



Local Government Energy Audit: Energy Audit Report



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Community Middle School

95 Grovers Mill Road

Plainsboro, New Jersey 08536

West Windsor-Plainsboro Regional

School District

March 22, 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 (NJBPUB) has sponsored this Local Government Energy Audit (LGEA) Report for the Community Middle School.

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

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

I.1 Facility Summary

Community Middle School is a 141,802 square foot facility comprised of various space types including classrooms, offices, hallways, gymnasium, kitchen, storage closets and a mechanical space. This building is comprised of a single story in most areas and of two stories in a couple of wings. During the weekdays the school is open with full occupancy between 7:00 AM – 4:00 PM and partially occupied between 5:00 AM and 9:00 PM. During the weekends, the school is open for sports and other activities between 7:00 AM and 9:00 PM.

The building was built in 1988. Space heating is provided using three gas-fired hot water boilers and space cooling is provided by packaged units with direct expansion (DX) cooling coils, split air conditioning (AC) units and a few packaged terminal units. Lighting at the facility is provided using 2-foot and 4-foot linear T8 lamps and LED tubes in most spaces and compact fluorescent lamps (CFLs), incandescent lamps and some LED screw in lamps in a few spaces.

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 10 measures and recommends eight measures which together represent an opportunity for the Community Middle School to reduce annual energy costs by roughly \$82,277 and annual greenhouse gas emissions by 618,750 lbs CO₂e. We estimate that if all measures were implemented as recommended, the project would pay for itself in 2.9 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 Community Middle School's annual energy use by 14%.

Figure 1 – Previous 12 Month Utility Costs

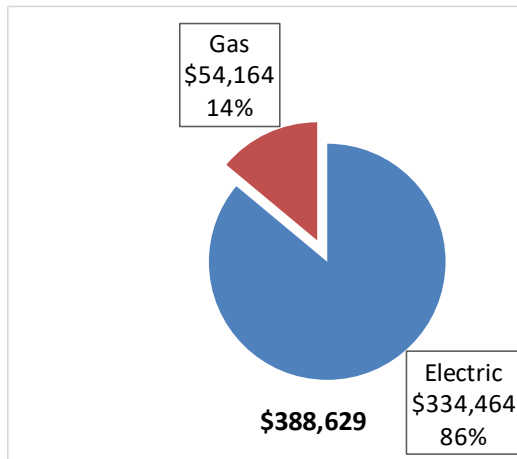
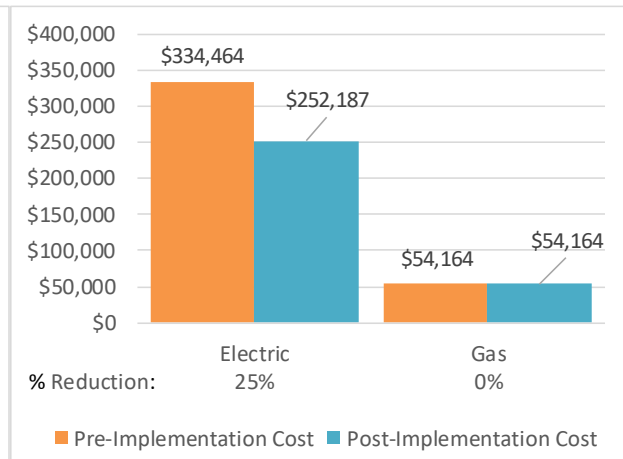


