Local Government Energy Audit:
Energy Audit Report

Memorial Middle School - High School

375 River Dr.

Elmwood Park, New Jersey 07407

Elmwood Park Board of Education

December 5, 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 Memorial Middle School - High School.

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

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

1.1 Facility Summary

Memorial Middle School - High School is a 172,793 square foot facility comprised of various space types within a single building. The school is two floors and includes classrooms, offices, media center, cafeteria, auditorium, kitchen, gym, locker rooms, a boiler room, and mechanical and electrical spaces.

Interior lighting at Memorial Middle School - High School consists primarily of T8 linear fluorescent lighting fixtures. There are also a variety of other interior lighting technologies which use incandescent, halogen, compact fluorescent, T5 linear fluorescent, and LED lamps. Exterior lighting consists of compact fluorescent, incandescent, T8 fluorescent, and high-pressure sodium technologies. Cooling is primarily provided by two air-cooled screw chillers which supply chilled water to 13 air-handlers. There are also two ductless mini-split air-conditioning and one ductless mini-split heat pump systems which provide supplemental cooling to the facility. Heating is provided by nine condensing hot water boilers which supply hot water to the same 13 air-handlers as well as to unit heaters throughout the facility. 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 10 measures and recommends nine measures which together represent an opportunity for Memorial Middle School - High School to reduce annual energy costs by roughly $53,191 and annual greenhouse gas emissions by 356,831 lbs CO_2e. We estimate that if all measures were implemented as recommended, the project would pay for itself in 4.4 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 Memorial Middle School - High School's annual energy use by 11%.

Figure 1 – Previous 12 Month Utility Costs

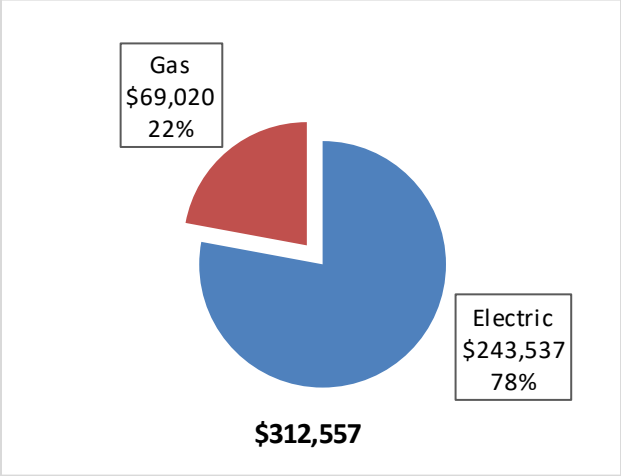
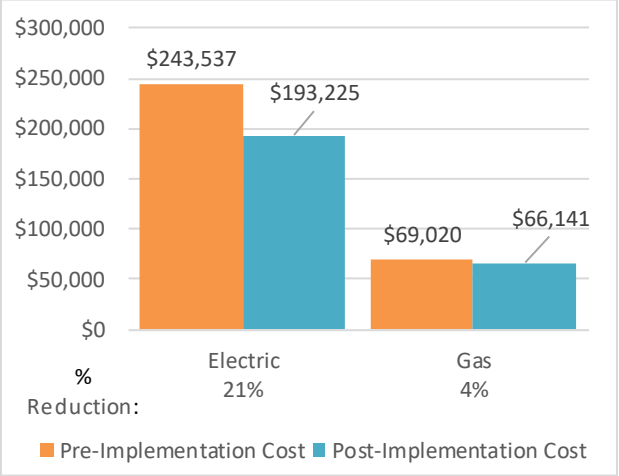


Figure 2 – Potential Post-Implementation Costs



A detailed description of Memorial Middle School - High School's existing energy use can be found in Section 3.

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

Figure 3 – Summary of Energy Reduction Opportunities

Energy Conservation Measure		Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**241,457**	**51.5**	**0.0**	**$38,138.96**	**$114,980.27**	**$28,725.00**	**$86,255.27**	**2.3**	**243,145**
ECM 1	Install LED Fixtures	Yes	4,678	0.6	0.0	$738.97	$3,863.86	$400.00	$3,463.86	4.7	4,711
ECM 2	Retrofit Fixtures with LED Lamps	Yes	236,779	50.9	0.0	$37,399.99	$111,116.41	$28,325.00	$82,791.40	2.2	238,434
Lighting Control Measures			**9,948**	**1.6**	**0.0**	**$1,571.36**	**$7,560.00**	**$840.00**	**$6,720.00**	**4.3**	**10,018**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	9,948	1.6	0.0	$1,571.36	$7,560.00	$840.00	$6,720.00	4.3	10,018
Motor Upgrades			**0**	**0.0**	**0.0**	**$0.00**	**$27,223.62**	**$0.00**	**$27,223.62**	**0.0**	**0**
ECM 4	Premium Efficiency Motors	Yes	0	0.0	0.0	$0.00	$27,223.62	$0.00	$27,223.62	0.0	0
Variable Frequency Drive (VFD) Measures			**51,116**	**24.3**	**0.0**	**$8,073.89**	**$88,036.59**	**$10,920.00**	**$77,116.59**	**9.6**	**51,473**
ECM 5	Install VFDs on Constant Volume (CV) HVAC	Yes	40,438	20.7	0.0	$6,387.36	$72,453.24	$10,920.00	$61,533.24	9.6	40,721
ECM 6	Install VFDs on Chilled Water Pumps	Yes	10,677	3.6	0.0	$1,686.53	$15,583.35	$0.00	$15,583.35	9.2	10,752
Electric Chiller Replacement			**71,122**	**79.4**	**0.0**	**$11,234.01**	**$620,072.22**	**$58,880.00**	**$561,192.22**	**50.0**	**71,620**
	Install High Efficiency Chillers	No	71,122	79.4	0.0	$11,234.01	$620,072.22	$58,880.00	$561,192.22	50.0	71,620
HVAC System Improvements			**8,839**	**0.0**	**308.1**	**$4,275.44**	**$32,626.08**	**$0.00**	**$32,626.08**	**7.6**	**44,979**
ECM 7	Implement Demand Control Ventilation	Yes	8,839	0.0	308.1	$4,275.44	$32,626.08	$0.00	$32,626.08	7.6	44,979
Food Service Equipment & Refrigeration Measures			**2,330**	**0.1**	**0.0**	**$368.04**	**$3,348.00**	**$150.00**	**$3,198.00**	**8.7**	**2,346**
ECM 8	Refrigeration Controls	Yes	2,330	0.1	0.0	$368.04	$3,348.00	$150.00	$3,198.00	8.7	2,346
Plug Load Equipment Control - Vending Machine			**4,836**	**0.0**	**0.0**	**$763.79**	**$690.00**	**$0.00**	**$690.00**	**0.9**	**4,869**
ECM 9	Vending Machine Control	Yes	4,836	0.0	0.0	$763.79	$690.00	$0.00	$690.00	0.9	4,869
TOTALS FOR HIGH PRIORITY MEASURES			**318,526**	**77.5**	**308.1**	**$53,191.48**	**$274,464.56**	**$40,635.00**	**$233,829.56**	**4.4**	**356,831**
TOTALS FOR ALL EVALUATED MEASURES			**389,648**	**156.9**	**308.1**	**$64,425.49**	**$894,536.78**	**$99,515.00**	**$795,021.78**	**12.3**	**428,450**

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

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

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

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

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

Variable Frequency Drives (VFDs) are motor control devices. These measures control the speed of a motor so that the motor spins at peak efficiency during partial load conditions. Sensors adapt the speed to flow, temperature, or pressure settings which is much more efficient 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 Chiller measures generally involve replacing older inefficient hydronic chillers with modern energy efficient systems. New chillers can provide equivalent cooling compared to older chillers at a reduced energy cost. These measures save energy by reducing chiller energy usage, due to improved electrical and heat transfer 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.

Food Service Equipment & Refrigeration measures generally involve improvements in the efficiency of cooking, food service, dishwashing, and food storage equipment. These measures may include more efficient convection ovens, steamers, ice machines, or refrigeration. These measures save energy by reducing the energy usage with more energy efficient equipment.

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

Energy Efficient Practices

TRC also identified 13 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 Memorial Middle School - High School include:

- Reduce Air Leakage
- Close Doors and Windows
- Perform Proper Lighting Maintenance
- Develop a Lighting Maintenance Schedule
- 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
- Perform Proper Boiler Maintenance
- Perform Proper Water Heater Maintenance
- 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 Memorial Middle School - 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	514	kW DC STC
Electric Generation	612,364	kWh/yr
Displaced Cost	$53,280	/yr
Installed Cost	$2,004,600	

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

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

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.

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

2 FACILITY INFORMATION AND EXISTING CONDITIONS

2.1 Project Contacts

Figure 5 – Project Contacts

Name	Role	E-Mail	Phone #
Customer			
John DiPaola	Business Administrator	jdipaola@epps.org	201-796-8700 Ext. 3175
TRC Energy Services			
Alexander Klieverik	Auditor	aklieverik@trcsolutions.com	732-855-0033

2.2 General Site Information

On July 17, 2018, TRC performed an energy audit at Memorial Middle School - High School located in Elmwood Park, New Jersey. TRC's team met with John DiPaola to review the facility operations and help focus our investigation on specific energy-using systems.

Memorial Middle School - High School is a 172,793 square foot facility comprised of various space types within a single building. The school is two floors and includes classrooms, offices, media center, cafeteria, auditorium, kitchen, gym, locker rooms, a boiler room, and mechanical and electrical spaces.

Interior lighting at Memorial Middle School - High School consists primarily of T8 linear fluorescent lighting fixtures. There are also a variety of other interior lighting technologies which use incandescent, halogen, compact fluorescent, T5 linear fluorescent, and LED lamps. Exterior lighting consists of compact fluorescent, incandescent, T8 fluorescent, and high-pressure sodium technologies. Cooling is primarily provided by two air-cooled screw chillers which supply chilled water to 13 air-handlers. There are also two ductless mini-split air-conditioning and one ductless mini-split heat pump systems which provide supplemental cooling to the facility. Heating is provided by nine condensing hot water boilers which supply hot water to the same 13 air-handlers as well as to unit heaters throughout the facility. The building was constructed in 1956.

2.3 Building Occupancy

The school building is open Monday through Friday and, on a limited basis, some weekends for events during the school year. The typical schedule is presented in the table below. The facility is occupied weekdays by staff and students primarily through the school year.

Figure 6 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
Memorial Middle School - High School	Weekday	6:30 AM to 10:00 PM
Memorial Middle School - High School	Weekend	9:00 AM to 3:00 PM

2.4 Building Envelope

The building is constructed of brick and structural steel. The buildings have flat roofs covered with black membrane that is in good condition. The buildings have double pane windows with a tinted film which are in good condition and show little sign of excessive infiltration. The exterior doors are constructed of aluminum, some with large window panes, and in good condition.

