Local Government Energy Audit:
Energy Audit Report

Clearview High School

625 Breakneck Road

Mullica Hill, NJ 08062

Clearview Regional High School District

May 2, 2018

Final Report by:

TRC Energy Services

Disclaimer

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

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

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

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

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1 EXECUTIVE SUMMARY

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

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

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

1.1 Facility Summary

Clearview High School is a 250,947 square foot facility comprised of various space types within one building. The building has two floors and includes classrooms, offices, theater, media center, two gymnasiums, a commercial kitchen, storage spaces, and mechanical space. There is also a small garage on the property that is included in the square footage.

Lighting at Clearview High School consists of aging and inefficient linear and compact fluorescent light fixtures as well as some incandescent light fixtures. Heating is supplied by three hot water boilers which distribute hot water to coils in roof air handlers and unit ventilators in classrooms. Cooling is provided by a combination of two screw chillers, a scroll chiller, split-system air conditioners, and packaged air conditioners throughout the building. A thorough description of the facility and our observations are located in Section 2.

1.2 Your Cost Reduction Opportunities

Energy Conservation Measures

TRC evaluated 12 measures and recommends 10, which together represent an opportunity for Clearview High School to reduce annual energy costs by $106,654 and annual greenhouse gas emissions by 720,536 lbs CO_2e. We estimate that if all measures were implemented as recommended, the project would pay for itself in 7.4 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 Clearview High School's annual energy use by 10%.

Figure 1 – Previous 12 Month Utility Costs

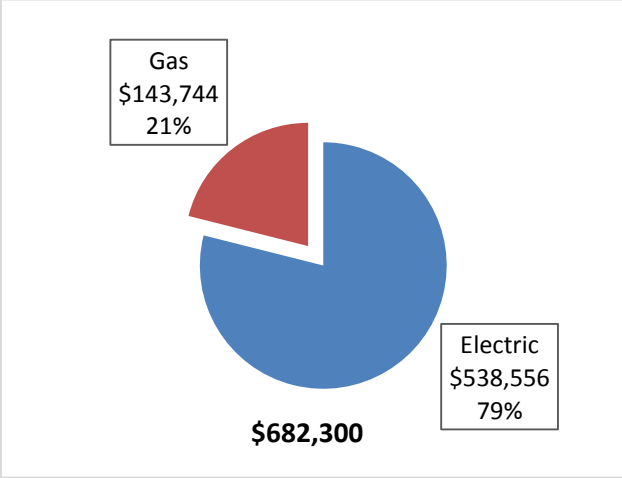
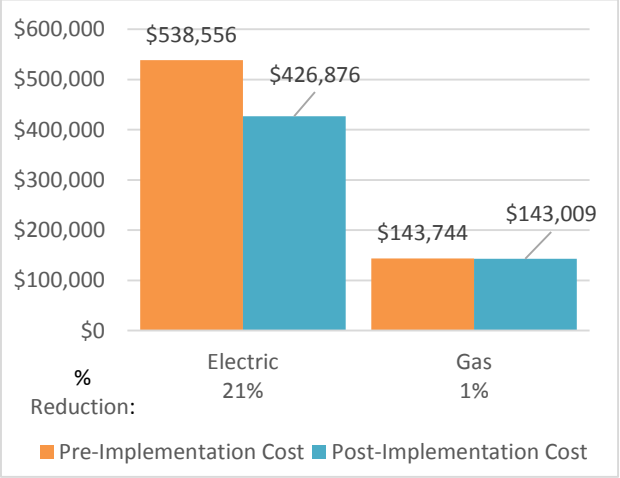


Figure 2 – Potential Post-Implementation Costs



A detailed description of Clearview 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 Natural Gas Savings (MMBtu)	Annual N/A Savings (MMBtu)	Annual N/A Savings (MMBtu)	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			**573,427**	**147.8**	**0.0**	**0.0**	**0.0**	**0.0**	**$86,918.13**	**$712,660.18**	**$50,625.00**	**$662,035.18**	**7.6**	**577,436**
ECM 1	Install LED Fixtures	Yes	205,895	77.5	0.0	0.0	0.0	0.0	$31,208.92	$420,561.54	$15,100.00	$405,461.54	13.0	207,335
ECM 2	Retrofit Fixtures with LED Lamps	Yes	364,588	70.1	0.0	0.0	0.0	0.0	$55,263.06	$289,517.32	$35,525.00	$253,992.32	4.6	367,137
ECM 3	Install LED Exit Signs	Yes	2,943	0.2	0.0	0.0	0.0	0.0	$446.14	$2,581.32	$0.00	$2,581.32	5.8	2,964
Lighting Control Measures			**93,329**	**17.1**	**0.0**	**0.0**	**0.0**	**0.0**	**$14,146.56**	**$55,278.00**	**$14,045.00**	**$41,233.00**	**2.9**	**93,982**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	86,164	15.8	0.0	0.0	0.0	0.0	$13,060.50	$46,868.00	$6,900.00	$39,968.00	3.1	86,767
ECM 5	Install High/Low Lighitng Controls	Yes	7,165	1.3	0.0	0.0	0.0	0.0	$1,086.06	$8,410.00	$7,145.00	$1,265.00	1.2	7,215
Motor Upgrades			**9,377**	**2.5**	**0.0**	**0.0**	**0.0**	**0.0**	**$1,421.38**	**$62,527.87**	**$0.00**	**$62,527.87**	**44.0**	**9,443**
	Premium Efficiency Motors	No	9,377	2.5	0.0	0.0	0.0	0.0	$1,421.38	$62,527.87	$0.00	$62,527.87	44.0	9,443
Variable Frequency Drive (VFD) Measures			**17,773**	**5.4**	**0.0**	**0.0**	**0.0**	**0.0**	**$2,693.92**	**$28,803.55**	**$3,200.00**	**$25,603.55**	**9.5**	**17,897**
ECM 6	Install VFDs on Constant Volume (CV) HVAC	Yes	17,773	5.4	0.0	0.0	0.0	0.0	$2,693.92	$28,803.55	$3,200.00	$25,603.55	9.5	17,897
Electric Unitary HVAC Measures			**28,650**	**17.0**	**0.0**	**0.0**	**0.0**	**0.0**	**$4,342.62**	**$102,922.01**	**$5,953.00**	**$96,969.01**	**22.3**	**28,850**
	Install High Efficiency Electric AC	No	28,650	17.0	0.0	0.0	0.0	0.0	$4,342.62	$102,922.01	$5,953.00	$96,969.01	22.3	28,850
HVAC System Improvements			**4,184**	**0.9**	**11.8**	**0.0**	**0.0**	**11.8**	**$770.89**	**$1,674.00**	**$500.00**	**$1,174.00**	**1.5**	**5,600**
ECM 7	Install Dual Enthalpy Outside Economizer Control	Yes	4,184	0.9	0.0	0.0	0.0	0.0	$634.13	$1,500.00	$500.00	$1,000.00	1.6	4,213
ECM 8	Install Pipe Insulation	Yes	0	0.0	11.8	0.0	0.0	11.8	$136.76	$174.00	$0.00	$174.00	1.3	1,387
Domestic Water Heating Upgrade			**0**	**0.0**	**51.8**	**0.0**	**0.0**	**51.8**	**$597.79**	**$4,297.48**	**$0.00**	**$4,297.48**	**7.2**	**6,061**
ECM 9	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	51.8	0.0	0.0	51.8	$597.79	$4,297.48	$0.00	$4,297.48	7.2	6,061
Plug Load Equipment Control - Vending Machine			**10,074**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**$1,526.98**	**$1,840.00**	**$0.00**	**$1,840.00**	**1.2**	**10,144**
ECM 10	Vending Machine Control	Yes	10,074	0.0	0.0	0.0	0.0	0.0	$1,526.98	$1,840.00	$0.00	$1,840.00	1.2	10,144
TOTAL FOR RECOMMENDED MEASURES			**698,786**	**171.2**	**63.6**	**0.0**	**0.0**	**63.6**	**$106,654.28**	**$804,553.21**	**$68,370.00**	**$736,183.21**	**6.9**	**711,120**
TOTAL FOR ALL MEASURES			**736,813**	**190.7**	**63.6**	**0.0**	**0.0**	**63.6**	**$112,418.28**	**$970,003.08**	**$74,323.00**	**$895,680.08**	**8.0**	**749,413**

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 measure save energy by reducing the power used by the lighting components due to improved electrical efficiency.

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

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

Variable Frequency Drives (VFDs) are motor control devices. These measures control the speed of a motor so that the motor spins at peak efficiency during partial load conditions. Sensors adapt the speed to flow, temperature, or pressure settings which is much more efficient 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.

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

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

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

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

Energy Efficient Practices

TRC also identified 14 low cost or no cost energy efficient practices. A facility's energy performance can be significantly improved by employing certain behavioral or operational adjustments and by performing better routine maintenance on building systems. These practices can extend equipment lifetime, improve occupant comfort, provide better health and safety, as well as reduce annual energy and O&M costs. Potential opportunities identified at Clearview High School include:

- Reduce Air Leakage
- Use Window Treatments/Coverings
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Use Fans to Reduce Cooling Load

- Install Destratification Fans
- Assess Chillers & Request Tune-Ups
- Clean Evaporator/Condenser Coils on AC Systems
- Clean and/or Replace HVAC Filters
- Check for and Seal Duct Leakage
- Perform Proper Boiler Maintenance
- Perform Maintenance on Compressed Air Systems
- Install Plug Load Controls
- 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 Clearview 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	107	kW DC STC
Electric Generation	127,477	kWh/yr
Displaced Cost	$11,090	/yr
Installed Cost	$278,200	

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 facility upgrades or improvements.

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

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

- SmartStart
- 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 facility may also qualify for the Direct Install program which can provide turnkey installation of multiple measures, through an authorized network of participating contractors. This program can provide substantially higher incentives that SmartStart, up to 70% of the cost of selected measures, although measure eligibility will have to be assessed and be verified by the designated Direct Install contractor and, in most cases, they will perform the installation work.

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 located in Section 8 or: www.njcleanenergy.com/ci.

2 FACILITY INFORMATION AND EXISTING CONDITIONS

2.1 Project Contacts

Figure 5 – Project Contacts

Name	Role	E-Mail	Phone #
Customer			
Esther Pennell	Business Administrator	pennelles@clearviewregional.edu	856-223-2764
Steve Nicolella	Facility Director	nicoellast@clearviewregional.edu	856-223-2784
TRC Energy Services			
Alexander Klieverik	Auditor	aklieverik@trcsolutions.com	732-855-0033

2.2 General Site Information

On November 1st, 2nd, 8th, and 9th of 2017, TRC performed an energy audit at Clearview High School located in Mullica Hill, New Jersey. TRC's team met with Steve Nicolella to review the facility operations and help focus our investigation on specific energy-using systems.

Clearview High School is a 250,947 square foot facility comprised of various space types within one building. The building has two floors and includes classrooms, offices, theater, media center, two gymnasiums, a commercial kitchen, storage spaces, and mechanical space. There is also a small garage on the property that is included in the square footage.

The building was constructed in 1960. The last year of major renovation was in 2003.

2.3 Building Occupancy

The school building is open Monday through Friday and often open on Saturdays for student related activities, (sports, extra-curricular activities, etc.). The typical schedule is presented in the table below. The entire facility is used year round by the community and camps are run throughout the summer. During a typical day, the facility is occupied by approximately 200 staff and 1,600 students.

Figure 6 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
Clearview Regional High School	Weekday	6 AM - 8 PM
Clearview Regional 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 a flat roof covered with black membrane that is in fair condition. The building has double pane sliding glass windows which are in good condition and show little sign of excessive infiltration. The exterior doors are constructed of aluminum and are in good condition except that the door seals have worn out which increases the level of outside air infiltration.

Image Group 1 - Building Envelope

2.5 On-Site Generation

Clearview 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 facility's equipment.

Lighting System

Lighting is provided mostly by 32-Watt linear fluorescent T8 lamps with electronic ballasts as well as some compact fluorescent lamps (CFLs). Most of the fixtures are 2-lamp, 3-lamp, or 4-lamp 4-foot long troffers with diffusers.

The theater area of the building with 26-Watt or 42-Watt CFL lamps in recessed can ceiling fixtures.

Lighting control in most spaces is provided by wall switches. Building staff are generally conscious about turning lights off in unoccupied spaces. Stairwell and hallway lighting is turned off manually at the end of each day and run for approximately nine hours per day.

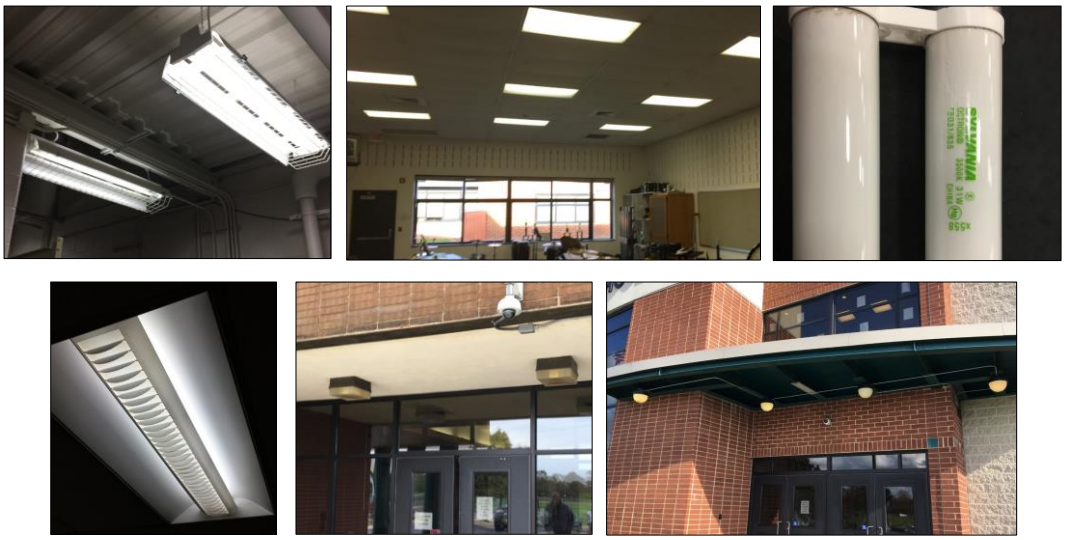


Image Group 2 - Typical Interior and Exterior Lighting

The building's exterior lighting consists primarily of high pressure sodium (HPS) fixtures that are controlled by photocells. There are also some exterior compact fluorescent and LED fixtures.

Chilled Water System

The facility is served by multiple chilled water plants. The building has two 245 ton, Carrier, HFC-134a refrigerant, screw chillers (CH1 & CH2) and a single 124 ton Trane, R-134a, scroll chiller (CH3). One of the Carrier chillers is located on the roof, and only serves the theater between April and October when the outdoor temperature is above 76°F. The Trane chiller is located on the roof and serves the south side of the building including the Media Center, the 300 wing, and classrooms 509 through 512. The second Carrier chiller is located on the ground adjacent to the new gymnasium and serves the rest of the building.

