the building, significantly increasing cooling and heating costs. By sealing sources of leakage, cooling, heating, and ventilation energy use can be reduced significantly, depending on the severity of air leakage.

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.

Perform Proper Furnace Maintenance

Preventative furnace maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. Following the manufacturer's instructions, a yearly tune-up should include tasks such as checking for gas/carbon monoxide leaks; changing the air and fuel filters; checking components for cracks, corrosion, dirt, or debris build-up; ensuring the ignition system is working properly; testing and adjusting operation and safety controls; inspecting the electrical connections; and ensuring proper lubrication for motors and bearings.

Perform Proper Water Heater Maintenance

At least once a year, drain a few gallons out of the water heater using the drain valve. If there is a lot of sediment or debris, then a full flush is recommended. Turn the temperature down and then completely drain the tank. Once a year check for any leaks or heavy corrosion on the pipes and valves. For gas water heaters, check the draft hood and make sure it is placed properly, with a few inches of air space between

the tank and where it connects to the vent. Look for any corrosion or wear on the gas line and on the piping. If you noticed any black residue, soot or charred metal, this is a sign you may be having combustion issues and you should have the unit serviced by a professional. For electric water heaters, look for any signs of leaking such as rust streaks or residue around the upper and lower panels covering the electrical components on the tank. For water heaters over three to four years old have a technician inspect the sacrificial anode annually.

Plug Load Controls

There are a variety of ways to limit the energy use of plug loads including increasing occupant awareness, removing under-utilized equipment, installing hardware controls, and using software controls. Some control steps to take are to enable the most aggressive power settings on existing devices or install load sensing or occupancy sensing (advanced) power strips. For additional information refer to "Plug Load Best Practices Guide" http://www.advancedbuildings.net/plug-load-best-practices-guide-offices.

Replace Computer Monitors

Replacing old computer monitors or displays with efficient monitors will reduce energy use. ENERGY STAR® rated monitors have specific requirements for on mode power consumption as well as idle and sleep mode power. According to the ENERGY STAR® website monitors that have earned the ENERGY STAR® label are 25% more efficient than standard monitors.

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 gpf and toilets that use as little as 1.28 gpf (this is lower than the current 1.6 gpf federal standard).

Refer to Section 4.1.4 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 building, 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 building. 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.

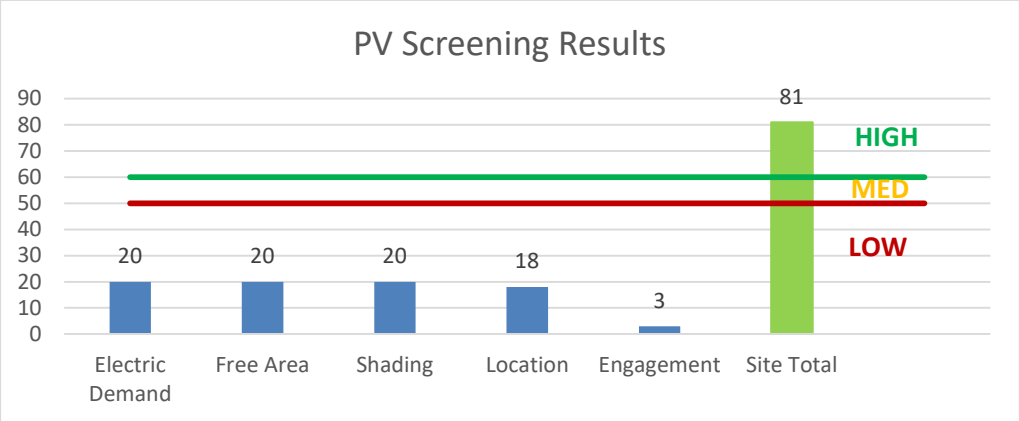
6.1 Photovoltaic

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 building'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 building's electric demand, size and location of free area, and shading elements shows that the building 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 roof of the main building/ground next to the building/over the main parking lot may be feasible. If Pequannock Township High School is interested in pursuing the installation of PV, we recommended a full feasibility study be conducted.

Figure 23 - Photovoltaic Screening



Solar projects must register their projects in the SREC (Solar 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-faqs
- **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.

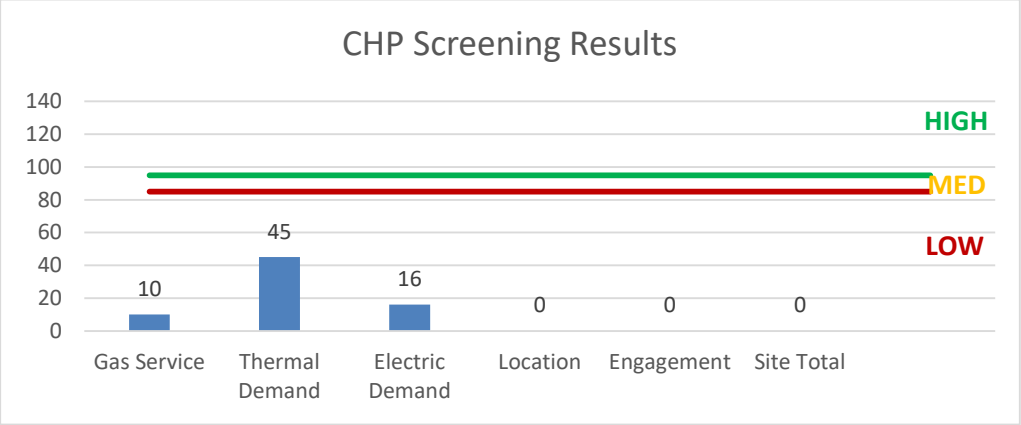
CHP systems are typically used to produce a portion of the electric power used onsite by a building, with the balance of electric power needs supplied by grid purchases. The heat is used to supplement (or supplant) existing boilers for the purpose of space heating and/or domestic hot water heating. Waste 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 building'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 building has a low potential for installing a cost-effective CHP system.