Figure 2 – Potential Post-Implementation Costs



A detailed description of Community Middle 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		346,434	54.3	0.0	\$46,388.57	\$120,596.68	\$26,500.00	\$94,096.68	2.0	348,856	
ECM 1	Install LED Fixtures	Yes	31,448	4.1	0.0	\$4,210.92	\$34,855.69	\$3,700.00	\$31,155.69	7.4	31,667
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	265	0.0	0.0	\$35.53	\$115.29	\$15.00	\$100.29	2.8	267
ECM 3	Retrofit Fixtures with LED Lamps	Yes	314,721	50.1	0.0	\$42,142.12	\$83,525.65	\$22,785.00	\$60,740.65	1.4	316,921
ECM 4	Install LED Exit Signs	Yes	0	0.0	0.0	\$0.00	\$2,100.05	\$0.00	\$2,100.05	0.0	0
Lighting Control Measures		78,475	12.5	0.0	\$10,508.02	\$64,792.00	\$4,715.00	\$60,077.00	5.7	79,023	
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	71,078	11.3	0.0	\$9,517.54	\$40,192.00	\$4,715.00	\$35,477.00	3.7	71,575
	Install High/Low Lighting Controls	No	7,397	1.2	0.0	\$990.48	\$24,600.00	\$0.00	\$24,600.00	24.8	7,449
Variable Frequency Drive (VFD) Measures		192,107	101.4	0.0	\$25,723.76	\$141,129.91	\$29,360.00	\$111,769.91	4.3	193,450	
ECM 6	Install VFDs on Constant Volume (CV) HVAC	Yes	149,700	97.0	0.0	\$20,045.32	\$123,695.06	\$29,360.00	\$94,335.06	4.7	150,747
ECM 7	Install VFDs on Hot Water Pumps	Yes	42,407	4.4	0.0	\$5,678.44	\$17,434.85	\$0.00	\$17,434.85	3.1	42,704
Electric Unitary HVAC Measures		8,437	5.0	0.0	\$1,129.79	\$137,434.64	\$1,730.00	\$135,704.64	120.1	8,496	
	Install High Efficiency Electric AC	No	8,437	5.0	0.0	\$1,129.79	\$137,434.64	\$1,730.00	\$135,704.64	120.1	8,496
Plug Load Equipment Control - Vending Machine		4,836	0.0	0.0	\$647.49	\$690.00	\$0.00	\$690.00	1.1	4,869	
ECM 8	Vending Machine Control	Yes	4,836	0.0	0.0	\$647.49	\$690.00	\$0.00	\$690.00	1.1	4,869
TOTALS FOR HIGH PRIORITY MEASURES		614,454	167.0	0.0	\$82,273.36	\$302,608.59	\$60,575.00	\$242,033.59	2.9	618,750	
TOTALS FOR ALL EVALUATED MEASURES		630,288	173.2	0.0	\$84,397.63	\$464,643.22	\$62,305.00	\$402,338.22	4.8	634,695	

* - 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.

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

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

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

Energy Efficient Practices

TRC also identified six 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 Community Middle School include:

- Practice Proper Use of Thermostat Schedules and Temperature Resets
- Clean and/or Replace HVAC Filters
- Perform Proper Boiler Maintenance
- Perform Proper Water Heater Maintenance
- Install Plug Load Controls
- Water Conservation

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

On-Site Generation Measures

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

Figure 4 – Photovoltaic Potential

Potential	High	
System Potential	537	kW DC STC
Electric Generation	639,766	kWh/yr
Displaced Cost	\$55,660	/yr
Installed Cost	\$1,396,200	

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

I.3 Implementation Planning

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

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

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

- SmartStart
- Pay for Performance - Existing Building (P4P EB)
- 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.

Larger facilities with an interest in a more comprehensive whole building approach to energy conservation should consider participating in the Pay for Performance (P4P) program. Projects eligible for this project program must meet minimum savings requirements. Final incentives are calculated based on actual measured performance achieved at the end of the project. The application process is more involved, and it requires working with a qualified P4P contractor, but the process may result in greater energy savings overall and more lucrative incentives, up to 50% of project's total cost.

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 8.4 for additional information on the ESIP.

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

Additional information on relevant incentive programs is located in Section 8 or: www.njcleanenergy.com/ci.