The distribution loop for the main Carrier unit serving most of the building consists of two 40 hp constant flow chilled water pumps (CHWP1 & CHWP2). The Trane chiller serving the south side of the building has its own distribution loop with two 7.5 hp pumps controlled by VFDs. Chilled water is distributed at 42°F. The chiller plant is locked out when the outside air temperature is below 45°F and turned off from mid-November through March.

The chiller plant supplies chilled water to rooftop air handlers and to classroom unit ventilators.

Image Group 3 - CH1, CH2, & CH3

Hot Water Heating System

The heating hot water system consists of three H.B. Smith 5,862 MBH output, non-condensing natural draft boilers (BR 1, 2, & 3). The boilers have a nominal combustion efficiency of 79%. Each boiler has a 3 hp burner blower. The boilers are configured in a variable flow primary distribution with two 50 ph hot water supply pumps and two 15 hp return pumps (HHWP1 & 2). Only one pump is operating at a time, while the other is for backup. Hot water is supplied at 180°F when the outside air temperature is below 55°F and the shut down when the outside air is at or above 65°F. The boilers provide hot water to rooftop air handlers, the classroom unit ventilators, and some unit heaters with hot water coils located in various mechanical and storage spaces.

Image 4 - H.B. Smith Hot Water Boiler – 1 of 3

The boilers operate in a lead/lag configuration controlled by a Tekmar 268 control panel. Two boilers may be required during cold weather. The lead boiler is rotated based on run hours.

The boilers are in fair condition and well maintained.

Chilled Water Air Conditioning System (CHW)

There are nine AAON air handling units (AHU1-9) with hot and chilled water coils that provide heating and cooling to various spaces throughout the building. Each AHU draws air from its own return air shaft and supplies air to its own air shaft. Spaces that are served by these units include the café, auxiliary gym and associated locker rooms, the theater and theater lobby, the green room, the stage, the band area and the guidance area (LGI). The air handlers were not labeled 1-9, but for the purposes of this report and simplified annotation, they have been labeled as such. All the air handlers are located on the roof of the building.

- AHU1 serves the café area of the building. This AHU is a single zone constant air volume (CAV) system. The AHU has a single 3 hp supply fan and single 2 hp return fan.
- AHU2 & AHU3 serve the band and LGI. These AHUs are a multi-zone constant air volume (CAV) system. AHU2 has a single 5 hp supply fan and single 3 hp return fan, while AHU3 has a 3 hp supply fan and a 2 hp return fan.
- AHU4 serves the auxiliary gym locker rooms and has a single belt-driven 2 hp supply fan.
- AHU5 serves only the theater lobby. This AHU is also a single zone constant air volume (CAV) system. AHU5 has a single 15 hp supply fan and single 7.5 hp return fan.
- AHU6 serves the theater audience area and is the largest AHU at the building. This AHU is a single zone constant air volume (CAV) system with two 30 hp supply fans and two 7.5 hp return fans with variable speed drives installed.
- AHU7 serves the green room located behind the stage. This AHU is a single zone constant air volume (CAV) system and has a single 2 hp supply fan and single 1 hp return fan.
- AHU8 serves the stage area of the theater. This AHU is a single zone constant air volume (CAV) system and has a single 15 hp supply fan and single 7.5 hp return fan.
- AHU9 serves the auxiliary gymnasium. This AHU is a single zone constant air volume (CAV) system and has a single 5 hp supply fan and single 3 hp return fan.

Image Group 5 - AAON Air Handler Units

Each AHU operates based on building occupancy. The occupied setpoint for most of the building is either 68°F or 70°F. The setpoint for unoccupied spaces is 60°F for heating, and 74°F for cooling. All the units are approximately 12 years old and appear to be in good condition.

Direct Expansion Air Conditioning System (DX)

Some spaces are not served by the chiller and AHU system but use a mixture of direct-expansion packaged units, cooling only split systems, and ductless mini-split heat pumps. There are two ductless mini-split heat pumps; each serving a small office. There is also a cooling-only ductless mini-split serving the trainer's office near the new gymnasium. The units are controlled by individual thermostats located within the space served.

There are seven direct-expansion (DX) package units with a gas fired furnace and outside air economizers used to condition part of the building. The unit is located on the roof and provide cooling for the new

cafeteria, the main office and entry area, the STEM Lab, Tech Room, and room 506 on the first floor. The units provide constant air volume and utilize scroll compressors and a DX coils. The gas fired furnace provides heating as needed.

There are 16 cooling-only split systems used to condition the music room, health room, ensemble room, marching band room, weight room, trainer's office, storage closet, faculty room, the Teacher Planning Room, and the old cafeteria:

- Health room - two 4-ton systems
- Old cafeteria - six 4.5-ton systems
- The remaining rooms contain one DX system ranging in size from 2.5 tons to 15 tons.

The fan and evaporator are located in the recessed ceiling of the designated spaces, while the condensing unit is located on the roof.

Image Group 6 – Various DX Cooling Systems

Building Energy Management System (BEMS)

The majority of the facility pumps are controlled with a Honeywell building energy management system (BEMS). The BEMS aggregates the DDC points from throughout the building. The system is capable of providing trends for individual DDC points for up to one-year of historical data.

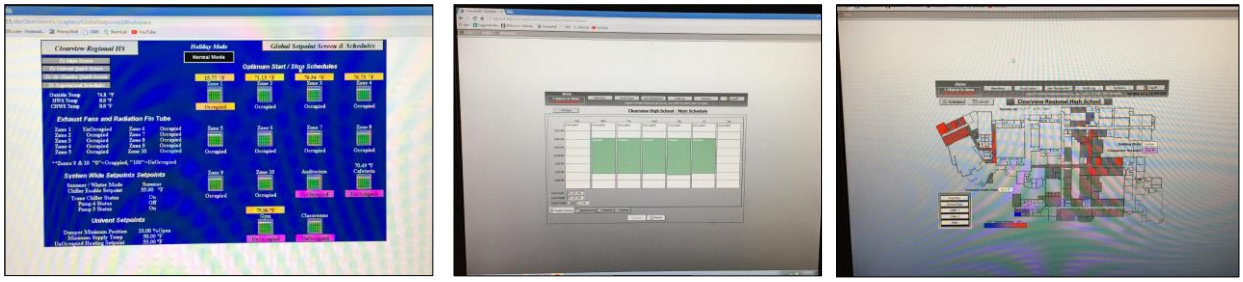


Image Group 7 - Honeywell BEMS

Domestic Hot Water Heating System

The domestic hot water heating system for the facility consists of two AERCO gas fired condensing hot water heaters with an input rating of 1,000 kBtu/hr each and a nominal efficiency of 93%. Each water heater has a 100 gallon storage tank. One 214W recirculation pump distributes 130°F water to the entire building. The recirculation pump operates on an aquastat.

Image Group 8 - DHW Boilers, Mixing Valve, & Recirculation Pump

Food Service Equipment

The facility has a full commercial kitchen that is used to prepare breakfast and lunch for the students. The ovens, range tops and griddle are all gas fired. There is one 40 gallon kettle that is used most days to prepare hot soup. 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. The dishwasher operates from 8:00 AM to 11:00 AM and again from 12:00 PM to 1:30 PM.

There is also a small kitchen facility serving the café for faculty and staff. This kitchen has one refrigerator, one freezer, and one heating cabinet.

Image Group 9 - Kitchen Equipment

Refrigeration

The facility has two different 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 -1°F. Each storage area's temperature is logged at the beginning and end of each day. The cooler area is served by two evaporators and the freezer area is served by three evaporators each having a single 1/4 HP fan. There is a single 5 hp condensing units with reciprocating compressors connected to evaporators

serving the cooler section and there is a single 5 HP condensing units connected to evaporators serving the freezer area.

Image Group 10 - Walk-In Cooler & Freezer with Roof Condensing Units

Building Plug Load

There are 214 computer work stations throughout the facility. Roughly 90% of the computers are desktop units with LCD monitors. There is no centralized PC power management software installed.

There are 1,200 Chromebook laptops throughout the facility. These laptops are housed in charging cabinets with approximately 10-30 laptops per cabinet.

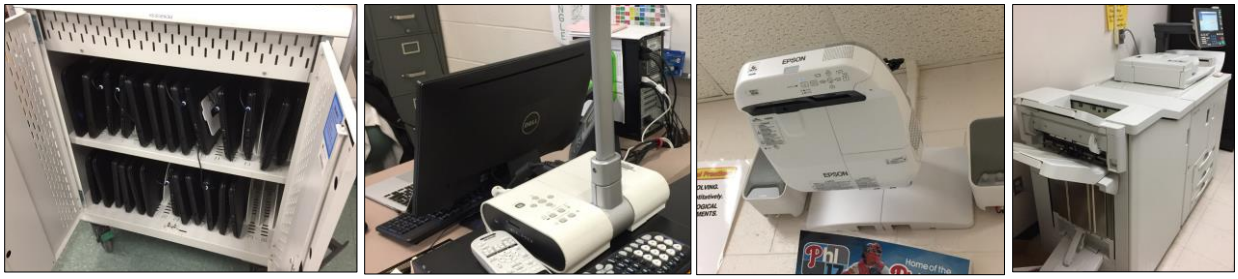


Image Group 11 - Common Plug Loads

There are three server closets/rooms at the facility. Cooling is provided by the main air handler units located on the roof.

There are approximately 95 wall projectors, five photocopiers, two clothes washers, two clothes dryers, 30 microwave ovens, and various other appliances including flat screen TVs and paper shredders throughout the building. There were no power management controls for this equipment observed during the audit, and are reportedly turned on and off as needed.

The facility has a number of refrigerated beverage and snack vending machines (estimated to be eight machines in total).

Image 12 - Vending Machines

2.7 Water-Using Systems

There are 30 restrooms at this facility. A sampling of restrooms found that the faucets located in the student restrooms are rated for 0.5 gallons per minute (gpm) with motion sensor controls. Other restrooms for faculty and staff have faucets rated at 2.2 gpm or higher. The toilets are rated at 2.5 gallons per flush (gpf) and the urinals are rated at 2 gpf. There are four restrooms located in the locker rooms with showers that faculty and staff use infrequently. The showerheads are rated at 2.5 gpm.

The school has six locker rooms for the old gym, new gym, and auxiliary gym. The old gym girls' locker room and boys' locker room have seven showerheads each. The new gym girls' locker room and boys' locker room have 10 showerheads each. The auxiliary gym girls' locker room and boy's locker room have six showerheads each. All of the showerheads are rated at 2.5 gpm. The showers in the boy's and girl's locker rooms are only used during the school year for after school sports teams. All of the toilets on campus use 2.5 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

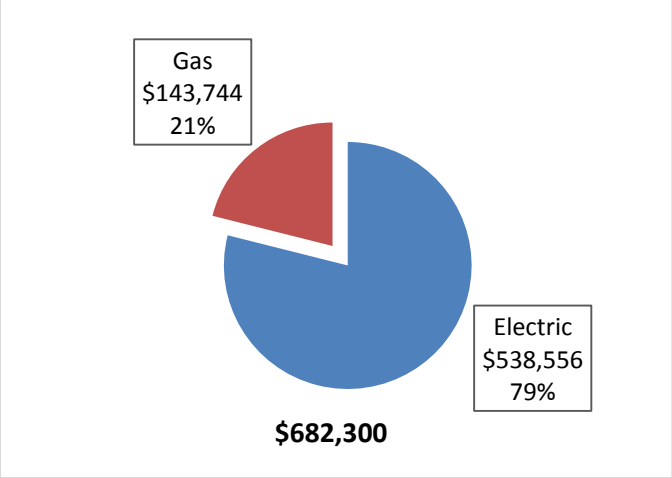
The following energy consumption and cost data is based on the last 12-month period of utility billing data that was provided for each utility. A profile of the annual energy consumption and energy cost of the facility was developed from this information.

Figure 7 - Utility Summary

Utility Summary for Clearview High School		
Fuel	**Usage**	**Cost**
Electricity	3,553,027 kWh	$538,556
Natural Gas	124,480 Therms	$143,744
Total		**$682,300**

The current annual energy cost for this facility is $682,300 as shown in the chart below.

Figure 8 - Energy Cost Breakdown



3.2 Electricity Usage

Electricity is provided by Atlantic City Electric. The average electric cost over the past 12 months was $0.152/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.

Figure 9 - Electric Usage & Demand

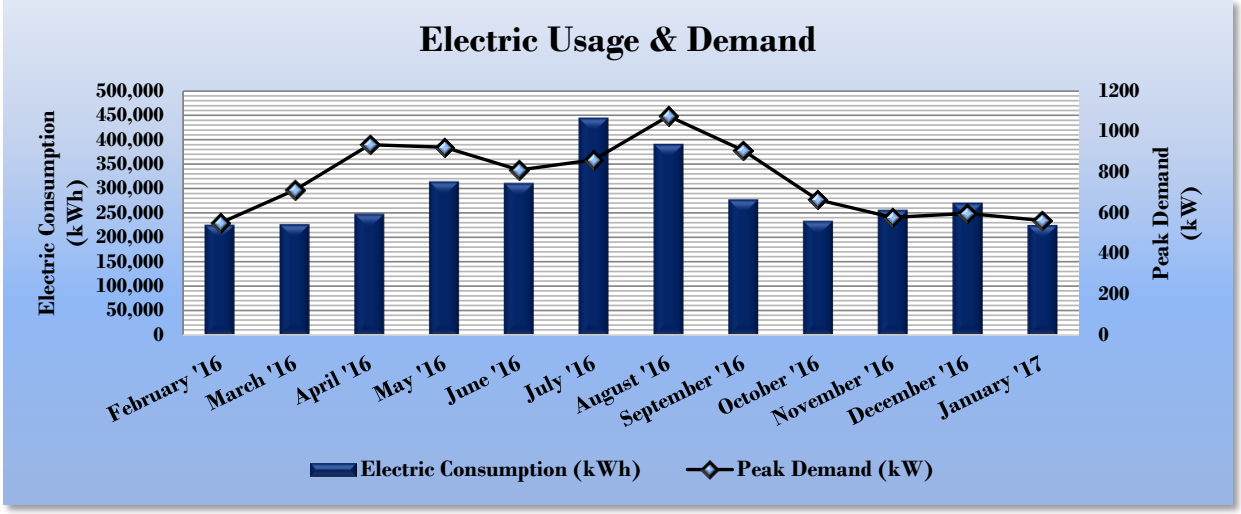


Figure 10 - Electric Usage & Demand

Electric Billing Data for Clearview High School					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
3/7/16	27	225,982	551	$0	$35,564
4/8/16	31	226,861	713	$0	$35,061
5/9/16	30	248,588	935	$0	$38,644
6/8/16	29	314,282	924	$0	$46,977
7/8/16	29	310,868	811	$0	$45,342
8/9/16	31	444,557	862	$0	$62,209
9/9/16	30	391,234	1,077	$0	$58,259
10/10/16	30	277,456	908	$0	$43,058
11/8/16	28	234,086	665	$0	$37,226
12/9/16	30	256,246	577	$0	$39,376
1/11/17	32	270,987	598	$0	$42,349
2/6/17	25	225,334	563	$0	$35,310
Totals	**352**	**3,426,481**	**1076.58**	**$0**	**$519,375**
Annual	**365**	**3,553,027**	**1076.58**	**$0**	**$538,556**

3.3 Natural Gas Usage

Natural gas is provided by South Jersey Gas. The average gas cost for the past 12 months is $1.155/therm, which is the blended rate used throughout the analyses in this report. Because this building shares a gas meter with the adjacent high school, the gas usage was estimated by comparing occupancy and square footage between the two buildings. It is estimated that this building consumes 66%, while the adjacent middle school consumes 34% of the total gas usage recorded by the meter. The estimated monthly gas consumption is shown in the chart below.