Lack of gas service, low or infrequent thermal load, and lack of space near the existing boilers are the most significant factors contributing to the low potential for CHP at the site. In our opinion, the building does not appear to meet the minimum requirements for a cost-effective CHP installation.

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 24 - Combined Heat and Power Screening



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 building 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 building 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 (http://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 building's eligibility to participate in a DR program. They will provide details regarding program rules and requirements for metering and controls, assess a building'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.

We do not think this building is a good candidate for Demand Response.

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 24 for a list of the eligible programs identified for each recommended ECM.

Figure 25 - ECM Incentive Program Eligibility

Energy Conservation Measure		SmartStart Prescriptive	SmartStart Custom	Direct Install	Pay For Performance Existing Buildings	Large Energy Users Program	Combined Heat & Power and Fuel Cell
ECM 1	Install LED Fixtures	X					
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	X					
ECM 3	Retrofit Fixtures with LED Lamps	X					
ECM 4	Install Occupancy Sensor Lighting Controls	X					
ECM 5	Install High/Low Lighitng Controls						
ECM 6	Install VFDs on Constant Volume (CV) HVAC	X					
ECM 7	Install VFDs on Hot Water Pumps						
ECM 8	Install Low-Flow Domestic Hot Water Devices						
ECM 9	Vending Machine Control						

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 building 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 building. 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 building 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 r 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 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. SRECs 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 SRECs 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.

8.3 Energy Savings Improvement Program

The Energy Savings Improvement Program (ESIP) is an alternate method for New Jersey's government agencies to finance the implementation of energy conservation measures. An ESIP is a type of "performance contract," whereby school districts, counties, municipalities, housing authorities and other public and state entities enter in to contracts to help finance building energy upgrades. This is done in a manner that ensures that annual payments are lower than the savings projected from the ECMs, ensuring that ESIP projects are cash flow positive in year one, and every year thereafter. ESIP provides government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources. NJCEP incentive programs can be leveraged to help further reduce the total project cost of eligible measures.

This LGEA report is the first step to participating in ESIP. Next, you will need to select an approach for implementing the desired ECMs:

(1) Use an Energy Services Company or "ESCO."
(2) Use independent engineers and other specialists, or your own qualified staff, to provide and manage the requirements of the program through bonds or lease obligations.
(3) Use a hybrid approach of the two options described above where the ESCO is utilized for some services and independent engineers, or other specialists or qualified staff, are used to deliver other requirements of the program.

After adopting a resolution with a chosen implementation approach, the development of the Energy Savings Plan (ESP) can begin. The ESP demonstrates that the total project costs of the ECMs are offset by the energy savings over the financing term, not to exceed 15 years. The verified savings will then be used to pay for the financing.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Entities should carefully consider all alternatives to develop an approach that best meets their needs. A detailed program description and application can be found at: www.njcleanenergy.com/ESIP.

Please note that ESIP is a program delivered directly by the NJBPU and is not an NJCEP incentive program. As mentioned above, you may utilize NJCEP incentive programs to help further reduce costs when developing the ESP. You should refer to the ESIP guidelines at the link above for further information and guidance on next steps.

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 building's interconnection to the grid and repair to local power distribution will still reside with the traditional utility company serving your region.

If your building is not purchasing electricity from a third party supplier, consider shopping for a reduced rate from third party electric suppliers. If your building 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 building is not purchasing natural gas from a third party supplier, consider shopping for a reduced rate from third party natural gas suppliers. If your building 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

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	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	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,172	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,220	0.10	535	0.0	$69.12	$460.27	$75.00	5.57
Boiler Room	1	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	3,172	Relamp	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,220	0.05	290	0.0	$37.38	$95.13	$20.00	2.01
Boiler Room Ceiling	3	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	3	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.10	584	0.0	$75.35	$209.28	$15.00	2.58
Boiler Room Boiler Light	3	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	None	No	3	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room Boiler Light	2	Compact Fluorescent: Screw-In (13W) - 1L	Wall Switch	13	3,172	None	No	2	Compact Fluorescent: Screw-In (13W) - 1L	Wall Switch	13	3,172	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Maintenance Shop	28	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	28	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.77	4,259	0.0	$549.73	$2,178.00	$350.00	3.33
Maintenance Shop	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	No	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Wall Switch	10	3,172	0.03	184	0.0	$23.78	$69.76	$5.00	2.72
Maintenance Shop Office	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.22	1,217	0.0	$157.06	$738.00	$115.00	3.97
Maintenance Shop Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.08	456	0.0	$58.90	$445.50	$30.00	7.05
Maintenance Shop Storage	1	LED - Fixtures: Close to Ceiling Mount	Wall Switch	40	3,172	None	No	1	LED - Fixtures: Close to Ceiling Mount	Wall Switch	40	3,172	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Janitor Room (Roof Access)	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	No	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Wall Switch	10	3,172	0.03	184	0.0	$23.78	$69.76	$5.00	2.72
Janitor Room (Roof Access)	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,172	Relamp	Yes	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,220	0.01	80	0.0	$10.29	$305.90	$5.00	29.25
Weight Room (102)	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.55	3,042	0.0	$392.66	$1,710.00	$270.00	3.67
Weight Room (102)	1	Linear Fluorescent - T12: 4' T12 (48W) - 2L	Wall Switch	106	3,172	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,172	0.05	281	0.0	$36.25	$117.00	$10.00	2.95
Weight Room (102) Office	4	Linear Fluorescent - T12: 4' T12 (48W) - 2L	Wall Switch	106	3,172	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.22	1,250	0.0	$161.40	$738.00	$75.00	4.11
Main Gym	36	LED - Fixtures: High-Bay	Wall Switch	200	3,172	None	Yes	36	LED - Fixtures: High-Bay	Occupancy Sensor	200	2,220	1.42	7,879	0.0	$1,016.96	$660.00	$105.00	0.55
Main Gym	6	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	6	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Girls Locker Room Closet	1	Compact Fluorescent: Screw-In (13W) - 1L	Wall Switch	13	3,172	Relamp	Yes	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	9	2,220	0.00	24	0.0	$3.15	$169.75	$0.00	53.81
Girls Locker Room	43	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	43	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	1.18	6,541	0.0	$844.22	$3,595.50	$570.00	3.58
Girls Locker Room	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Girls Locker Room Office	5	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	5	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,220	0.13	709	0.0	$91.57	$586.00	$35.00	6.02
Coach's Office	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,220	0.10	568	0.0	$73.26	$522.80	$35.00	6.66
Boys Locker Room	43	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	43	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	1.18	6,541	0.0	$844.22	$3,595.50	$570.00	3.58
Boys Locker Room	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boys Locker Room Office	5	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	5	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,220	0.13	709	0.0	$91.57	$586.00	$35.00	6.02

