



Local Government Energy Audit: Energy Audit Report



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Metuchen High School

400 Grove Ave

Metuchen, NJ 08840

Metuchen Board of Education

February 9, 2019

Final Report by:

TRC Energy Services

Disclaimer

The goal of this audit report is to identify potential energy efficiency opportunities, help prioritize specific measures for implementation, and provide information about financial incentives that may be available. Most energy conservation measures have received preliminary analysis of feasibility that identifies expected ranges of savings and costs. This level of analysis is usually considered sufficient to establish a basis for further discussion and to help prioritize energy measures.

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

TRC bases estimated installation costs on our experience at similar facilities, pricing from local contractors and vendors, and/or cost estimates from RS Means. We encourage the owner of the facility is encouraged to independently confirm these cost estimates and to obtain multiple estimates when considering measure installations. Actual installation costs can vary widely based on individual 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.

The New Jersey 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. Please review all available program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

The customer and their respective contractor(s) are responsible to implement energy conservation measures in complete conformance with all applicable local, state and federal requirements.

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I EXECUTIVE SUMMARY

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

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

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

I.1 Facility Summary

Metuchen High School is a 108,124 square foot building comprised of various space types including classrooms, offices, a media center, a woodshop, a gymnasium, an auditorium, a cafeteria, a commercial kitchen, and mechanical and storage spaces.

Lighting at Metuchen High School consists of mostly of linear fluorescent, compact fluorescent, and HID fixtures. Heating is supplied by hot water boilers and unit ventilators, and cooling is supplied by split system and window air conditioners. Domestic hot water is supplied by storage water heaters. A thorough description of the facility and our observations are located in Section 2.

I.2 Your Cost Reduction Opportunities

Energy Conservation Measures

TRC evaluated eight measures and recommends seven measures which together represent an opportunity for Metuchen High School to reduce annual energy costs by \$37,182 and annual greenhouse gas emissions by 219,815 lbs CO₂e. We estimate that if all measures were implemented as recommended, the project would pay for itself in 3.5 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 Metuchen High School’s annual energy use by 7%.

Figure 1 – Previous 12 Month Utility Costs

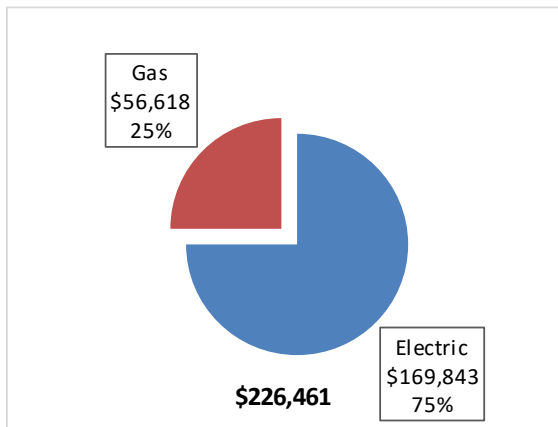
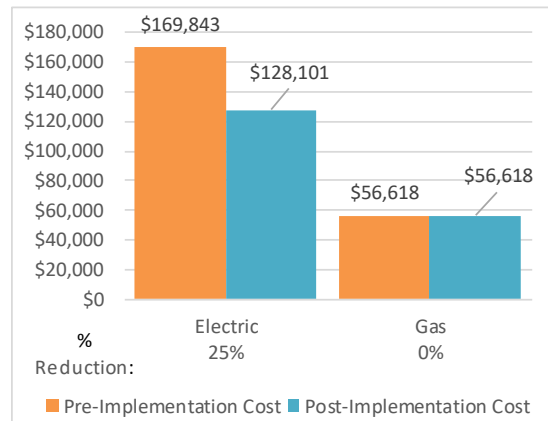


Figure 2 – Potential Post-Implementation Costs



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

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

Figure 3 – Summary of Energy Reduction Opportunities

Energy Conservation Measure	Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		169,832	42.6	0.0	\$27,669.27	\$154,169.85	\$22,480.00	\$131,689.85	4.8	171,019
	Install LED Fixtures	27,991	9.0	0.0	\$4,560.40	\$83,198.37	\$8,605.00	\$74,593.37	16.4	28,187
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,821	0.3	0.0	\$296.75	\$677.62	\$100.00	\$577.62	1.9	1,834
ECM 2	Retrofit Fixtures with LED Lamps	139,914	33.3	0.0	\$22,795.00	\$70,221.44	\$13,775.00	\$56,446.44	2.5	140,892
ECM 3	Install LED Exit Signs	105	0.0	0.0	\$17.13	\$72.42	\$0.00	\$72.42	4.2	106
Lighting Control Measures		18,296	3.6	0.0	\$2,980.86	\$28,424.00	\$2,175.00	\$26,249.00	8.8	18,424
ECM 4	Install Occupancy Sensor Lighting Controls	18,296	3.6	0.0	\$2,980.86	\$28,424.00	\$2,175.00	\$26,249.00	8.8	18,424
Motor Upgrades		0	0.0	0.0	\$0.00	\$17,432.24	\$0.00	\$17,432.24	0.0	0
ECM 5	Premium Efficiency Motors	0	0.0	0.0	\$0.00	\$17,432.24	\$0.00	\$17,432.24	0.0	0
Variable Frequency Drive (VFD) Measures		62,905	17.5	0.0	\$10,248.54	\$36,562.25	\$6,800.00	\$29,762.25	2.9	63,345
ECM 6	Install VFDs on Constant Volume (CV) HVAC	62,905	17.5	0.0	\$10,248.54	\$36,562.25	\$6,800.00	\$29,762.25	2.9	63,345
Plug Load Equipment Control - Vending Machine		5,178	0.0	0.0	\$843.61	\$920.00	\$0.00	\$920.00	1.1	5,214
ECM 7	Vending Machine Control	5,178	0.0	0.0	\$843.61	\$920.00	\$0.00	\$920.00	1.1	5,214
TOTALS FOR HIGH PRIORITY MEASURES		228,220	54.8	0.0	\$37,181.88	\$154,309.97	\$22,850.00	\$131,459.97	3.5	229,815
TOTALS FOR ALL EVALUATED MEASURES		256,211	63.8	0.0	\$41,742.27	\$237,508.34	\$31,455.00	\$206,053.34	4.9	258,003

* - 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.

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

Energy Efficient Practices

TRC also identified 16 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 Metuchen High School include:

- Reduce Air Leakage
- Close Doors and Windows
- Use Window Treatments/Coverings
- Perform Proper Lighting Maintenance
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Use Fans to Reduce Cooling Load
- Install Destratification Fans
- Clean Evaporator/Condenser Coils on AC Systems
- Clean and/or Replace HVAC Filters
- Perform Proper Boiler Maintenance
- Perform Proper Water Heater Maintenance
- Perform Maintenance on Compressed Air Systems
- Install Plug Load Controls
- Replace Computer Monitors
- Water Conservation

For details on these Energy Efficient Practices, please refer to Section 5.

On-Site Generation Measures

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

Figure 4 – Photovoltaic Potential

Potential	Medium	
System Potential	284	kW DC STC
Electric Generation	213,694	kWh/yr
Displaced Cost	\$18,590	/yr
Installed Cost	\$1,107,600	

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.

The Demand Response Energy Aggregator is a (non-NJCEP) program designed to reduce electric loads at commercial facilities, when wholesale electricity prices are high or when the reliability of the electric grid is threatened due to peak power demand. Demand Response (DR) service providers (a.k.a. Curtailment Service Providers) are registered with PJM, the independent system operator (ISO) for mid-Atlantic state region that is charged with maintaining electric grid reliability. By enabling grid operators to call upon commercial facilities to reduce their electric usage during times of peak demand, the grid is made more reliable and overall transmission costs are reduced for all ratepayers. Curtailment Service Providers provide regular payments to medium and large consumers of electric power for their participation in DR programs. Program participation is voluntary and facilities receive payments whether or not they are called upon to curtail their load during times of peak demand. Refer to Section 7 for additional information on this program.

Additional information on relevant incentive programs is located in Section 8. 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			
Michael Harvier	Business Administrator	maharvier@metboe.k12.nj.us	732-321-8700 ext. 1011
Designated Representative			
Gerard Redmond	Facility Manager	gredmond@metboe.k12.nj.us	732.261.7311
TRC Energy Services			
Alexander Kliev Erik	Auditor	aklieverik@trcsolutions.com	(732) 855-0033

2.2 General Site Information

On August 14, 2018, TRC performed an energy audit at Metuchen High School located in Metuchen, New Jersey. TRC’s team met with Gerard Redmond, Facility Manager to review the facility operations and help focus our investigation on specific energy-using systems.

Metuchen High School is a 108,124 square foot facility comprised of various space types including classrooms, offices, a media center, a woodshop, a gymnasium, an auditorium, a cafeteria, a commercial kitchen, and mechanical and storage spaces.

The building was constructed in 1958. The most recent renovation was in 2016, when new heating boilers were installed.

2.3 Building Occupancy

The building is open Monday through Friday and open on weekends throughout the school year. The typical schedule is presented in the table below. During a typical day, the facility is occupied by approximately 127 staff and 500 students.

Figure 6 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
Metuchen High School	Weekday	6:00 AM to 11:00 PM
Metuchen High School	Weekend	9:00 AM to 6:00 PM

2.4 Building Envelope

The building is constructed of concrete block and structural steel with a brick facade. The building has flat roof sections covered with light colored asphalt that is in fair condition. The building has double-pane windows which are in good condition and show little sign of excessive infiltration. The exterior doors are constructed of aluminum and in good condition except that some of the door seals have worn out which increases the level of outside air infiltration.



2.5 On-Site Generation

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

2.6 Energy-Using Systems

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

Lighting System

Lighting at the facility is provided mostly by 32-Watt linear fluorescent T8 lamps with electronic ballasts as well as some compact fluorescent lamps (CFL). Most of the fixtures are 2-lamp or 3-lamp, 4-foot long fixtures. There are also some 1-lamp 4-foot T8 fixtures as well as some U-lamp T8 fixtures in hallways throughout the building. The gymnasium lighting was upgraded a few years ago to 4-lamp T5 fluorescent fixtures. Maintenance staff have installed some screw-in LED lamps in the kitchen area, as well as the stage and a couple storage areas, but a comprehensive LED replacement has not been completed.

Lighting control in classrooms is provided by occupancy sensors, while the rest of the building lighting is controlled by wall switches. The occupancy sensors are either wall or ceiling mounted depending on the space layout. Stairwells, elevator lobbies and main lobby areas do not contain any occupancy sensors and are on approximately 12 hours per day throughout the school year.



The building's exterior lighting consists primarily of wall pack fixtures with 175-Watt metal halide lamps that are controlled by photocells. There are also 26-Watt compact fluorescent lamps in fixtures near exterior doors, which are controlled by wall switches. The parking lot lighting consists of pole mounted fixtures with 250-Watt and 175-Watt metal halide lamps.