Figure 11 - Natural Gas Usage

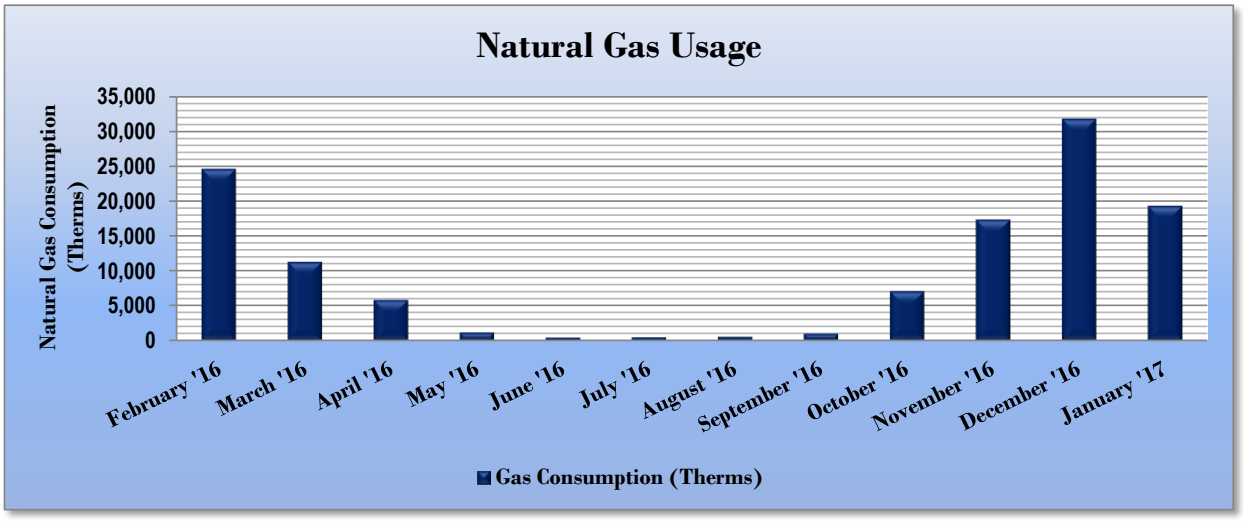


Figure 12 - Natural Gas Usage

Gas Billing Data for Clearview High School				
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost	TRC Estimated Usage?
3/7/16	27	24,513	$18,504	Yes
4/8/16	31	11,212	$8,642	Yes
5/9/16	30	5,762	$4,755	Yes
6/8/16	29	1,118	$1,798	Yes
7/8/16	29	386	$1,351	Yes
8/9/16	31	409	$1,449	Yes
9/9/16	30	491	$1,531	Yes
10/10/16	30	936	$1,860	Yes
11/8/16	28	7,028	$2,897	Yes
12/9/16	30	17,260	$22,664	Yes
1/11/17	32	31,684	$44,876	Yes
2/6/17	25	19,249	$28,297	Yes
Totals	**352**	**120,047**	**$138,624**	12
Annual	**365**	**124,480**	**$143,744**	

3.4 Benchmarking

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

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

Figure 13 - Energy Use Intensity Comparison – Existing Conditions

Energy Use Intensity Comparison - Existing Conditions		
	Clearview High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	203.8	141.4
Site Energy Use Intensity (kBtu/ft^2)	97.9	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		
	Clearview High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	173.7	141.4
Site Energy Use Intensity (kBtu/ft^2)	88.2	58.2

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

As the gas account is shared between this building and the middle school, it was not possible to benchmark these buildings and provide a score individually. The combined score for the two buildings is 57. Appendix B includes the Portfolio Manager Statement of Energy Performance (SEP) for the combined buildings.

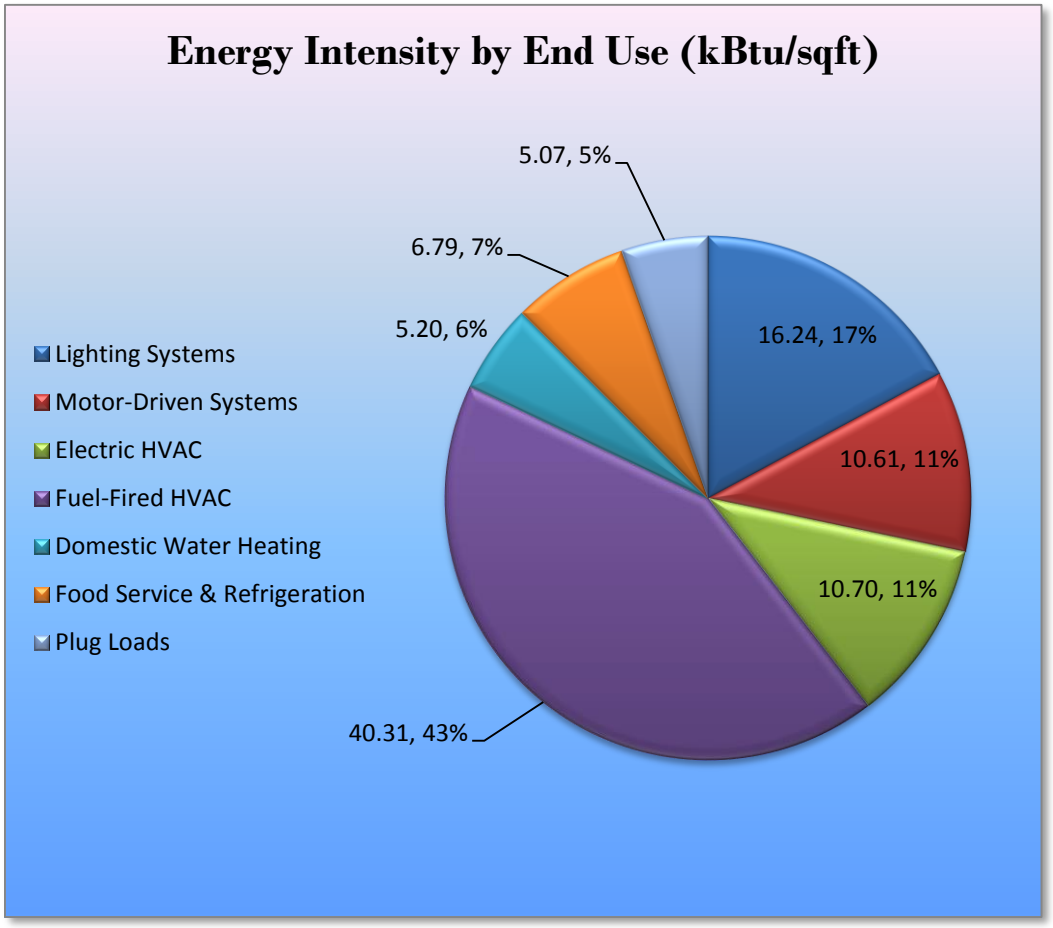
For more information on ENERGY STAR® certification go to: https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1.

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

3.5 Energy End-Use Breakdown

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

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

The following sections describe the evaluated measures.

4.1 Recommended ECMs

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

Figure 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		**573,427**	**147.8**	**0.0**	**$86,918.13**	**$712,660.18**	**$50,625.00**	**$662,035.18**	**7.6**	**577,436**
ECM 1	Install LED Fixtures	205,895	77.5	0.0	$31,208.92	$420,561.54	$15,100.00	$405,461.54	13.0	207,335
ECM 2	Retrofit Fixtures with LED Lamps	364,588	70.1	0.0	$55,263.06	$289,517.32	$35,525.00	$253,992.32	4.6	367,137
ECM 3	Install LED Exit Signs	2,943	0.2	0.0	$446.14	$2,581.32	$0.00	$2,581.32	5.8	2,964
Lighting Control Measures		**93,329**	**17.1**	**0.0**	**$14,146.56**	**$55,278.00**	**$14,045.00**	**$41,233.00**	**2.9**	**93,982**
ECM 4	Install Occupancy Sensor Lighting Controls	86,164	15.8	0.0	$13,060.50	$46,868.00	$6,900.00	$39,968.00	3.1	86,767
ECM 5	Install High/Low Lighitng Controls	7,165	1.3	0.0	$1,086.06	$8,410.00	$7,145.00	$1,265.00	1.2	7,215
Variable Frequency Drive (VFD) Measures		**17,773**	**5.4**	**0.0**	**$2,693.92**	**$28,803.55**	**$3,200.00**	**$25,603.55**	**9.5**	**17,897**
ECM 6	Install VFDs on Constant Volume (CV) HVAC	17,773	5.4	0.0	$2,693.92	$28,803.55	$3,200.00	$25,603.55	9.5	17,897
HVAC System Improvements		**4,184**	**0.9**	**11.8**	**$770.89**	**$1,674.00**	**$500.00**	**$1,174.00**	**1.5**	**5,600**
ECM 7	Install Dual Enthalpy Outside Economizer Control	4,184	0.9	0.0	$634.13	$1,500.00	$500.00	$1,000.00	1.6	4,213
ECM 8	Install Pipe Insulation	0	0.0	11.8	$136.76	$174.00	$0.00	$174.00	1.3	1,387
Domestic Water Heating Upgrade		**0**	**0.0**	**51.8**	**$597.79**	**$4,297.48**	**$0.00**	**$4,297.48**	**7.2**	**6,061**
ECM 9	Install Low-Flow Domestic Hot Water Devices	0	0.0	51.8	$597.79	$4,297.48	$0.00	$4,297.48	7.2	6,061
Plug Load Equipment Control - Vending Machine		**10,074**	**0.0**	**0.0**	**$1,526.98**	**$1,840.00**	**$0.00**	**$1,840.00**	**1.2**	**10,144**
ECM 10	Vending Machine Control	10,074	0.0	0.0	$1,526.98	$1,840.00	$0.00	$1,840.00	1.2	10,144
TOTALS		**698,786**	**171.2**	**63.6**	**$106,654.28**	**$804,553.21**	**$68,370.00**	**$736,183.21**	**6.9**	**711,120**

* - 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 recommended 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		**573,427**	**147.8**	**0.0**	**$86,918.13**	**$712,660.18**	**$50,625.00**	**$662,035.18**	**7.6**	**577,436**
ECM 1	Install LED Fixtures	205,895	77.5	0.0	$31,208.92	$420,561.54	$15,100.00	$405,461.54	13.0	207,335
ECM 2	Retrofit Fixtures with LED Lamps	364,588	70.1	0.0	$55,263.06	$289,517.32	$35,525.00	$253,992.32	4.6	367,137
ECM 3	Install LED Exit Signs	2,943	0.2	0.0	$446.14	$2,581.32	$0.00	$2,581.32	5.8	2,964

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	164,717	30.1	0.0	$24,967.30	$179,635.20	$9,900.00	$169,735.20	6.8	165,869
Exterior	41,178	47.4	0.0	$6,241.62	$240,926.34	$5,200.00	$235,726.34	37.8	41,466

Measure Description

We recommend replacing existing fixtures containing metal halide, high pressure sodium, or incandescent lamps with new high performance LED light fixtures. This measure saves energy by installing LEDs which use less power than other technologies with a comparable light output.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of a fluorescent tubes and more than 10 times longer than many incandescent lamps.

ECM 2: 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	363,222	70.0	0.0	$55,055.92	$288,000.18	$35,515.00	$252,485.18	4.6	365,761
Exterior	1,367	0.2	0.0	$207.14	$1,517.14	$10.00	$1,507.14	7.3	1,376

Measure Description

We recommend retrofitting existing incandescent, halogen, fluorescent 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 10 times longer than many incandescent lamps.

ECM 3: Install LED Exit Signs

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
Interior	2,943	0.2	0.0	$446.14	$2,581.32	$0.00	$2,581.32	5.8	2,964
Exterior	0	0.0	0.0	$0.00	$0.00	$0.00	$0.00	0.0	0

Measure Description

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

4.1.2 Lighting Control Measures

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		**93,329**	**17.1**	**0.0**	**$14,146.56**	**$55,278.00**	**$14,045.00**	**$41,233.00**	**2.9**	**93,982**
ECM 4	Install Occupancy Sensor Lighting Controls	86,164	15.8	0.0	$13,060.50	$46,868.00	$6,900.00	$39,968.00	3.1	86,767
ECM 5	Install High/Low Lighitng Controls	7,165	1.3	0.0	$1,086.06	$8,410.00	$7,145.00	$1,265.00	1.2	7,215

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)
86,164	15.8	0.0	$13,060.50	$46,868.00	$6,900.00	$39,968.00	3.1	86,767

Measure Description

We recommend installing occupancy sensors to control lighting fixtures that are currently controlled by manual switches in all storage rooms, classrooms, offices areas, locker rooms, restrooms, the kitchen and cafeterias, the library, and the gyms. 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)
7,165	1.3	0.0	$1,086.06	$8,410.00	$7,145.00	$1,265.00	1.2	7,215

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 (VFD) 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		**17,773**	**5.4**	**0.0**	**$2,693.92**	**$28,803.55**	**$3,200.00**	**$25,603.55**	**9.5**	**17,897**
ECM 6	Install VFDs on Constant Volume (CV) HVAC	17,773	5.4	0.0	$2,693.92	$28,803.55	$3,200.00	$25,603.55	9.5	17,897

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)
17,773	5.4	0.0	$2,693.92	$28,803.55	$3,200.00	$25,603.55	9.5	17,897

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. A separate VFD is usually required to control the return fan motor or dedicated exhaust fan motor, if the air handler has one. Zone thermostats will cause the VFD to modulate fan speed to maintain the appropriate temperature in the zone, while maintaining a constant supply air temperature. Energy savings results from reducing fan speed (and power) when there is a reduced load required for the zone. The magnitude of energy savings is based on the estimated amount of time that fan motors operate at partial load.