Figure 7 - Building Envelope

2.5 Energy-Using Systems

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

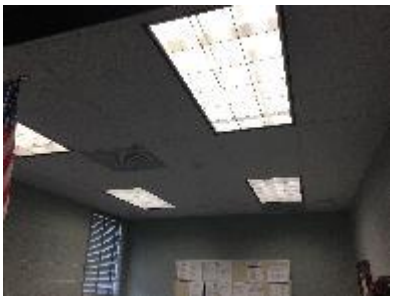
Lighting System

Interior lighting at the facility is provided mostly by 32-Watt linear fluorescent T8 lamps with electronic ballasts as well as some linear T5 fluorescent, incandescent, halogen, LED and compact fluorescent lamps (CFL). Most of the T8 and T5 fixtures are 4-lamp or 3-lamp, 4-foot long troffers with diffusers. Halogen and incandescent lighting is primarily used for stage lighting.

Lighting control in most spaces is provided by occupancy sensors. The occupancy sensors are either wall or ceiling mounted depending on the space layout. The auditorium, storage areas, weight rooms, some restrooms, and lobby or vestibule areas do not contain any occupancy sensors and are controlled with wall switches.

The building's exterior lighting consists primarily of CFLs, but also include high pressure sodium (HPS), incandescent, and U-bend T8 fluorescent fixtures that are controlled by photocells.

Figure 8 – Lighting Technologies



Chilled Water System

The facility is served by a single chilled water plant. The chiller plant consists of a two 320 ton, McQuay air-cooled screw chillers. The chillers are configured in a primary- secondary distribution loop with three constant flow primary pumps (P5, 6, 7) and two variable flow secondary pumps (P3 & 4). Each chiller is supplied by a dedicated 15 hp primary pump, with the third as a standby. The secondary distribution system is supplied by two 60 hp pumps controlled with VFDs. Chilled water is distributed at around 45°F to air handlers 1 through 13 as well as to unit ventilators in classrooms. The chiller plant appears well maintained.

Figure 9 – Chilled Water Equipment



Hot Water Heating System

The hot water system consists of nine Aerco Benchmark 2.0 model condensing boilers with a 1,933 kBtu/hr output each. The boilers have a nominal combustion efficiency of 96%. Three of the boilers serve the newer sections of the school and distribute hot water through one of two variable flow 10 hp pumps (P8 & 9). The remaining six boilers serve the older sections where one of two variable flow 20 hp pumps provide heating hot water distribution. Hot water is supplied to air handlers 1 through 13 as well as to unit ventilators in classrooms and unit heaters located throughout the facility. The boilers are relatively new, in good condition and well maintained.

Figure 10 – Heating Hot Water Equipment



Heating, Ventilation and Air Conditioning System (HVAC)

There are 13 air handling units (AHU1-13) and a large number of classroom unit ventilators that serve the heating, cooling, and ventilation needs of the entire school. Each AHU draws air from its own return air shaft and supplies air to its own air shaft. All units receive chilled water and hot water from the chiller plant and boilers.

Most air handlers are located on the roof while the others are in ceilings throughout the facility. All except the auditorium AHUs have constant volume supply fans with motors that range from 2 hp to 20 hp each. Most AHUs have constant volume return fans as well with motors that range from 1 hp to 5 hp each. The two auditorium AHUs are variable air volume (VAV) systems with a 20 hp supply fan motor and 10 hp exhaust fan motor both controlled by a VFD. Unit ventilators in classrooms have supply fans with a 0.25 hp motor each. All units are controlled by thermostats within the zone to maintain the setpoint temperature.

Figure 11 – HVAC Equipment



Direct Expansion Air Conditioning System (DX)

Two 1.5 ton ductless mini-split air-conditioning systems and one 3 ton ductless mini-split heat pump provide supplemental cooling to the school. The units are controlled by individual thermostats located in their respective zones.

Figure 12 – Air Conditioning Equipment



Domestic Hot Water Heating System

The domestic hot water heating system for the facility consists of three gas fired hot water heaters with input ratings of 1,000 kBtu/hr, 500 kBtu/hr, and 200 kBtu/hr, each with a nominal efficiency of about 95%. The water heaters respectively have 250, 119, and 100-gallon storage tank capacities. Two 1/8 hp recirculation pumps distribute water to the entire site. The recirculation pumps operate continuously.

Figure 13 – Domestic Hot Water Equipment



Food Service Equipment

The school has a kitchen that is used to prepare meals daily for the students and staff. Most of the cooking is done using a gas oven and griddle. There are also a couple of electric fryers and a combination electric oven/steam cooker. Electric insulated food holding cabinets and steam trays are used to hold and serve prepared meals.

Figure 14 – Food Service and Laundry Equipment



Refrigeration

The facility has two different cold storage areas: a walk-in cooler and a walk-in freezer. The cooler area is maintained at a constant temperature of about 35°F to 40°F and freezer area is maintained at about 0°F to 5°F. The cooler area is served by four evaporator fans and freezer area is served by two evaporator fans each having a 156-Watt motor.

There is also an ice machine in the athletic storage area with a capacity of about 400 lbs of ice per day.

Figure 15 – Refrigeration Equipment



Building Plug Load

There are roughly 170 computer work stations and laptops throughout the facility. There is no centralized PC power management software installed.

The facility has a large number of other plug load appliances such as refrigerated beverage vending machines, mini-fridges, microwaves, projectors, televisions, desktop printers, photocopiers, electric kiln and exercise equipment.

Figure 16 – Building Plug Load Appliances

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

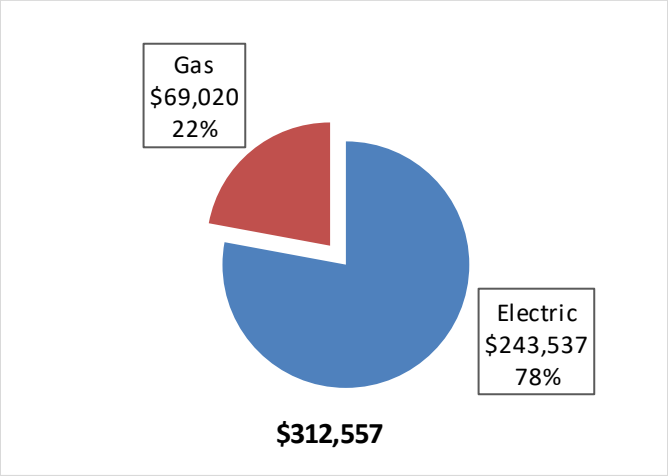
The following energy consumption and cost data is based on the last 12-month period of utility billing data that was provided for each utility. A profile of the annual energy consumption and energy cost of the facility was developed from this information.

Figure 17 - Utility Summary

Utility Summary for Memorial Middle School - High School		
Fuel	**Usage**	**Cost**
Electricity	1,541,832 kWh	$243,537
Natural Gas	73,863 Therms	$69,020
Total		**$312,557**

The current annual energy cost for this facility is $312,557 as shown in the chart below.

Figure 18 - Energy Cost Breakdown



3.2 Electricity Usage

Electricity is provided by PSE&G. The average electric cost over the past 12 months was $0.158/kWh, which is the blended rate that includes energy supply, distribution, and other charges. This rate is used throughout the analyses in this report to assess energy costs and savings. Electricity consumption and demand is greater in the summer months due to increased cooling loads provided by electric cooling equipment. The monthly electricity consumption and peak demand are shown in the chart below.

Figure 19 - Electric Usage & Demand

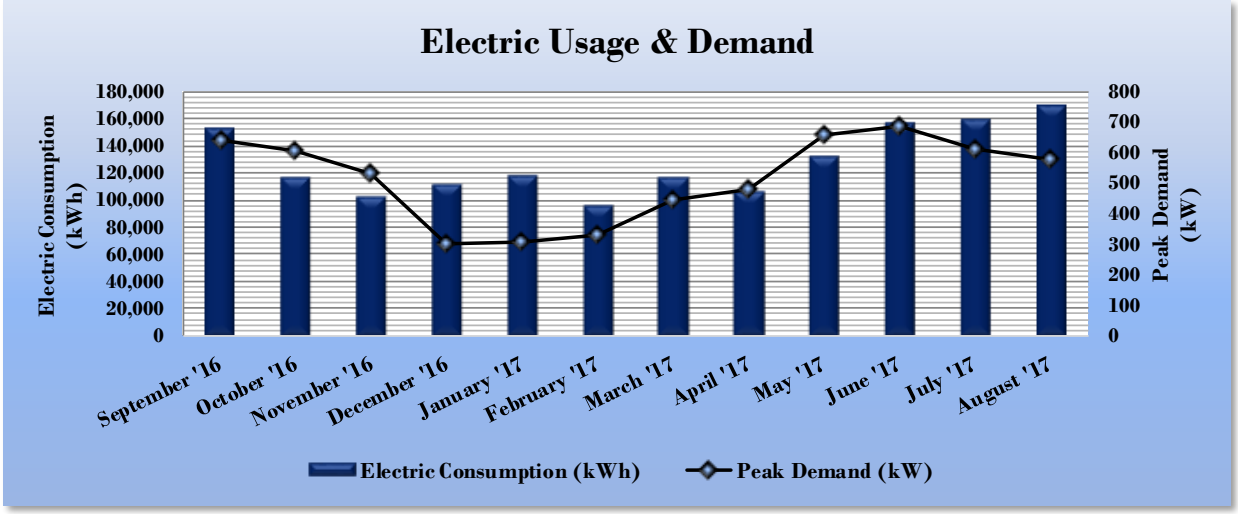


Figure 20 - Electric Usage & Demand

Electric Billing Data for Memorial Middle School - High School						
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost	TRC Estimated Usage?
9/30/16	30	152,961	639	$2,381	$28,365	No
10/31/16	31	117,406	606	$2,255	$17,645	No
11/30/16	30	102,779	532	$1,982	$15,500	No
12/31/16	31	111,346	300	$1,117	$15,916	No
1/31/17	31	118,291	305	$1,134	$16,816	No
2/28/17	28	96,796	330	$1,228	$14,128	No
3/31/17	31	117,219	446	$1,674	$17,708	No
4/30/17	30	107,096	478	$1,802	$16,482	No
5/31/17	31	131,902	657	$2,474	$20,447	No
6/30/17	30	156,407	688	$2,592	$26,541	No
7/31/17	31	159,286	614	$2,313	$27,029	Yes
8/31/17	31	170,343	579	$2,254	$26,961	No
Totals	**365**	**1,541,832**	**688.1**	**$23,207**	**$243,537**	
Annual	**365**	**1,541,832**	**688.1**	**$23,207**	**$243,537**	

3.3 Natural Gas Usage

Natural gas is provided by PSE&G. The average gas cost for the past 12 months is $0.934/therm, which is the blended rate used throughout the analyses in this report. The monthly gas consumption is shown in the chart below.