Hot Water Heating System

The hot water system consists of five Hydrotherm 1,700 kBtu/hr output, forced draft condensing boilers. The boilers have a combustion efficiency of 95%. Each boiler has a 0.25 hp forced draft fan. The boilers are configured in a variable flow primary-secondary distribution with multiple branches serving five zones throughout the building. Each of the five zones are supplied by a dedicated pump and a variable frequency drive. Zone 1 is supplied by a 10 HP pump and serves the cafeteria, gymnasium, lockers, woodshop, and "C" corridor classrooms. Zone 2 is supplied by a 3 HP pump and serves the auditorium and stage, library, as well as the main office area. Zone 3 is supplied by a 5 HP pump and serves the 1st and 2nd floor "A" corridor classrooms. Zone 4 is supplied by a 5 HP pump and serves the fitness center, "E" corridor classrooms, and center corridor classrooms. Zone 5 is supplied by a 7.5 HP pump and supplies the air handlers in all the corridors, kitchen, and music room. Hot water is supplied at 170°F when the outside air temperature is below 55°F and the setpoint is reset to 155°F when the outside air is above 65°F. The boilers provide hot water to rooftop air handlers and the perimeter unit ventilators.



The boilers operate in a lead/lag configuration, with the first boiler acting as the master control. Three boilers may be required during cold weather. The lead boiler is rotated weekly.

The boilers are in good condition and well maintained.

Direct Expansion (DX) Air Conditioning (AC) System

Cooling at Metuchen High School is supplied by a mixture of packaged rooftop AC units, split-system AC units, ductless mini-split ACs, and window ACs. There is one packaged rooftop AC unit with hot water coils serving the fitness center. The packaged unit is a constant volume system, and has a 7.5 HP supply fan, a 2 HP exhaust fan, and has a cooling capacity of 13 tons with rated efficiency of 11 SEER. The unit looks to be in good condition and well maintained.



The auditorium is served by one large air handler unit (AHU7) with hot water coils and a 50-ton Carrier split-system condenser model 38A-054. The air handler is a constant volume system with a 15 HP supply fan and a 7.5 HP exhaust fan.

One split-system condensing unit is located on the ground outside serving the library AHU. The unit is constant air volume with hot water coils and a single 5 HP supply fan and a 1 HP exhaust fan. All cooling components utilize a scroll compressor and a direct-expansion (DX) coil.

There are thirteen ductless mini-split heat pump units supplying cooling to various spaces throughout the building. Ten of the thirteen units have a cooling capacity of 12,000 Btu/hr serving three offices, five server rooms, the elevator room, and a conference room. There are also two 24,000 Btu/hr capacity mini-split units serving two server rooms, and a 30,000 Btu/hr capacity unit serving the athletic trainer room. The mini-split units have a rated efficiency between 10 and 17 SEER. The units are controlled by individual thermostats located in each space.



Classrooms and offices that are not served by the packaged ACs, split-systems, or mini-split units are served by window ACs. There are 32 window air conditioners throughout the building with an average capacity of 24,000 Btu/hr and a rated efficiency of 10 SEER.

Central Air Distribution and Conditioning System

There are 12 constant-volume air handler units with hot water coils serving the larger spaces of the building, including the boy's and girl's locker rooms, the gymnasium, the art room, the fitness center, the library, the auditorium, and music rooms. Each air handler is controlled by a thermostat located in the space. All areas of the building are maintained at a temperature between 72°F and 74°F. The two locker room AHUs have a 2 HP supply fan and a 2 HP return fan. The gymnasium has two air handler units with one 15 HP supply fan, and one 7.5 HP return fan each. The art room AHU has a 3 HP supply fan and 1 HP return fan. The fitness center AHU has a 7.5 HP supply fan and 2 HP return fan. The library is served by a single AHU with a 5 HP supply fan and 1 HP return fan. The auditorium AHU is served by a 15 HP supply fan and 7.5 HP return fan. The music rooms are served by two AHUs; one unit has a 7.5 HP supply fan and 3 HP exhaust fan, while the other AHU has a 5 HP supply fan and 2 HP return fan.



The smaller spaces of the building including a majority of classrooms, offices, cafeteria, restrooms, and storage rooms, are served by unit ventilators in the space. There are approximately 70 unit ventilators with ¼ HP supply fans throughout the building.

Domestic Hot Water Heating System

The domestic hot water heating system for the facility consists of two PVi gas-fired condensing water heaters with an input rating of 565 kBtu/hr each and a nominal efficiency of 94%. Each water heater has a 250 gallon storage tank. One 214-Watt recirculation pump, and two 1/3 HP supply pumps distribute 110°F water to the entire building. The pumps operate based on an aquastat.



Food Service Equipment

The building has a full commercial kitchen that is used to prepare lunch for the students. The ovens, range tops, deep fryer, and griddle are all gas fired. The ovens and griddle are turned on at 6:30 AM when the kitchen staff arrive and turned off at 2:30 PM when lunch service stops. There is no dishwasher equipment at the high school; cookware, utensils, and trays are washed by hand.

Refrigeration

The facility has two different storage cold storage areas: a walk-in cooler area and two walk-in freezer areas. The cooler area is maintained at a constant temperature of 35°F and freezer areas are maintained at a constant 5°F and 15°F. The cooler area is served by two evaporators, and freezer areas are served by three evaporators each having a single 1/8 HP fan. There is one 15,000 BTU condensing unit with reciprocating compressors connected to evaporators serving the cooler section. There are two 18,000 Btu condensing units connected to evaporators serving the freezer areas.



Building Plug Load

There are 200 desktop computer work stations with LCD monitors throughout the building. There are also 90 Chromebooks used by students. There is no centralized PC power management software installed.

There are 40 projectors, 57 desk printers, 12 smartboards, 15 compact refrigerators, 17 microwave ovens, eight LCD televisions, eight treadmills in the fitness room, and five photocopiers throughout the facility. There are ten electric hand dryers in the restrooms throughout the building.

The building has three refrigerated beverage vending machines, one refrigerated ice cream vending machine, and a non-refrigerated snack vending machine. There are no controls installed.

2.7 Water-Using Systems

There are 17 restrooms at this facility. A sampling of restrooms found that all of the faucets are rated for 2.5 gallons per minute (gpm) or lower, the toilets are rated at 2.0 gallons per flush (gpf) and the urinals are rated at 1.7 gpf.

The school has a girl's and boy's locker room. The girl's locker room has four showerheads and the boy's locker room has 13 showerheads. All of the showerheads are rated at 2.5 gpm. The showers in the boy's and girl's locker rooms are only used during the school year for after school sports teams.

3 SITE ENERGY USE AND COSTS

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

3.1 Total Cost of Energy

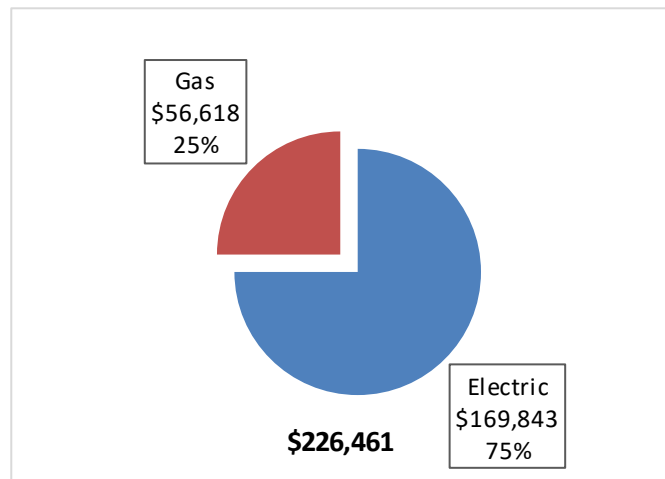
The following energy consumption and cost data is based on the last 12-month period of utility billing data that was provided for each utility. A profile of the annual energy consumption and energy cost of the facility was developed from this information.

Figure 7 - Utility Summary

Utility Summary for Metuchen High School		
Fuel	Usage	Cost
Electricity	1,042,486 kWh	\$169,843
Natural Gas	74,916 Therms	\$56,618
Total		\$226,461

The current annual energy cost for this facility is \$226,461 as shown in the chart below.

Figure 8 - Energy Cost Breakdown



3.2 Electricity Usage

Electricity is provided by PSE&G. The average electric cost over the past 12 months was \$0.163/kWh, which is the blended rate that includes energy supply, distribution, and other charges. This rate is used throughout the analyses in this report to assess energy costs and savings. The monthly electricity consumption and peak demand are shown in the chart below.

Figure 9 - Electric Usage & Demand

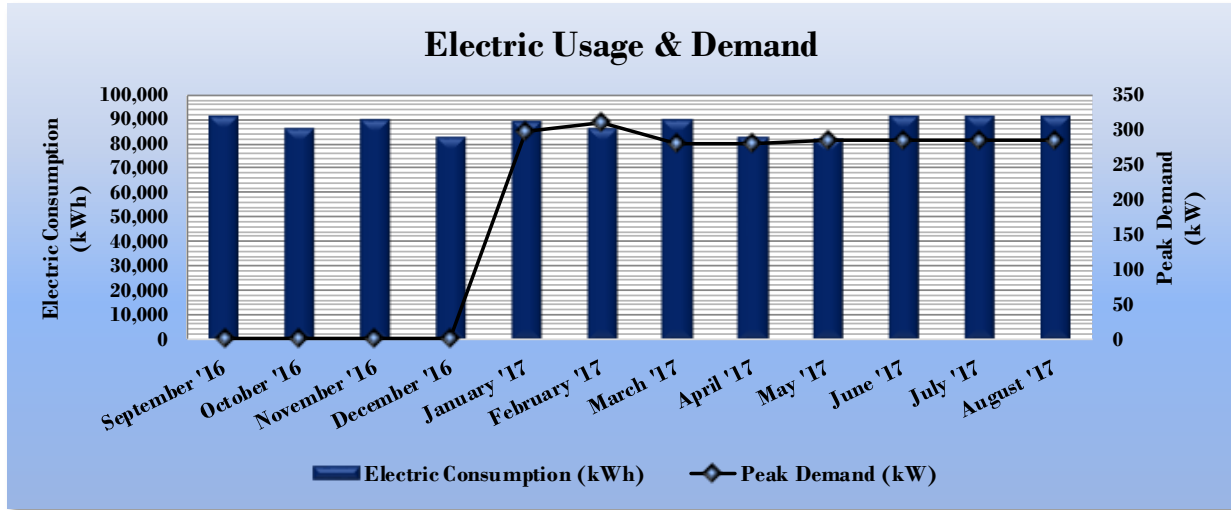


Figure 10 - Electric Usage & Demand

Electric Billing Data for Metuchen High School						
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost	TRC Estimated Usage?
9/27/16	32	91,200	0	\$0	\$18,730	Yes
10/26/16	29	86,256	0	\$0	\$18,730	Yes
11/28/16	33	89,920	0	\$0	\$18,735	Yes
12/28/16	30	82,773	0	\$0	\$18,743	Yes
1/27/17	30	89,034	298	\$0	\$11,167	No
2/28/17	32	86,256	310	\$0	\$10,905	No
3/29/17	29	89,920	280	\$0	\$11,205	No
4/28/17	30	82,773	280	\$0	\$10,442	No
5/30/17	32	82,179	284	\$0	\$10,626	No
6/28/17	29	91,200	284	\$0	\$14,141	Yes
7/29/17	31	91,200	284	\$0	\$14,141	Yes
8/30/17	32	91,200	284	\$0	\$14,141	Yes
Totals	369	1,053,911	309.6	\$0	\$171,705	7
Annual	365	1,042,486	309.6	\$0	\$169,843	

3.3 Natural Gas Usage

Natural gas is provided by Elizabethtown Gas. The average gas cost for the past 12 months is \$0.756/therm, which is the blended rate used throughout the analyses in this report. The monthly gas consumption is shown in the chart below.