2 FACILITY INFORMATION AND EXISTING CONDITIONS

2.1 Project Contacts

Figure 5 – Project Contacts

Name	Role	E-Mail	Phone #
Customer			
Dr. Christopher Russo	Business Administrator	christopher.russo@ww-p.org	609-716-5000 Extn: 5020
Thomas Daly	Director of Buildings and Grounds	thomas.daly@ww-p.org	609-716-5000 Extn: 5351
TRC Energy Services			
Alex Klieverik	Auditor	aklieverik@trcsolutions.com	(732) 855-0033

2.2 General Site Information

On June 13, 2018, TRC performed an energy audit at Community Middle School located in Plainsboro, New Jersey. TRC’s team met with Thomas Daly to review the facility operations and help focus our investigation on specific energy-using systems.

Community Middle School is a 141,802 square foot facility comprised of various space types including classrooms, offices, hallways, gymnasium, kitchen, storage closets and a mechanical space. This building is comprised of a single story in most areas and of two stories in a couple of wings.

The building was built in 1988. Space heating in the school is provided using three gas-fired hot water boilers and space cooling is provided by packaged units with DX cooling coils, split AC units and a few packaged terminal units. Lighting at the facility is provided using 2-foot and 4-foot linear T8 lamps and LED tubes in most spaces and compact fluorescent lamps (CFLs), incandescent lamps and some LED screw in lamps in a few spaces.

2.3 Building Occupancy

During the weekdays the school is open with full occupancy between 7:00 AM – 4:00 PM and partially occupied between 5:00 AM and 9:00 PM. During the weekends, the school is open for sports and other activities between 7:00 AM and 9:00 PM. The typical schedule is presented in the table below. During a typical day, the facility is occupied by approximately 1180 students and 201 staff.

Figure 6 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
CommunityMS	Weekday	7AM - 4PM (full) 5AM - 9PM (Partial)
CommunityMS	Weekend	7AM - 9PM

2.4 Building Envelope

The building is constructed of concrete and structural steel with a brick and stone facade. The building has pitched, and flat roof sections covered with asphalt shingles and asphalt layering. The roof was observed to be in good condition. The school has double pane windows and aluminum framed glass doors with no signs of excessive air infiltration.



2.5 On-Site Generation

Community Middle School does not have any on-site electric generation capacity.

2.6 Energy-Using Systems

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

Lighting System

Lighting is provided mostly by 2-foot and 4-foot fluorescent T8 lamps and LED linear tubes in 2, 3 or 4-lamp troffers. Other spaces have 60-Watt incandescent lamps, 26-Watt compact fluorescent lamps or 11-watt LED screw in lamps. The facility exit lights are a mixture of 2-Watt LED fixtures and 11-Watt CFL fixtures.

Lighting control in most spaces is provided by manual switches. We have evaluated the installation of wall and ceiling mounted occupancy sensor lighting controls in various spaces.

The building's exterior lighting consists of LED screw-in lamps, 150-Watt metal halide fixtures and 70-Watt high pressure sodium fixtures. There are pole mounted fixtures and wall packs. The fixtures are controlled using timers and photocells.