Figure 21 - Natural Gas Usage

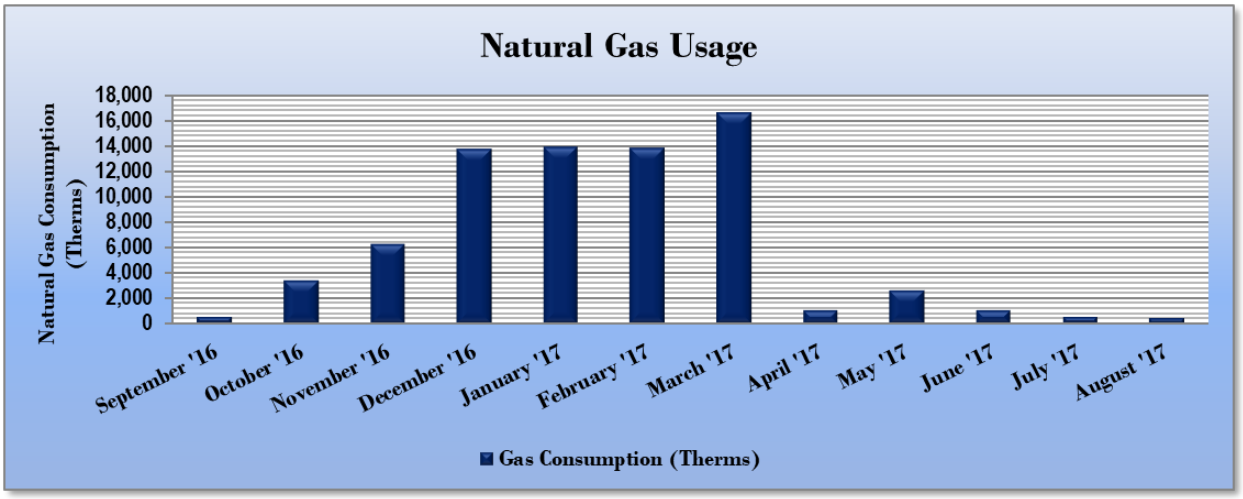


Figure 22 - Natural Gas Usage

Gas Billing Data for Memorial Middle School - High School				
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost	TRC Estimated Usage?
9/26/16	32	534	$485	Yes
10/27/16	31	3,395	$4,939	Yes
11/23/16	27	6,256	$5,348	No
12/27/16	34	13,717	$12,025	No
1/26/17	30	13,913	$13,533	No
2/27/17	32	13,832	$12,971	No
3/28/17	29	16,604	$15,304	No
4/27/17	30	1,029	$820	No
5/26/17	29	2,595	$1,897	No
6/27/17	32	1,064	$843	No
7/27/17	30	497	$452	No
8/25/17	29	427	$403	No
Totals	**365**	**73,863**	**$69,020**	
Annual	**365**	**73,863**	**$69,020**	

3.4 Benchmarking

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

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

Figure 23 - Energy Use Intensity Comparison – Existing Conditions

Energy Use Intensity Comparison - Existing Conditions		
	Memorial Middle School - High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	140.5	141.4
Site Energy Use Intensity (kBtu/ft^2)	73.2	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 24 - Energy Use Intensity Comparison – Following Installation of Recommended Measures

Energy Use Intensity Comparison - Following Installation of Recommended Measures		
	Memorial Middle School - High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	118.9	141.4
Site Energy Use Intensity (kBtu/ft^2)	65.1	58.2

Many types of commercial buildings are also eligible to receive an ENERGY STAR® score. This score is a percentile ranking from 1 to 100. It compares your building's energy performance to similar buildings nationwide. A score of 50 represents median energy performance, while a score of 75 means your building performs better than 75 percent of all similar buildings nationwide and may be eligible for ENERGY STAR® certification. This facility has a current score of 43.

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

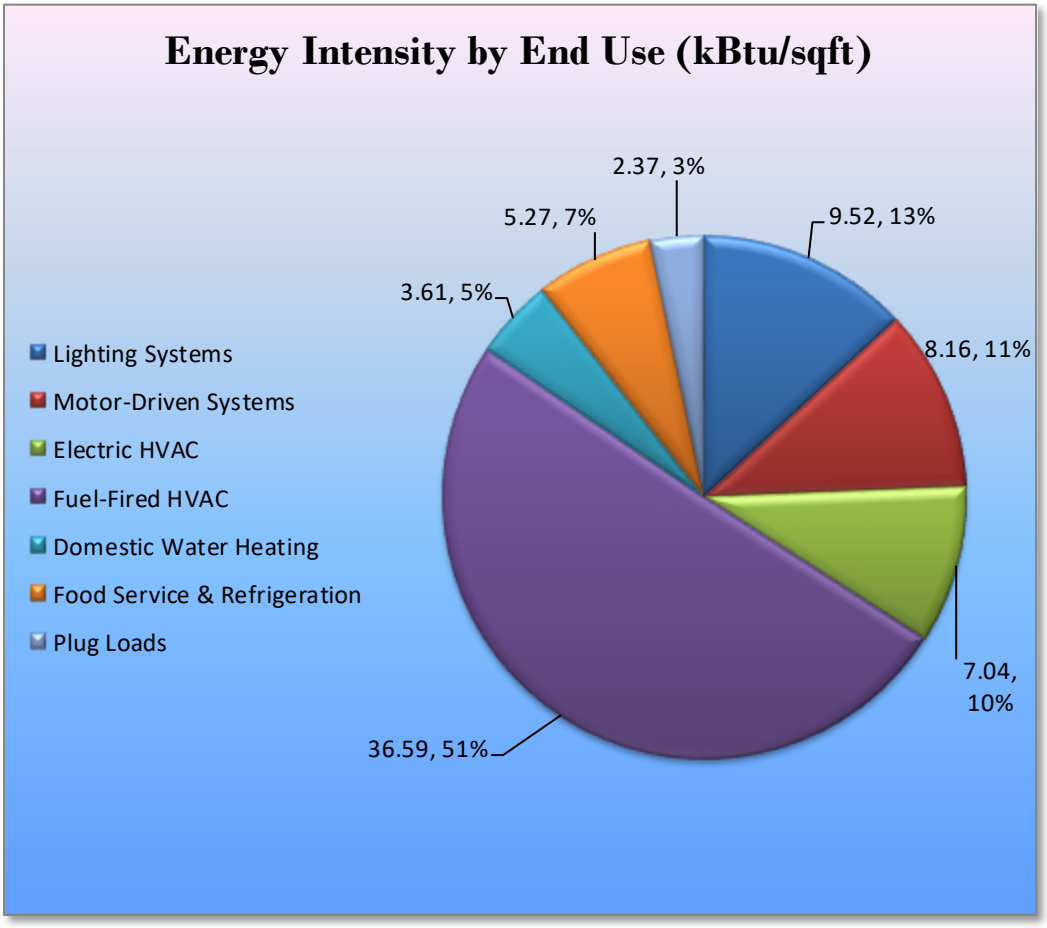
For more information on ENERGY STAR® certification go to: https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1.

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

3.5 Energy End-Use Breakdown

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

Figure 25 - 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 Memorial Middle School - 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 on 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 26 – 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	**241,457**	**51.5**	**0.0**	**$38,138.96**	**$114,980.27**	**$28,725.00**	**$86,255.27**	**2.3**	**243,145**
ECM 1	Install LED Fixtures	4,678	0.6	0.0	$738.97	$3,863.86	$400.00	$3,463.86	4.7	4,711
ECM 2	Retrofit Fixtures with LED Lamps	236,779	50.9	0.0	$37,399.99	$111,116.41	$28,325.00	$82,791.40	2.2	238,434
	Lighting Control Measures	**9,948**	**1.6**	**0.0**	**$1,571.36**	**$7,560.00**	**$840.00**	**$6,720.00**	**4.3**	**10,018**
ECM 3	Install Occupancy Sensor Lighting Controls	9,948	1.6	0.0	$1,571.36	$7,560.00	$840.00	$6,720.00	4.3	10,018
	Motor Upgrades	**0**	**0.0**	**0.0**	**$0.00**	**$27,223.62**	**$0.00**	**$27,223.62**	**0.0**	**0**
ECM 4	Premium Efficiency Motors	0	0.0	0.0	$0.00	$27,223.62	$0.00	$27,223.62	0.0	0
	Variable Frequency Drive (VFD) Measures	**51,116**	**24.3**	**0.0**	**$8,073.89**	**$88,036.59**	**$10,920.00**	**$77,116.59**	**9.6**	**51,473**
ECM 5	Install VFDs on Constant Volume (CV) HVAC	40,438	20.7	0.0	$6,387.36	$72,453.24	$10,920.00	$61,533.24	9.6	40,721
ECM 6	Install VFDs on Chilled Water Pumps	10,677	3.6	0.0	$1,686.53	$15,583.35	$0.00	$15,583.35	9.2	10,752
	HVAC System Improvements	**8,839**	**0.0**	**308.1**	**$4,275.44**	**$32,626.08**	**$0.00**	**$32,626.08**	**7.6**	**44,979**
ECM 7	Implement Demand Control Ventilation	8,839	0.0	308.1	$4,275.44	$32,626.08	$0.00	$32,626.08	7.6	44,979
	Food Service Equipment & Refrigeration Measures	**2,330**	**0.1**	**0.0**	**$368.04**	**$3,348.00**	**$150.00**	**$3,198.00**	**8.7**	**2,346**
ECM 8	Refrigeration Controls	2,330	0.1	0.0	$368.04	$3,348.00	$150.00	$3,198.00	8.7	2,346
	Plug Load Equipment Control - Vending Machine	**4,836**	**0.0**	**0.0**	**$763.79**	**$690.00**	**$0.00**	**$690.00**	**0.9**	**4,869**
ECM 9	Vending Machine Control	4,836	0.0	0.0	$763.79	$690.00	$0.00	$690.00	0.9	4,869
	TOTALS	**318,526**	**77.5**	**308.1**	**$53,191.48**	**$274,464.56**	**$40,635.00**	**$233,829.56**	**4.4**	**356,831**

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

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

4.1.1 Lighting Upgrades

Our recommendations for upgrades to existing lighting fixtures are summarized in Figure 27 below.