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	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
Boys Locker Room Office	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	No	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Wall Switch	10	3,172	0.03	184	0.0	$23.78	$69.76	$5.00	2.72
Boys Locker Team Room	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	27	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.74	4,107	0.0	$530.09	$1,849.50	$305.00	2.91
Boys Locker Team Room	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boys Locker Team Room closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$174.50	$10.00	8.38
Gym Foyer	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	3,172	0.04	212	0.0	$27.31	$126.40	$0.00	4.63
Gym Foyer	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boys Locker Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$174.50	$10.00	8.38
Storage 12	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$233.00	$20.00	5.42
Storage 14	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.11	608	0.0	$78.53	$350.00	$40.00	3.95
Storage 15	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.11	608	0.0	$78.53	$350.00	$40.00	3.95
Janitor Closet 18	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$174.50	$10.00	8.38
Electrical Room 17	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$233.00	$20.00	5.42
Small Gym	16	Metal Halide: (1) 400W Lamp	Wall Switch	458	3,172	Fixture Replacement	Yes	16	LED - Fixtures: High-Bay	Occupancy Sensor	120	2,220	3.92	21,828	0.0	$2,817.37	$43,503.20	$2,470.00	14.56
Small Gym	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Trainter Room (8)	6	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,220	0.15	851	0.0	$109.89	$649.20	$35.00	5.59
Team Room (6)	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.22	1,217	0.0	$157.06	$738.00	$115.00	3.97
Team Room (5)	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.27	1,521	0.0	$196.33	$855.00	$135.00	3.67
Team Room (4)	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.27	1,521	0.0	$196.33	$855.00	$135.00	3.67
Janitor Closet (3)	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$174.50	$10.00	8.38
Gym Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$174.50	$10.00	8.38
1B Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$233.00	$20.00	5.42
1A Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$233.00	$20.00	5.42
E101	3	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	3	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.10	584	0.0	$75.35	$325.28	$15.00	4.12
E102	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.03	195	0.0	$25.12	$185.76	$5.00	7.20
C104	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.03	195	0.0	$25.12	$185.76	$5.00	7.20

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	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
C105	1	Compact Fluorescent: Screw-In (13W) - 1L	Wall Switch	13	3,172	Relamp	Yes	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	9	2,220	0.00	24	0.0	$3.15	$169.75	$0.00	53.81
E103	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.03	195	0.0	$25.12	$185.76	$5.00	7.20
S103	3	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	3	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.10	584	0.0	$75.35	$325.28	$15.00	4.12
E104	4	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	4	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.14	778	0.0	$100.47	$395.04	$20.00	3.73
E106	2	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	2	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.07	389	0.0	$50.24	$255.52	$10.00	4.89
Auditorium & Stage	82	Halogen Incandescent: Candelabra can lights	Wall Switch	250	3,172	None	No	82	Halogen Incandescent: Candelabra can lights	Wall Switch	250	3,172	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium & Stage	6	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	6	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium & Stage	26	Compact Fluorescent: 4-Pin (7W)	Wall Switch	7	3,172	None	No	26	Compact Fluorescent: 4-Pin (7W)	Wall Switch	7	3,172	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium & Stage	6	Compact Fluorescent: 4-Pin (9W)	Wall Switch	9	3,172	None	No	6	Compact Fluorescent: 4-Pin (9W)	Wall Switch	9	3,172	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium & Stage	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,172	0.11	602	0.0	$77.68	$292.50	$50.00	3.12
Auditorium & Stage	10	Halogen Incandescent: Elipsodal 750W 1L	Wall Switch	750	3,172	None	No	10	Halogen Incandescent: Elipsodal 750W 1L	Wall Switch	750	3,172	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
M103	2	Incandescent: Screw-In (60W) - 2L	Wall Switch	120	3,172	Relamp	Yes	2	LED Screw-In Lamps: LED: Screw-In (9.5W) - 2L	Occupancy Sensor	19	2,220	0.14	778	0.0	$100.47	$395.04	$20.00	3.73
Cafeteria	28	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	28	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.77	4,259	0.0	$549.73	$2,178.00	$350.00	3.33
Cafeteria	12	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	3,172	Relamp	Yes	12	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,220	0.28	1,539	0.0	$198.59	$1,010.40	$215.00	4.01
Cafeteria	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	40	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	40	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	1.09	6,085	0.0	$785.32	$3,420.00	$540.00	3.67
Kitchen	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$233.00	$20.00	5.42
Back Kitchen	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,172	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,220	0.04	239	0.0	$30.86	$377.70	$15.00	11.75
Back Kitchen	4	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	4	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.14	778	0.0	$100.47	$549.04	$55.00	4.92
Back Kitchen Storage	4	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	4	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.14	778	0.0	$100.47	$549.04	$55.00	4.92
Kitchen Vent Hoods	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	No	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Wall Switch	10	3,172	0.03	184	0.0	$23.78	$69.76	$5.00	2.72
Kitchen Vent Hoods	9	Compact Fluorescent: Screw-In (13W) - 1L	Wall Switch	13	3,172	Relamp	No	9	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Wall Switch	9	3,172	0.02	131	0.0	$16.95	$483.78	$0.00	28.54
Kitchen Store Room A	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$174.50	$10.00	8.38
Kitchen Store Room B	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$233.00	$20.00	5.42