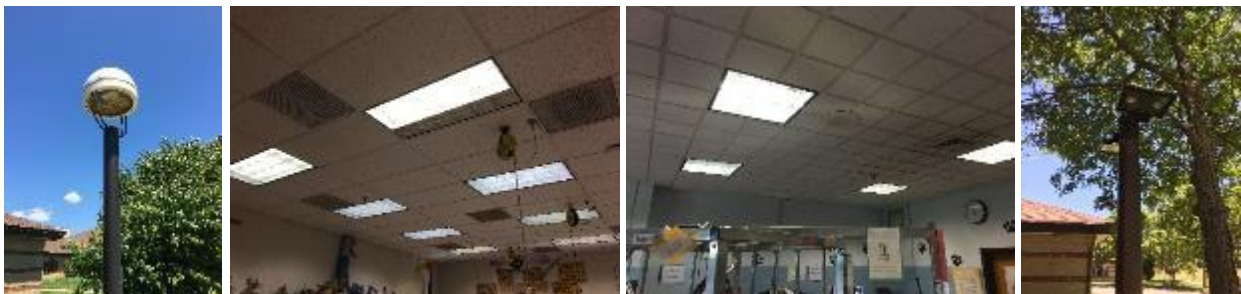


Image 1 Lighting System at the school

Hot Water Heating System

The hot water heating system consists of three gas-fired hot-water boilers with associated pumping and piping. The two larger boilers have an output capacity of 2094 MBh while the smaller boiler has an output capacity of 1752 MBh. Each of the larger boilers are divided into seven sections. One of the larger boilers is completely devoted to space heating. Three of the seven sections of the other large boiler serves the facility's domestic hot water needs, providing domestic hot water to three 119 gallon storage tanks. The remaining four sections provide hot water for space heating. The smaller boiler has six sections which provide hot water for space heating. The boilers have a normal combustion efficiency of 77%.

The heating hot water is circulated throughout the school using four 7.5 hp pumps and one 3 hp pump.

Hot water is supplied at 180°F when the outside air temperature is below 50°F and the setpoint is reset to 155°F when the outside air is above 65°F. The boilers provide hot water to air handlers, unit ventilators and hot water coils of the packaged DX units.

The boilers were all installed in 2011, in good condition and well maintained.



Image 2 Boilers and Circulating motors



Image 3 DHW storage tanks and Gym Air Handling Unit

Direct Expansion Air Conditioning System (DX)

The facility is cooled using various packaged DX cooling systems with capacities ranging from 13-tons to 70-tons. The areas served are sections 101,102, 103, 300, 500, 600, 400, 200 and the stage/auditorium. These spaces are served by McQuay, AAON and Trane units that are less than 10 years old, in good condition and well maintained. A few other spaces are cooled using split AC systems with cooling capacities ranging from 2.5-tons to 12-tons. A few of the classrooms and some kitchen spaces are cooled using PTACs (packaged terminal AC). The space temperatures are controlled by a central building management system and maintained at 72°F throughout the building.



Food Service & Refrigeration

The school has a commercial kitchen that is used to prepare lunches for the students. The kitchen equipment includes gas ranges, an electric steamer and insulating food cabinets. The kitchen also has some reach-in refrigerators, a freezer chest and ice-cream chests. There is a walk-in cooler and a walk-in freezer used to store food.



Building Plug Load

There are roughly 198 computer work stations 14 laptops throughout the facility. Various of the other facility plug loads include a pretzel warmer, desk printers, projectors, photo copiers, smart boards, refrigerators, television, microwave ovens, shredders, a dish washer, laundry, dryer, water cooler/heater, Chromebook carts, electric stove, and standing fans. There is no centralized PC power management software installed. There are three refrigerated vending machines (located in the gym and faculty lounge), and one non-refrigerated vending machine. Vending machines are not controlled.

2.7 Water-Using Systems

The restrooms were rated at 2.2 gallons per minute (gpm) or lower, the toilets are rated at 1.6 gallons per flush (gpf) and the urinals are rated at 1 gpf.

3 SITE ENERGY USE AND COSTS

Utility data for electricity and natural gas was analyzed to identify opportunities for savings. In addition, data for electricity and natural gas was evaluated to determine the annual energy performance metrics for the building in energy cost per square foot and energy usage per square foot. These metrics are an estimate of the relative energy efficiency of this building. There are several 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