Figure 27 – 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		**241,457**	**51.5**	**0.0**	**$38,138.96**	**$114,980.27**	**$28,725.00**	**$86,255.27**	**2.3**	**243,145**
ECM 1	Install LED Fixtures	4,678	0.6	0.0	$738.97	$3,863.86	$400.00	$3,463.86	4.7	4,711
ECM 2	Retrofit Fixtures with LED Lamps	236,779	50.9	0.0	$37,399.99	$111,116.41	$28,325.00	$82,791.40	2.2	238,434

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	0	0.0	0.0	$0.00	$0.00	$0.00	$0.00	0.0	0
Exterior	4,678	0.6	0.0	$738.97	$3,863.86	$400.00	$3,463.86	4.7	4,711

Measure Description

We recommend replacing exterior fixtures containing high-pressure sodium 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 nearly twice those of the fixtures recommended for replacement.

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	234,823	50.6	0.0	$37,091.09	$110,123.82	$28,315.00	$81,808.81	2.2	236,465
Exterior	1,956	0.3	0.0	$308.90	$992.59	$10.00	$982.59	3.2	1,969

Measure Description

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

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

4.1.2 Lighting Control Measures

Our recommendations for lighting control measures are summarized in Figure 28 below.

Figure 28 – 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		**9,948**	**1.6**	**0.0**	**$1,571.36**	**$7,560.00**	**$840.00**	**$6,720.00**	**4.3**	**10,018**
ECM 3	Install Occupancy Sensor Lighting Controls	9,948	1.6	0.0	$1,571.36	$7,560.00	$840.00	$6,720.00	4.3	10,018

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 3: 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)
9,948	1.6	0.0	$1,571.36	$7,560.00	$840.00	$6,720.00	4.3	10,018

Measure Description

We recommend installing occupancy sensors to control lighting fixtures that are currently controlled by manual switches in restrooms, a few classrooms, offices areas, multipurpose room, weight room, the gym, and behind the auditorium stage. 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.

4.1.3 Motor Upgrades

Our recommendations for motor upgrade measures are summarized in Figure 29 below.

Figure 29 - Summary of Motor Upgrade ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Motor Upgrades		**0**	**0.0**	**0.0**	**$0.00**	**$27,223.62**	**$0.00**	**$27,223.62**	**0.0**	**0**
ECM 4	Premium Efficiency Motors	0	0.0	0.0	$0.00	$27,223.62	$0.00	$27,223.62	0.0	0

ECM 4: 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)
0	0.0	0.0	$0.00	$27,223.62	$0.00	$27,223.62	0.0	0

Measure Description

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

4.1.4 Variable Frequency Drive Measures

Our recommendations for variable frequency drive (VFD) measures are summarized in Figure 30 below.

Figure 30 – Summary of Variable Frequency Drive ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
Variable Frequency Drive (VFD) Measures		**51,116**	**24.3**	**0.0**	**$8,073.89**	**$88,036.59**	**$10,920.00**	**$77,116.59**	**9.6**	**51,473**
ECM 5	Install VFDs on Constant Volume (CV) HVAC	40,438	20.7	0.0	$6,387.36	$72,453.24	$10,920.00	$61,533.24	9.6	40,721
ECM 6	Install VFDs on Chilled Water Pumps	10,677	3.6	0.0	$1,686.53	$15,583.35	$0.00	$15,583.35	9.2	10,752

ECM 5: 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)
40,438	20.7	0.0	$6,387.36	$72,453.24	$10,920.00	$61,533.24	9.6	40,721

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. The recommended project scope is for both supply and return fans for all air handlers which are currently not subject to VFD control.

ECM 6: Install VFDs on Chilled Water Pumps

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
10,677	3.6	0.0	$1,686.53	$15,583.35	$0.00	$15,583.35	9.2	10,752

Measure Description

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

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

4.1.5 HVAC System Upgrades

Our recommendation for HVAC system improvement are summarized in Figure 31 below.

Figure 31 - 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		**8,839**	**0.0**	**308.1**	**$4,275.44**	**$32,626.08**	**$0.00**	**$32,626.08**	**7.6**	**44,979**
ECM 7	Implement Demand Control Ventilation	8,839	0.0	308.1	$4,275.44	$32,626.08	$0.00	$32,626.08	7.6	44,979

ECM 7: Implement Demand Control Ventilation (DCV)

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
8,839	0.0	308.1	$4,275.44	$32,626.08	$0.00	$32,626.08	7.6	44,979

Measure Description

Demand control ventilation (DCV) monitors indoor air CO_2 content to measure room occupancy. This data is used to regulate the amount of outdoor air provided to the space for ventilation. In order to ensure adequate air quality, standard ventilation systems often provide outside air based on a space's estimated maximum occupancy. However, during low occupancy periods, the space may be over ventilated. This wastes energy through additional cost to heat and cool the excessive air flow. DCV reduces unnecessary outdoor air intake by regulating ventilation based on actual occupancy levels, saving significant amounts of energy. DCV is most suited for facilities where occupancy levels vary significantly hour to hour and day to day. Recommended areas for DCV are the main office area, art room, music room, middle school gym, cafeteria, auditorium, offices, old wing offices, media center, computer lab, and locker rooms.

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

4.1.6 Food Service Equipment & Refrigeration Measures

Food service and refrigeration measures recommendations are summarized in Figure 32 below.

Figure 32 - Summary of Food Service Equipment & Refrigeration 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)
Food Service Equipment & Refrigeration Measures		**2,330**	**0.1**	**0.0**	**$368.04**	**$3,348.00**	**$150.00**	**$3,198.00**	**8.7**	**2,346**
ECM 8	Refrigeration Controls	2,330	0.1	0.0	$368.04	$3,348.00	$150.00	$3,198.00	8.7	2,346

ECM 8: Walk-In Cooler and Freezer 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)
2,330	0.1	0.0	$368.04	$3,348.00	$150.00	$3,198.00	8.7	2,346

Measure Description

We recommend the installation of additional controls to optimize the operation of the walk-in cooler and freezer.

Many walk-in coolers and freezers have evaporator fans which run continuously. The measure adds a control system feature to automatically shut off evaporator fans when the cooler's thermostat is not calling for cooling.

Energy savings for each of the control measures account for reduction in compressor and fan operating hours as well as reduction in the refrigeration heat load as appropriate.

4.1.7 Plug Load Equipment Control - Vending Machines

Our recommendations for plug load equipment control measures are summarized in Figure 33 below.

Figure 33 - Summary of Plug Load Equipment Control ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Plug Load Equipment Control - Vending Machine		**4,836**	**0.0**	**0.0**	**$763.79**	**$690.00**	**$0.00**	**$690.00**	**0.9**	**4,869**
ECM 9	Vending Machine Control	4,836	0.0	0.0	$763.79	$690.00	$0.00	$690.00	0.9	4,869

ECM 9: Vending Machine Control

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
4,836	0.0	0.0	$763.79	$690.00	$0.00	$690.00	0.9	4,869

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 ECM Evaluated But Not Recommended

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

Figure 34 – 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)
Electric Chiller Replacement	**71,122**	**79.4**	**0.0**	**$11,234.01**	**$620,072.22**	**$58,880.00**	**$561,192.22**	**50.0**	**71,620**
Install High Efficiency Chillers	71,122	79.4	0.0	$11,234.01	$620,072.22	$58,880.00	$561,192.22	50.0	71,620
TOTALS	**71,122**	**79.4**	**0.0**	**$11,234.01**	**$620,072.22**	**$58,880.00**	**$561,192.22**	**50.0**	**71,620**

* - 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).

Install High Efficiency Chillers

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)
71,122	79.4	0.0	$11,234.01	$620,072.22	$58,880.00	$561,192.22	50.0	71,620

Measure Description

We evaluated replacing the older inefficient electric chillers with new high efficiency chillers. The type of chiller to be installed depends on the magnitude of the cooling load and variability of the cooling load profile. Positive displacement chillers are usually under 600 tons of cooling capacity and centrifugal chillers generally start at 150 tons of cooling capacity. Constant speed chillers should be used to meet cooling loads with little or no variation while variable speed chillers are more efficient for variable cooling load profiles. Water cooled chillers are more efficient than air cooled chillers but require cooling towers and additional pumps to circulate the cooling water. In any given size range variable speed chillers tend to have better partial load efficiency, but worse full load efficiency, than constant speed chillers.

The savings result from the improvement in chiller efficiency and matching the right type of chiller to the cooling load. The energy savings associated with this measure is based on the cooling capacity of the new chiller, the improvement in efficiency compared with the base case equipment, the cooling load profile, and the estimated annual operating hours of the chiller before and after the upgrade. Energy savings are maximized by proper selection of new equipment based on the cooling load profile.

Reasons for not Recommending

The payback for replacing this chiller is significantly longer than the effective useful life of the replacement 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.

Close Doors and Windows

Ensure doors and windows are closed in conditioned spaces. Leaving doors and windows open leads to a significant increase in heat transfer between conditioned spaces and the outside air. Reducing a facility's air changes per hour (ACH) can lead to increased occupant comfort as well as significant heating and cooling savings, especially when combined with proper HVAC controls and adequate ventilation.

Perform Proper Lighting Maintenance

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

Develop a Lighting Maintenance Schedule

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

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.

Perform Proper Boiler Maintenance

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

Perform Proper Water Heater Maintenance

At least once a year, drain a few gallons out of the water heater using the drain valve. If there is a lot of sediment or debris, then a full flush is recommended. Turn the temperature down and then completely drain the tank. Once a year check for any leaks or heavy corrosion on the pipes and valves. For gas water heaters, check the draft hood and make sure it is placed properly, with a few inches of air space between the tank and where it connects to the vent. Look for any corrosion or wear on the gas line and on the piping. If you noticed any black residue, soot or charred metal, this is a sign you may be having combustion issues and you should have the unit serviced by a professional. For electric water heaters, look for any signs of leaking such as rust streaks or residue around the upper and lower panels covering the electrical components on the tank. For water heaters over three to four years old have a technician inspect the sacrificial anode annually.

Plug Load Controls

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

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 gallons per minute (gpm) for bathroom faucets, 2.0 gpm for showerheads, and 1.28 gpm for pre-rinse spray valves.