Figure 11 - Natural Gas Usage

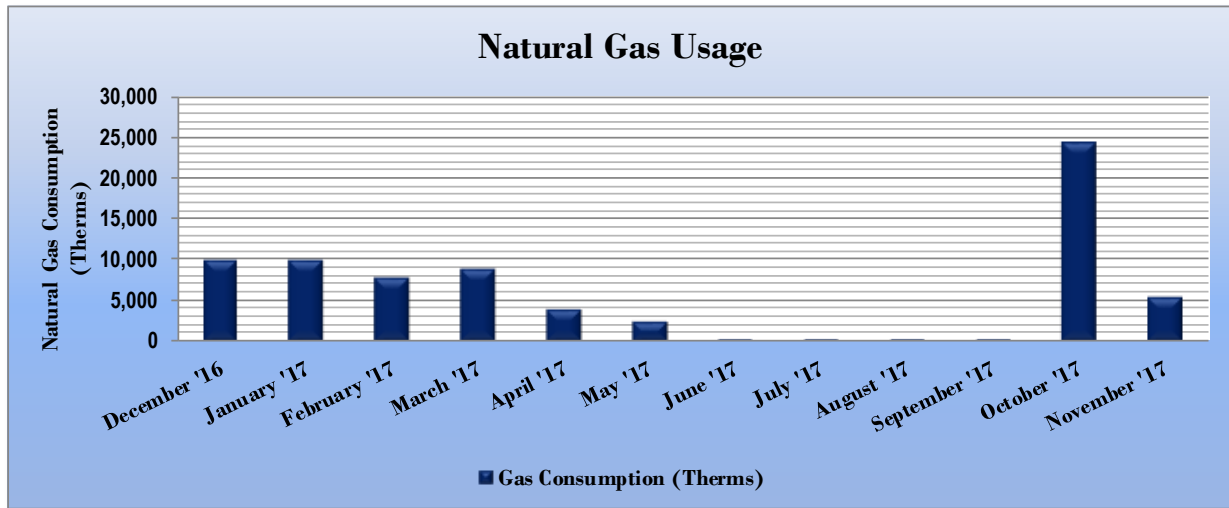


Figure 12 - Natural Gas Usage

Gas Billing Data for Metuchen High School			
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost
12/28/16	30	10,094	\$7,813
1/27/17	30	9,905	\$6,267
2/26/17	30	7,755	\$7,122
3/28/17	30	8,942	\$3,495
4/27/17	30	3,919	\$2,358
5/27/17	30	2,343	\$909
6/26/17	30	335	\$828
7/26/17	30	217	\$836
8/25/17	30	227	\$916
9/24/17	30	340	\$12,519
10/24/17	30	24,379	\$4,578
11/23/17	30	5,433	\$8,201
Totals	360	73,890	\$55,842
Annual	365	74,916	\$56,618

3.4 Benchmarking

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

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

Figure 13 - Energy Use Intensity Comparison – Existing Conditions

Energy Use Intensity Comparison - Existing Conditions		
	Metuchen High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft ²)	176.0	141.4
Site Energy Use Intensity (kBtu/ft ²)	102.2	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 14 - Energy Use Intensity Comparison – Following Installation of Recommended Measures

Energy Use Intensity Comparison - Following Installation of Recommended Measures		
	Metuchen High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft ²)	153.4	141.4
Site Energy Use Intensity (kBtu/ft ²)	95.0	58.2

Many types of commercial buildings are also eligible to receive an ENERGY STAR® score. This score is a percentile ranking from 1 to 100. It compares your building’s energy performance to similar buildings nationwide. A score of 50 represents median energy performance, while a score of 75 means your building performs better than 75% of all similar buildings nationwide and may be eligible for ENERGY STAR® certification. Your building is one of the building categories that are eligible to receive a score. This facility has a current score of **25**.

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

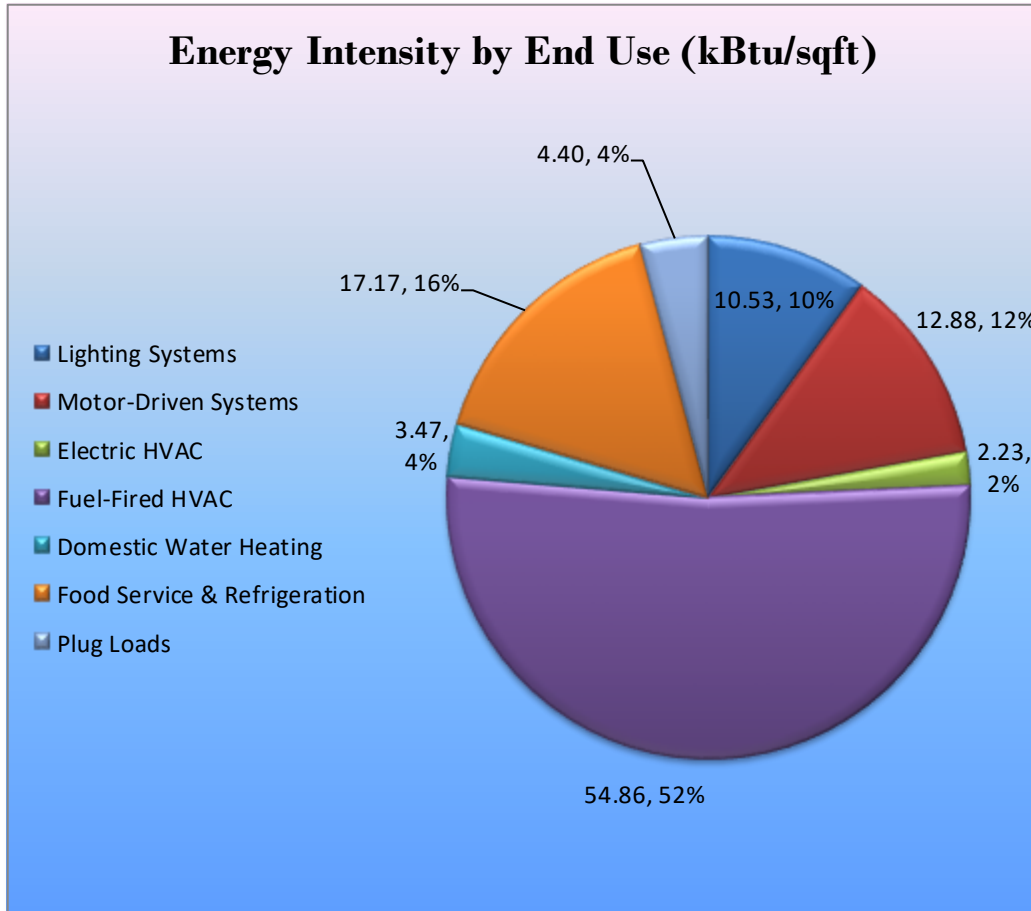
For more information on ENERGY STAR® certification go to: <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1>.

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 15 - Energy Balance (% and kBtu/SF)



4 ENERGY CONSERVATION MEASURES

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

The following sections describe the evaluated measures.

4.1 Recommended ECMs

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

Figure 16 – Summary of Recommended ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		169,832	42.6	0.0	\$27,669.27	\$154,169.85	\$22,480.00	\$131,689.85	4.8	171,019
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,821	0.3	0.0	\$296.75	\$677.62	\$100.00	\$577.62	1.9	1,834
ECM 2	Retrofit Fixtures with LED Lamps	139,914	33.3	0.0	\$22,795.00	\$70,221.44	\$13,775.00	\$56,446.44	2.5	140,892
ECM 3	Install LED Exit Signs	105	0.0	0.0	\$17.13	\$72.42	\$0.00	\$72.42	4.2	106
Lighting Control Measures		18,296	3.6	0.0	\$2,980.86	\$28,424.00	\$2,175.00	\$26,249.00	8.8	18,424
ECM 4	Install Occupancy Sensor Lighting Controls	18,296	3.6	0.0	\$2,980.86	\$28,424.00	\$2,175.00	\$26,249.00	8.8	18,424
Motor Upgrades		0	0.0	0.0	\$0.00	\$17,432.24	\$0.00	\$17,432.24	0.0	0
ECM 5	Premium Efficiency Motors	0	0.0	0.0	\$0.00	\$17,432.24	\$0.00	\$17,432.24	0.0	0
Variable Frequency Drive (VFD) Measures		62,905	17.5	0.0	\$10,248.54	\$36,562.25	\$6,800.00	\$29,762.25	2.9	63,345
ECM 6	Install VFDs on Constant Volume (CV) HVAC	62,905	17.5	0.0	\$10,248.54	\$36,562.25	\$6,800.00	\$29,762.25	2.9	63,345
Plug Load Equipment Control - Vending Machine		5,178	0.0	0.0	\$843.61	\$920.00	\$0.00	\$920.00	1.1	5,214
ECM 7	Vending Machine Control	5,178	0.0	0.0	\$843.61	\$920.00	\$0.00	\$920.00	1.1	5,214
TOTALS FOR HIGH PRIORITY MEASURES		228,220	54.8	0.0	\$37,181.88	\$154,309.97	\$22,850.00	\$131,459.97	3.5	229,815

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

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

4.1.1 Lighting Upgrades

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

Figure 17 – Summary of Lighting Upgrade ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		141,841	33.6	0.0	\$23,108.87	\$70,971.48	\$13,875.00	\$57,096.48	2.5	142,832
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	1,821	0.3	0.0	\$296.75	\$677.62	\$100.00	\$577.62	1.9	1,834
ECM 2	Retrofit Fixtures with LED Lamps	139,914	33.3	0.0	\$22,795.00	\$70,221.44	\$13,775.00	\$56,446.44	2.5	140,892
ECM 3	Install LED Exit Signs	105	0.0	0.0	\$17.13	\$72.42	\$0.00	\$72.42	4.2	106

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: Retrofit Fluorescent Fixtures with LED Lamps and Drivers

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	1,821	0.3	0.0	\$296.75	\$677.62	\$100.00	\$577.62	1.9	1,834
Exterior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0

Measure Description

We recommend retrofitting existing linear fluorescent T12 fixtures by removing fluorescent tubes and ballasts and replacing them with LEDs and LED drivers, which are designed to be used retrofitted fluorescent fixtures. The only areas with T12 fixtures are the fitness center vestibule, boy’s locker room storage room, coach’s office 164A, and hallway displays. The measure uses the existing fixture housing but replaces the rest of the components with more efficient lighting technology. This measure saves energy by installing LEDs which use less power than other lighting technologies yet provide equivalent lighting output for the space.