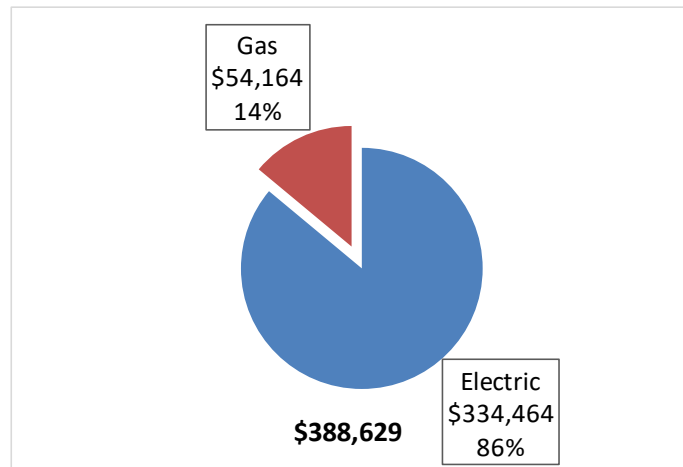
The following energy consumption and cost data is based on the last 12-month period of utility billing data that was provided for each utility. A profile of the annual energy consumption and energy cost of the facility was developed from this information.

Figure 7 - Utility Summary

Utility Summary for Community MS		
Fuel	Usage	Cost
Electricity	2,497,806 kWh	\$334,464
Natural Gas	66,279 Therms	\$54,164
Total		\$388,629

The current annual energy cost for this facility is \$388,629 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 \$0.134/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 third-party electric supply is provided by Direct Energy. The monthly electricity consumption and peak demand are shown in the chart below.

Figure 9 - Electric Usage & Demand

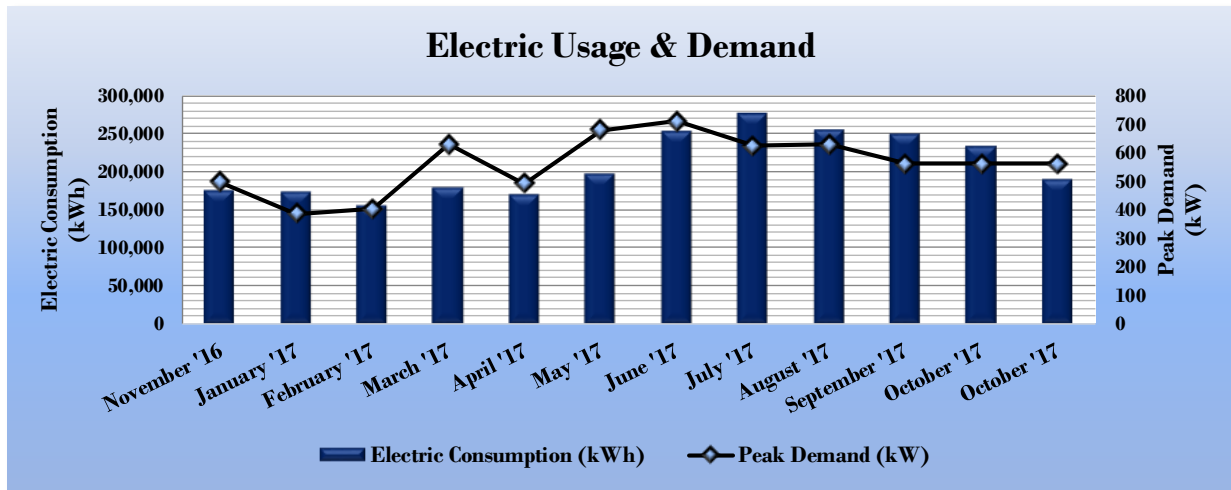


Figure 10 - Electric Usage & Demand

Electric Billing Data for Community MS					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
12/13/16	30	174,944	497		\$20,701
1/18/17	36	174,327	386		\$20,340
2/16/17	29	155,023	403		\$18,350
3/20/17	32	179,430	629		\$21,803
4/27/17	38	170,980	491		\$20,407
5/18/17	21	196,687	679		\$30,541
6/19/17	32	253,094	710		\$36,861
7/19/17	30	277,577	625		\$38,424
8/17/17	29	255,162	628		\$35,758
9/17/17	31	250,338	561		\$16,241
10/17/17	30	233,546	561		\$53,271
11/15/17	29	190,385	561		\$23,599
Totals	367	2,511,493	710.3	\$0	\$336,297
Annual	365	2,497,806	710.3	\$0	\$334,464