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Location	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
Faculty Cafeteria	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.33	1,825	0.0	$235.60	$972.00	$155.00	3.47
C100 Custodial	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,172	Relamp	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,220	0.05	268	0.0	$34.56	$211.13	$20.00	5.53
C100 Custodial	2	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	2	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.07	389	0.0	$50.24	$255.52	$10.00	4.89
Storage (Nat gas Valve)	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$58.50	$10.00	2.47
Storage (Nat gas Valve)	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	96	3,172	Relamp & Reballast	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	276	0.0	$35.64	$117.00	$10.00	3.00
Storage (Nat gas Valve)	2	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	2	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.07	389	0.0	$50.24	$139.52	$10.00	2.58
Storage (Nat gas Valve)	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	88	3,172	Relamp & Reballast	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.04	247	0.0	$31.87	$117.00	$10.00	3.36
Safe	1	Compact Fluorescent: Screw-In (18W) - 1L	Wall Switch	18	3,172	Relamp	No	1	LED Screw-In Lamps: LED: Screw-In (13W) - 1L	Wall Switch	13	3,172	0.00	18	0.0	$2.35	$53.75	$0.00	22.83
Main Gym Entry	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,172	0.06	361	0.0	$46.61	$175.50	$30.00	3.12
Gym Area Hallway	1	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,172	Relamp	Yes	1	LED - Linear Tubes: (4) 2' Lamps	High/Low Control	34	2,220	0.03	143	0.0	$18.46	$76.53	$20.00	3.06
Gym Area Hallway	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,220	0.25	1,369	0.0	$176.70	$726.50	$90.00	3.60
Gym Area Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Gym Area Bathrooms	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	3,172	0.02	106	0.0	$13.65	$63.20	$0.00	4.63
Gym Area Mens RR	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,220	0.05	284	0.0	$36.63	$396.40	$35.00	9.87
Gym Area Mens RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,172	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,220	0.03	159	0.0	$20.57	$71.80	$10.00	3.00
Gym Area Women's RR	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,220	0.05	284	0.0	$36.63	$396.40	$35.00	9.87
Gym Area Women's RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,172	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,220	0.03	159	0.0	$20.57	$71.80	$10.00	3.00
Gym Exterior Entry Foyer	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	3,172	0.04	212	0.0	$27.31	$126.40	$0.00	4.63
Gym Area	7	Compact Fluorescent: Pin-Style (17W) - 1L	Wall Switch	17	3,172	Relamp	No	7	LED Screw-In Lamps: LED: Pin-Style (9.5W) - 1L	Wall Switch	12	3,172	0.02	130	0.0	$16.81	$163.17	$0.00	9.71
Gym Area Hallway	7	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	7	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,220	0.18	993	0.0	$128.20	$642.40	$0.00	5.01
Gym Area Hallway	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Gym Area Hallway	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,220	0.44	2,434	0.0	$314.13	$1,136.00	$160.00	3.11
Custodial (103)	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$233.00	$20.00	5.42
207-C	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$328.50	$10.00	16.22
CR 206 Art Room	19	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	19	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.52	2,890	0.0	$373.03	$1,651.50	$260.00	3.73

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	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
CR 207	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	22	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.60	3,346	0.0	$431.93	$1,827.00	$290.00	3.56
CR 207	4	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	4	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.14	778	0.0	$100.47	$549.04	$55.00	4.92
CR 207A (Storage)	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.11	608	0.0	$78.53	$350.00	$40.00	3.95
Room 208	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,172	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,220	0.03	159	0.0	$20.57	$341.80	$10.00	16.13
Computer Lab (205)	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.25	1,369	0.0	$176.70	$796.50	$125.00	3.80
CR 204	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.27	1,521	0.0	$196.33	$855.00	$135.00	3.67
CR 203	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.49	2,738	0.0	$353.40	$1,323.00	$215.00	3.14
S 102 (Electrical Room)	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.11	608	0.0	$78.53	$350.00	$40.00	3.95
CR 202	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	22	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.60	3,346	0.0	$431.93	$1,827.00	$290.00	3.56
Guidance Office (201)	19	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	19	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.52	2,890	0.0	$373.03	$1,651.50	$260.00	3.73
Guidance Office Closet (201)	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.03	195	0.0	$25.12	$185.76	$5.00	7.20
Guidance Office 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
Guidance Office 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
Guidance Office 3	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
Guidance Office 4	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
Guidance Office 5	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
Guidance Office 6	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
Guidance Office 7	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.11	608	0.0	$78.53	$504.00	$75.00	5.46
Guidance Office 8	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
Athletic Director's Office	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,172	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,220	0.29	1,606	0.0	$207.35	$840.80	$155.00	3.31
Athletic Director's Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.08	456	0.0	$58.90	$445.50	$65.00	6.46
Main Office	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,417.50	$220.00	4.07
Principal's Bathroom	2	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	2	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.07	389	0.0	$50.24	$255.52	$10.00	4.89
Special Service Area	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.25	1,369	0.0	$176.70	$796.50	$125.00	3.80
Nurse's Office	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.14	761	0.0	$98.17	$562.50	$85.00	4.86