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

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.

4.1.4 HVAC System Upgrades

Our recommendations for HVAC system upgrades are summarized in Figure 20 below.

Figure 20 - Summary of HVAC System Improvement ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
HVAC System Improvements		**4,184**	**0.9**	**11.8**	**$770.89**	**$1,674.00**	**$500.00**	**$1,174.00**	**1.5**	**5,600**
ECM 7	Install Dual Enthalpy Outside Economizer Control	4,184	0.9	0.0	$634.13	$1,500.00	$500.00	$1,000.00	1.6	4,213
ECM 8	Install Pipe Insulation	0	0.0	11.8	$136.76	$174.00	$0.00	$174.00	1.3	1,387

ECM 7: Install Dual-Enthalpy Economizers

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)
4,184	0.9	0.0	$634.13	$1,500.00	$500.00	$1,000.00	1.6	4,213

Measure Description

Dual enthalpy economizers control a ventilation system's outside air intake to reduce total cooling load. A dual-enthalpy economizer monitors the air temperature and humidity of both the outside and return air. The control supplies the lowest energy (temperature and humidity) air to the air handling system. When outside air conditions allow, outside air can be used for cooling instead of running the air handling system's compressor. This reduces the demand on the cooling system, lowering its usage hours and saving energy. Savings result from using outside air instead of mechanical cooling when outside air conditions permit.

ECM 8: Install Pipe Insulation

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	11.8	$136.76	$174.00	$0.00	$174.00	1.3	1,387

Measure Description

We recommend installing insulation on heating system piping. Distribution system losses are dependent on heating water system temperature, the size of the distribution system, and the level of insulation of the piping. Significant energy savings can be achieved when insulation has not been well maintained. When the insulation is exposed to water, when the insulation has been removed from some areas of the pipe, or when valves have not been properly insulated system efficiency can be significantly reduced. This measure saves energy by reducing heat losses from the heating distribution system.

4.1.5 Domestic Hot Water Heating System Upgrades

Our recommendations for domestic water heating upgrades are summarized in Figure 21 below.

Figure 21 - 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**	**51.8**	**$597.79**	**$4,297.48**	**$0.00**	**$4,297.48**	**7.2**	**6,061**
ECM 9	Install Low-Flow Domestic Hot Water Devices	0	0.0	51.8	$597.79	$4,297.48	$0.00	$4,297.48	7.2	6,061

ECM 9: 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	51.8	$597.79	$4,297.48	$0.00	$4,297.48	7.2	6,061

Measure Description

We recommend installing low-flow domestic hot water devices to reduce overall hot water demand. Energy demand from domestic hot water heating systems can be reduced by reducing water usage in general. 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 adequate pressure for washing. This reduces the amount of water used per day resulting in energy and water savings.

4.1.6 Plug Load Equipment Control - Vending Machines

Our recommendations for plug load equipment control measures are summarized in Figure 22 below.

Figure 22 - Summary of Plug Load Equipment ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Natural Gas Savings (MMBtu)	Annual N/A Savings (MMBtu)	Annual N/A Savings (MMBtu)	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		**10,074**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**$1,526.98**	**$1,840.00**	**$0.00**	**$1,840.00**	**1.2**	**10,144**
ECM 10	Vending Machine Control	10,074	0.0	0.0	0.0	0.0	0.0	$1,526.98	$1,840.00	$0.00	$1,840.00	1.2	10,144

ECM 10: 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)
10,074	0.0	0.0	$1,526.98	$1,840.00	$0.00	$1,840.00	1.2	10,144

Measure Description

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

4.2 ECMs Evaluated But Not Recommended

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

Figure 23 – 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	**9,350**	**2.5**	**0.0**	**$1,417.24**	**$62,527.87**	**$0.00**	**$62,527.87**	**44.1**	**9,415**
Premium Efficiency Motors	9,350	2.5	0.0	$1,417.24	$62,527.87	$0.00	$62,527.87	44.1	9,415
Electric Unitary HVAC Measures	**28,650**	**17.0**	**0.0**	**$4,342.62**	**$102,922.01**	**$5,953.00**	**$96,969.01**	**22.3**	**28,850**
Install High Efficiency Electric AC	28,650	17.0	0.0	$4,342.62	$102,922.01	$5,953.00	$96,969.01	22.3	28,850
TOTALS	**38,000**	**19.5**	**0.0**	**$5,759.86**	**$165,449.88**	**$5,953.00**	**$159,496.88**	**27.7**	**38,265**

* - 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)
9,350	2.5	0.0	$1,417.24	$62,527.87	$0.00	$62,527.87	44.1	9,415

Measure Description

We generally recommend replacing standard efficiency motors with *NEMA Premium™* efficiency motors when cost effective. 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

We are not currently recommending the installation of premium high efficiency motors due to the long project payback period, which exceeds the useful life of the equipment.

Install High Efficiency Air Conditioning Units

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
28,650	17.0	0.0	$4,342.62	$102,922.01	$5,953.00	$96,969.01	22.3	28,850

Measure Description

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

Reasons for not Recommending

We are not currently recommending the installation of high efficiency AC units due to the long project payback period, which exceeds the useful life of the equipment.

5 ENERGY EFFICIENT PRACTICES

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

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.

Use Window Treatments/Coverings

A substantial amount of heat gain can occur through uncovered or untreated windows, especially older single pane windows and east or west-facing windows. Treatments such as high-reflectivity films or covering windows with shades or shutters can reduce solar heat gain and, consequently, cooling load and can reduce internal heat loss and the associated heating load.

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.

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.

Install Destratification Fans

Allowing air to thermally stratify in spaces with high ceilings results in additional energy consumption by requiring the heating system to heat a volume of space much larger than the actual occupied space. Additional inefficiencies also occur because there are higher temperatures at the ceiling level than at the floor level. Higher temperatures at the ceiling accelerate heat loss through the roof, requiring additional energy consumption by the heating equipment in order to compensate for the accelerated heat transfer.

Destratification fans are specially designed to deliver a columnar, laminar flow of air balancing the air temperature from floor to ceiling. In addition to fuel savings, the use of destratification fans will reduce the recovery time necessary to warm the space after nightly temperature setbacks and will increase the comfort level of the occupants.

Assess Chillers & Request Tune-Ups

Chillers are responsible for a substantial portion of a commercial building's overall energy usage. When components of a chiller are not optimized, this can quickly result in a noticeable increase in energy bills. Chiller diagnostics can produce a 5% to 10% cost avoidance potential from discovery and implementation of low/no cost optimization strategies.

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 facility'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 Maintenance on Compressed Air Systems

Like all electro-mechanical equipment, compressed air systems require periodic maintenance to operate at peak efficiency. A maintenance plan should be developed for process related compressed air systems to include inspection, cleaning, and replacement of inlet filter cartridges, cleaning of drain traps, daily inspection of lubricant levels to reduce unwanted friction, inspection of belt condition and tension, checking for system leaks and adjustment of loose connections, and overall system cleaning. Contact a qualified technician for help with setting up periodic maintenance schedule.

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.

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 4.1.5 for any low-flow ECM recommendations.

6 On-Site Generation Measures

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

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

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

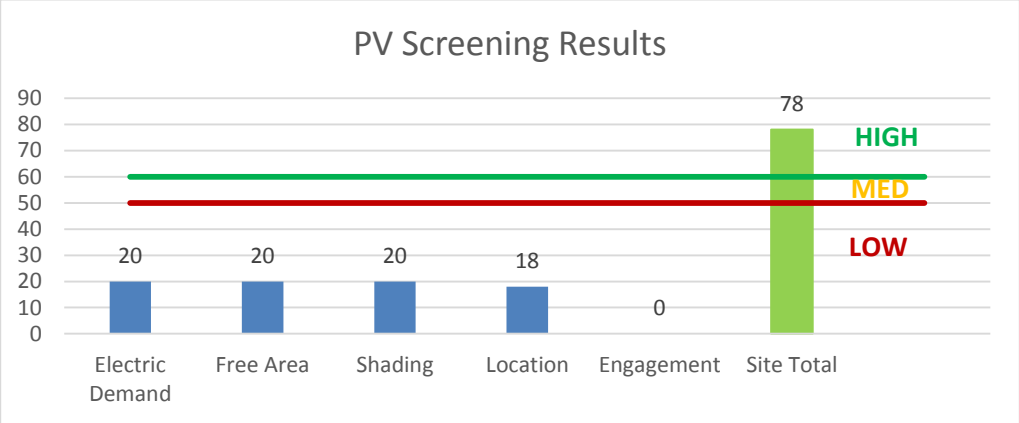
6.1 Photovoltaic

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

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

The amount of free area, electricity demand, 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 Clearview High School is interested in pursuing the installation of PV, we recommended a full feasibility study be conducted.

Figure 24 - Photovoltaic Screening



Potential	High	
System Potential	107	kW DC STC
Electric Generation	127,477	kWh/yr
Displaced Cost	$11,090	/yr
Installed Cost	$278,200	

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 8.2 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.

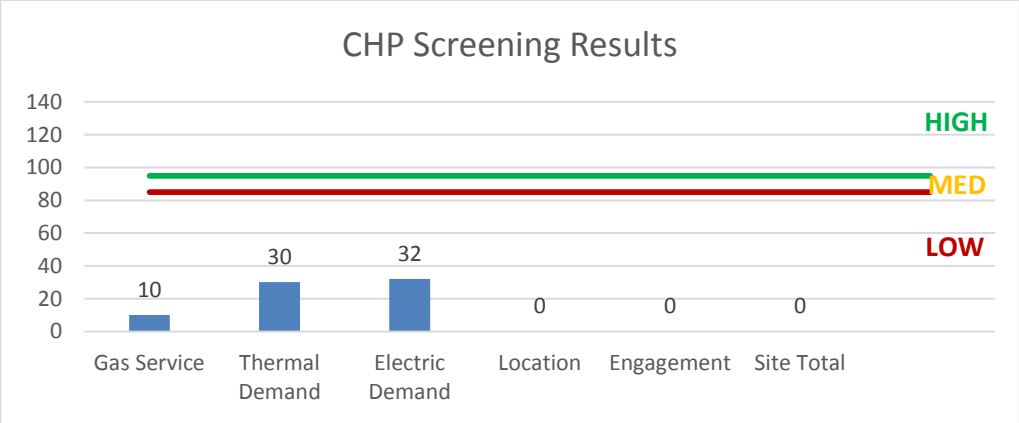
CHP systems are typically used to produce a portion of the electric power used onsite by a facility, with the balance of electric power needs supplied by grid purchases. The heat is used to supplement (or supplant) existing boilers for the purpose of space heating and/or domestic hot water heating. Waste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

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

Lack of an existing absorption chiller, and space near the existing boilers are the most significant factors contributing to the Low potential for CHP at the site. In our opinion, the facility 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 25 - 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 facility is called upon to curtail their electric usage.

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

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

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

The first step toward participation in a DR program is to contact a Curtailment Service Provider. A list of these providers is available on PJM's website and it includes contact information for each company, as well as the states where they have active business (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 facility's eligibility to participate in a DR program. They will provide details regarding program rules and requirements for metering and controls, assess a facility's ability to temporarily reduce electric load, and provide details on payments to be expected for participation in the program. Providers usually offer multiple options for DR to larger facilities and may also install controls or remote monitoring equipment of their own to help ensure compliance with all terms and conditions of a DR contract.

In our opinion this building is not a good candidate for DR.

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

Figure 26 - 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 Fixtures with LED Lamps	X					
ECM 3	Install LED Exit Signs						
ECM 4	Install Occupancy Sensor Lighting Controls	X					
ECM 5	Install High/Low Lighitng Controls	X					
ECM 6	Install VFDs on Constant Volume (CV) HVAC	X					
ECM 7	Install Dual Enthalpy Outside Economizer Control	X					
ECM 8	Install Pipe Insulation	X					
ECM 9	Install Low-Flow Domestic Hot Water Devices						
ECM 10	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.

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

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

8.1 SmartStart

Overview

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

Equipment with Prescriptive Incentives Currently Available:

Electric Chillers
Electric Unitary HVAC
Gas Cooling
Gas Heating
Gas Water Heating
Ground Source Heat Pumps
Lighting
Lighting Controls
Refrigeration Doors
Refrigeration Controls
Refrigerator/Freezer Motors
Food Service Equipment
Variable Frequency Drives

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

Incentives

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

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

How to Participate

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

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

8.2 SREC Registration Program

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

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

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

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

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

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

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

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

9.2 Retail Natural Gas Supply Options

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

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

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

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

Appendix A: Equipment Inventory & Recommendations

Lighting Inventory & Recommendations

	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	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	15	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.42	2,317	0.0	$351.14	$1,565.25	$225.00	3.82
Boiler 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
Gym Hallway	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.38	2,095	0.0	$317.50	$1,978.02	$245.00	5.46
Gym 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
Aux Gym / Wrestling Gym	12	Metal Halide: (2) 400W Lamps	Wall Switch	916	3,120	Fixture Replacement	Yes	12	LED - Fixtures: High-Bay	Occupancy Sensor	146	2,184	6.40	35,039	0.0	$5,311.09	$32,442.40	$1,835.00	5.76
Aux Gym	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
Aux Gym Boys Locker Rm	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.25	1,347	0.0	$204.11	$1,290.87	$160.00	5.54
Aux Gym Boys Locker Rm Office / Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.06	355	0.0	$53.84	$208.70	$30.00	3.32
Aux Gym Boys Locker Rm Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.02	118	0.0	$17.95	$83.43	$10.00	4.09
Aux Gym Girls Locker Rm	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.33	1,795	0.0	$272.15	$1,541.16	$190.00	4.96
Aux Gym Girls Locker Rm Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.04	237	0.0	$35.89	$166.86	$20.00	4.09
Stage Construction Rm	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	14	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.45	2,486	0.0	$376.89	$1,460.90	$210.00	3.32
Stage Construction Rm	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
Back Auditorium Hallway	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	22	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.60	3,292	0.0	$498.93	$2,635.46	$990.00	3.30
Back Auditorium Hallway	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
Theater Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.03	178	0.0	$26.92	$104.35	$15.00	3.32
Theater Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
Rm 814 Womens Dressing Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	No	3	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,120	0.11	603	0.0	$91.37	$414.78	$60.00	3.88
Rm 814 Bathroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Rm 812 Mens Dressing Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	No	3	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,120	0.11	603	0.0	$91.37	$414.78	$60.00	3.88
Rm 812 Bathroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Rm 810 Makeup Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.06	355	0.0	$53.84	$250.29	$30.00	4.09
Rm 810 Makeup Room	4	Incandescent: Screw-in (75W) - 6L	Wall Switch	450	3,120	Relamp	No	4	LED Screw-In Lamps: LED A19 bulb	Wall Switch	78	3,120	0.98	5,339	0.0	$809.26	$559.44	$120.00	0.54
Back Stage (Theater)	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.17	947	0.0	$143.58	$667.44	$80.00	4.09
Back Stage (Theater)	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