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

6 On-Site Generation Measures

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

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

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

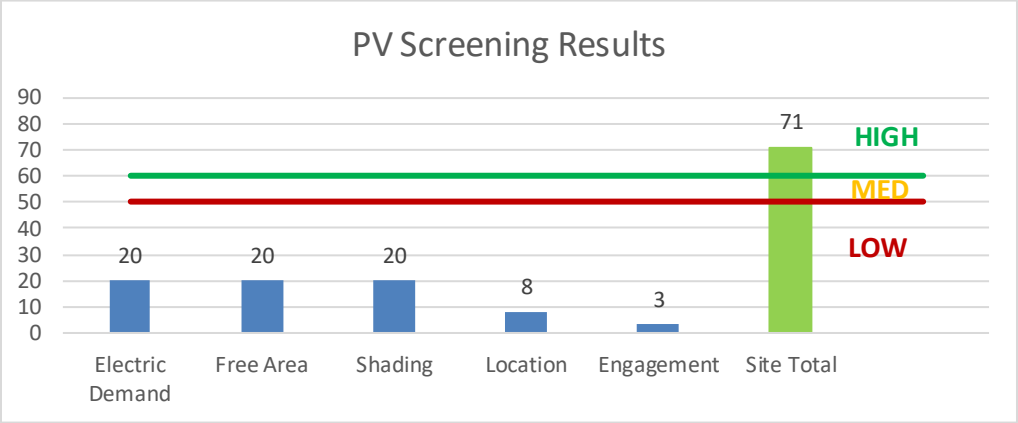
6.1 Photovoltaic

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

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

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

Figure 35 - Photovoltaic Screening



Solar projects must register their projects in the SREC (Solar Renewable Energy Certificate) Registration Program (SRP) prior to the start of construction in order to establish the project's eligibility to earn SRECs. Registration of the intent to participate in New Jersey's solar marketplace provides market participants with information about developed new solar projects and insight into future SREC pricing. Refer to Section 8.2 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.

Low and infrequent thermal load, and lack of space near the existing boilers are the most significant factors contributing to the 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/.

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, DR is not a viable option for this facility.

8 PROJECT FUNDING / INCENTIVES

The NJCEP is able to provide the incentive programs described below, and other benefits to ratepayers, because of the Societal Benefits Charge (SBC) Fund. The SBC was created by the State of New Jersey's Electricity Restructuring Law (1999), which requires all customers of investor-owned electric and gas utilities to pay a surcharge on their monthly energy bills. As a customer of a state-regulated electric or gas utility and therefore a contributor to the fund your organization is eligible to participate in the LGEA program and also eligible to receive incentive payment for qualifying energy efficiency measures. Also available through the NJBPU are some alternative financing programs described later in this section. Please refer to Figure 36 for a list of the eligible programs identified for each recommended ECM.

Figure 36 - 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	X				
ECM 2	Retrofit Fixtures with LED Lamps	X	X				
ECM 3	Install Occupancy Sensor Lighting Controls	X	X				
ECM 4	Premium Efficiency Motors		X				
ECM 5	Install VFDs on Constant Volume (CV) HVAC	X	X				
ECM 6	Install VFDs on Chilled Water Pumps		X				
ECM 7	Implement Demand Control Ventilation		X				
ECM 8	Refrigeration Controls	X	X				
ECM 9	Vending Machine Control		X				

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

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

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

8.1 SmartStart

Overview

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

Equipment with Prescriptive Incentives Currently Available:

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

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

Incentives

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

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

How to Participate

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

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

8.2 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
Security Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,759	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.11	705	0.0	$111.42	$434.32	$80.00	3.18
Storage Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	300	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	300	0.04	19	0.0	$3.05	$73.03	$20.00	17.38
CR 100	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.19	899	0.0	$141.96	$328.64	$90.00	1.68
Boys RR	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,759	Relamp	Yes	6	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.08	547	0.0	$86.44	$465.09	$95.00	4.28
Janitor Closet	1	Incandescent: (60W) 1L	Wall Switch	60	300	Relamp	No	1	LED Screw-In Lamps: LED Screw-In (9W) - 1L	Wall Switch	9	300	0.03	18	0.0	$2.78	$17.23	$5.00	4.40
CR 101	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.33	1,525	0.0	$240.89	$657.27	$180.00	1.98
Girls RR	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,759	Relamp	Yes	6	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.08	547	0.0	$86.44	$465.09	$95.00	4.28
CR 110	15	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	15	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.55	2,542	0.0	$401.49	$1,095.45	$300.00	1.98
CR 102	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.33	1,525	0.0	$240.89	$657.27	$180.00	1.98
CR 103	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.33	1,525	0.0	$240.89	$657.27	$180.00	1.98
CR 109	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.33	1,525	0.0	$240.89	$657.27	$180.00	1.98
CR 104	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.33	1,525	0.0	$240.89	$657.27	$180.00	1.98
CR 108	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.33	1,525	0.0	$240.89	$657.27	$180.00	1.98
CR 105	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.33	1,525	0.0	$240.89	$657.27	$180.00	1.98
CR 107	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	6	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.06	290	0.0	$45.88	$195.09	$60.00	2.94
CR 106	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	6	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.06	290	0.0	$45.88	$195.09	$60.00	2.94
CR 500	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.39	1,797	0.0	$283.91	$657.27	$180.00	1.68
CR 501	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	15	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.49	2,247	0.0	$354.89	$821.59	$225.00	1.68
CR 502	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.45	2,097	0.0	$331.23	$766.82	$210.00	1.68
CR 502	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.02	88	0.0	$13.86	$72.46	$0.00	5.23
CR 503	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.02	88	0.0	$13.86	$72.46	$0.00	5.23
CR 503	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.16	749	0.0	$118.30	$273.86	$75.00	1.68
Boys Toilet	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Boys Toilet	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	None	33	3,759	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	None	17	3,759	0.01	69	0.0	$10.92	$32.52	$10.00	2.06
Elevator Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74

	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
Girls Toilet	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Girls Toilet	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	None	33	3,759	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	None	17	3,759	0.01	69	0.0	$10.92	$32.52	$10.00	2.06
MPR	21	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	3,759	Relamp	Yes	21	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	1.09	7,208	0.0	$1,138.51	$2,073.63	$490.00	1.39
MPR	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
MPR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,759	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.03	180	0.0	$28.47	$36.52	$45.00	-0.30
Stage	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
Stage	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,759	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,759	0.35	2,282	0.0	$360.52	$584.24	$160.00	1.18
Stage	2	Compact Fluorescent: (26W) PL - 2L	Wall Switch	52	3,759	Relamp	No	2	LED Screw-In Lamps: LED PL - 2L	Wall Switch	36	3,759	0.02	135	0.0	$21.30	$72.00	$0.00	3.38
Behind Stage	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	210	0.11	58	0.0	$9.09	$416.06	$75.00	37.52
MPR Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.04	23	0.0	$3.60	$73.03	$20.00	14.74
MPR Janitor Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Boys PE Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,759	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.08	541	0.0	$85.42	$379.55	$65.00	3.68
Girls PE Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,759	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.08	541	0.0	$85.42	$379.55	$65.00	3.68
Boys Locker	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.22	999	0.0	$157.73	$365.15	$100.00	1.68
Boys Locker	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
Girls Locker	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.22	999	0.0	$157.73	$365.15	$100.00	1.68
Girls Locker	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
Middle School Main Office	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.26	1,198	0.0	$189.27	$438.18	$120.00	1.68
Middle School Main Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Kitchen Area	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Principal's Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Principal's Office 2	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.13	599	0.0	$94.64	$219.09	$60.00	1.68
Conference Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.13	599	0.0	$94.64	$219.09	$60.00	1.68
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Mens/Womens RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74

	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
High School Main Office	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.39	1,797	0.0	$283.91	$657.27	$180.00	1.68
High School Main Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Kitchen Area	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Principal's Secretary Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Principal's Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.13	599	0.0	$94.64	$219.09	$60.00	1.68
Conference Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.13	599	0.0	$94.64	$219.09	$60.00	1.68
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
CR 499	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.29	1,348	0.0	$212.93	$492.95	$135.00	1.68
CR 499 RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Conference Room	9	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	9	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.17	790	0.0	$124.75	$652.14	$0.00	5.23
High School Faculty Room	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.29	1,348	0.0	$212.93	$492.95	$135.00	1.68
Faculty Room RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
CR 504	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.45	2,097	0.0	$331.23	$766.82	$210.00	1.68
CR 504	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.02	88	0.0	$13.86	$72.46	$0.00	5.23
CST Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.10	449	0.0	$70.98	$164.32	$45.00	1.68
CST Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
CST Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Conference Room 521	9	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	9	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.17	790	0.0	$124.75	$652.14	$0.00	5.23
Elevator Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Electrical Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.09	46	0.0	$7.19	$146.06	$40.00	14.74
Mens RR	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	300	0.02	10	0.0	$1.58	$72.46	$0.00	45.85
Mens RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.06	34	0.0	$5.39	$109.55	$30.00	14.74
Janitor Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Womens RR	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	300	0.02	10	0.0	$1.58	$72.46	$0.00	45.85
Womens RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.06	34	0.0	$5.39	$109.55	$30.00	14.74

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
CR 505	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.02	88	0.0	$13.86	$72.46	$0.00	5.23
CR 505	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.45	2,097	0.0	$331.23	$766.82	$210.00	1.68
CR 506	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.02	88	0.0	$13.86	$72.46	$0.00	5.23
CR 506	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.45	2,097	0.0	$331.23	$766.82	$210.00	1.68
CR 516	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.39	1,797	0.0	$283.91	$657.27	$180.00	1.68
CR 516	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.01	48	0.0	$7.65	$32.52	$10.00	2.94
CR 517	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.45	2,097	0.0	$331.23	$766.82	$210.00	1.68
CR 517	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.02	88	0.0	$13.86	$72.46	$0.00	5.23
Janitor Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Boys RR	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.02	88	0.0	$13.86	$72.46	$0.00	5.23
Boys RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Girls RR	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.02	88	0.0	$13.86	$72.46	$0.00	5.23
Girls RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
CR 515	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.45	2,097	0.0	$331.23	$766.82	$210.00	1.68
CR 515	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.01	48	0.0	$7.65	$32.52	$10.00	2.94
CR 514	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	15	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.49	2,247	0.0	$354.89	$821.59	$225.00	1.68
CR 514	4	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	4	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.04	194	0.0	$30.59	$130.06	$40.00	2.94
CR 518	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 518	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	18	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.58	2,696	0.0	$425.87	$985.91	$270.00	1.68
Kiln Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.04	23	0.0	$3.60	$73.03	$20.00	14.74
Art Storage Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.09	46	0.0	$7.19	$146.06	$40.00	14.74
CR 519	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 519	21	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	21	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.68	3,146	0.0	$496.85	$1,150.22	$315.00	1.68
CR 519	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.01	48	0.0	$7.65	$32.52	$10.00	2.94
CR 513	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	15	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.49	2,247	0.0	$354.89	$821.59	$225.00	1.68