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	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
Nurse's Office Bathroom	2	Compact Fluorescent: Screw-In (13W) - 1L	Wall Switch	13	3,172	Relamp	Yes	2	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	9	2,220	0.01	49	0.0	$6.31	$223.51	$0.00	35.43
WC-113	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$174.50	$10.00	8.38
Women's RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$174.50	$10.00	8.38
Faculty Lounge	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.08	456	0.0	$58.90	$445.50	$65.00	6.46
Men's RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.03	152	0.0	$19.63	$174.50	$10.00	8.38
CR 305 Computer Lab	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.66	3,651	0.0	$471.19	$1,944.00	$310.00	3.47
CR 307	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 309	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.57	3,194	0.0	$412.29	$1,768.50	$280.00	3.61
CR 308	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,172	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,220	0.49	2,738	0.0	$353.40	$1,172.40	$215.00	2.71
CR 306	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.08	456	0.0	$58.90	$175.50	$30.00	2.47
CR 306	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,172	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,220	0.37	2,054	0.0	$265.05	$946.80	$170.00	2.93
Media Center	34	Linear Fluorescent - T5: 2' T5 (14W) - 2L	Occupancy Sensor	34	2,220	Relamp	No	34	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,220	0.38	1,476	0.0	$190.49	$1,638.80	$340.00	6.82
Media Center	16	Compact Fluorescent: Screw-In (13W) - 1L	Occupancy Sensor	13	2,220	Relamp	No	16	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	9	2,220	0.04	163	0.0	$21.09	$860.05	$0.00	40.77
Media Center	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Media Center	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,220	Relamp	No	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.45	1,770	0.0	$228.39	$1,228.50	$210.00	4.46
Media Center	15	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,220	Relamp	No	15	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,220	0.16	613	0.0	$79.10	$723.00	$150.00	7.24
Media Center	7	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,220	Relamp	No	7	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,220	0.08	313	0.0	$40.37	$251.30	$35.00	5.36
Room 304	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.22	1,217	0.0	$157.06	$738.00	$115.00	3.97
Room 304	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,172	Relamp	No	2	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,172	0.02	117	0.0	$15.07	$96.40	$20.00	5.07
Girl's RR (WC-110)	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.08	456	0.0	$58.90	$445.50	$65.00	6.46
CR 303	11	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	11	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.30	1,673	0.0	$215.96	$913.50	$145.00	3.56
Room 302 (Staff Development Room)	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.33	1,825	0.0	$235.60	$972.00	$155.00	3.47
302A (MDF)	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.11	608	0.0	$78.53	$504.00	$40.00	5.91
IT Dept.	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.25	1,369	0.0	$176.70	$796.50	$125.00	3.80
Faculty Mens RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.08	456	0.0	$58.90	$445.50	$65.00	6.46

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	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
C106 Custodial	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.03	195	0.0	$25.12	$185.76	$5.00	7.20
Faculty Womens RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.08	456	0.0	$58.90	$445.50	$65.00	6.46
Band Room (401)	26	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,220	Relamp	No	26	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.56	2,191	0.0	$282.77	$1,521.00	$260.00	4.46
Band Practice Room/Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,220	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.06	253	0.0	$32.63	$175.50	$30.00	4.46
Band Room Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,220	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.04	169	0.0	$21.75	$117.00	$20.00	4.46
Vocal Room (402)	4	Compact Fluorescent: Screw-In (13W) - 1L	Occupancy Sensor	13	2,220	Relamp	No	4	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	9	2,220	0.01	41	0.0	$5.27	$215.01	$0.00	40.77
Vocal Room (402)	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,220	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.35	1,348	0.0	$174.01	$936.00	$160.00	4.46
Vocal Room (402)	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Vocal Room (402)	2	Linear Fluorescent - T5: 2' T5 (14W) - 2L	Occupancy Sensor	34	2,220	Relamp	No	2	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,220	0.02	87	0.0	$11.21	$96.40	$20.00	6.82
402-A Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
402-B Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
403-A	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
403-B	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
404 Science Lab	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.66	3,651	0.0	$471.19	$1,944.00	$310.00	3.47
404-A	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.11	608	0.0	$78.53	$504.00	$75.00	5.46
408 Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.11	608	0.0	$78.53	$504.00	$75.00	5.46
CR 410 Science Lab	17	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	17	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.46	2,586	0.0	$333.76	$1,264.50	$205.00	3.17
CR 407	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.49	2,738	0.0	$353.40	$1,323.00	$215.00	3.14
CR 409	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.22	1,217	0.0	$157.06	$738.00	$115.00	3.97
CR 411	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.49	2,738	0.0	$353.40	$1,323.00	$215.00	3.14
WC-111 Girl's RR	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,220	0.10	568	0.0	$73.26	$522.80	$35.00	6.66
WC-111 Girl's RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,172	0.04	241	0.0	$31.07	$117.00	$20.00	3.12
CR 412	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 414	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.33	1,825	0.0	$235.60	$972.00	$155.00	3.47
CR 413	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.25	1,369	0.0	$176.70	$796.50	$125.00	3.80