	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
Back Stage (Theater)	10	Compact Fluorescent: Pin Style (13W) - 1L	Wall Switch	13	3,120	Relamp	No	10	LED Screw-In Lamps: Pin-Style (9W) 1L	Wall Switch	9	3,120	0.03	144	0.0	$21.75	$440.51	$0.00	20.25
New Gym	24	Metal Halide: (2) 400W Lamps	Wall Switch	916	3,120	Fixture Replacement	Yes	24	LED - Fixtures: High-Bay	Occupancy Sensor	146	2,184	12.80	70,078	0.0	$10,622.18	$64,664.80	$3,635.00	5.75
New 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
New Gym Girls Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.06	71	0.0	$10.77	$250.29	$30.00	20.46
New Gym Girls Locker Room	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.33	1,795	0.0	$272.15	$1,541.16	$190.00	4.96
New Gym Girls Locker Room	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
New Gym Girls Locker Room	6	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,184	0.15	837	0.0	$126.94	$1,220.76	$70.00	9.07
New Gym Girls Locker Team Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.04	237	0.0	$35.89	$166.86	$20.00	4.09
New Gym Boys Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.06	71	0.0	$10.77	$250.29	$30.00	20.46
New Gym Boys Locker Room	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.33	1,795	0.0	$272.15	$1,541.16	$190.00	4.96
New Gym Boys Locker Room	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
New Gym Boys Locker Room	6	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,184	0.15	837	0.0	$126.94	$950.76	$35.00	7.21
New Gym Boys Locker Team Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.06	355	0.0	$53.84	$250.29	$30.00	4.09
New Gym Boys Locker Room Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.02	118	0.0	$17.95	$83.43	$10.00	4.09
New Gym Office (Trainer Room)	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.05	299	0.0	$45.36	$282.86	$40.00	5.35
Pioneer Hall Vending Area	8	Metal Halide: (1) 100W Lamp	Wall Switch	128	3,120	Fixture Replacement	Yes	8	LED - Fixtures: Downlight Recessed	Occupancy Sensor	45	2,184	0.51	2,770	0.0	$419.86	$1,074.00	$35.00	2.47
Pioneer Hall	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
Pioneer Hall	90	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	90	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	2.46	13,466	0.0	$2,041.10	$8,308.70	$4,050.00	2.09
Pioneer Hall New Gym Middle Entry	8	Metal Halide: (1) 100W Lamp	Wall Switch	128	3,120	Fixture Replacement	No	8	LED - Fixtures: Downlight Recessed	Wall Switch	45	3,120	0.44	2,382	0.0	$361.12	$804.00	$0.00	2.23
Rm 804A Trainer Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.13	710	0.0	$107.68	$500.58	$60.00	4.09
Rm 804A Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	624	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	624	0.01	13	0.0	$1.90	$62.52	$5.00	30.22
Theater Lobby	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.11	598	0.0	$90.72	$603.72	$75.00	5.83
Theater Lobby	12	Compact Fluorescent: Pin Style (26W) - 1L	Wall Switch	26	3,120	Relamp	Yes	12	LED Screw-In Lamps: Pin-Style (15W) 1L	Occupancy Sensor	15	2,184	0.12	667	0.0	$101.16	$528.61	$0.00	5.23
Theater Lobby	4	Compact Fluorescent: Pin Style (18W) - 1L	Wall Switch	18	3,120	Relamp	Yes	4	LED Screw-In Lamps: Pin-Style (13W) 1L	Occupancy Sensor	13	2,184	0.02	128	0.0	$19.36	$176.20	$0.00	9.10
Theater Lobby	78	Compact Fluorescent: Pin Style (42W) - 2L	Wall Switch	84	3,120	Relamp	Yes	78	LED Screw-In Lamps: Pin-Style (15W) 2L	Occupancy Sensor	30	2,184	3.22	17,631	0.0	$2,672.51	$7,951.96	$140.00	2.92

	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
Theater Lobby Entry	9	Compact Fluorescent: Pin Style (26W) - 1L	Wall Switch	26	3,120	Relamp	Yes	9	LED Screw-In Lamps: Pin-Style (15W) 1L	Occupancy Sensor	15	2,184	0.09	501	0.0	$75.87	$396.46	$0.00	5.23
Theater Lobby Entry	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
Ticket Sales Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.03	178	0.0	$26.92	$104.35	$15.00	3.32
Athletic Director's Office	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	7	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.23	1,243	0.0	$188.45	$730.45	$105.00	3.32
Theater	10	Incandescent: Screw-In (100W) - 1L	Wall Switch	100	3,120	Relamp	No	10	LED Screw-In Lamps: LED A19 bulb	Wall Switch	15	3,120	0.56	3,050	0.0	$462.28	$267.50	$50.00	0.47
Theater	59	Halogen Incandescent: Flood Light (250W) - 1L	Wall Switch	250	3,120	None	No	59	Halogen Incandescent: Flood Light (250W) - 1L	Wall Switch	250	3,120	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Theater	32	Compact Fluorescent: Pin Style (16W) - 1L	Wall Switch	16	3,120	Relamp	No	32	LED Screw-In Lamps: Pin-Style (9W) 1L	Wall Switch	9	3,120	0.15	804	0.0	$121.82	$1,409.63	$0.00	11.57
Theater	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
Theater	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.02	118	0.0	$17.95	$83.43	$10.00	4.09
Theater	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.19	1,066	0.0	$161.53	$626.10	$90.00	3.32
Theater	72	Incandescent: Screw-In Candelabra (6W) - 1L	Wall Switch	6	3,120	Relamp	No	72	LED Screw-In Lamps: LED B10 Bulb	Wall Switch	3	3,120	0.14	775	0.0	$117.47	$1,678.32	$360.00	11.22
Theater	12	Halogen Incandescent: Spotlights (120W) - 1L	Wall Switch	120	3,120	None	No	12	Halogen Incandescent: Spotlights (120W) - 1L	Wall Switch	120	3,120	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
800 Zone Mechanical Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	624	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	624	0.19	213	0.0	$32.31	$626.10	$90.00	16.59
800 Zone Mechanical 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
808 Green Room	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.39	2,131	0.0	$323.05	$1,252.20	$180.00	3.32
806 Costume Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.09	474	0.0	$71.79	$333.72	$40.00	4.09
800 Zone Mechanical Elec. Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	624	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	624	0.06	71	0.0	$10.77	$208.70	$30.00	16.59
800 Zone Mechanical Storage Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	624	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	624	0.13	142	0.0	$21.54	$417.40	$60.00	16.59
800 Zone Mechanical Storage Room - Upper Catwalk	13	Incandescent: Screw-In (100W) - 1L	Wall Switch	100	624	Relamp	No	13	LED Screw-In Lamps: LED A19 bulb	Wall Switch	15	624	0.72	793	0.0	$120.19	$347.75	$65.00	2.35
800 Zone Storage 1	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	624	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	624	0.13	142	0.0	$21.54	$417.40	$60.00	16.59
800 Zone Storage 2 (Roof Access)	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
800 Zone Custodial Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
Gym Hallway Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
Gym Hallway Girls Bathroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.06	71	0.0	$10.77	$250.29	$30.00	20.46
Gym Hallway Girls Bathroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	624	Relamp	No	4	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	624	0.05	50	0.0	$7.61	$250.08	$20.00	30.22

	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
Gym Hallway Boys Bathroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.06	71	0.0	$10.77	$250.29	$30.00	20.46
Gym Hallway Boys Bathroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	624	Relamp	No	3	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	624	0.03	38	0.0	$5.71	$187.56	$15.00	30.22
Gym Hallway Girls/Boys Bathroom Entry Area	2	Compact Fluorescent: Pin Style (26W) - 1L	Wall Switch	26	624	Relamp	No	2	LED Screw-In Lamps: Pin-Style (15W) 1L	Wall Switch	15	624	0.01	16	0.0	$2.39	$88.10	$0.00	36.82
Concession Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.09	474	0.0	$71.79	$333.72	$40.00	4.09
Weight Room	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.35	1,894	0.0	$287.16	$1,334.88	$160.00	4.09
Weight 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
CR 802	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.25	1,347	0.0	$204.11	$1,020.87	$125.00	4.39
CR 800	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.25	1,347	0.0	$204.11	$1,020.87	$125.00	4.39
Pioneer Hall	6	Metal Halide: (1) 100W Lamp	Wall Switch	128	3,120	Fixture Replacement	Yes	6	LED - Fixtures: Downlight Recessed	Occupancy Sensor	45	2,184	0.38	2,077	0.0	$314.89	$873.00	$35.00	2.66
Pioneer Hall Exterior Entry Area	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.04	237	0.0	$35.89	$166.86	$20.00	4.09
Pioneer Hall Mens Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Pioneer Hall Custodial	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.02	118	0.0	$17.95	$83.43	$10.00	4.09
Pioneer Hall Women's Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Rm 805 Marching Band Room	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.41	2,244	0.0	$340.18	$1,691.45	$220.00	4.33
Rm 805 Marching Band 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
Rm 805 Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.03	150	0.0	$22.68	$199.43	$30.00	7.47
Rm 805 Ensemble Room	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.19	1,047	0.0	$158.75	$854.01	$105.00	4.72
Rm 805 Storage Closet	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.06	71	0.0	$10.77	$250.29	$30.00	20.46
Rm 805 Practice Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.02	118	0.0	$17.95	$83.43	$10.00	4.09
Rm 805 Corridor / Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Rm 803 Choral Room	28	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	28	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.77	4,189	0.0	$635.01	$2,776.04	$350.00	3.82
Rm 803 Choral 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
Rm 803 Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Rm 803 Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.03	150	0.0	$22.68	$199.43	$30.00	7.47
Rm 801	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20

	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
Rm 801	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
Rm 703	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.33	1,795	0.0	$272.15	$1,104.80	$155.00	3.49
Rm 701 Band Room Entry	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.06	355	0.0	$53.84	$250.29	$30.00	4.09
Rm 701 Storage 1	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.06	71	0.0	$10.77	$250.29	$30.00	20.46
Rm 701 Storage 2	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.06	71	0.0	$10.77	$250.29	$30.00	20.46
Rm 701 Main Room	42	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	3,120	Relamp	Yes	42	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	2,184	1.58	8,642	0.0	$1,309.99	$6,814.38	$70.00	5.15
Rm 701 Main Room	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
Rm 701 Guitar Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.06	355	0.0	$53.84	$208.70	$30.00	3.32
Rm 701 Practice Room 1	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.10	533	0.0	$80.76	$313.05	$45.00	3.32
Rm 701 Side Room	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	9	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.29	1,598	0.0	$242.29	$939.15	$135.00	3.32
Rm 701 Practice Room 2	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.10	533	0.0	$80.76	$313.05	$45.00	3.32
Rm 701 Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	624	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	624	0.06	71	0.0	$10.77	$208.70	$30.00	16.59
Rm 701 Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.12	673	0.0	$102.05	$583.05	$80.00	4.93
Old Gym	30	Metal Halide: (2) 400W Lamps	Wall Switch	916	3,120	Fixture Replacement	Yes	30	LED - Fixtures: High-Bay	Occupancy Sensor	146	2,184	16.00	87,597	0.0	$13,277.73	$81,096.00	$4,570.00	5.76
Old 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
Old Gym Girls Storage	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	624	Relamp	No	1	LED Screw-In Lamps: LED A19 bulb	Wall Switch	9	624	0.03	37	0.0	$5.55	$15.50	$5.00	1.89
Old Gym Girls Locker Room	17	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	Yes	17	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	437	0.46	509	0.0	$77.11	$1,958.31	$240.00	22.28
Old Gym Girls Locker Room	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
Old Gym Girls Locker Room Storage 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
Old Gym Girls Locker Team Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.06	355	0.0	$53.84	$250.29	$30.00	4.09
Old Gym Girls Locker Room Storage 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	624	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	624	0.04	40	0.0	$6.09	$138.26	$20.00	19.41
Old Gym Boys Locker Room	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.57	3,142	0.0	$476.26	$2,292.03	$280.00	4.22
Old Gym Boys Locker Room	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
Old Gym Boys Locker Bathroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
Old Gym Boys Locker Room Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	624	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	624	0.04	40	0.0	$6.09	$138.26	$20.00	19.41

	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
Old Gym Boys Storage	2	Incandescent: Screw-In (100W) - 1L	Wall Switch	100	3,120	Relamp	No	2	LED Screw-In Lamps: LED A19 bulb	Wall Switch	15	3,120	0.11	610	0.0	$92.46	$53.50	$10.00	0.47
Receiving Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.16	898	0.0	$136.07	$770.58	$95.00	4.96
Room 716	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.44	2,394	0.0	$362.86	$1,604.88	$195.00	3.89
Faculty Bathroom (next to Room 716)	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	624	0.04	42	0.0	$6.31	$226.92	$0.00	35.97
700 Wing Boys Bathroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.04	237	0.0	$35.89	$166.86	$20.00	4.09
700 Wing Mech./Elec.	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
Room 714	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	27	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.74	4,040	0.0	$612.33	$2,522.61	$305.00	3.62
Room 714 Back Storage	3	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	624	Relamp	No	3	LED Screw-In Lamps: LED A19 bulb	Wall Switch	9	624	0.10	110	0.0	$16.64	$46.50	$15.00	1.89
Room 712	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	27	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.74	4,040	0.0	$612.33	$2,522.61	$305.00	3.62
Room 710	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.16	898	0.0	$136.07	$770.58	$95.00	4.96
Room 708	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
Room 706	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
Room 704	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.29	1,580	0.0	$239.51	$1,099.56	$155.00	3.94
Room 702	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
Room 700	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.29	1,580	0.0	$239.51	$1,099.56	$155.00	3.94
700 Wing Corner Men's Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.09	95	0.0	$14.36	$333.72	$40.00	20.46
700 Wing Corner Women's Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.09	95	0.0	$14.36	$333.72	$40.00	20.46
700 Wing Corner Custodial Room	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	624	Relamp	No	1	LED Screw-In Lamps: LED A19 bulb	Wall Switch	9	624	0.03	37	0.0	$5.55	$15.50	$5.00	1.89
Room 512	16	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	No	16	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,120	0.59	3,215	0.0	$487.30	$2,212.16	$320.00	3.88
Room 512	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
Room 512/510 Prep Room	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.11	592	0.0	$89.74	$417.15	$50.00	4.09
Room 510	16	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	16	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.77	4,214	0.0	$638.71	$2,482.16	$355.00	3.33
Room 510	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
Room 509	16	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	16	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.77	4,214	0.0	$638.71	$2,482.16	$355.00	3.33
Room 509	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