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
CR 513	4	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	4	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.04	194	0.0	$30.59	$130.06	$40.00	2.94
CR 513 Prep Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	300	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	210	0.16	86	0.0	$13.63	$489.09	$95.00	28.90
CR 512	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	15	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.49	2,247	0.0	$354.89	$821.59	$225.00	1.68
CR 512	4	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	4	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.04	194	0.0	$30.59	$130.06	$40.00	2.94
CR 520	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	18	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.58	2,696	0.0	$425.87	$985.91	$270.00	1.68
CR 520	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.01	48	0.0	$7.65	$32.52	$10.00	2.94
CR 520 Instrument Area	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.09	399	0.0	$63.09	$146.06	$40.00	1.68
CR 520	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 520 Music Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
CR 520 Practice Room 1	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
CR 520 Practice Room 2	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
CR 511	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	15	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.49	2,247	0.0	$354.89	$821.59	$225.00	1.68
CR 511	4	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	4	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.04	194	0.0	$30.59	$130.06	$40.00	2.94
CR 510	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.39	1,797	0.0	$283.91	$657.27	$180.00	1.68
CR 510	3	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	3	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.03	145	0.0	$22.94	$97.55	$30.00	2.94
Janitor Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Boys RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Boys RR	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.01	48	0.0	$7.65	$32.52	$10.00	2.94
Girls RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Girls RR	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.01	48	0.0	$7.65	$32.52	$10.00	2.94
CR 509	24	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	24	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.78	3,595	0.0	$567.82	$1,314.54	$360.00	1.68
CR 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
CR 509	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.04	176	0.0	$27.72	$144.92	$0.00	5.23
300 Wing Storage Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.06	34	0.0	$5.39	$109.55	$30.00	14.74
CR 316	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.19	899	0.0	$141.96	$328.64	$90.00	1.68

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
CR 317	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 315	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 318	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.22	1,017	0.0	$160.60	$438.18	$120.00	1.98
CR 314	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 319	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 319 storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	300	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	300	0.04	19	0.0	$3.05	$73.03	$20.00	17.38
CR 320	15	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	15	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.55	2,542	0.0	$401.49	$1,095.45	$300.00	1.98
CR 320 storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	300	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	300	0.04	19	0.0	$3.05	$73.03	$20.00	17.38
CR 313	15	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	15	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.55	2,542	0.0	$401.49	$1,095.45	$300.00	1.98
CR 312	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.22	1,017	0.0	$160.60	$438.18	$120.00	1.98
CR 311	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 310	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 310 storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
CR 321	15	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	15	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.55	2,542	0.0	$401.49	$1,095.45	$300.00	1.98
CR 321 storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	300	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	300	0.04	19	0.0	$3.05	$73.03	$20.00	17.38
200 Wing Mechanical Room	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.11	57	0.0	$8.99	$182.58	$50.00	14.74
IDF Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
HS Assitant Principal's Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,759	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.12	811	0.0	$128.13	$434.32	$80.00	2.77
HS Assitant Principal's Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Attendance Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
CR 202	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.19	899	0.0	$141.96	$328.64	$90.00	1.68
CR 201	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 203/204	16	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	16	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.59	2,711	0.0	$428.26	$1,168.48	$320.00	1.98
CR 200	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 205	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98

	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
Teacher's RR Womens	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	300	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	210	0.10	51	0.0	$8.00	$416.06	$75.00	42.63
Womens RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	300	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	300	0.04	19	0.0	$3.05	$73.03	$20.00	17.38
Faculty Dining	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.29	1,348	0.0	$212.93	$492.95	$135.00	1.68
Teacher's RR Mens	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	300	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	300	0.04	19	0.0	$3.05	$73.03	$20.00	17.38
Mens RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	300	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	300	0.04	19	0.0	$3.05	$73.03	$20.00	17.38
Storage Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	300	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	300	0.10	51	0.0	$8.09	$164.32	$45.00	14.74
Boys RR	5	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	5	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.05	242	0.0	$38.24	$162.58	$50.00	2.94
VP Reception	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.13	599	0.0	$94.64	$219.09	$60.00	1.68
VP Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.13	599	0.0	$94.64	$219.09	$60.00	1.68
VP RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.02	100	0.0	$15.77	$36.52	$10.00	1.68
Resource Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Guidance Suite	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.10	449	0.0	$70.98	$164.32	$45.00	1.68
Guidance Suite	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
Conference Room	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.08	351	0.0	$55.44	$289.84	$0.00	5.23
Guidance Career Office + Conference	9	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	9	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.17	790	0.0	$124.75	$652.14	$0.00	5.23
Copy/Work Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.10	449	0.0	$70.98	$164.32	$45.00	1.68
Guidance Area	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.32	1,498	0.0	$236.59	$547.73	$150.00	1.68
Guidance 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
Conference Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
MS Clinician	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.10	449	0.0	$70.98	$164.32	$45.00	1.68
7th & 8th Gr. Guidance Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
HS Guidance Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Staff RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	300	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	300	0.03	17	0.0	$2.70	$54.77	$15.00	14.74
File Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	300	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	300	0.06	34	0.0	$5.39	$109.55	$30.00	14.74
HS Guidance Director's Office 1	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.10	449	0.0	$70.98	$164.32	$45.00	1.68

	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
HS Guidance Director's Office 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Guidance Reception Desk	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.19	899	0.0	$141.96	$328.64	$90.00	1.68
Guidance Reception Desk	4	Compact Fluorescent: PL (18W) - 2L	Occupancy Sensor	36	2,631	Relamp	No	4	LED Screw-In Lamps: LED PL - 2L	Occupancy Sensor	25	2,631	0.03	131	0.0	$20.65	$144.00	$0.00	6.97
Guidance Reception Desk	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
Guidance Suite Conference Room	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.08	351	0.0	$55.44	$289.84	$0.00	5.23
Guidance Suite Conference Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
SAC Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Auditorium Back Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	210	0.11	58	0.0	$9.09	$416.06	$75.00	37.52
Nurse's Suite	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.13	599	0.0	$94.64	$219.09	$60.00	1.68
Nurse's Suite	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Nurse's Suite	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.26	1,198	0.0	$189.27	$438.18	$120.00	1.68
Nurse's Suite Exam Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Nurse's Suite Exam Room RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	300	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	300	0.03	17	0.0	$2.70	$54.77	$15.00	14.74
CR 001 Entry	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,759	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,759	0.04	242	0.0	$38.24	$73.03	$20.00	1.39
CR 001 Main Room	18	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	18	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.66	3,050	0.0	$481.79	$1,314.54	$360.00	1.98
CR 001 Storage Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.04	23	0.0	$3.60	$73.03	$20.00	14.74
CR 001 practice A/B	2	Compact Fluorescent: PL (18W) - 2L	Wall Switch	36	3,759	Relamp	No	2	LED Screw-In Lamps: LED PL - 2L	Wall Switch	25	3,759	0.01	93	0.0	$14.75	$72.00	$0.00	4.88
CR 001 practice C	1	Compact Fluorescent: PL (18W) - 2L	Wall Switch	36	3,759	Relamp	No	1	LED Screw-In Lamps: LED PL - 2L	Wall Switch	25	3,759	0.01	47	0.0	$7.37	$36.00	$0.00	4.88
Lift Area	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,759	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,759	0.04	285	0.0	$45.07	$73.03	$20.00	1.18
Cafeteria	56	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	56	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	1.82	8,388	0.0	$1,324.92	$3,067.26	$840.00	1.68
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
Kitchen Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,759	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,759	0.02	143	0.0	$22.53	$36.52	$10.00	1.18
Kitchen Back Area	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,759	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,759	0.04	285	0.0	$45.07	$73.03	$20.00	1.18
Walk-In Freezer	4	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	300	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.08	43	0.0	$6.76	$146.06	$40.00	15.70
Walk-In Refrigerator	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	300	None	No	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	300	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
Kitchen Storage	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	300	None	No	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	300	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
School Store	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,759	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,759	0.04	285	0.0	$45.07	$73.03	$20.00	1.18
Girls RR	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	6	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.06	290	0.0	$45.88	$195.09	$60.00	2.94
Supervisor of Instruction	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,759	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.16	1,082	0.0	$170.84	$489.09	$95.00	2.31
Senior Cafeteria	16	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	16	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.59	2,711	0.0	$428.26	$1,168.48	$320.00	1.98
Media Center	41	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	41	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	1.33	6,141	0.0	$970.03	$2,245.67	$615.00	1.68
Media Center	22	Compact Fluorescent: PL (18W) - 2L	Occupancy Sensor	36	2,631	Relamp	No	22	LED Screw-In Lamps: LED PL - 2L	Occupancy Sensor	25	2,631	0.16	719	0.0	$113.56	$792.00	$0.00	6.97
Media 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
Media Center Office/RR Area	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.04	176	0.0	$27.72	$144.92	$0.00	5.23
Media Center Office/RR Area	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.10	449	0.0	$70.98	$164.32	$45.00	1.68
Media Center RR Area/Exit	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,631	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.01	48	0.0	$7.65	$32.52	$10.00	2.94
Media Center M/W RR	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,759	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,759	0.01	69	0.0	$10.92	$32.52	$10.00	2.06
Media Center	16	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	16	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.30	1,404	0.0	$221.78	$1,159.36	$0.00	5.23
Media Center	1	Compact Fluorescent: PL (18W) - 4L	Occupancy Sensor	72	2,631	Relamp	No	1	LED Screw-In Lamps: LED PL - 4L	Occupancy Sensor	50	2,631	0.01	65	0.0	$10.32	$72.00	$0.00	6.97
Media Center	3	Compact Fluorescent: PL (18W) - 4L	Occupancy Sensor	72	2,631	Relamp	No	3	LED Screw-In Lamps: LED PL - 4L	Occupancy Sensor	50	2,631	0.04	196	0.0	$30.97	$216.00	$0.00	6.97
Media Center Computer Room	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.52	2,397	0.0	$378.55	$876.36	$240.00	1.68
Media Center Office	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,759	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.25	1,622	0.0	$256.26	$598.64	$125.00	1.85
Media Center AV Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	300	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	210	0.16	86	0.0	$13.63	$489.09	$95.00	28.90
Toner/Ink Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Communications Center	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.16	749	0.0	$118.30	$273.86	$75.00	1.68
Receiving Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,759	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,759	0.04	242	0.0	$38.24	$73.03	$20.00	1.39
Receiving Room	2	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	3,759	None	No	2	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	3,759	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Receiving Room Storage	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	300	0.02	10	0.0	$1.58	$72.46	$0.00	45.85
Boiler Room Stairs	2	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	300	None	No	2	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	300	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	5	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	300	Relamp	No	5	LED Screw-In Lamps: LED Screw-In (9W) - 1L	Wall Switch	9	300	0.17	88	0.0	$13.90	$86.13	$25.00	4.40