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

ECM 2: Retrofit Fixtures with LED Lamps

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	138,046	33.0	0.0	\$22,490.65	\$68,758.68	\$13,775.00	\$54,983.68	2.4	139,011
Exterior	1,868	0.3	0.0	\$304.35	\$1,462.76	\$0.00	\$1,462.76	4.8	1,881

Measure Description

We recommend retrofitting existing incandescent, linear fluorescent, compact fluorescent, and U-bend 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. Areas we recommend retrofitting lamps are offices, classrooms, storage rooms, mechanical and electrical rooms, the cafeteria, locker rooms, and media center. 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 tubes and more than ten times longer than many incandescent lamps.

ECM 3: Install LED Exit Signs

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	105	0.0	0.0	\$17.13	\$72.42	\$0.00	\$72.42	4.2	106
Exterior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0

Measure Description

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

4.1.2 Lighting Control Measures

Our recommendation for upgrades to existing lighting control measures is summarized in Figure 18 below.

Figure 18 – Summary of Lighting Control ECMs

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Control Measures	18,296	3.6	0.0	\$2,980.86	\$28,424.00	\$2,175.00	\$26,249.00	8.8	18,424
ECM 4 Install Occupancy Sensor Lighting Controls	18,296	3.6	0.0	\$2,980.86	\$28,424.00	\$2,175.00	\$26,249.00	8.8	18,424

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

ECM 4: Install Occupancy Sensor Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
18,296	3.6	0.0	\$2,980.86	\$28,424.00	\$2,175.00	\$26,249.00	8.8	18,424

Measure Description

We recommend installing occupancy sensors to control lighting fixtures that are currently controlled by manual switches in restrooms, storage rooms, classrooms, and offices areas. 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 premium efficiency motor upgrades are summarized in Figure 19 below.

Figure 19 – Summary of Premium Efficiency Motor ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Motor Upgrades		0	0.0	0.0	\$0.00	\$17,432.24	\$0.00	\$17,432.24	0.0	0
ECM 5	Premium Efficiency Motors	0	0.0	0.0	\$0.00	\$17,432.24	\$0.00	\$17,432.24	0.0	0

ECM 5: Premium Efficiency Motors

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
0	0.0	0.0	\$0.00	\$17,432.24	\$0.00	\$17,432.24	0.0	0

Measure Description

We recommend replacing standard efficiency motors with NEMA Premium® efficiency motors. We recommend replacing motors on hot water pumps, gym AHU fans, fitness center AHU fans, library AHU fans, and auditorium AHU fans. Our evaluation assumes that existing motors will be replaced with motors of equivalent size and type. Although occasionally additional savings can be achieved by downsizing motors to better meet the motor’s current load requirements. The base case motor efficiencies are estimated from nameplate information and our best estimates of motor run hours. Efficiencies of proposed motor upgrades are obtained from the *New Jersey’s Clean Energy Program Protocols to Measure Resource Savings (2016)*. Savings are based on the difference between baseline and proposed efficiencies and the assumed annual operating hours.

4.1.4 Variable Frequency Drive Measures

Our recommendations for variable frequency drive (VFD) measures is summarized in Figure 20 below.

Figure 20 – Summary of Variable Frequency Drive ECMs

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Variable Frequency Drive (VFD) Measures	62,905	17.5	0.0	\$10,248.54	\$36,562.25	\$6,800.00	\$29,762.25	2.9	63,345
ECM 6 Install VFDs on Constant Volume (CV) HVAC	62,905	17.5	0.0	\$10,248.54	\$36,562.25	\$6,800.00	\$29,762.25	2.9	63,345

ECM 6: Install VFDs on Constant Volume (CV) HVAC

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
62,905	17.5	0.0	\$10,248.54	\$36,562.25	\$6,800.00	\$29,762.25	2.9	63,345

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. We recommend installing VFDs on gym AHU fans, fitness center AHU fans, library AHU fans, and auditorium AHU fans. 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.

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

4.1.5 Plug Load Equipment Control - Vending Machines

Our recommendations for plug load equipment control measures are summarized in Figure 21 below.

Figure 21 – Summary of Plug Load Equipment ECMs

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Plug Load Equipment Control - Vending Machine	5,178	0.0	0.0	\$843.61	\$920.00	\$0.00	\$920.00	1.1	5,214
ECM 7 Vending Machine Control	5,178	0.0	0.0	\$843.61	\$920.00	\$0.00	\$920.00	1.1	5,214

ECM 7: Vending Machine Control

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
5,178	0.0	0.0	\$843.61	\$920.00	\$0.00	\$920.00	1.1	5,214

Measure Description

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

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.

Use Window Treatments/Coverings

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

Perform Proper Lighting Maintenance

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

Develop a Lighting Maintenance Schedule

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

Ensure Lighting Controls Are Operating Properly

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

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.

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.

Perform Maintenance on Compressed Air Systems

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

Plug Load Controls

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

Replace Computer Monitors

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

Water Conservation

Installing low-flow faucets or faucet aerators, low-flow showerheads, and kitchen sink pre-rinse spray valves saves both energy and water. These devices save energy by reducing the overall amount of hot water used hence reducing the energy used to heat the water. The flow ratings for EPA WaterSense™ (<http://www3.epa.gov/watersense/products>) labeled devices are 1.5 gpm for bathroom faucets, 2.0 gpm for showerheads, and 1.28 gpm for pre-rinse spray valves. Installing dual flush or low-flow toilets and low-flow or waterless urinals are additional ways to reduce the sites water use, however, these devices do not provide energy savings at the site level. Any reduction in water use does however ultimately reduce grid level electricity use since a significant amount of electricity is used to deliver water from reservoirs to end users. The EPA WaterSense™ ratings for urinals is 0.5 gpf and toilets that use as little as 1.28 gpf (this is lower than the current 1.6 gpf federal standard).

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.

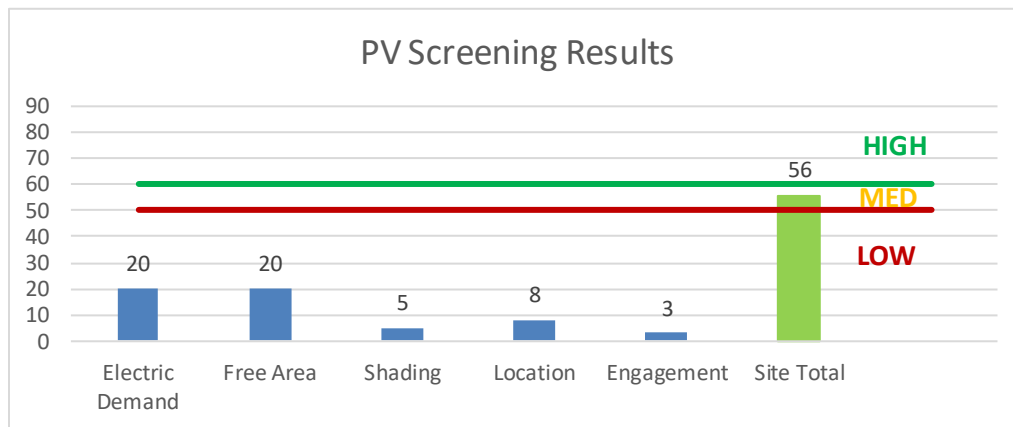
6.1 Photovoltaic

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 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 Medium potential for installing a PV array.

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

Figure 22 - Photovoltaic Screening



Potential	Medium	
System Potential	284	kW DC STC
Electric Generation	213,694	kWh/yr
Displaced Cost	\$18,590	/yr
Installed Cost	\$1,107,600	

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

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

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

6.2 Combined Heat and Power

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

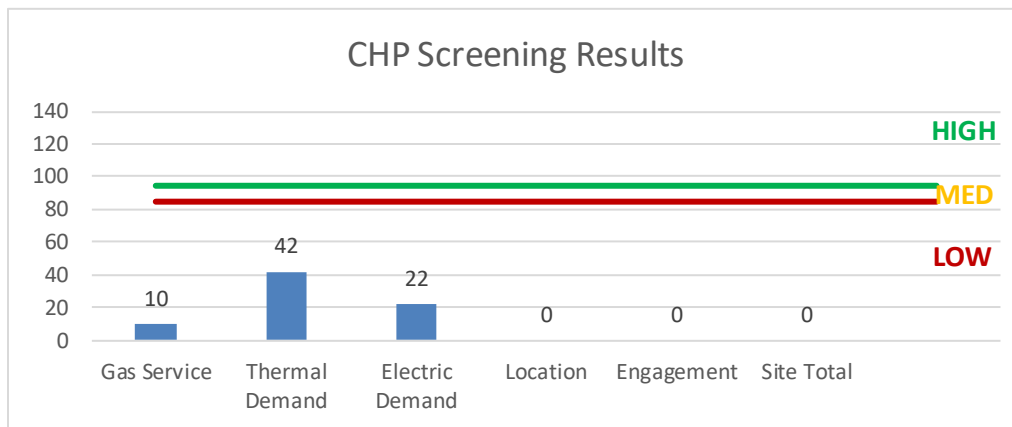
CHP systems are typically used to produce a portion of the electric power used onsite by a facility, with the balance of electric power needs supplied by grid purchases. The heat is used to supplement (or supplant) existing boilers for the purpose of space heating and/or domestic hot water heating. Waste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

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

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

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

Figure 23 - Combined Heat and Power Screening



7 DEMAND RESPONSE

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

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

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

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

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

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

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

TRC does not think this is building is a good candidate for Demand Response (DR).