	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
Room 509/511 Prep Room	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.11	592	0.0	$89.74	$417.15	$50.00	4.09
Room 511	16	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	16	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.77	4,214	0.0	$638.71	$2,482.16	$355.00	3.33
Room 511	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
Room 508 (STEM Lab)	42	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	17	3,120	None	Yes	42	LED - Fixtures: Ambient - 4' - Direct Fixture	Occupancy Sensor	17	2,184	0.14	769	0.0	$116.49	$540.00	$70.00	4.03
Room 508 (STEM Lab)	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
Room 507 Wood/Computer Shop	20	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	20	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.96	5,267	0.0	$798.38	$3,035.20	$435.00	3.26
Old Cafeteria	49	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	No	49	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,120	1.80	9,845	0.0	$1,492.34	$6,774.74	$980.00	3.88
Old Cafeteria	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
Room 502: Art Room	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	15	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.62	3,366	0.0	$510.27	$1,835.25	$260.00	3.09
Room 502: Art Room Closets	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.13	142	0.0	$21.54	$500.58	$60.00	20.46
Room 506 Tech	12	LED - Fixtures: Ambient 2x4 Fixture	Wall Switch	34	3,120	None	Yes	12	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	34	2,184	0.08	439	0.0	$66.57	$270.00	$35.00	3.53
Room 505 Woodshop	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.55	2,992	0.0	$453.58	$1,938.60	$235.00	3.76
Room 505 Woodshop	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
Room 505 Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
Room 505 Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.03	150	0.0	$22.68	$199.43	$30.00	7.47
500 Wing Stairs & Hallway	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.44	2,394	0.0	$362.86	$1,934.88	$720.00	3.35
500 Wing Stairs & Hallway	7	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	7	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 Stairs & Hallway	19	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	19	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,184	0.48	2,652	0.0	$401.96	$2,755.74	$665.00	5.20
700 Wing Hallway	5	LED - Fixtures: Ambient 2x4 Fixture	Wall Switch	34	3,120	None	No	5	LED - Fixtures: Ambient 2x4 Fixture	Wall Switch	34	3,120	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Hallway	24	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	24	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,184	0.61	3,350	0.0	$507.75	$3,523.04	$840.00	5.28
700 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
700 Wing Hallway (Display Cabinet)	2	Linear Fluorescent - T8: 3' T8 (25W) - 1L	Wall Switch	27	3,120	Relamp	No	2	LED - Linear Tubes: (1) 3' Lamp	Wall Switch	11	3,120	0.02	118	0.0	$17.95	$125.04	$0.00	6.97
Elevator Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
2nd Floor Hallway (Near Room 223)	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.25	1,347	0.0	$204.11	$950.87	$405.00	2.67
Room 223	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62

	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
Room 225	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	5	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.24	1,317	0.0	$199.60	$961.30	$135.00	4.14
Room 216	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.58	3,160	0.0	$479.03	$2,199.12	$310.00	3.94
Room 218	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.58	3,160	0.0	$479.03	$2,199.12	$310.00	3.94
2nd Floor Ladies Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
2nd Floor Boys Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
2nd Floor Custodial	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
Room 220	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
Room 227	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.58	3,160	0.0	$479.03	$2,199.12	$310.00	3.94
2nd Floor Hallway (Near Room 214)	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.41	2,244	0.0	$340.18	$1,651.45	$675.00	2.87
2nd Floor Hallway (Near Room 214)	3	Exit Signs: Incandescent	None	20	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.03	423	0.0	$64.13	$322.67	$0.00	5.03
Room 221	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	20	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.82	4,489	0.0	$680.37	$2,357.00	$335.00	2.97
Room 221 Prep Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.10	533	0.0	$80.76	$313.05	$45.00	3.32
Room 219	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	20	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.82	4,489	0.0	$680.37	$2,357.00	$335.00	2.97
Room 214	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	20	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.82	4,489	0.0	$680.37	$2,357.00	$335.00	2.97
Room 214 Prep Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.10	533	0.0	$80.76	$313.05	$45.00	3.32
2nd Floor Men's Restroom 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
2nd Floor Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
2nd Floor Storage 1	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.19	1,066	0.0	$161.53	$626.10	$90.00	3.32
Room 217	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.25	1,347	0.0	$204.11	$896.10	$125.00	3.78
2nd Floor Ladies Restroom 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Room 215	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	16	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.66	3,591	0.0	$544.29	$2,209.60	$310.00	3.49
Room 215 Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Room 213	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	16	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.66	3,591	0.0	$544.29	$2,209.60	$310.00	3.49
Room 213 Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Room 210	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20

	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
Room 211	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 209	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.37	2,020	0.0	$306.16	$1,209.15	$170.00	3.39
Room 209 Sleep Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.02	118	0.0	$17.95	$83.43	$10.00	4.09
Room 208	24	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	24	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.98	5,386	0.0	$816.44	$3,044.40	$430.00	3.20
Room 206	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 206 Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Room 207	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 205	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.25	1,347	0.0	$204.11	$896.10	$125.00	3.78
Room 204	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.25	1,347	0.0	$204.11	$896.10	$125.00	3.78
Room 202	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 203	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 201	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 200	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
2nd Floor Hallway (Near Room 200)	8	Compact Fluorescent: 13W - 1L	Wall Switch	13	3,120	Relamp	Yes	8	LED Screw-In Lamps: Pin-Style (9W) 1L	High/Low Control	9	2,184	0.04	192	0.0	$29.15	$552.41	$280.00	9.34
2nd Floor Hallway (Near Room 200)	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,120	Relamp	Yes	2	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,184	0.03	151	0.0	$22.95	$156.92	$90.00	2.92
2nd Floor Hallway (Near Room 200)	2	Exit Signs: Incandescent	None	20	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	282	0.0	$42.76	$215.11	$0.00	5.03
2nd Floor Hallway (Near Room 200)	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.66	3,591	0.0	$544.29	$2,402.32	$1,080.00	2.43
Bridge	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.22	1,197	0.0	$181.43	$867.44	$360.00	2.80
2nd Floor Mechanical Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.09	474	0.0	$71.79	$333.72	$40.00	4.09
2nd Floor Custodial	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
2nd Floor Faculty Mens's Room	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	624	0.02	21	0.0	$3.15	$113.46	$0.00	35.97
2nd Floor Faculty Womens's Room	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	624	0.02	21	0.0	$3.15	$113.46	$0.00	35.97
Room 229	16	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	16	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.77	4,214	0.0	$638.71	$2,482.16	$355.00	3.33
Prep Room 229/231	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.11	592	0.0	$89.74	$417.15	$50.00	4.09
Room 231	16	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	16	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.77	4,214	0.0	$638.71	$2,482.16	$355.00	3.33

	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
2nd Floor Storage 2	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.13	710	0.0	$107.68	$500.58	$60.00	4.09
Room 222	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.58	3,160	0.0	$479.03	$1,929.12	$275.00	3.45
2nd Floor Hallway (Near Room 231)	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.19	1,047	0.0	$158.75	$784.01	$315.00	2.95
2nd Floor Hallway (Near Room 231)	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
200/500 Wing Stairwell	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	2,184	0.16	898	0.0	$136.07	$617.40	$200.00	3.07
200/500 Wing Stairwell	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
LGI Room #103	20	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	20	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.96	5,267	0.0	$798.38	$3,035.20	$435.00	3.26
Main Office	3	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,120	Relamp	Yes	3	LED - Linear Tubes: (4) 2' Lamps	Occupancy Sensor	34	2,184	0.08	422	0.0	$63.96	$654.93	$95.00	8.75
Main Office	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.38	2,107	0.0	$319.35	$1,376.08	$195.00	3.70
Private Office 1	4	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,120	Relamp	Yes	4	LED - Linear Tubes: (4) 2' Lamps	Occupancy Sensor	34	2,184	0.10	563	0.0	$85.28	$629.24	$100.00	6.21
Safe Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.04	237	0.0	$35.89	$166.86	$20.00	4.09
Private Office 2	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,184	0.08	454	0.0	$68.85	$586.76	$80.00	7.36
Private Office 3	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.19	1,053	0.0	$159.68	$669.04	$100.00	3.56
Conference Room	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.38	2,107	0.0	$319.35	$1,376.08	$195.00	3.70
Nurse Office	13	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	13	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.53	2,918	0.0	$442.24	$1,472.55	$215.00	2.84
Nurse Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.03	150	0.0	$22.68	$83.43	$10.00	3.24
Nurse Restrooms	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Nurse Office	3	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	3,120	Relamp	Yes	3	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,184	0.07	378	0.0	$57.35	$406.67	$65.00	5.96
Nurse Office	2	Exit Signs: Incandescent	None	20	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	282	0.0	$42.76	$215.11	$0.00	5.03
100 Wing Hallway	6	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,120	Relamp	Yes	6	LED - Linear Tubes: (4) 2' Lamps	High/Low Control	34	2,184	0.15	844	0.0	$127.92	$969.86	$330.00	5.00
100 Wing Hallway	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.08	449	0.0	$68.04	$450.29	$135.00	4.63
Room 101	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	16	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.66	3,591	0.0	$544.29	$1,939.60	$275.00	3.06
Guidance Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
Guidance Office	7	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	7	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.34	1,844	0.0	$279.43	$1,083.82	$160.00	3.31
Guidance Office	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

	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
Guidance Area Hallway	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.11	598	0.0	$90.72	$603.72	$75.00	5.83
Private Office 4	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	5	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.24	1,317	0.0	$199.60	$807.30	$120.00	3.44
Private Office 5	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.38	2,107	0.0	$319.35	$1,222.08	$180.00	3.26
Guidance Office Break Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.10	527	0.0	$79.84	$546.52	$75.00	5.91
Open Office	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.25	1,347	0.0	$204.11	$896.10	$125.00	3.78
Private Office 6	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.08	449	0.0	$68.04	$324.70	$50.00	4.04
Private Office 7	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.08	449	0.0	$68.04	$324.70	$50.00	4.04
Guidance Area Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.02	24	0.0	$3.59	$83.43	$10.00	20.46
Guidance Area Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	437	0.03	30	0.0	$4.54	$353.43	$45.00	68.00
Conference Room 2	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.16	898	0.0	$136.07	$687.40	$95.00	4.35
Main Lobby	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.35	1,894	0.0	$287.16	$1,334.88	$160.00	4.09
Main Lobby	3	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,120	Relamp	No	3	LED - Linear Tubes: (4) 2' Lamps	Wall Switch	34	3,120	0.06	312	0.0	$47.32	$384.93	$60.00	6.87
Vestibule	3	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,120	Relamp	No	3	LED Screw-In Lamps: LED A19 bulb	Wall Switch	9	3,120	0.10	549	0.0	$83.21	$46.50	$15.00	0.38
Vestibule	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
Teacher Planning Center	28	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	28	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	1.35	7,374	0.0	$1,117.74	$4,411.28	$630.00	3.38
Teacher Planning Center	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
Teacher Planning Center	2	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	3,120	Relamp	Yes	2	LED Screw-In Lamps: LED A19 bulb	Occupancy Sensor	9	2,184	0.07	385	0.0	$58.41	$31.00	$10.00	0.36
TPC: Copy Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.19	1,053	0.0	$159.68	$823.04	$115.00	4.43
100 Wing Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
100 Wing Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.04	237	0.0	$35.89	$166.86	$20.00	4.09
Telephone Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.03	150	0.0	$22.68	$199.43	$30.00	7.47
100 Wing Corner Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.09	95	0.0	$14.36	$333.72	$40.00	20.46
100 Wing Hallway	7	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,120	Relamp	Yes	7	LED - Linear Tubes: (4) 2' Lamps	High/Low Control	34	2,184	0.18	985	0.0	$149.23	$1,098.17	$385.00	4.78
100 Wing Hallway	2	Metal Halide: (1) 70W Lamp	Wall Switch	95	3,120	Fixture Replacement	Yes	2	LED - Fixtures: Downlight Recessed	High/Low Control	21	2,184	0.11	576	0.0	$87.34	$201.00	$70.00	1.50
Room 105	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.29	1,580	0.0	$239.51	$1,099.56	$155.00	3.94

	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
Room 107	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
Room 100	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.38	2,107	0.0	$319.35	$1,376.08	$195.00	3.70
Room 102	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.29	1,580	0.0	$239.51	$1,099.56	$155.00	3.94
Room 104	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
100 Wing Storage next to 107)	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	No	5	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,120	0.18	1,005	0.0	$152.28	$691.30	$100.00	3.88
100 Wing Hallway	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.14	748	0.0	$113.39	$617.15	$225.00	3.46
100 Wing Hallway	2	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,120	Relamp	Yes	2	LED - Linear Tubes: (4) 2' Lamps	High/Low Control	34	2,184	0.05	281	0.0	$42.64	$456.62	$110.00	8.13
100 Wing Hallway	8	Compact Fluorescent: Pin Style (26W) - 1L	Wall Switch	26	3,120	Relamp	Yes	8	LED Screw-In Lamps: Pin-Style (15W) 1L	High/Low Control	15	2,184	0.08	445	0.0	$67.44	$552.41	$280.00	4.04
100 Wing Hallway	2	Exit Signs: Incandescent	None	20	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	282	0.0	$42.76	$215.11	$0.00	5.03
Room D103	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.05	299	0.0	$45.36	$436.86	$55.00	8.42
IT Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	624	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	624	0.06	71	0.0	$10.77	$208.70	$30.00	16.59
Room 109	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 108	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.41	2,244	0.0	$340.18	$1,521.45	$185.00	3.93
Room 106	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.41	2,244	0.0	$340.18	$1,521.45	$185.00	3.93
Room 110	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.41	2,244	0.0	$340.18	$1,521.45	$185.00	3.93
Room 112	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.41	2,244	0.0	$340.18	$1,521.45	$185.00	3.93
Room 111	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 113	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 115	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
100 Wing Hallway	9	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 2' Lamps	Occupancy Sensor	34	2,184	0.23	1,266	0.0	$191.87	$1,424.79	$215.00	6.31
100 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
Library Lobby	24	Linear Fluorescent - T8: 3' T8 (25W) - 2L	Wall Switch	48	3,120	Relamp	No	24	LED - Linear Tubes: (2) 3' Lamps	Wall Switch	21	3,120	0.42	2,325	0.0	$352.42	$2,504.40	$0.00	7.11
Library Vestibule	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.04	237	0.0	$35.89	$166.86	$20.00	4.09
IT Room	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.11	592	0.0	$89.74	$417.15	$50.00	4.09
Library Storage	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	624	Relamp	No	9	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	624	0.33	362	0.0	$54.82	$1,244.34	$180.00	19.41