	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	5	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	300	None	No	5	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	300	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler 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
Boiler Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.06	34	0.0	$5.39	$109.55	$30.00	14.74
Room 005	13	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	13	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.42	1,947	0.0	$307.57	$712.04	$195.00	1.68
Lift Area	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,759	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,759	0.04	285	0.0	$45.07	$73.03	$20.00	1.18
Small Gym/Weight Room	24	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	3,759	Relamp	Yes	24	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	1.25	8,238	0.0	$1,301.16	$2,292.72	$550.00	1.34
Small Gym/Weight Room	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
Small Gym/Weight Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,759	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.08	541	0.0	$85.42	$379.55	$65.00	3.68
Girls Coach's Office	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.16	749	0.0	$118.30	$273.86	$75.00	1.68
Girls Coach's Office	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,631	0.02	88	0.0	$13.86	$72.46	$0.00	5.23
Girls Coach's Office RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Room 006	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
Room 007	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
Room 008	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
Storage Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	300	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	210	0.10	51	0.0	$8.00	$416.06	$40.00	47.01
HS Athletic Director's Suite	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
HS Athletic Director's Office RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
HS Athletic Director's Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.13	599	0.0	$94.64	$219.09	$60.00	1.68
Girls RR	3	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,759	Relamp	No	3	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,759	0.03	207	0.0	$32.77	$97.55	$30.00	2.06
Storage Room	1	LED Screw-In Lamps: Screw-In (7W) - 1L	Wall Switch	7	300	None	No	1	LED Screw-In Lamps: Screw-In (7W) - 1L	Wall Switch	7	300	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boys RR	4	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,759	Relamp	Yes	4	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.06	365	0.0	$57.63	$400.06	$40.00	6.25
Room 400	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.07	339	0.0	$53.53	$146.06	$40.00	1.98
Tech Center 409	26	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,759	Relamp	Yes	26	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	1.25	8,250	0.0	$1,303.07	$2,438.78	$590.00	1.42
Tech Center Storage 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	300	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	300	0.07	39	0.0	$6.10	$146.06	$40.00	17.38
Tech Center Storage 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	300	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	300	0.07	39	0.0	$6.10	$146.06	$40.00	17.38

	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
Custodial Closet	1	Compact Fluorescent: Screw-In (18W) - 1L	Wall Switch	18	300	Relamp	No	1	LED Screw-In Lamps: LED Screw-In - 1L	Wall Switch	13	300	0.00	2	0.0	$0.29	$17.23	$5.00	41.54
Athletic Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	300	Relamp	No	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	300	0.11	58	0.0	$9.15	$219.09	$60.00	17.38
Athletic Training Room	15	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	15	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.55	2,542	0.0	$401.49	$1,095.45	$300.00	1.98
CR 408	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 402	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	7	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.23	1,049	0.0	$165.62	$383.41	$105.00	1.68
CR 403	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	7	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.23	1,049	0.0	$165.62	$383.41	$105.00	1.68
CR 407	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.22	1,017	0.0	$160.60	$438.18	$120.00	1.98
CR 404	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.26	1,198	0.0	$189.27	$438.18	$120.00	1.68
CR 405	11	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	11	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.36	1,648	0.0	$260.25	$602.50	$165.00	1.68
CR 406	21	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,759	Relamp	Yes	21	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	1.01	6,663	0.0	$1,052.48	$2,073.63	$490.00	1.50
Book Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	300	0.09	46	0.0	$7.19	$146.06	$40.00	14.74
Boys RR	3	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,759	Relamp	No	3	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,759	0.03	207	0.0	$32.77	$97.55	$30.00	2.06
Janitor Closet	1	LED Screw-In Lamps: Screw-In (7W) - 1L	Wall Switch	7	300	None	No	1	LED Screw-In Lamps: Screw-In (7W) - 1L	Wall Switch	7	300	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Girls RR	4	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,759	Relamp	Yes	4	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,631	0.06	365	0.0	$57.63	$400.06	$40.00	6.25
CR 302	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 309	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 303	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 308	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 304	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 307	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 305	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
CR 306	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	0.44	2,033	0.0	$321.19	$876.36	$240.00	1.98
Elevator Vestibule	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,759	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,759	0.02	143	0.0	$22.53	$36.52	$10.00	1.18
Auditorium	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
Auditorium	54	LED Screw-In Lamps: Screw-In (26W) - 1L	Wall Switch	26	3,759	None	No	54	LED Screw-In Lamps: Screw-In (26W) - 1L	Wall Switch	26	3,759	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
Stage	20	Halogen Incandescent: Screw-In (150W) - 1L	Wall Switch	150	480	None	No	20	Halogen Incandescent: Screw-In (150W) - 1L	Wall Switch	150	480	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Stage	20	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	480	None	No	20	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	480	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Stage	21	Halogen Incandescent: Screw-In (75W) - 1L	Wall Switch	75	480	None	No	21	Halogen Incandescent: Screw-In (75W) - 1L	Wall Switch	75	480	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Stage	4	Compact Fluorescent: PL (18W) - 2L	Wall Switch	36	480	Relamp	No	4	LED Screw-In Lamps: LED PL - 2L	Wall Switch	25	480	0.03	24	0.0	$3.77	$144.00	$0.00	38.23
All Corridors	131	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	131	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	4.25	19,622	0.0	$3,099.37	$7,175.20	$1,965.00	1.68
All Corridors	21	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	21	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
All Corridors	18	Compact Fluorescent: PL (18W) - 2L	Occupancy Sensor	36	2,631	Relamp	No	18	LED Screw-In Lamps: LED PL - 2L	Occupancy Sensor	25	2,631	0.13	588	0.0	$92.92	$648.00	$0.00	6.97
All Corridors	53	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,631	Relamp	No	53	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	1.95	8,981	0.0	$1,418.60	$3,870.59	$1,060.00	1.98
Gym	36	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	3,759	Relamp	Yes	36	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,631	1.87	12,356	0.0	$1,951.74	$3,169.08	$790.00	1.22
Boys Locker Room	13	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	13	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.28	1,298	0.0	$205.05	$474.70	$130.00	1.68
Boys Locker Room	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boys Locker Shower Area	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Boys Locker Team Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.09	399	0.0	$63.09	$146.06	$40.00	1.68
Boys Locker Room Office	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,631	Relamp	No	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,631	0.16	749	0.0	$118.30	$273.86	$75.00	1.68
Boys Locker Room Office RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Boys Team Locker Room	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.35	1,598	0.0	$252.37	$584.24	$160.00	1.68
Boys Team Locker Room	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
Boys Team Locker Room Shower Area	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.06	300	0.0	$47.32	$109.55	$30.00	1.68
Boys Team Locker Room Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.09	399	0.0	$63.09	$146.06	$40.00	1.68
Gym Custodial Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Gym Storage	2	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	300	None	No	2	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	300	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Gym Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	300	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	210	0.08	43	0.0	$6.82	$379.55	$30.00	51.27
Girls Locker Room	8	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	8	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Girls Locker Room	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.39	1,797	0.0	$283.91	$657.27	$180.00	1.68
Girls Locker Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.02	100	0.0	$15.77	$36.52	$10.00	1.68

	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
Girls Locker Room Shower Area	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.09	399	0.0	$63.09	$146.06	$40.00	1.68
Girls Team Room	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.19	899	0.0	$141.96	$328.64	$90.00	1.68
Girls Coach's Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,631	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,631	0.04	200	0.0	$31.55	$73.03	$20.00	1.68
Girls Coach's Office RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	300	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	300	0.02	11	0.0	$1.80	$36.52	$10.00	14.74
Building Lighting	4	High-Pressure Sodium: (1) 310W Lamp	None	365	4,300	Fixture Replacement	No	4	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	None	93	4,300	0.71	5,380	0.0	$849.81	$3,863.86	$400.00	4.08
Wall and Door Lighting	17	Compact Fluorescent: PL (18W) - 1L	None	18	4,300	Relamp	No	17	LED Screw-In Lamps: LED PL - 1L	None	13	4,300	0.06	454	0.0	$71.70	$306.00	$0.00	4.27
Entry Canopy Lighting	2	Incandescent: Scew-In (60W) - 1L	None	60	4,300	Relamp	No	2	LED Screw-In Lamps: LED Screw-In (9W) - 1L	None	9	4,300	0.07	504	0.0	$79.67	$34.45	$10.00	0.31
Main Entry Lobby Entrance	9	U-Bend Fluorescent - T8: U T8 (32W) - 2L	None	62	4,300	Relamp	No	9	LED - Linear Tubes: (2) U-Lamp	None	33	4,300	0.17	1,291	0.0	$203.86	$652.14	$0.00	3.20

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
500 Wing Mechanical Room	HW Heat Supply	1	Heating Hot Water Pump	10.0	91.7%	Yes	1,173	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
500 Wing Mechanical Room	HW Heat Supply	1	Heating Hot Water Pump	10.0	91.7%	Yes	0	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
500 Wing Mechanical Room / Main Hallway Boiler Room	DHW Circulation Pumps	2	Water Supply Pump	0.1	70.0%	No	1,745	No	70.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Hallway Boiler Room	HW Heat Supply	1	Heating Hot Water Pump	20.0	93.0%	Yes	1,173	No	93.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Hallway Boiler Room	HW Heat Supply	1	Heating Hot Water Pump	20.0	93.0%	Yes	0	No	93.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Hallway Boiler Room	Chilled Water Supply	1	Chilled Water Pump	60.0	95.0%	Yes	1,360	No	95.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Hallway Boiler Room	Chilled Water Supply	1	Chilled Water Pump	60.0	95.0%	Yes	0	No	95.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Hallway Boiler Room	Chilled Water Return	1	Chilled Water Pump	15.0	93.0%	No	1,360	Yes	93.0%	Yes	1	1.81	7,118	0.0	$1,124.36	$7,041.17	$0.00	6.26
Main Hallway Boiler Room	Chilled Water Return	1	Chilled Water Pump	15.0	93.0%	No	680	Yes	93.0%	Yes	1	1.81	3,559	0.0	$562.18	$7,041.17	$0.00	12.52
Main Hallway Boiler Room	Chilled Water Return	1	Chilled Water Pump	15.0	93.0%	No	0	Yes	93.0%	Yes	1	0.00	0	0.0	$0.00	$7,041.17	$0.00	0.00
Roof	AHU 13 - Main Office Area	1	Supply Fan	20.0	93.0%	No	1,780	Yes	93.0%	Yes	1	2.60	5,140	0.0	$811.91	$8,582.03	$1,600.00	8.60
Roof	AHU 13 - Main Office Area	1	Return Fan	5.0	89.5%	No	1,780	Yes	89.5%	Yes	1	1.40	2,643	0.0	$417.44	$4,076.22	$400.00	8.81
Roof	AHU 12 - Art Room	1	Supply Fan	5.0	89.5%	No	1,780	Yes	89.5%	Yes	1	0.68	1,335	0.0	$210.91	$4,076.22	$400.00	17.43
Roof	AHU 12 - Art Room	1	Return Fan	2.0	86.5%	No	1,780	Yes	86.5%	Yes	1	0.58	1,094	0.0	$172.77	$3,261.02	$160.00	17.95
Roof	AHU 11 - Music Room	1	Supply Fan	7.5	91.0%	No	1,780	Yes	91.0%	Yes	1	1.00	1,970	0.0	$311.16	$4,738.24	$600.00	13.30
Roof	AHU 11 - Music Room	1	Return Fan	3.0	89.5%	No	1,780	Yes	89.5%	Yes	1	0.84	1,586	0.0	$250.46	$3,884.01	$240.00	14.55
Roof	AHU 10 - MS Gym	1	Supply Fan	20.0	93.0%	No	1,780	Yes	93.0%	Yes	1	2.60	5,140	0.0	$811.91	$8,582.03	$1,600.00	8.60
Roof	AHU 10 - MS Gym	1	Return Fan	3.0	89.5%	No	1,780	Yes	89.5%	Yes	1	0.84	1,586	0.0	$250.46	$3,884.01	$240.00	14.55
Roof	AHU 7 - Girl's Locker Room / Office	1	Supply Fan	2.0	86.5%	No	1,780	Yes	86.5%	Yes	1	0.28	553	0.0	$87.29	$3,261.02	$160.00	35.52
Roof	AHU 7 - Girl's Locker Room / Office	1	Return Fan	1.0	85.5%	No	1,780	Yes	85.5%	Yes	1	0.29	553	0.0	$87.39	$3,010.13	$80.00	33.53