8 PROJECT FUNDING / INCENTIVES

The NJCEP is able to provide the incentive programs described below, and other benefits to ratepayers, because of the Societal Benefits Charge (SBC) Fund. The SBC was created by the State of New Jersey’s Electricity Restructuring Law (1999), which requires all customers of investor-owned electric and gas utilities to pay a surcharge on their monthly energy bills. As a customer of a state-regulated electric or gas utility and therefore a contributor to the fund, your organization is eligible to participate in the LGEA program and also eligible to receive incentive payment for qualifying energy efficiency measures. Also available through the NJBPU are some alternative financing programs described later in this section. Please refer to Figure 24 for a list of the eligible programs identified for each recommended ECM.

Figure 24 - 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 Retrofit Fluorescent Fixtures with LED Lamps and Drivers	X		X			
ECM 2 Retrofit Fixtures with LED Lamps	X					
ECM 3 Install LED Exit Signs	X		X			
ECM 4 Install Occupancy Sensor Lighting Controls			X			
ECM 5 Premium Efficiency Motors	X		X			
ECM 6 Install VFDs on Constant Volume (CV) HVAC	X		X			
ECM 7 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. SRECs are generated once the solar project has been authorized to be energized by the Electric Distribution Company (EDC).

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

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

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

8.3 Energy Savings Improvement Program

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

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

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

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

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

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

9 ENERGY PURCHASING AND PROCUREMENT STRATEGIES

9.1 Retail Electric Supply Options

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

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

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

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

9.2 Retail Natural Gas Supply Options

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

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

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

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

Appendix A: Equipment Inventory & Recommendations

Lighting Inventory & Recommendations

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	767	0.43	822	0.0	\$133.91	\$1,197.27	\$250.00	7.07
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
Fire Pump Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	Yes	4	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	767	0.06	110	0.0	\$17.93	\$343.03	\$20.00	18.02
Electrical Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	767	0.08	158	0.0	\$25.67	\$379.55	\$65.00	12.26
Facility Manager Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,276	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,293	0.05	314	0.0	\$51.19	\$343.03	\$20.00	6.31
Walk-In Freezer	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	1,095	Relamp	No	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	1,095	0.03	64	0.0	\$10.46	\$17.23	\$5.00	1.17
Kitchen Storage 179C	3	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	1,095	None	Yes	3	LED Screw-In Lamps: Screw-In (9W) - 1L	Occupancy Sensor	9	767	0.01	10	0.0	\$1.66	\$270.00	\$0.00	162.48
Walk-In Refrigerator	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	1,095	Relamp	No	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	1,095	0.03	64	0.0	\$10.46	\$17.23	\$5.00	1.17
Kitchen Area	16	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	2,080	None	Yes	16	LED Screw-In Lamps: Screw-In (9W) - 1L	Occupancy Sensor	9	1,456	0.03	103	0.0	\$16.84	\$270.00	\$0.00	16.04
Kitchen Vent Hood	6	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	2,080	Relamp	No	6	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	2,080	0.20	732	0.0	\$119.25	\$103.35	\$30.00	0.62
Kitchen Office	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	2,080	None	No	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	2,080	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen Storage 179D	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	1,095	None	No	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	1,095	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen RR 179B	1	LED Screw-In Lamps: Screw-In (9W) - 2L	Wall Switch	18	365	None	No	1	LED Screw-In Lamps: Screw-In (9W) - 2L	Wall Switch	18	365	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Cafeteria / MPR	40	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,276	Relamp	Yes	40	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,293	1.09	6,284	0.0	\$1,023.80	\$2,540.60	\$540.00	1.95
Cafeteria / MPR	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
Cafeteria / MPR	15	Compact Fluorescent: PL (42W) - 1L	Wall Switch	42	3,276	Relamp	Yes	15	LED Screw-In Lamps: LED: PL (29W) - 1L	Occupancy Sensor	29	2,293	0.21	1,210	0.0	\$197.21	\$918.30	\$70.00	4.30
Chorus Room 189	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.55	2,363	0.0	\$385.02	\$1,270.30	\$270.00	2.60
Chorus Room 189	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
Chorus Room Office 189A	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.14	591	0.0	\$96.25	\$452.58	\$85.00	3.82
Practice Room 189B	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.04	83	0.0	\$13.54	\$73.03	\$20.00	3.92
Practice Room 189C	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.04	83	0.0	\$13.54	\$73.03	\$20.00	3.92
Chorus - Music Connector Hall	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	4,026	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,026	0.02	153	0.0	\$24.89	\$36.52	\$10.00	1.07
Chorus - Music Connector Hall	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
Music Room 188	45	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	45	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	1.23	5,317	0.0	\$866.29	\$2,723.18	\$590.00	2.46
Music Room 188	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

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Music Storage Room 188A	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	767	0.11	210	0.0	\$34.22	\$416.06	\$40.00	10.99
Music Room Office 188B	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.05	236	0.0	\$38.50	\$343.03	\$20.00	8.39
CR 187	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,760	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,232	0.05	169	0.0	\$27.50	\$343.03	\$20.00	11.75
CR 187	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
CR 187 Back Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,760	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,232	0.16	506	0.0	\$82.50	\$489.09	\$95.00	4.78
CR 187 Back 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
Custodial Office 186A	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.08	354	0.0	\$57.75	\$379.55	\$65.00	5.45
Stage Area	10	LED Screw-In Lamps: Screw-In (18W) - 1L	Wall Switch	18	2,080	None	No	10	LED Screw-In Lamps: Screw-In (18W) - 1L	Wall Switch	18	2,080	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Stage Area	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
Stage Area	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,080	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,080	0.02	79	0.0	\$12.86	\$36.52	\$10.00	2.06
Stage Area	192	Incandescent: Screw-In (40W) - 1L	Wall Switch	40	2,080	None	No	192	Incandescent: Screw-In (40W) - 1L	Wall Switch	40	2,080	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Stage Lights	16	Halogen Incandescent: Screw-In (100W) - 1L	Wall Switch	100	280	None	No	16	Halogen Incandescent: Screw-In (100W) - 1L	Wall Switch	100	280	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Spot Lights	2	Halogen Incandescent: ENX (360W) - 1L	Wall Switch	360	80	None	No	2	Halogen Incandescent: ENX (360W) - 1L	Wall Switch	360	80	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Auditorium Seating Area	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Auditorium Seating Area	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,080	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,080	0.04	134	0.0	\$21.82	\$73.03	\$20.00	2.43
Auditorium Seating Area	6	Compact Fluorescent: PL (42W) - 1L	Wall Switch	42	2,080	Relamp	No	6	LED Screw-In Lamps: LED: PL (29W) - 1L	Wall Switch	29	2,080	0.05	187	0.0	\$30.40	\$151.32	\$0.00	4.98
Auditorium Seating Area	19	Incandescent: Screw-In (300W) - 1L	Wall Switch	300	2,080	Relamp	No	19	LED Screw-In Lamps: Screw-In (W) - 1L	Wall Switch	45	2,080	3.18	11,589	0.0	\$1,888.14	\$327.28	\$95.00	0.12
Teacher's Work Room 186	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.33	1,418	0.0	\$231.01	\$708.18	\$155.00	2.39
MDF Room 185	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	767	0.03	55	0.0	\$8.97	\$306.52	\$10.00	33.07
Electrical Room / Storage 192	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	1,095	Relamp	No	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	1,095	0.03	64	0.0	\$10.46	\$17.23	\$5.00	1.17
Boy's RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,026	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.12	869	0.0	\$141.55	\$434.32	\$80.00	2.50
Janitor Closet 183	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Girl's RR	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,026	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.16	1,158	0.0	\$188.73	\$489.09	\$95.00	2.09
Storage Room 193	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	1,095	None	No	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	1,095	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Storage Room 194	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	1,095	Relamp	No	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	1,095	0.03	64	0.0	\$10.46	\$17.23	\$5.00	1.17

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Storage Room 195	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Electrical Room /Fire Alarm Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	767	0.03	55	0.0	\$8.97	\$306.52	\$10.00	33.07
Main Office	11	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	11	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.30	1,300	0.0	\$211.76	\$671.67	\$145.00	2.49
Main Office	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.25	1,063	0.0	\$173.26	\$598.64	\$125.00	2.73
VP Office 103	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.08	354	0.0	\$57.75	\$225.55	\$50.00	3.04
Main Office RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	365	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	256	0.04	26	0.0	\$4.28	\$170.77	\$15.00	36.42
Principal's Office 104	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,464	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,464	0.06	281	0.0	\$45.70	\$109.55	\$30.00	1.74
Vault 105	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Guaver Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.04	177	0.0	\$28.88	\$170.77	\$15.00	5.39
Conference Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.08	354	0.0	\$57.75	\$379.55	\$65.00	5.45
Storage 107	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Office 110	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.04	177	0.0	\$28.88	\$170.77	\$15.00	5.39
Office 111	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.08	354	0.0	\$57.75	\$379.55	\$65.00	5.45
Office 112	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.04	177	0.0	\$28.88	\$170.77	\$15.00	5.39
Nurse's Office 113	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.16	709	0.0	\$115.51	\$489.09	\$95.00	3.41
Nurse's Office Storage Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Nurse's Office RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	365	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	256	0.04	26	0.0	\$4.28	\$170.77	\$15.00	36.42
Nurse's Office Exam Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.04	177	0.0	\$28.88	\$170.77	\$15.00	5.39
Break Room 114	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.21	886	0.0	\$144.38	\$543.86	\$110.00	3.00
Break Room RR Men's	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	365	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	256	0.04	26	0.0	\$4.28	\$170.77	\$15.00	36.42
Break Room RR Women's	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	365	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	256	0.04	26	0.0	\$4.28	\$170.77	\$15.00	36.42
Elevator Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Storage 217	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
CR 200	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 201	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
CR 202	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 203	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 204	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 205	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 206	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 207	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	16	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.52	1,603	0.0	\$261.16	\$876.36	\$240.00	2.44
CR 208	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.39	1,202	0.0	\$195.87	\$657.27	\$180.00	2.44
CR 209	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,760	Relamp	Yes	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,232	0.41	1,266	0.0	\$206.26	\$817.73	\$185.00	3.07
Office 210 S.S.	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.08	354	0.0	\$57.75	\$225.55	\$50.00	3.04
Girl's RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	4,026	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	4,026	0.01	81	0.0	\$13.20	\$18.26	\$5.00	1.00
Girl's RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,026	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.08	579	0.0	\$94.36	\$379.55	\$65.00	3.33
Janitor Closet 212	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Boy's RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,026	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.12	869	0.0	\$141.55	\$434.32	\$80.00	2.50
CR 214	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.39	1,202	0.0	\$195.87	\$657.27	\$180.00	2.44
IDF Room 214B	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Storage Room 214A	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
CR 215	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 216	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
Office 116 Waiting Area	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.08	354	0.0	\$57.75	\$379.55	\$65.00	5.45
Office 116D	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,464	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,464	0.06	281	0.0	\$45.70	\$109.55	\$30.00	1.74
Office 116 Conference Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.08	354	0.0	\$57.75	\$379.55	\$65.00	5.45
Office 116C	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,464	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,464	0.04	164	0.0	\$26.78	\$144.92	\$0.00	5.41
Office 116B	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,464	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,464	0.06	281	0.0	\$45.70	\$109.55	\$30.00	1.74
CR 117	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 118	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
CR 119	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 120	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 121	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 122	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,760	Relamp	Yes	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,232	0.41	1,266	0.0	\$206.26	\$817.73	\$185.00	3.07
CR 123	33	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,760	Relamp	No	33	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,760	0.71	2,204	0.0	\$359.10	\$1,205.00	\$330.00	2.44
CR 124	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,760	Relamp	No	27	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,760	0.58	1,803	0.0	\$293.81	\$985.91	\$270.00	2.44
Girl's RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,026	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.12	869	0.0	\$141.55	\$434.32	\$80.00	2.50
Janitor Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Boy's RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,026	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.12	869	0.0	\$141.55	\$434.32	\$80.00	2.50
CR 128	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 128	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
CR 129	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 129	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
CR 131	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.39	1,202	0.0	\$195.87	\$657.27	\$180.00	2.44
Office 132C	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,464	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,464	0.01	50	0.0	\$8.08	\$18.26	\$5.00	1.64
IDF Room 132C	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Office 132C Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,464	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,464	0.06	281	0.0	\$45.70	\$109.55	\$30.00	1.74
Office 132C Office	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Library / Media Center	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,818	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,818	0.39	1,925	0.0	\$313.64	\$657.27	\$180.00	1.52
Library / 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
Library / Media Center	41	Compact Fluorescent: PL (26W) - 1L	Occupancy Sensor	26	2,818	Relamp	No	41	LED Screw-In Lamps: LED: PL (18W) - 1L	Occupancy Sensor	18	2,818	0.21	1,036	0.0	\$168.86	\$1,034.02	\$0.00	6.12
Library / Media Center	10	Compact Fluorescent: PL (26W) - 3L	Occupancy Sensor	78	2,818	Relamp	No	10	LED Screw-In Lamps: LED: PL (18W) - 3L	Occupancy Sensor	38	2,818	0.26	1,303	0.0	\$212.26	\$756.60	\$0.00	3.56
Media Center 134	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,026	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.16	1,158	0.0	\$188.73	\$489.09	\$95.00	2.09
Media Center 133C Storage Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	767	0.08	158	0.0	\$25.67	\$379.55	\$30.00	13.62
133B Group Study Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.08	354	0.0	\$57.75	\$379.55	\$65.00	5.45