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	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
CR 416	11	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	11	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.30	1,673	0.0	$215.96	$913.50	$145.00	3.56
CR 415	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 417	17	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	17	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.46	2,586	0.0	$333.76	$1,264.50	$205.00	3.17
CR 403	11	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	11	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.30	1,673	0.0	$215.96	$913.50	$145.00	3.56
CR 403	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,220	0.03	154	0.0	$19.87	$96.40	$20.00	3.85
CR 501	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 502	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 503	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
WC-116 Men's RR	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	3,172	0.02	106	0.0	$13.65	$63.20	$0.00	4.63
WC-116 Men's RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.05	304	0.0	$39.27	$387.00	$20.00	9.35
CR 504	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
C 107 Custodial	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.03	195	0.0	$25.12	$185.76	$5.00	7.20
WC-117 Womens RR	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.14	761	0.0	$98.17	$562.50	$85.00	4.86
CR 507	15	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,172	None	Yes	15	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,220	0.04	238	0.0	$30.72	$270.00	$35.00	7.65
CR 507 RR	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,172	Relamp	Yes	1	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Occupancy Sensor	10	2,220	0.03	195	0.0	$25.12	$185.76	$5.00	7.20
CR 509	18	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,172	None	Yes	18	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,220	0.05	286	0.0	$36.86	$270.00	$35.00	6.37
CR 505	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 506	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 508	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 511	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 510	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 513	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 512	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 515	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 514	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	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
CR 516	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 517	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.27	1,521	0.0	$196.33	$855.00	$135.00	3.67
CR 518	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 519	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.33	1,825	0.0	$235.60	$972.00	$155.00	3.47
CR 521	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.33	1,825	0.0	$235.60	$972.00	$155.00	3.47
CR 520	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.41	2,282	0.0	$294.50	$1,147.50	$185.00	3.27
CR 523	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,220	0.33	1,825	0.0	$235.60	$972.00	$155.00	3.47
500 Wing Hallway	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,172	Relamp	Yes	2	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,220	0.03	154	0.0	$19.87	$96.40	$20.00	3.85
500 Wing Hallway	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
500 Wing Hallway	16	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,172	Relamp	Yes	16	LED - Linear Tubes: (1) 4' Lamp	High/Low Control	15	2,220	0.23	1,275	0.0	$164.60	$774.40	$80.00	4.22
500 Wing Hallway	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,220	0.11	608	0.0	$78.53	$234.00	$40.00	2.47
500 Wing Hallway	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,172	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	2,220	0.38	2,142	0.0	$276.46	$961.07	$160.00	2.90
Band Wing Hallway	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Band Wing Hallway	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,172	Relamp	Yes	4	LED - Linear Tubes: (1) 4' Lamp	High/Low Control	15	2,220	0.06	319	0.0	$41.15	$343.60	$20.00	7.86
Band Wing Hallway	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,220	0.03	142	0.0	$18.31	$63.20	$0.00	3.45
400 Wing Hallway	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,220	0.57	3,194	0.0	$412.29	$1,628.50	$210.00	3.44
400 Wing Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Media Center Wing	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,172	Relamp	Yes	10	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	2,220	0.48	2,677	0.0	$345.58	$1,151.33	$200.00	2.75
300 Wing Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
300 Wing Hallway	19	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	19	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,220	0.52	2,890	0.0	$373.03	$1,511.50	$190.00	3.54
300 Wing Hallway	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,172	Relamp	Yes	1	LED - Linear Tubes: (1) 4' Lamp	High/Low Control	15	2,220	0.01	80	0.0	$10.29	$35.90	$5.00	3.00
Auditorium / Cafeteria Hallway	17	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,172	Relamp	Yes	17	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	2,220	0.82	4,552	0.0	$587.49	$2,017.27	$340.00	2.85
Auditorium / Cafeteria Hallway	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium / Cafeteria Hallway	2	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,172	Relamp	Yes	2	LED - Linear Tubes: (4) 2' Lamps	High/Low Control	34	2,220	0.05	286	0.0	$36.91	$153.07	$40.00	3.06
200 Wing Hallway	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,220	0.14	761	0.0	$98.17	$492.50	$50.00	4.51