		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	AHU 4 - Old Wing Offices	1	Supply Fan	5.0	89.5%	No	1,780	Yes	89.5%	Yes	1	0.68	1,335	0.0	$210.91	$4,076.22	$400.00	17.43
Roof	AHU 4 - Old Wing Offices	1	Return Fan	1.0	85.5%	No	1,780	Yes	85.5%	Yes	1	0.29	553	0.0	$87.39	$3,010.13	$80.00	33.53
Roof	AHU 3, 5, 6 - Media Center/Computer Lab/Offices	3	Supply Fan	3.0	89.5%	No	1,780	Yes	89.5%	Yes	3	1.22	2,404	0.0	$379.65	$11,652.03	$720.00	28.80
Roof	AHU 3, 5, 6 - Media Center/Computer Lab/Offices	3	Return Fan	1.0	85.5%	No	1,780	Yes	85.5%	Yes	3	0.88	1,660	0.0	$262.18	$9,030.38	$240.00	33.53
Roof	Cafeteria	2	Supply Fan	20.0	93.0%	No	1,780	Yes	93.0%	Yes	1	5.20	10,280	0.0	$1,623.82	$13,861.51	$3,200.00	6.57
Roof	Cafeteria	2	Return Fan	5.0	89.5%	No	1,780	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Auditorium	2	Supply Fan	20.0	93.0%	Yes	1,780	No	93.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Auditorium	2	Exhaust Fan	10.0	91.7%	Yes	1,780	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Offices	1	Supply Fan	10.0	91.7%	No	1,780	Yes	91.7%	Yes	1	1.32	2,607	0.0	$411.71	$5,151.50	$800.00	10.57
Roof	Offices	2	Return Fan	1.0	85.5%	Yes	1,780	No	85.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Whole Building	Unit Ventilators	140	Supply Fan	0.3	70.0%	No	1,780	No	70.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Whole Building	Unit Heaters	3	Supply Fan	0.3	70.0%	No	280	No	70.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Whole Building	Exhaust Fans	42	Exhaust Fan	0.1	68.0%	No	1,000	No	68.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Elevator Room	Elevator	2	Other	25.0	75.5%	No	1,000	No	75.5%	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	unknown	1	Ductless Mini-Split AC	1.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Hub Room	1	Ductless Mini-Split HP	2.83	33.00	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Server Room	1	Ductless Mini-Split AC	1.50		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
Outdoors: Ground next to Boiler Room	Whole Building	2	Air-Cooled Screw Chiller	320.00	Yes	2	Air-Cooled Screw Chiller	Variable	320.00	1.24	0.73	79.42	71,122	0.0	$11,234.01	$620,072.22	$58,880.00	49.95

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
500 Wing Mechanical Room	New Section	1	Condensing Hot Water Boiler	1,933.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
500 Wing Mechanical Room	New Section	1	Condensing Hot Water Boiler	1,933.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
500 Wing Mechanical Room	New Section	1	Condensing Hot Water Boiler	1,933.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Wing Boiler Room	Old Section	1	Condensing Hot Water Boiler	1,933.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Wing Boiler Room	Old Section	1	Condensing Hot Water Boiler	1,933.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Wing Boiler Room	Old Section	1	Condensing Hot Water Boiler	1,933.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Wing Boiler Room	Old Section	1	Condensing Hot Water Boiler	1,933.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Wing Boiler Room	Old Section	1	Condensing Hot Water Boiler	1,933.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Wing Boiler Room	Old Section	1	Condensing Hot Water Boiler	1,933.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Demand Control Ventilation Recommendations

		Recommendation Inputs				Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Affected	Number of Zones	Cooling Capacity of Controlled System (Tons)	Electric Heating Capacity of Controlled System (kBtu/hr)	Output Heating Capacity of Controlled System (MBh)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof	AHU 13 - Main Office Area	2	40.38		2,195.58	0.00	1,159	38.9	$546.42	$2,718.84	$0.00	4.98
Roof	AHU 12 - Art Room	2	10.09		548.90	0.00	290	9.7	$136.60	$2,718.84	$0.00	19.90
Roof	AHU 11 - Music Room	2	15.14		823.34	0.00	435	14.6	$204.91	$2,718.84	$0.00	13.27
Roof	AHU 10 - MS Gym	2	40.38		2,195.58	0.00	1,159	38.9	$546.42	$2,718.84	$0.00	4.98
Roof	AHU 7 - Girl's Locker Room / Office	2	4.04		219.56	0.00	116	3.9	$54.64	$2,718.84	$0.00	49.76
Roof	AHU 4 - Old Wing Offices	2	10.09		548.90	0.00	290	9.7	$136.60	$2,718.84	$0.00	19.90
Roof	AHU 3, 5, 6 - Media Center/Computer Lab/Offices	6	6.06		988.01	0.00	174	17.5	$190.96	$8,156.52	$0.00	42.71
Roof	Cafeteria	2	80.76		4,391.17	0.00	2,319	77.8	$1,092.84	$2,718.84	$0.00	2.49
Roof	Auditorium	2	80.76		4,391.17	0.00	2,319	77.8	$1,092.84	$2,718.84	$0.00	2.49
Roof	Offices	2	20.19		1,097.79	0.00	580	19.4	$273.21	$2,718.84	$0.00	9.95

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
Main Wing Boiler Room	Whole Building	1	Storage Tank Water Heater (> 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Wing Boiler Room	Whole Building	1	Storage Tank Water Heater (> 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
500 Wing	Whole Building	1	Storage Tank Water Heater (> 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Walk-In Cooler/Freezer Inventory & Recommendations

	Existing Conditions		Proposed Conditions			Energy Impact & Financial Analysis						
Location	Cooler/ Freezer Quantity	Case Type/Temperature	Install EC Evaporator Fan Motors?	Install Electric Defrost Control?	Install Evaporator Fan Control?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen Area	1	Medium Temp Freezer (0F to 30F)	No	Yes	Yes	0.04	1,253	0.0	$197.85	$2,192.60	$125.00	10.45
Kitchen Area	1	Cooler (35F to 55F)	No	Yes	Yes	0.04	1,077	0.0	$170.19	$2,192.60	$125.00	12.15

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
Athletic Storage	1	Ice Making Head (<450 lbs/day), Batch	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Cooking Equipment Inventory & Recommendations

	Existing Conditions			Proposed Conditions	Energy Impact & Financial Analysis						
Location	Quantity	Equipment Type	High Efficiency Equipement?	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen Area	1	Gas Rack Oven (Double)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen Area	2	Electric Fryer	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen Area	1	Electric Steamer	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen Area	1	Electric Combination Oven/Steam Cooker (<15 Pans)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen Area	1	Gas Griddle (3 Feet Width)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen Area	3	Insulated Food Holding Cabinet (Full Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Plug Load Inventory

	Existing Conditions			
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?
Whole Builing	154	Desktop Computers	150.0	Yes
Whole Builing	18	Laptop Computers	45.0	Yes
Whole Builing	63	Projectors	200.0	Yes
Whole Builing	2	LCD TVs	120.0	Yes
Whole Builing	4	CRT TVs	120.0	No
Whole Builing	2	Smartboards	200.0	Yes
Whole Builing	12	Minifridge	153.0	Yes
Whole Builing	14	Desk Printers	40.0	Yes
Whole Builing	11	Microwave	1,000.0	No
Whole Builing	7	Photocopiers	500.0	Yes
Whole Builing	4	Paper Shredder	360.0	No
Whole Builing	2	Coffee Maker	800.0	No
Whole Builing	2	Toaster Oven	900.0	No
Whole Builing	5	Refrigerators - Top Freezer	600.0	Yes
Whole Builing	2	3D Printers	150.0	Yes
Art Room Storage	1	Kiln	10,000.0	No
Whole Builing	1	Electric Dryer	3,000.0	Yes
Whole Builing	1	Electric Clothes Washer	900.0	Yes
Training Room	1	Treadmill	900.0	No
Training Room	1	Exercise Bike	50.0	No
Computer center	1	Portable AC	1,700.0	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
HS Faculty Room	1	Refrigerated	Yes	0.00	1,612	0.0	$254.60	$230.00	$0.00	0.90
Faculty Dining Room	1	Refrigerated	Yes	0.00	1,612	0.0	$254.60	$230.00	$0.00	0.90
Cafeteria	1	Refrigerated	Yes	0.00	1,612	0.0	$254.60	$230.00	$0.00	0.90

Appendix B: ENERGY STAR® Statement of Energy Performance

ENERGY STAR® Statement of Energy Performance

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ENERGY STAR® Score[1]

Elmwood Park Memorial Middle/High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 192,800
Built: 1956

For Year Ending: August 31, 2017
Date Generated: October 31, 2018

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

Property & Contact Information

Property Address	Property Owner	Primary Contact
Elmwood Park Memorial Middle/High School 375 River drive Elmwood Park, New Jersey 07407	Elmwood Park BOE 60 East 53rd Street Elmwood Park, NJ 07407 (201) 796-8700	John DiPaola 60 East 53rd Street Elmwood Park, NJ 07407 (201) 796-8700 ext #3175 jdipaola@epps.org

Property ID: 6382817

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
66.7 kBtu/ft²

Source EUI
119.7 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	5,472,698 (43%)
Natural Gas (kBtu)	7,386,251 (57%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	62.3
National Median Source EUI (kBtu/ft²)	111.8
% Diff from National Median Source EUI	7%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	947

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: _____ Date: _____

Licensed Professional

___ _____
,
(___)___-_____
_____

Professional Engineer Stamp (if applicable)