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room 135 Detention	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.08	354	0.0	\$57.75	\$379.55	\$65.00	5.45
CR 136	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,760	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,232	0.16	506	0.0	\$82.50	\$489.09	\$95.00	4.78
Storage 137	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.02	42	0.0	\$6.77	\$36.52	\$10.00	3.92
Men's RR	3	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	365	Relamp	Yes	3	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	256	0.08	49	0.0	\$7.98	\$487.38	\$35.00	56.68
Office 139	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.12	532	0.0	\$86.63	\$280.32	\$65.00	2.49
CR 140	17	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	17	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.55	1,703	0.0	\$277.49	\$931.13	\$255.00	2.44
CR 140 Storage Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,095	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	767	0.08	158	0.0	\$25.67	\$379.55	\$30.00	13.62
Faculty Dining Room 141	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,464	Relamp	No	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,464	0.26	1,122	0.0	\$182.82	\$438.18	\$120.00	1.74
Faculty Dining Room 141	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
Faculty Dining Room RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	365	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	256	0.04	26	0.0	\$4.28	\$324.77	\$15.00	72.42
Storage 142	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,095	0.02	42	0.0	\$6.77	\$36.52	\$10.00	3.92
Storage 177	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Storage 176	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Girl's RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,026	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.08	579	0.0	\$94.36	\$379.55	\$65.00	3.33
Storage 144	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
Boy's RR	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,026	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.12	869	0.0	\$141.55	\$434.32	\$80.00	2.50
CR 146	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	18	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.58	1,803	0.0	\$293.81	\$985.91	\$270.00	2.44
IDF 146A	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,095	0.01	22	0.0	\$3.59	\$18.26	\$5.00	3.69
CR 147	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 148	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 149	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.32	1,002	0.0	\$163.23	\$547.73	\$150.00	2.44
CR 150	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.26	802	0.0	\$130.58	\$438.18	\$120.00	2.44
CR 151	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.39	1,202	0.0	\$195.87	\$657.27	\$180.00	2.44
CR 152	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,760	Relamp	No	22	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,760	0.48	1,469	0.0	\$239.40	\$803.33	\$220.00	2.44
CR 153	19	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,760	Relamp	No	19	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,760	0.41	1,269	0.0	\$206.76	\$693.79	\$190.00	2.44

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
CR 154	23	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,760	Relamp	No	23	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,760	0.50	1,536	0.0	\$250.28	\$839.85	\$230.00	2.44
CR 154A Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	767	0.05	105	0.0	\$17.11	\$343.03	\$20.00	18.88
Office 155	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.11	473	0.0	\$77.00	\$262.06	\$60.00	2.62
Gym Foyer	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	4,026	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	4,026	0.03	229	0.0	\$37.34	\$54.77	\$15.00	1.07
Gym Foyer Storage	3	Exit Signs: LED - 2 W Lamp	None	6	1,095	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	1,095	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Girl's Locker Room	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,818	Relamp	No	22	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,818	0.48	2,353	0.0	\$383.34	\$803.33	\$220.00	1.52
Girl's Locker Room	1	Exit Signs: Fluorescent	None	18	8,760	LED Retrofit	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	121	0.0	\$19.70	\$72.42	\$0.00	3.68
Girl's 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
Girl's Locker Room Shower Area	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,818	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,818	0.02	107	0.0	\$17.42	\$36.52	\$10.00	1.52
Girl's Locker Room Shower Area	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,818	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.10	481	0.0	\$78.41	\$164.32	\$45.00	1.52
Girl's Locker Room Toilet Area	1	Compact Fluorescent: PL (42W) - 1L	Occupancy Sensor	42	2,818	Relamp	No	1	LED Screw-In Lamps: LED: PL (29W) - 1L	Occupancy Sensor	29	2,818	0.01	42	0.0	\$6.86	\$25.22	\$0.00	3.67
Girl's Locker Room Toilet Area	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,818	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.06	321	0.0	\$52.27	\$109.55	\$30.00	1.52
Girl's Locker Room Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.05	236	0.0	\$38.50	\$189.03	\$20.00	4.39
Girl's Locker Room Office RR	1	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	365	Relamp	No	1	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	365	0.03	21	0.0	\$3.49	\$17.23	\$5.00	3.51
Gymnasium	24	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	3,276	Relamp	No	24	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,276	0.98	5,606	0.0	\$913.32	\$1,752.72	\$480.00	1.39
Gymnasium	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
Fitness Center Vestibule	2	Linear Fluorescent - T12: 4' T12 (40W) - 4L	Wall Switch	176	4,026	Relamp & Reballast	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	4,026	0.15	1,093	0.0	\$178.02	\$236.73	\$40.00	1.11
Fitness Center Vestibule	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	4,026	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	4,026	0.02	134	0.0	\$21.87	\$72.46	\$0.00	3.31
Fitness Center Vestibule	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Fitness Center	50	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,276	Relamp	No	50	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,276	1.62	9,324	0.0	\$1,519.13	\$2,738.63	\$750.00	1.31
Fitness Center	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
Athletic Trainer Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.16	709	0.0	\$115.51	\$489.09	\$95.00	3.41
Athletic Trainer 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
Athletic Trainer Storage Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	767	0.03	53	0.0	\$8.56	\$306.52	\$10.00	34.66
Gym Storage 166	3	LED Screw-In Lamps: Screw-In (9W) - 1L	Wall Switch	9	1,095	None	Yes	3	LED Screw-In Lamps: Screw-In (9W) - 1L	Occupancy Sensor	9	767	0.01	10	0.0	\$1.66	\$270.00	\$0.00	162.48

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boy's Locker Room	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.44	1,891	0.0	\$308.02	\$1,124.24	\$230.00	2.90
Boy's 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
Boy's Locker Room Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,464	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,725	0.10	416	0.0	\$67.77	\$262.06	\$60.00	2.98
Boy's Locker Room Office RR	1	Compact Fluorescent: PL (26W) - 1L	Wall Switch	26	365	Relamp	No	1	LED Screw-In Lamps: LED: PL (16W) - 1L	Wall Switch	16	365	0.01	4	0.0	\$0.68	\$25.22	\$0.00	37.25
Boy's Locker Room Shower Area	4	Compact Fluorescent: PL (26W) - 1L	Wall Switch	26	2,464	Relamp	No	4	LED Screw-In Lamps: LED: PL (16W) - 1L	Wall Switch	16	2,464	0.03	112	0.0	\$18.28	\$100.88	\$0.00	5.52
Boy's Locker Room Shower Area	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,464	0.02	94	0.0	\$15.23	\$36.52	\$10.00	1.74
Boy's Locker Room Storage 164G	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	767	0.05	105	0.0	\$17.11	\$343.03	\$20.00	18.88
Boy's Locker Room Toilet Area	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.12	532	0.0	\$86.63	\$434.32	\$80.00	4.09
Boy's Locker Room Toilet Area	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,464	0.02	82	0.0	\$13.39	\$72.46	\$0.00	5.41
Boy's Locker Room Storage 164F	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	767	0.05	105	0.0	\$17.11	\$343.03	\$20.00	18.88
Boy's Locker Room Area 2	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	Yes	22	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.60	2,600	0.0	\$423.52	\$1,343.33	\$290.00	2.49
Boy's Locker Room Area 2	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
Boy's Locker Room Area 2 Storage	1	Linear Fluorescent - T12: 2' T12 (20W) - 2L	Wall Switch	50	1,095	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	1,095	0.02	42	0.0	\$6.77	\$64.77	\$10.00	8.09
Coach's Office 164A	4	Linear Fluorescent - T12: 2' T12 (40W) - 2L	Wall Switch	88	2,464	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,725	0.18	767	0.0	\$125.02	\$391.09	\$60.00	2.65
Art Room Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	Yes	4	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	767	0.06	110	0.0	\$17.93	\$343.03	\$20.00	18.02
Art Room 167	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,818	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,818	0.02	113	0.0	\$18.48	\$36.52	\$10.00	1.43
Art Room 167	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,818	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,818	0.39	1,925	0.0	\$313.64	\$657.27	\$180.00	1.52
Art Room 167	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
Art Room 167B	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.12	532	0.0	\$86.63	\$434.32	\$80.00	4.09
Art Room Office 167C	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.08	354	0.0	\$57.75	\$225.55	\$50.00	3.04
Woodshop 168	24	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	2,818	Relamp	No	24	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,818	0.88	4,356	0.0	\$709.65	\$1,752.72	\$480.00	1.79
Woodshop 168	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
Woodshop 168	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,464	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,464	0.01	50	0.0	\$8.08	\$18.26	\$5.00	1.64
Woodshop Office 168A	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,464	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,725	0.04	186	0.0	\$30.26	\$170.77	\$15.00	5.15
Woodshop Office Storage	2	Incandescent: Screw-In (60W) - 1L	Wall Switch	60	1,095	Relamp	Yes	2	LED Screw-In Lamps: Screw-In (9W) - 1L	Occupancy Sensor	9	767	0.07	135	0.0	\$22.03	\$304.45	\$10.00	13.36