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	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
200 Wing Hallway	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,172	None	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,220	0.02	95	0.0	$12.29	$200.00	$0.00	16.28
Connector Hallway (Courtyard 3)	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,220	0.19	1,065	0.0	$137.43	$609.50	$70.00	3.93
Connector Hallway (Courtyard 1)	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Connector Hallway (Courtyard 1)	8	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,172	Relamp	Yes	8	LED - Linear Tubes: (1) 4' Lamp	High/Low Control	15	2,220	0.11	638	0.0	$82.30	$487.20	$40.00	5.43
Connector Hallway (Courtyard 3)	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Lobby	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,172	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,220	0.33	1,825	0.0	$235.60	$902.00	$120.00	3.32
Main Lobby	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Exterior	7	High-Pressure Sodium: (1) 150W Lamp	Wall Switch	188	3,172	Fixture Replacement	No	7	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	45	3,172	0.66	3,651	0.0	$471.29	$2,734.74	$700.00	4.32
Exterior	5	High-Pressure Sodium: (1) 100W Lamp	Wall Switch	138	3,172	Fixture Replacement	No	5	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	30	3,172	0.35	1,970	0.0	$254.24	$1,953.39	$500.00	5.72
Parking Lot	2	High-Pressure Sodium: (1) 400W Lamp	Wall Switch	465	3,172	Fixture Replacement	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	120	3,172	0.45	2,517	0.0	$324.86	$781.35	$200.00	1.79
Building Lights	4	High-Pressure Sodium: (1) 400W Lamp	Wall Switch	465	3,172	Fixture Replacement	No	4	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	120	3,172	0.90	5,034	0.0	$649.73	$1,562.71	$400.00	1.79
Building Lights	6	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	20	3,172	None	No	6	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	20	3,172	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Building Lights	11	Compact Fluorescent: Screw-In (13W) - 1L	Wall Switch	13	3,172	Relamp	No	11	LED Screw-In Lamps: LED: Screw-In (9.5W) - 1L	Wall Switch	9	3,172	0.03	161	0.0	$20.72	$591.28	$0.00	28.54
Building Lights	5	Metal Halide: (1) 250W Lamp	Wall Switch	295	3,172	Fixture Replacement	No	5	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	75	3,172	0.72	4,013	0.0	$517.90	$1,953.39	$500.00	2.81
Building Lights	3	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	20	3,172	None	No	3	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	20	3,172	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Building Lights	7	Metal Halide: (1) 400W Lamp	Wall Switch	458	3,172	Fixture Replacement	No	7	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	120	3,172	1.55	8,631	0.0	$1,113.95	$2,734.74	$700.00	1.83
Building Lights	1	High-Pressure Sodium: (1) 250W Lamp	Wall Switch	295	3,172	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	75	3,172	0.14	803	0.0	$103.58	$390.68	$100.00	2.81
Football Field	100	Metal Halide: (1) 400W Lamp	Wall Switch	458	100	None	No	100	Metal Halide: (1) 400W Lamp	Wall Switch	458	100	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Garage	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	100	None	No	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	100	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Consession Stand	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	60	None	No	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	60	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Press Boxes	4	Compact Fluorescent: Screw-In (13W) - 1L	Wall Switch	13	60	None	No	4	Compact Fluorescent: Screw-In (13W) - 1L	Wall Switch	13	60	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Press Boxes	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	60	None	No	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	60	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Motor Inventory & Recommendations

		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	DHW Circulation	2	Water Supply Pump	0.5	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	Hot Water Heating System	2	Heating Hot Water Pump	5.0	87.5%	No	2,745	Yes	89.5%	Yes	2	1.35	10,306	0.0	$1,330.16	$8,393.82	$0.00	6.31
Boiler Room	Hot Water Heating System	1	Heating Hot Water Pump	1.5	89.5%	No	0	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	Hot Water Heating System	1	Heating Hot Water Pump	7.5	84.0%	No	3,391	Yes	91.7%	Yes	1	1.20	10,280	0.0	$1,326.87	$4,760.59	$0.00	3.59
Boiler Room	Hot Water Heating System	1	Heating Hot Water Pump	7.5	84.0%	No	0	Yes	91.7%	Yes	1	0.00	0	0.0	$0.00	$4,760.59	$0.00	0.00
Shop	Shop Area	1	Supply Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Shop	Shop Area	1	Exhaust Fan	0.5	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Crawlspace Above Gym	Gym	1	Supply Fan	1.5	84.0%	Yes	2,745	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Crawlspace Above Gym	Gym	1	Exhaust Fan	0.8	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Crawlspace Above Gym	Gym	1	Supply Fan	2.0	84.0%	Yes	2,745	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Crawlspace Above Gym	Gym	1	Exhaust Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Crawlspace Above Gym	Rooms 205, 206, 207, & 207C	1	Supply Fan	2.0	84.0%	Yes	2,745	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Crawlspace Above Gym	Rooms 205, 206, 207, & 207C	1	Exhaust Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 401 & 402	1	Supply Fan	2.0	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 401 & 402	1	Supply Fan	5.0	87.5%	No	2,745	Yes	89.5%	Yes	1	0.72	2,236	0.0	$288.56	$4,196.91	$400.00	13.16
Roof	Room 404	1	Supply Fan	2.0	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 404	1	Exhaust Fan	1.5	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Rooms 507 & 509	1	Supply Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Media Center	1	Supply Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Media Center	1	Supply Fan	5.0	87.5%	No	2,745	Yes	89.5%	Yes	1	0.72	2,236	0.0	$288.56	$4,196.91	$400.00	13.16

		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
Roof	Room 303 & Professional Development Room	1	Supply Fan	3.0	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	IT Office	1	Supply Fan	0.8	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Guidance Office	1	Supply Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Auditorium	2	Supply Fan	10.0	91.7%	No	3,391	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Auditorium	2	Exhaust Fan	7.5	88.5%	No	3,391	No	88.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Gym Small Team Rooms & Locker Room Hallway & Girls & Boys Locker Room	4	Supply Fan	1.5	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Weight Room Closet	Weight Room	1	Supply Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Weight Room Closet	Weight Room	1	Exhaust Fan	0.5	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
E104	500 Area	1	Supply Fan	1.5	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
M103	403A	1	Supply Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen Storage Room	Kitchen	1	Supply Fan	2.0	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
E101	Sump Pump	1	Process Pump	2.0	84.0%	No	500	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Whole Building Hallways	Hallways	12	Supply Fan	0.1	60.0%	No	2,745	No	60.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Whole Building	4	Exhaust Fan	1.5	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Whole Building	18	Exhaust Fan	0.3	65.0%	No	2,745	No	65.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 403	1	Supply Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 403	1	Exhaust Fan	0.5	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Whole Building	Whole Building	10	Supply Fan	0.1	60.0%	No	500	No	60.0%	No		0.00	0	0.0	$0.00	$0.00	$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
Whole Building	Classrooms	19	Window AC	0.75		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 401	1	Packaged AC	6.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 402	1	Packaged AC	10.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Rooms 507 & 509	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Media Center	1	Packaged AC	4.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Media Center	1	Packaged AC	15.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 303 & Professional Development Room	1	Split-System AC	3.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	IT Office	1	Packaged AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Guidance Office	1	Split-System AC	6.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Auditorium	1	Split-System AC	5.00		No							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	Whole Building	1	Condensing Hot Water Boiler	3,000.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	Whole Building	1	Condensing Hot Water Boiler	3,000.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	Whole Building	1	Condensing Hot Water Boiler	3,000.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	Whole Building	1	Condensing Hot Water Boiler	3,000.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	Whole Building	1	Condensing Hot Water Boiler	3,000.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 401	1	Furnace	120.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 402	1	Furnace	200.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Rooms 507 & 509	1	Furnace	104.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Media Center	1	Furnace	64.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Media Center	1	Furnace	203.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	IT Office	1	Furnace	80.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Gym Small Team Rooms & Locker Room Hallway & Girls & Boys Locker Room	4	Furnace	100.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 403	1	Furnace	80.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00