	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
Library Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.10	527	0.0	$79.84	$392.52	$60.00	4.16
Library Storage 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
Library	17	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	17	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,184	0.43	2,373	0.0	$359.65	$2,198.82	$35.00	6.02
Library	33	Incandescent: Screw In (100W) - 1L	Wall Switch	100	3,120	Relamp	Yes	33	LED Screw-In Lamps: LED A19 bulb	Occupancy Sensor	15	2,184	1.94	10,597	0.0	$1,606.28	$1,422.75	$235.00	0.74
Library	47	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	47	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	2.26	12,378	0.0	$1,876.20	$7,038.22	$1,010.00	3.21
Library	43	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	43	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	1.76	9,650	0.0	$1,462.79	$5,027.05	$715.00	2.95
Library	24	Linear Fluorescent - T8: 3' T8 (25W) - 2L	Wall Switch	48	3,120	Relamp	Yes	24	LED - Linear Tubes: (2) 3' Lamps	Occupancy Sensor	21	2,184	0.52	2,868	0.0	$434.65	$2,774.40	$35.00	6.30
Library	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
Professional XXXX	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.38	2,107	0.0	$319.35	$1,222.08	$180.00	3.26
Room 301	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.16	898	0.0	$136.07	$770.58	$95.00	4.96
Room 303	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
Room 305	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
Room 307	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
Room 302	20	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	20	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.96	5,267	0.0	$798.38	$3,035.20	$435.00	3.26
TV Studio	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.13	710	0.0	$107.68	$500.58	$60.00	4.09
TV Studio	23	Halogen Incandescent: Screw In (1000W) - 1L	Wall Switch	1,000	3,120	None	No	23	Halogen Incandescent: Screw In (1000W) - 1L	Wall Switch	1,000	3,120	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
TV Studio Closet	7	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	No	7	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,120	0.26	1,406	0.0	$213.19	$967.82	$140.00	3.88
Room 302A	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
300 Wing Hallway	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.38	2,095	0.0	$317.50	$1,568.02	$630.00	2.95
300 Wing Stairwell	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.11	598	0.0	$90.72	$533.72	$180.00	3.90
300 Wing Stairwell	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,120	Relamp	Yes	2	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,184	0.03	151	0.0	$22.95	$156.92	$90.00	2.92
Media Center Lobby	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.10	533	0.0	$80.76	$313.05	$45.00	3.32
Media Center Lobby	2	Exit Signs: Incandescent	None	20	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	282	0.0	$42.76	$215.11	$0.00	5.03
Media Center Lobby	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
Room 304	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62

	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
Room 306	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
Room 308	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.43	2,370	0.0	$359.27	$1,514.34	$215.00	3.62
300 Wing Private Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.10	527	0.0	$79.84	$392.52	$60.00	4.16
300 Wing Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,120	0.10	533	0.0	$80.76	$313.05	$45.00	3.32
300 Wing Faculty Restroom	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	624	0.02	21	0.0	$3.15	$113.46	$0.00	35.97
300 Wing Electrical Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	624	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	624	0.06	71	0.0	$10.77	$208.70	$30.00	16.59
Room 411	11	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	11	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.53	2,897	0.0	$439.11	$1,790.86	$255.00	3.50
400 Wing Boys/Girls Bathrooms	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.32	355	0.0	$53.84	$1,251.45	$150.00	20.46
Room 409	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.41	2,244	0.0	$340.18	$1,521.45	$185.00	3.93
Room 408	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.41	2,244	0.0	$340.18	$1,521.45	$185.00	3.93
Room 407	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.41	2,244	0.0	$340.18	$1,521.45	$185.00	3.93
Room 406	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.41	2,244	0.0	$340.18	$1,521.45	$185.00	3.93
Room 405	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.41	2,244	0.0	$340.18	$1,521.45	$185.00	3.93
Room 403	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.16	898	0.0	$136.07	$770.58	$95.00	4.96
400 Wing Hallway	12	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,120	Relamp	Yes	12	LED - Linear Tubes: (4) 2' Lamps	High/Low Control	34	2,184	0.31	1,688	0.0	$255.83	$1,939.72	$660.00	5.00
400 Wing Hallway	2	Exit Signs: Incandescent	None	20	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	282	0.0	$42.76	$215.11	$0.00	5.03
400 Wing Hallway	9	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	9	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 404	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	10	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.48	2,634	0.0	$399.19	$1,652.60	$235.00	3.55
Room 401	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.16	898	0.0	$136.07	$770.58	$95.00	4.96
Room 402	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.16	898	0.0	$136.07	$770.58	$95.00	4.96
Room 402 Storage	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.13	142	0.0	$21.54	$500.58	$60.00	20.46
400 Wing Hallway	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.11	598	0.0	$90.72	$533.72	$180.00	3.90
400 Wing Hallway	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,184	0.05	279	0.0	$42.31	$226.92	$70.00	3.71
Room 400	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 400 IT Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,120	0.04	237	0.0	$35.89	$166.86	$20.00	4.09

	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
400 Wing Maintenance Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.09	95	0.0	$14.36	$333.72	$40.00	20.46
400 Wing Hallway	4	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	3,120	Relamp	Yes	4	LED - Linear Tubes: (4) 2' Lamps	High/Low Control	34	2,184	0.10	563	0.0	$85.28	$713.24	$220.00	5.78
600 Conference Room	5	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	3,120	Relamp	Yes	5	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	2,184	0.19	1,029	0.0	$155.95	$1,016.95	$35.00	6.30
Room 600	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.37	2,020	0.0	$306.16	$1,209.15	$170.00	3.39
Room 602	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.58	3,160	0.0	$479.03	$1,929.12	$275.00	3.45
Room 601	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.58	3,160	0.0	$479.03	$1,929.12	$275.00	3.45
Room 603	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.58	3,160	0.0	$479.03	$1,929.12	$275.00	3.45
Room 604	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.49	2,693	0.0	$408.22	$1,522.20	$215.00	3.20
Room 605	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.25	1,347	0.0	$204.11	$896.10	$125.00	3.78
600 Wing Hallway	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.41	2,244	0.0	$340.18	$1,651.45	$675.00	2.87
600 Wing Hallway	5	Exit Signs: Incandescent	None	20	8,760	Fixture Replacement	No	5	LED Exit Signs: 2 W Lamp	None	6	8,760	0.05	705	0.0	$106.89	$537.78	$0.00	5.03
Room 606	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,184	0.38	2,095	0.0	$317.50	$1,438.02	$175.00	3.98
Room 607	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,120	Relamp	Yes	15	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,184	0.62	3,366	0.0	$510.27	$1,835.25	$260.00	3.09
607 Closet	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.04	47	0.0	$7.18	$166.86	$20.00	20.46
607 Closet	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	624	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	624	0.06	71	0.0	$10.77	$250.29	$30.00	20.46
607 Closet	1	Exit Signs: Incandescent	None	20	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	141	0.0	$21.38	$107.56	$0.00	5.03
Room 608	14	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	14	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	0.67	3,687	0.0	$558.87	$2,205.64	$315.00	3.38
503 - New Cafeteria	31	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	31	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	1.49	8,164	0.0	$1,237.49	$4,826.06	$690.00	3.34
503 - New Cafeteria	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
503 - New Cafeteria	3	Exit Signs: Incandescent	None	20	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.03	423	0.0	$64.13	$322.67	$0.00	5.03
Kitchen	37	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	37	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	1.78	9,744	0.0	$1,477.01	$5,925.62	$845.00	3.44
Kitchen Freezers	3	Incandescent: Screw In (60W) - 1L	None	60	3,120	Relamp	No	3	LED Screw-In Lamps: LED A19 bulb	None	13	3,120	0.09	506	0.0	$76.68	$46.50	$15.00	0.41
Kitchen	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 Kitchen	26	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,120	Relamp	Yes	26	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,184	1.25	6,847	0.0	$1,037.90	$4,404.76	$625.00	3.64
500 Kitchen	2	Exit Signs: Incandescent	None	20	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	282	0.0	$42.76	$215.11	$0.00	5.03

	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
Main Entrance	3	Metal Halide: (1) 100W Lamp	Wall Switch	128	4,380	Fixture Replacement	No	3	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	30	4,380	0.19	1,481	0.0	$224.47	$1,172.03	$300.00	3.88
Exterior	4	High-Pressure Sodium: (1) 70W Lamp	Wall Switch	95	4,380	Fixture Replacement	No	4	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	21	4,380	0.19	1,491	0.0	$225.99	$1,562.71	$400.00	5.14
Exterior	4	LED - Fixtures: Architectural Flood/Spot Luminaire	Wall Switch	80	4,380	None	No	4	LED - Fixtures: Architectural Flood/Spot Luminaire	Wall Switch	80	4,380	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Exterior	2	High-Pressure Sodium: (1) 100W Lamp	Wall Switch	138	4,380	Fixture Replacement	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	30	4,380	0.14	1,088	0.0	$164.91	$781.35	$200.00	3.53
Exterior	24	High-Pressure Sodium: (1) 150W Lamp	Wall Switch	188	4,380	Fixture Replacement	No	24	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	45	4,380	2.25	17,287	0.0	$2,620.30	$9,376.25	$2,400.00	2.66
Exterior Auditorium	5	Metal Halide: (1) 50W Lamp	Wall Switch	72	4,380	Fixture Replacement	No	5	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	20	4,380	0.17	1,310	0.0	$198.51	$1,953.39	$500.00	7.32
Auditorium Entry	9	Compact Fluorescent: (1) 42W Lamp	Wall Switch	42	4,380	None	No	9	Compact Fluorescent: (1) 42W Lamp	Wall Switch	42	4,380	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Gym Area	4	High-Pressure Sodium: (1) 100W Lamp	Wall Switch	138	4,380	Fixture Replacement	No	4	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	30	4,380	0.28	2,176	0.0	$329.83	$1,562.71	$400.00	3.53
Cafeteria Area	2	High-Pressure Sodium: (1) 100W Lamp	Wall Switch	138	4,380	Fixture Replacement	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	30	4,380	0.14	1,088	0.0	$164.91	$781.35	$200.00	3.53
Auditorium Corner Pole Lights	5	Metal Halide: (1) 150W Lamp	Wall Switch	190	4,380	Fixture Replacement	No	5	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Wall Switch	45	4,380	0.48	3,652	0.0	$553.53	$9,764.97	$500.00	16.74
Gravel Parking Lot	8	LED - Fixtures: Large Pole/Arm-Mounted Area/Roadway Fixture	None	300	4,380	None	No	8	LED - Fixtures: Large Pole/Arm-Mounted Area/Roadway Fixture	None	300	4,380	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Football Field Lights	40	High-Pressure Sodium: (1) 1000W Lamp	None	1,500	64	Fixture Replacement	No	40	LED - Fixtures: Large Pole/Arm-Mounted Area/Roadway Fixture	None	300	64	31.46	3,533	0.0	$535.49	$132,999.72	$0.00	248.37
Pole Lights	20	High-Pressure Sodium: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	None	1,000	4,928	None	No	20	High-Pressure Sodium: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	None	1,000	4,928	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Garage	16	Compact Fluorescent: Pin Style (26W) - 2L	Wall Switch	42	4,380	Relamp	No	16	LED Screw-In Lamps: Pin-Style (15W) 2L	Wall Switch	30	4,380	0.13	967	0.0	$146.59	$1,409.63	$0.00	9.62
Garage	3	High-Pressure Sodium: (1) 150W Lamp	Wall Switch	188	4,380	Fixture Replacement	No	3	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	45	4,380	0.28	2,161	0.0	$327.54	$1,172.03	$300.00	2.66
Garage	2	Incandescent: Flood Light (75W) - 1L	Wall Switch	75	4,380	Relamp	No	2	LED Screw-In Lamps: Screw-In (15W) 1L	Wall Switch	15	4,380	0.08	604	0.0	$91.62	$107.51	$10.00	1.06
Garage Consession Area	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	365	Relamp	No	4	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	365	0.15	94	0.0	$14.25	$380.53	$80.00	21.09
Garage Consession Area	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	365	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	365	0.03	21	0.0	$3.15	$75.20	$15.00	19.11
Garage Consession Area	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
Restrooms (2)	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	365	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	365	0.19	125	0.0	$18.90	$451.20	$90.00	19.11
Band Field	24	High-Pressure Sodium: (1) 1000W Lamp	Wall Switch	1,500	365	Fixture Replacement	No	24	LED - Fixtures: Large Pole/Arm-Mounted Area/Roadway Fixture	Wall Switch	300	365	18.88	12,089	0.0	$1,832.38	$79,799.83	$0.00	43.55
Garage Area	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,380	Relamp	No	20	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	4,380	0.65	4,987	0.0	$755.86	$1,504.00	$300.00	1.59
Garage Area	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	4,380	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	4,380	0.07	564	0.0	$85.51	$190.27	$40.00	1.76
Garage Area	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

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
700 Wing Boiler Room	Whole Building	1	Heating Hot Water Pump	50.0	93.6%	Yes	4,067	No	93.6%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Boiler Room	Whole Building	1	Heating Hot Water Pump	15.0	91.0%	Yes	3,391	No	91.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Boiler Room	Whole Building	1	Chilled Water Pump	40.0	94.1%	Yes	4,067	No	94.1%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Boiler Room	Whole Building - Neumatic Controls	2	Air Compressor	2.0	86.5%	No	4,957	No	86.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Boiler Room	Heating Boilers - Burner Blower	3	Process Blower	3.0	85.5%	No	2,745	No	85.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	South Side of Building	12	Other	1.0	82.5%	Yes	2,745	Yes	85.5%	No		0.21	784	0.0	$118.81	$8,960.76	$0.00	75.42
Roof	Aux Café	1	Supply Fan	3.0	87.5%	No	2,745	Yes	89.5%	Yes	1	0.43	1,341	0.0	$203.33	$3,812.49	$240.00	17.57
Roof	Aux Café	1	Exhaust Fan	2.0	84.0%	No	2,745	Yes	86.5%	No		0.03	106	0.0	$16.02	$894.24	$0.00	55.82
Roof	New Café	1	Supply Fan	2.3	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 506	1	Supply Fan	1.0	80.0%	No	2,745	No	80.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Tech Room	1	Supply Fan	1.0	80.0%	No	2,745	Yes	82.5%	No		0.02	58	0.0	$8.82	$688.62	$0.00	78.09
Roof	Tech Room	1	Supply Fan	2.0	86.5%	No	2,745	Yes	88.5%	No		0.02	80	0.0	$12.16	$764.61	$0.00	62.86
Roof	STEM Lab	1	Supply Fan	3.0	87.5%	No	2,745	No	87.5%	Yes	1	0.41	1,264	0.0	$191.56	$3,007.65	$240.00	14.45
Roof	STEM Lab	1	Exhaust 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	Main Office / Entrance	1	Other	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	Main Office / Entrance	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	Main Entry Area	1	Supply Fan	1.0	82.5%	No	2,745	Yes	85.5%	No		0.02	65	0.0	$9.90	$746.73	$0.00	75.42
Roof	Main Entry Area	1	Supply Fan	2.0	84.0%	No	2,745	Yes	86.5%	No		0.03	106	0.0	$16.02	$894.24	$0.00	55.82
Roof	Whole Building	8	Process Fan	1.9	84.0%	No	2,745	Yes	86.5%	No		0.22	803	0.0	$121.75	$5,981.54	$0.00	49.13
Roof	Whole Building	4	Process Fan	1.9	84.0%	No	2,745	Yes	86.5%	No		0.11	402	0.0	$60.87	$2,990.77	$0.00	49.13