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Woodshop Storage 1688	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	767	0.04	83	0.0	\$13.45	\$324.77	\$15.00	23.03
Drafting Room 171	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,818	Relamp	No	16	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,818	0.52	2,567	0.0	\$418.19	\$876.36	\$240.00	1.52
CR 172	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,760	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,760	0.19	601	0.0	\$97.94	\$328.64	\$90.00	2.44
Storage 173A	12	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,095	Relamp	Yes	12	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	767	0.17	330	0.0	\$53.79	\$489.09	\$60.00	7.98
Office 174	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.08	354	0.0	\$57.75	\$225.55	\$50.00	3.04
Athletic Director's Office	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,464	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,725	0.21	886	0.0	\$144.38	\$389.86	\$95.00	2.04
Athletic Director's Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,464	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,464	0.01	50	0.0	\$8.08	\$18.26	\$5.00	1.64
Front Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Front Hallway	15	Compact Fluorescent: PL (26W) - 1L	Wall Switch	26	4,026	Relamp	No	15	LED Screw-In Lamps: LED: PL (18W) - 1L	Wall Switch	18	4,026	0.08	556	0.0	\$90.52	\$378.30	\$0.00	4.18
Front Hallway	5	Compact Fluorescent: PL (26W) - 3L	Wall Switch	78	4,026	Relamp	No	5	LED Screw-In Lamps: LED: PL (18W) - 3L	Wall Switch	54	4,026	0.08	556	0.0	\$90.52	\$378.30	\$0.00	4.18
Front Hallway Foyer	4	Compact Fluorescent: PL (26W) - 2L	Wall Switch	52	4,026	Relamp	No	4	LED Screw-In Lamps: LED: PL (18W) - 2L	Wall Switch	36	4,026	0.04	289	0.0	\$47.07	\$201.76	\$0.00	4.29
Shop	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
Shop	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,464	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,464	0.02	94	0.0	\$15.23	\$36.52	\$10.00	1.74
Shop	2	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,464	Relamp	Yes	2	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	1,725	0.08	325	0.0	\$52.95	\$487.38	\$35.00	8.54
Exterior Storage Room	2	Incandescent: Screw-In (300W) - 1L	Wall Switch	300	1,095	Relamp	Yes	2	LED Screw-In Lamps: Screw-In (W) - 1L	Occupancy Sensor	45	767	0.35	676	0.0	\$110.17	\$304.45	\$45.00	2.35
Building Lighting	30	Metal Halide: (1) 175W Lamp	Daylight Dimming	215	2,013	Fixture Replacement	No	30	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	53	2,013	3.20	11,285	0.0	\$1,838.63	\$28,978.97	\$3,000.00	14.13
Building Lighting	18	Compact Fluorescent: PL (26W) - 2L	Wall Switch	52	4,026	Relamp	No	18	LED Screw-In Lamps: LED: PL (18W) - 2L	Wall Switch	36	4,026	0.19	1,333	0.0	\$217.24	\$907.92	\$0.00	4.18
Building Lighting	1	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	26	4,026	None	No	1	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	26	4,026	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Front Entry	11	Compact Fluorescent: PL (26W) - 2L	Wall Switch	52	4,026	Relamp	No	11	LED Screw-In Lamps: LED: PL (18W) - 2L	Wall Switch	36	4,026	0.12	815	0.0	\$132.76	\$554.84	\$0.00	4.18
Parking Lot Tall Pole Lights	28	Metal Halide: (1) 250W Lamp	Daylight Dimming	295	2,013	Fixture Replacement	No	28	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	120	2,013	3.21	11,343	0.0	\$1,848.06	\$27,047.03	\$2,800.00	13.12
Parking Lot Short Pole Lights	18	Metal Halide: (1) 175W Lamp	Daylight Dimming	215	2,013	Fixture Replacement	No	18	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	53	2,013	1.92	6,771	0.0	\$1,103.18	\$17,387.38	\$1,800.00	14.13
Football Field Lighting	8	Metal Halide: (1) 400W Lamp	Daylight Dimming	458	400	Fixture Replacement	No	8	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	120	400	1.77	1,244	0.0	\$202.65	\$7,727.72	\$800.00	34.19
Wrestling Room 169	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,760	Relamp	Yes	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,232	0.41	1,266	0.0	\$206.26	\$817.73	\$185.00	3.07
Wrestling Room 169	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,760	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,232	0.55	1,688	0.0	\$275.01	\$1,270.30	\$270.00	3.64
Wrestling Room 169	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

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Wrestling Room Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,095	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	767	0.03	53	0.0	\$8.56	\$306.52	\$10.00	34.66
Garage	2	Incandescent - Screw-In (60W) - 1L	Wall Switch	60	1,760	Relamp	Yes	2	LED Screw-In Lamps: Screw-In (9W) - 1L	Occupancy Sensor	9	1,232	0.07	217	0.0	\$35.42	\$254.45	\$45.00	5.91
Blue Shop	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,760	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,232	0.44	1,350	0.0	\$220.01	\$1,124.24	\$230.00	4.06
Blue Shop	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
Blue Shop Exterior	2	Metal Halide: (1) 175W Lamp	Wall Switch	215	4,026	Fixture Replacement	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	53	4,026	0.21	1,505	0.0	\$245.15	\$1,931.93	\$200.00	7.06
Hallway Display Cabinets	2	Linear Fluorescent - T12: 4' T12 (40W) - 1L	Wall Switch	46	4,026	Relamp & Reballast	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	4,026	0.04	292	0.0	\$47.52	\$101.03	\$10.00	1.92
Hallway Display Cabinets	11	Linear Fluorescent - T8: 3' T8 (25W) - 1L	Wall Switch	27	4,026	Relamp	No	11	LED - Linear Tubes: (1) 3' Lamp	Wall Switch	11	4,026	0.12	840	0.0	\$136.91	\$200.83	\$0.00	1.47
Hallway Display Cabinets	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	4,026	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	4,026	0.01	81	0.0	\$13.20	\$18.26	\$5.00	1.00
Hallway (Music Room to Chem Room)	47	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	4,026	Relamp	Yes	47	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	2,818	1.77	12,480	0.0	\$2,033.20	\$6,708.43	\$0.00	3.30
Hallway (Music Room to Chem Room)	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Science Wing Stairwell	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Science Wing Stairwell	4	Compact Fluorescent: PL (26W) - 2L	Wall Switch	52	4,026	Relamp	Yes	4	LED Screw-In Lamps: LED: PL (18W) - 2L	Occupancy Sensor	36	2,818	0.07	496	0.0	\$80.86	\$471.76	\$0.00	5.83
2nd Floor Hallway	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Hallway	22	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	4,026	Relamp	Yes	22	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	2,818	0.83	5,842	0.0	\$951.71	\$3,191.18	\$0.00	3.35
Elevator Stairwell	7	Compact Fluorescent: PL (26W) - 2L	Wall Switch	52	4,026	Relamp	Yes	7	LED Screw-In Lamps: LED: PL (18W) - 2L	Occupancy Sensor	36	2,818	0.12	869	0.0	\$141.51	\$623.08	\$0.00	4.40
Elevator Stairwell	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Elevator Stairwell	1	Compact Fluorescent: T9 Circline Fixture (22W) - 1L	Wall Switch	22	4,026	Fixture Replacement	No	1	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	13	4,026	0.01	42	0.0	\$6.79	\$125.34	\$5.00	17.73
Center Hallway	18	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	4,026	Relamp	Yes	18	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	2,818	0.68	4,779	0.0	\$778.67	\$2,556.42	\$0.00	3.28
Center Hallway	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Hallway (CR168 to CR 152)	34	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	4,026	Relamp	Yes	34	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	2,818	1.28	9,028	0.0	\$1,470.83	\$4,895.46	\$0.00	3.33
Hallway (CR168 to CR 152)	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
Fitness Center Hallway	4	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	4,026	Relamp	Yes	4	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	2,818	0.15	1,062	0.0	\$173.04	\$634.76	\$0.00	3.67
Fitness Center Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Motor Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions						Proposed Conditions				Energy Impact & Financial Analysis						
		Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Annual Operating Hours	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	Boiler 1 HW Return	1	Heating Hot Water Pump	1.0	85.5%	No	2,745	Yes	85.5%	No		0.00	0	0.0	\$0.00	\$746.73	\$0.00	0.00
Boiler Room	Boiler 2 HW Return	1	Heating Hot Water Pump	1.0	85.5%	No	2,745	Yes	85.5%	No		0.00	0	0.0	\$0.00	\$746.73	\$0.00	0.00
Boiler Room	Boiler 3 HW Return	1	Heating Hot Water Pump	1.0	85.5%	No	2,745	Yes	85.5%	No		0.00	0	0.0	\$0.00	\$746.73	\$0.00	0.00
Boiler Room	Boiler 4 HW Return	1	Heating Hot Water Pump	1.0	85.5%	No	2,745	Yes	85.5%	No		0.00	0	0.0	\$0.00	\$746.73	\$0.00	0.00
Boiler Room	Boiler 5 HW Return	1	Heating Hot Water Pump	1.0	85.5%	No	2,745	Yes	85.5%	No		0.00	0	0.0	\$0.00	\$746.73	\$0.00	0.00
Boiler Room	HW Supply - Zone 1	1	Heating Hot Water Pump	10.0	91.7%	Yes	3,391	Yes	91.7%	No		0.00	0	0.0	\$0.00	\$1,567.05	\$0.00	0.00
Boiler Room	HW Supply - Zone 2	1	Heating Hot Water Pump	3.0	90.2%	Yes	2,745	No	90.2%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	HW Supply - Zone 3	1	Heating Hot Water Pump	5.0	90.2%	Yes	2,745	No	90.2%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	HW Supply - Zone 4	1	Heating Hot Water Pump	5.0	90.2%	Yes	2,745	No	90.2%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	HW Supply - Zone 5	1	Heating Hot Water Pump	7.5	91.7%	Yes	3,391	No	91.7%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	HW Supply	1	Heating Hot Water Pump	5.0	89.5%	No	0	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	DHW Recirc. Pump	1	Water Supply Pump	0.1	69.5%	No	2,745	No	69.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	DHW Dist. Pump	2	Water Supply Pump	0.3	69.5%	No	2,745	No	69.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Girl's Locker Room (AHU-18)	1	Supply Fan	2.0	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Girl's Locker Room (AHU-18)	1	Exhaust Fan	2.0	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Gym (Girl's 1/2) (AHU-8A)	1	Supply Fan	15.0	92.4%	No	3,391	Yes	92.4%	Yes	1	4.07	14,630	0.0	\$2,383.52	\$7,085.87	\$1,200.00	2.47
Roof	Gym (Girl's 1/2) (AHU-8A)	1	Exhaust Fan	7.5	91.7%	No	3,391	Yes	91.7%	Yes	1	0.99	3,724	0.0	\$606.75	\$4,760.59	\$600.00	6.86
Roof	Gym (Boy's 1/2) (AHU-8B)	1	Supply Fan	15.0	92.4%	No	3,391	Yes	92.4%	Yes	1	4.07	14,630	0.0	\$2,383.52	\$7,085.87	\$1,200.00	2.47
Roof	Gym (Boy's 1/2) (AHU-8B)	1	Exhaust Fan	7.5	91.7%	No	3,391	Yes	91.7%	Yes	1	0.99	3,724	0.0	\$606.75	\$4,760.59	\$600.00	6.86
Roof	Boy's Locker Room (AHU-19)	1	Supply Fan	2.0	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