DHW Inventory & Recommendations

		Existing Conditions		Proposed Conditions						Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	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	Whole Building	1	Indirect System	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Low-Flow Device Recommendations

	Recommedation Inputs				Energy Impact & Financial Analysis						
Location	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
Shop	1	Faucet Aerator (Kitchen)	3.00	2.20	0.00	0	1.4	$11.75	$7.17	$0.00	0.61
Weight Room	1	Faucet Aerator (Kitchen)	3.00	2.20	0.00	0	1.4	$11.75	$7.17	$0.00	0.61
Girl's Locker Room	4	Showerhead	2.50	2.00	0.00	0	3.8	$32.65	$357.20	$0.00	10.94
Boys Locker Room	8	Showerhead	2.50	2.00	0.00	0	7.6	$65.30	$714.40	$0.00	10.94

Walk-In Cooler/Freezer Inventory & Recommendations

	Existing Conditions		Proposed Conditions			Energy Impact & Financial Analysis						
Location	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

Cooking Equipment Inventory & Recommendations

	Existing Conditions			Proposed Conditions	Energy Impact & Financial Analysis						
Location	Quantity	Equipment Type	High Efficiency Equipement?	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	6	Insulated Food Holding Cabinet (Full Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	2	Gas Convection Oven (Full Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	1	Gas Convection Oven (Full Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	1	Gas Griddle (≤2 Feet Width)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	1	Gas Rack Oven (Double)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	1	Electric Convection Oven (Half Size)	Yes	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?
Whole Building	223	Desktop Computer	150.0	Yes
Whole Building	1,000	Laptops	45.0	Yes
Whole Building	25	Desk Printer	40.0	Yes
Whole Building	6	Photocopier	600.0	Yes
Whole Building	8	LCD TV	71.0	Yes
Whole Building	12	Tube TV	120.0	Yes
Whole Building	2	Large Desk Printer	60.0	Yes
Shop	1	Smoke Eater	950.0	Yes
Whole Building	8	Refrigerator	172.0	Yes
Whole Building	10	Minifridge	153.0	Yes
Whole Building	44	Projector	200.0	Yes
Whole Building	4	3ft Fan	100.0	Yes
Whole Building	11	Micorwave	1,000.0	Yes
Whole Building	5	Coffee Maker	900.0	Yes
Classroom	1	Driving Simulator	1,000.0	Yes
Whole Building	2	Shredder	150.0	Yes
Whole Building	32	Smartboard	100.0	Yes
Whole Building	2	3D Printer	500.0	Yes
Computer Lab	1	Laser Cutter	1,500.0	No
Kitchen	1	Clothes Washer	900.0	No
Kitchen	2	Kitchen Refrigerators	218.0	Yes
Kitchen	2	Kitchen Freezers	207.0	Yes
Kitchen	4	Compact Refrigerated Case	125.0	Yes
Kitchen	1	Tall Refrigerated Case	150.0	Yes
Kitchen	1	Ice Cream Freezer	127.0	Yes

Vending Machine Inventory & Recommendations

	Existing Conditions		Proposed Conditions	Energy Impact & Financial Analysis						
Location	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	$416.08	$460.00	$0.00	1.11
Cafeteria	1	Glass Fronted Refrigerated	Yes	0.00	1,209	0.0	$156.03	$230.00	$0.00	1.47
Faculty Cafeteria	2	Refrigerated	Yes	0.00	3,224	0.0	$416.08	$460.00	$0.00	1.11
Gym Area	3	Refrigerated	Yes	0.00	4,836	0.0	$624.11	$690.00	$0.00	1.11
Gym Area	1	Glass Fronted Refrigerated	Yes	0.00	1,209	0.0	$156.03	$230.00	$0.00	1.47

Appendix B: ENERGY STAR® Statement of Energy Performance

ENERGY STAR® Statement of Energy Performance

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59

ENERGY STAR® Score[1]

Pequannock Township High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 130,547
Built: 1957

For Year Ending: February 28, 2017
Date Generated: March 19, 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	Property Owner	Primary Contact
Pequannock Township High School 85 Sunset Road Pompton Plains, New Jersey 07444	Pequannock Township Board of Education 538 Newark Pompton Turnpike Pompton Plains, NJ 07444 973-616-6030	Kateryna Bechtel 538 Newark Pompton Turnpike Pompton Plains, NJ 07444 973-616-6030 Ext. 7201 kathy.bechtel@pequannock.org

Property ID: 6254558

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
81.5 kBtu/ft²

Source EUI
138.3 kBtu/ft²

Annual Energy by Fuel

Electric - Grid (kBtu)	3,296,338 (31%)
Natural Gas (kBtu)	7,339,646 (69%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	88.7
National Median Source EUI (kBtu/ft²)	150.6
% Diff from National Median Source EUI	-8%

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	756

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)