		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	Band Area (LGI)	1	Supply Fan	5.0	87.5%	No	2,745	Yes	89.5%	Yes	1	0.72	2,236	0.0	$338.88	$4,196.91	$400.00	11.20
Roof	Band Area (LGI)	1	Exhaust Fan	3.0	87.5%	No	2,745	Yes	89.5%	Yes	1	0.43	1,341	0.0	$203.33	$3,812.49	$240.00	17.57
Roof	Band Area (LGI)	1	Supply Fan	3.0	87.5%	No	2,745	Yes	89.5%	Yes	1	0.43	1,341	0.0	$203.33	$3,812.49	$240.00	17.57
Roof	Band Area (LGI)	1	Exhaust Fan	2.0	84.0%	No	2,745	Yes	86.5%	No		0.03	106	0.0	$16.02	$894.24	$0.00	55.82
Roof	Aux Gym Locker Rooms	1	Supply Fan	2.0	84.0%	No	2,745	Yes	86.5%	No		0.03	106	0.0	$16.02	$894.24	$0.00	55.82
Roof	Auditorium Lobby	1	Supply Fan	15.0	91.0%	No	3,391	No	91.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Auditorium Lobby	1	Exhaust Fan	7.5	89.5%	No	3,391	Yes	91.7%	Yes	1	1.06	4,067	0.0	$616.53	$4,760.59	$600.00	6.75
Roof	Theater	2	Supply Fan	30.0	92.4%	Yes	4,067	No	92.4%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Theater	2	Exhaust Fan	7.5	89.5%	Yes	3,391	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Green Room	1	Supply Fan	2.0	84.0%	No	2,745	Yes	86.5%	No		0.03	106	0.0	$16.02	$894.24	$0.00	55.82
Roof	Green Room	1	Exhaust Fan	1.0	82.5%	No	2,745	Yes	85.5%	No		0.02	65	0.0	$9.90	$746.73	$0.00	75.42
Roof	Aux Gym (Wrestling Room)	1	Supply Fan	5.0	87.5%	No	2,745	Yes	89.5%	Yes	1	0.72	2,236	0.0	$338.88	$4,196.91	$400.00	11.20
Roof	Aux Gym (Wrestling Room)	1	Exhaust Fan	3.0	87.5%	No	2,745	Yes	89.5%	Yes	1	0.43	1,341	0.0	$203.33	$3,812.49	$240.00	17.57
Roof	Stage	1	Supply Fan	15.0	91.0%	No	3,391	Yes	92.4%	No		0.10	474	0.0	$71.82	$1,891.42	$0.00	26.33
Roof	Stage	1	Exhaust Fan	7.5	89.5%	No	3,391	Yes	91.7%	Yes	1	1.06	4,067	0.0	$616.53	$4,760.59	$600.00	6.75
Roof	Theater (Auxillary Equipment)	8	Other	2.1	84.0%	No	2,745	Yes	86.5%	No		0.24	888	0.0	$134.56	$7,153.92	$0.00	53.16
Classrooms	Unit Ventilators Classrooms	40	Supply Fan	0.3	60.0%	No	2,745	Yes	69.5%	No		0.94	3,499	0.0	$530.35	$17,702.00	$0.00	33.38
Baseball Field	Baseball Field Irrigation	1	Water Supply Pump	10.0	89.5%	No	730	Yes	91.7%	No		0.11	109	0.0	$16.60	$1,567.05	$0.00	94.43
Roof	Music Room	2	Air Compressor	7.5	89.5%	No	1,040	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Music Room	2	Other	1.0	82.5%	No	2,745	Yes	85.5%	No		0.04	131	0.0	$19.80	$1,493.46	$0.00	75.42

		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	Health Room	1	Air Compressor	4.0	87.5%	No	1,040	No	87.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Boiler Room	Whole Building	1	Heating Hot Water Pump	50.0	93.6%	Yes	0	No	93.6%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Boiler Room	Whole Building	1	Heating Hot Water Pump	15.0	91.0%	Yes	0	No	91.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Boiler Room	Whole Building	1	Chilled Water Pump	40.0	94.1%	Yes	0	No	94.1%	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
Roof	New Cafeteria	2	Packaged AC	10.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 506	1	Packaged AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Tech Room	1	Packaged AC	7.00		Yes	1	Packaged AC	7.00		11.50		Yes	1.81	4,314	0.0	$653.97	$13,224.74	$761.00	19.06
Roof	STEM Lab	1	Packaged AC	10.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Music Room	1	Split-System AC	15.00		Yes	1	Split-System AC	15.00		11.50		No	2.91	4,917	0.0	$745.36	$17,397.73	$1,185.00	21.75
Roof	Health Room	2	Split-System AC	4.00		Yes	2	Split-System AC	4.00		14.00		No	2.55	4,309	0.0	$653.08	$11,969.76	$736.00	17.20
Roof	Ensemble Room	1	Split-System AC	2.50		Yes	1	Split-System AC	2.50		14.00		No	0.80	1,346	0.0	$204.09	$3,740.55	$230.00	17.20
Roof	Marching Band Room	1	Split-System AC	7.50		Yes	1	Split-System AC	7.50		11.50		No	1.46	2,459	0.0	$372.68	$8,728.28	$547.50	21.95
Roof	Weight Room	1	Split-System AC	10.00		Yes	1	Split-System AC	10.00		11.50		No	1.94	3,278	0.0	$496.91	$11,637.70	$730.00	21.95
Roof	Trainer's Office	1	Split-System AC	5.00		Yes	1	Split-System AC	5.00		14.00		No	1.60	2,693	0.0	$408.17	$7,481.10	$460.00	17.20
Roof	Lighting Closet	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	0.96	1,616	0.0	$244.90	$4,488.66	$276.00	17.20
Roof	Old Cafeteria	6	Split-System AC	4.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Office	1	Ductless Mini-Split HP	2.00	24.00	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Faculty Room	1	Split-System AC	3.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	VP Office	1	Ductless Mini-Split HP	0.75	17.00	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Main Office / Entrance	1	Packaged AC	10.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Teacher Planning Room	1	Split-System AC	10.00		Yes	1	Split-System AC	10.00		11.50		No	1.94	3,278	0.0	$496.91	$11,637.70	$730.00	21.95
Roof	Main Entry Area	1	Packaged AC	7.50		Yes	1	Packaged AC	7.50		11.50		Yes	1.94	4,623	0.0	$700.68	$14,115.79	$797.50	19.01
Roof	New Gym Trainer's Office	1	Ductless Mini-Split AC	0.75		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Entry	1	Electric Resistance Heat		17.00	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Electric Chiller Inventory & Recommendations

		Existing Conditions			Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Chiller Quantity	System Type	Cooling Capacity per Unit (Tons)	Install High Efficiency Chillers?	Chiller Quantity	System Type	Constant/ Variable Speed	Cooling Capacity (Tons)	Full Load Efficiency (kW/Ton)	IPLV Efficiency (kW/Ton)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof	Theater Aux	1	Air-Cooled Screw Chiller	245.00	No							0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Ground Exterior	Whole Building	1	Air-Cooled Screw Chiller	245.00	No							0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	South Side of building - 300 Wing & Media Center & 509-512	1	Air-Cooled Scroll Chiller	124.00	No							0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Fuel Heating Inventory & Recommendations

		Existing Conditions			Proposed Conditions						Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Output Capacity per Unit (MBh)	Install High Efficiency System?	System Quantity	System Type	Output Capacity per Unit (MBh)	Heating Efficiency	Heating Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
700 Wing Boiler Room	Whole Building	1	Non-Condensing Hot Water Boiler	5,862.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	New Cafeteria	1	Furnace	185.30	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 506	1	Furnace	120.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	STEM Lab	1	Furnace	150.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Boiler Room	Whole Building	1	Non-Condensing Hot Water Boiler	5,862.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Boiler Room	Whole Building	1	Non-Condensing Hot Water Boiler	5,862.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Pipe Insulation Recommendations

		Recommendation Inputs		Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Affected	Length of Uninsulated Pipe (ft)	Pipe Diameter (in)	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
Old Gym Girl's Locker Room	Old Gym Girl's Locker Room	40	2.00	0.00	0	11.8	$136.76	$174.00	$0.00	1.27

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
700 Wing Boiler Room	Whole Building	2	Storage Tank Water Heater (> 50 Gal)	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
Aux Gym Locker Rooms	7	Faucet Aerator (Lavatory)	1.50	1.00	0.00	0	5.1	$59.09	$50.19	$0.00	0.85
Aux Gym Locker Rooms	12	Showerhead	2.50	2.00	0.00	0	9.7	$112.54	$1,071.60	$0.00	9.52
Stage/Theater Area	2	Faucet Aerator (Lavatory)	2.20	1.00	0.00	0	3.5	$40.52	$14.34	$0.00	0.35
800 Zone Custodial	1	Faucet Aerator (Kitchen)	3.00	2.20	0.00	0	1.2	$13.51	$7.17	$0.00	0.53
Athletic Director's Offcie	1	Faucet Aerator (Kitchen)	2.20	2.20	0.00	0	0.0	$0.00	$7.17	$0.00	0.00
New Gym Locker Rooms	20	Showerhead	2.50	2.00	0.00	0	16.2	$187.57	$1,786.00	$0.00	9.52
804A Trainer's Room	1	Faucet Aerator (Lavatory)	2.50	1.00	0.00	0	2.2	$25.32	$7.17	$0.00	0.28
Room 701	1	Faucet Aerator (Kitchen)	2.50	2.20	0.00	0	0.4	$5.06	$7.17	$0.00	1.42
Old Gym Locker Rooms	15	Showerhead	2.50	2.00	0.00	0	12.2	$140.68	$1,339.50	$0.00	9.52
Garage	1	Faucet Aerator (Kitchen)	3.00	2.20	0.00	0	1.2	$13.51	$7.17	$0.00	0.53

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
Main Kitchen	1	Cooler (35F to 55F)	No	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Kitchen	1	Medium Temp Freezer (0F to 30F)	No	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Commercial Refrigerator/Freezer Inventory & Recommendations

	Existing Conditions			Proposed Condi	Energy Impact & Financial Analysis						
Location	Quantity	Refrigerator/ Freezer Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Consessions Area / 500 Café / Garage / Garage Consession Area	3	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
804A Trainer's Room / Room 716	2	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 714 Back Storage	2	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 714 Back Storage	1	Refrigerator Chest	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Kitchen / Garage Consession Area	3	Stand-Up Freezer, Solid Door (16 - 30 cu. ft.)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Whole Buidling	1	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Whole Buidling	6	Stand-Up Refrigerator, Solid Door (≤15 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Kitchen	4	Stand-Up Refrigerator, Solid Door (>50 cu. ft.)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Kitchen	1	Stand-Up Freezer, Solid Door (>50 cu. ft.)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Kitchen	1	Stand-Up Refrigerator, Solid Door (>50 cu. ft.)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Commercial Ice Maker Inventory & Recommendations

	Existing Conditions			Proposed Condi	Energy Impact & Financial Analysis						
Location	Quantity	Ice Maker Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
804A Trainer's Room	1	Self-Contained Unit (≥175 lbs/day), Batch	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Novelty Cooler Inventory & Recommendations

	Existing Conditions		Proposed Conditions	Energy Impact & Financial Analysis						
Location	Quantity	Cooler Description	Install Automatic Shutoff 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
500 Café	1	Ice Cream Chest Freezer	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
Main Kitchen	2	Gas Convection Oven (Full Size)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Kitchen	3	Gas Convection Oven (Full Size)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Kitchen	1	Insulated Food Holding Cabinet (Full Size)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Whole Building	6	Electric Convection Oven (Half Size)	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Dishwasher Inventory & Recommendations

	Existing Conditions					Proposed Conditions	Energy Impact & Financial Analysis						
Location	Quantity	Dishwasher Type	Water Heater Fuel Type	Booster Heater Fuel Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Payback w/ Incentives in Years
Main Kitchen	1	Door Type (High Temp)	Natural Gas	Electric	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?
Room 716	1	Copy Machine	2,800.0	Yes
Whole Building	30	Microwave Oven	800.0	No
Main Kitchen	1	Clothes Dryer	5,000.0	No
Main Kitchen	1	Clothes Washer	900.0	No
Main Kitchen	2	Coffee Machine	900.0	No
Room 714	1	Clothes Washer	900.0	No
Room 714	1	Clothes Dryer	5,000.0	No
Whole Building	1,200	Laptop Computers	40.0	Yes
Whole Building	95	Wall Projectors	367.0	No
Whole Building	7	Toaster	850.0	No
Whole Building	1,414	Desktop PC	150.0	No
Whole Building	4	55' TV	190.0	No
Whole Building	4	Coffee Machine	900.0	No
Whole Building	4	Large Printer	600.0	No
Whole Building	5	Small Printer	20.0	No
Whole Building	1	CRT Printer	600.0	No
Whole Building	1	Shredder	150.0	No
500 Café	1	Hot Food Holder	1,500.0	No
Garage	1	Computer	150.0	No
Garage	1	Micriwave	800.0	No

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
Poineer Hall	3	Glass Fronted Refrigerated	Yes	0.00	3,627	0.0	$549.71	$690.00	$0.00	1.26
Room 716	1	Refrigerated	Yes	0.00	1,612	0.0	$244.32	$230.00	$0.00	0.94
501 Old Cafeteria	3	Glass Fronted Refrigerated	Yes	0.00	3,627	0.0	$549.71	$690.00	$0.00	1.26
503 New Cafeteria	1	Glass Fronted Refrigerated	Yes	0.00	1,209	0.0	$183.24	$230.00	$0.00	1.26

Appendix B: ENERGY STAR® Statement of Energy Performance

Note: This Statement of Energy Performance combines the High School and Middle School.

ENERGY STAR® Statement of Energy Performance

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ENERGY STAR® Score[1]

Clearview Regional High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 250,947
Built: 1960

For Year Ending: January 31, 2017
Date Generated: December 19, 2017

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
Clearview Regional High School 625 Breakneck Road Mullica Hill, New Jersey 08062	Clearview Regional High School District 420 Cedar Road Mullica Hill, NJ 08062 (856) 223-2762	Esther Pennell 420 Cedar Road Mullica Hill, NJ 08062 (856) 223-2762 pennelles@clearviewregional.edu

Property ID: 6170128

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
94.4 kBtu/ft²

Source EUI
193.4 kBtu/ft²

Annual Energy by Fuel

Electric - Grid (kBtu)	11,317,924 (48%)
Natural Gas (kBtu)	12,373,719 (52%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	100.6
National Median Source EUI (kBtu/ft²)	206.1
% Diff from National Median Source EUI	-6%

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,913