		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	Boy's Locker Room (AHU-19)	1	Exhaust Fan	2.0	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Art Room (AHU-21)	1	Supply Fan	3.0	89.5%	No	2,745	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Art Room (AHU-21)	1	Exhaust Fan	1.5	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Offices (AHU-20)	1	Supply Fan	1.0	85.5%	No	2,745	No	85.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Offices (AHU-20)	1	Exhaust Fan	1.0	85.5%	No	2,745	No	85.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Fitness Center AHU	1	Supply Fan	7.5	91.7%	No	3,391	Yes	91.7%	Yes	1	0.99	3,724	0.0	\$606.75	\$4,760.59	\$600.00	6.86
Roof	Fitness Center AHU	1	Exhaust Fan	2.0	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Library	1	Supply Fan	5.0	89.5%	No	2,745	Yes	89.5%	Yes	1	0.68	2,059	0.0	\$335.49	\$4,196.91	\$400.00	11.32
Roof	Library	1	Exhaust Fan	1.0	85.5%	No	2,745	No	85.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium (AHU-7)	1	Supply Fan	15.0	92.4%	No	3,391	Yes	92.4%	Yes	1	4.07	14,630	0.0	\$2,383.52	\$7,085.87	\$1,200.00	2.47
Roof	Auditorium (AHU-7)	1	Exhaust Fan	7.5	91.7%	No	3,391	Yes	91.7%	Yes	1	0.99	3,724	0.0	\$606.75	\$4,760.59	\$600.00	6.86
Roof	Orchestra Room (RTU-1)	1	Supply Fan	7.5	91.7%	Yes	3,391	No	91.7%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Orchestra Room (RTU-1)	1	Exhaust Fan	3.0	89.5%	No	2,745	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Whole Buiding Exhaust	18	Exhaust Fan	0.8	81.1%	No	2,745	No	81.1%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Room 188A Storage	CR 187	1	Supply Fan	5.0	89.5%	No	2,745	Yes	89.5%	Yes	1	0.68	2,059	0.0	\$335.49	\$4,196.91	\$400.00	11.32
Room 188A Storage	CR 187	1	Return Fan	2.0	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Stage Mechanical Room	Stage/Auditorium Area (AHU-1)	4	Makeup Air Fan	5.0	89.5%	No	2,745	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Whole Building	Mechanical Rooms, Kitchen, Storage Spaces, Etc.	16	Supply Fan	0.5	78.2%	No	2,745	No	78.2%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Whole Building	Classrooms, Offices, Etc	70	Supply Fan	0.3	78.2%	No	2,745	No	78.2%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Elevator Room	Elevator	1	Other	20.0	91.0%	No	183	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Electric HVAC Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions		Proposed Conditions										Energy Impact & Financial Analysis						
		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	IDF Room 146	1	Ductless Mini-Split AC	1.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Athletic Director's Office	1	Split-System AC	3.50		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Fitness Center	1	Packaged AC	13.20		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Server Room	1	Ductless Mini-Split AC	1.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Elevator Room	1	Ductless Mini-Split AC	1.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Server Room 2	1	Ductless Mini-Split AC	1.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Conference Room	1	Ductless Mini-Split AC	1.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Offices	2	Ductless Mini-Split AC	1.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	IDF Room 132	2	Ductless Mini-Split AC	1.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Office	1	Ductless Mini-Split AC	1.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	IDF Rooms	2	Ductless Mini-Split AC	2.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium	1	Split-System AC	50.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Whole Building	Classrooms/Offices	32	Window AC	2.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Whole Building	Hallways	8	Electric Resistance Heat		17.06	No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Athletic Trainer Room	1	Ductless Mini-Split AC	2.50		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Ground	Classrooms/Offices	1	Split-System AC	15.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Ground	Classrooms 187/186	4	Split-System AC	2.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Fuel Heating Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions			Proposed Conditions						Energy Impact & Financial Analysis						
		System Quantity	System Type	Output Capacity per Unit (MBh)	Install High Efficiency System?	System Quantity	System Type	Output Capacity per Unit (MBh)	Heating Efficiency	Heating Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	Whole Building	1	Condensing Hot Water Boiler	1,700.00	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	Whole Building	1	Condensing Hot Water Boiler	1,700.00	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	Whole Building	1	Condensing Hot Water Boiler	1,700.00	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	Whole Building	1	Condensing Hot Water Boiler	1,700.00	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	Whole Building	1	Condensing Hot Water Boiler	1,700.00	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

DHW Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions			Proposed Conditions					Energy Impact & Financial Analysis						
		System Quantity	System Type	Replace?	System Quantity	System Type	Fuel Type	System Efficiency	Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	Whole Building	2	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

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

Commercial Refrigerator/Freezer Inventory & Recommendations

Location	Existing Conditions			Proposed Condi	Energy Impact & Financial Analysis						
	Quantity	Refrigerator/ Freezer Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen Area	1	Stand-Up Refrigerator, Glass Door (31 - 50 cu. ft.)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen Area	1	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen Area	4	Stand-Up Refrigerator, Solid Door (31 - 50 cu. ft.)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Cooking Equipment Inventory & Recommendations

Location	Existing Conditions			Proposed Conditions	Energy Impact & Financial Analysis						
	Quantity	Equipment Type	High Efficiency Equipment?	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Home Ec Room	4	Electric Convection Oven (Full Size)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen Area	2	Electric Steamer	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen Area	5	Gas Rack Oven (Single)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen Area	2	Insulated Food Holding Cabinet (Full Size)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen Area	1	Gas Fryer	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00


Plug Load Inventory

Existing Conditions				
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?
Whole Building	200	Desktop Computers	150.0	Yes
Whole Building	57	Desk Printers	40.0	Yes
Whole Building	40	Projectors	200.0	Yes
Whole Building	8	LCD TVs	100.0	Yes
Whole Building	15	Minifridge	153.0	Yes
Whole Building	17	Microwave	1,000.0	Yes
Whole Building	3	Toaster Oven	900.0	No
Whole Building	5	CRT TVs	120.0	No
Whole Building	8	Refrigerators	172.0	Yes
Whole Building	7	Smartboard w/ Projector	200.0	Yes
Whole Building	5	Smartboard	50.0	Yes
Whole Building	2	Laptops	45.0	Yes
Whole Building	5	Photocopiers	600.0	Yes
Whole Building	1	3D Printers	204.0	No
Whole Building	1	Ice Machine	207.0	Yes
Whole Building	7	Water Fountains	192.0	No
Whole Building	4	Speaker Systems	150.0	No
Whole Building	1	Dishwasher	242.0	Yes
Whole Building	32	Wall Fans	100.0	No
Whole Building	5	Coffee Makers	900.0	No
Whole Building	14	Floor Fans	100.0	No
Whole Building	1	Water Cooler	92.0	No
Whole Building	1	Small Aqaurium	20.0	No
Whole Building	2	Paper Shredder	150.0	No
Whole Building	1	Big Projector	300.0	Yes
Whole Building	2	Clothes Washer	900.0	Yes
Whole Building	1	Clothes Dryer	900.0	Yes
Whole Building	1	Laminator	1,000.0	No
Kitchen	1	Soft-Serve Ice Cream Dispensor	2,000.0	No
Restrooms	10	Electric Hand Dryer	500.0	Yes
Art Room	1	Kiln	8,000.0	No
Fitness Center	8	Treadmill	1,235.0	No
Whole Building	90	Chromebooks	45.0	Yes

Vending Machine Inventory & Recommendations

Location	Existing Conditions		Proposed Conditions	Energy Impact & Financial Analysis						
	Quantity	Vending Machine Type	Install Controls?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Faculty Dining Room	1	Refrigerated	Yes	0.00	1,612	0.0	\$262.60	\$230.00	\$0.00	0.88
Cafeteria	2	Refrigerated	Yes	0.00	3,224	0.0	\$525.21	\$460.00	\$0.00	0.88
Cafeteria	1	Non-Refrigerated	Yes	0.00	343	0.0	\$55.80	\$230.00	\$0.00	4.12
Cafeteria	1	Refrigerated	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Appendix B: ENERGY STAR® Statement of Energy Performance



ENERGY STAR® Statement of Energy Performance

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Metuchen High School

Primary Property Type: K-12 School
 Gross Floor Area (ft²): 108,124
 Built: 1958

For Year Ending: July 31, 2017
 Date Generated: October 30, 2018

ENERGY STAR® Score¹

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
 Metuchen High School
 400 Grove Avenue
 Metuchen, New Jersey 08840

Property Owner
 Metuchen Board of Education
 16 Simpson Place
 Metuchen, NJ 08840
 (____)____-_____

Primary Contact
 Michael Harvier
 16 Simpson Place
 Metuchen, NJ 08840
 732-321-8700 ext. 1011
 maharvier@metboe.k12.nj.us

Property ID: 6399371

Energy Consumption and Energy Use Intensity (EUI)

Site EUI	Annual Energy by Fuel	National Median Comparison
88.9 kBtu/ft ²	Natural Gas (kBtu) 5,390,452 (56%) Electric - Grid (kBtu) 4,219,268 (44%)	National Median Site EUI (kBtu/ft ²) 69.4 National Median Source EUI (kBtu/ft ²) 126.2 % Diff from National Median Source EUI 28%
Source EUI 161.6 kBtu/ft ²		Annual Emissions Greenhouse Gas Emissions (Metric Tons CO ₂ e/year) 714

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)