3.3 Natural Gas Usage

Natural gas is provided by PSE&G. The average gas cost for the past 12 months is \$0.817/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

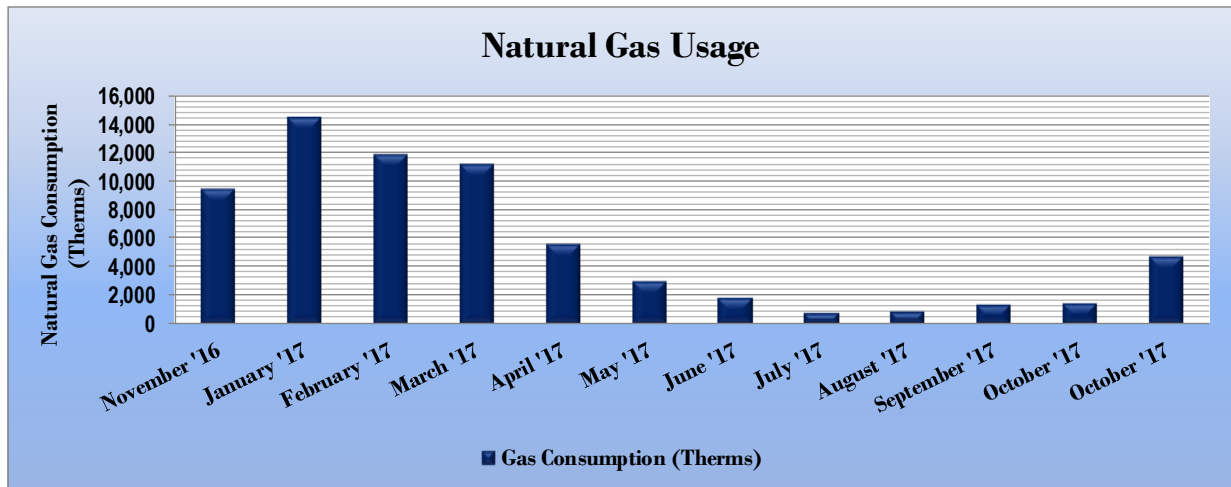


Figure 12 - Natural Gas Usage

Gas Billing Data for Community MS			
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost
12/13/16	30	9,508	\$7,561
1/18/17	36	14,460	\$12,386
2/16/17	29	11,920	\$10,589
3/20/17	32	11,214	\$10,048
4/19/17	38	5,620	\$3,623
5/18/17	21	3,010	\$1,992
6/19/17	32	1,823	\$1,260
7/19/17	30	750	\$585
8/17/17	29	845	\$644
9/17/17	31	1,371	\$1,056
10/17/17	30	1,417	\$1,092
11/15/17	29	4,706	\$3,627
Totals	367	66,643	\$54,461
Annual	365	66,279	\$54,164

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		
	Community MS	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft ²)	237.8	141.4
Site Energy Use Intensity (kBtu/ft ²)	106.8	58.2

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

Figure 14 - Energy Use Intensity Comparison – Following Installation of Recommended Measures

Energy Use Intensity Comparison - Following Installation of Recommended Measures		
	Community MS	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft ²)	191.4	141.4
Site Energy Use Intensity (kBtu/ft ²)	92.1	58.2

Many types of commercial buildings are also eligible to receive an ENERGY STAR® score. This score is a percentile ranking from 1 to 100. It compares your building’s energy performance to similar buildings nationwide. A score of 50 represents median energy performance, while a score of 75 means your building performs better than 75 percent of all similar buildings nationwide and may be eligible for ENERGY STAR® certification. This facility has a current score of 10.

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

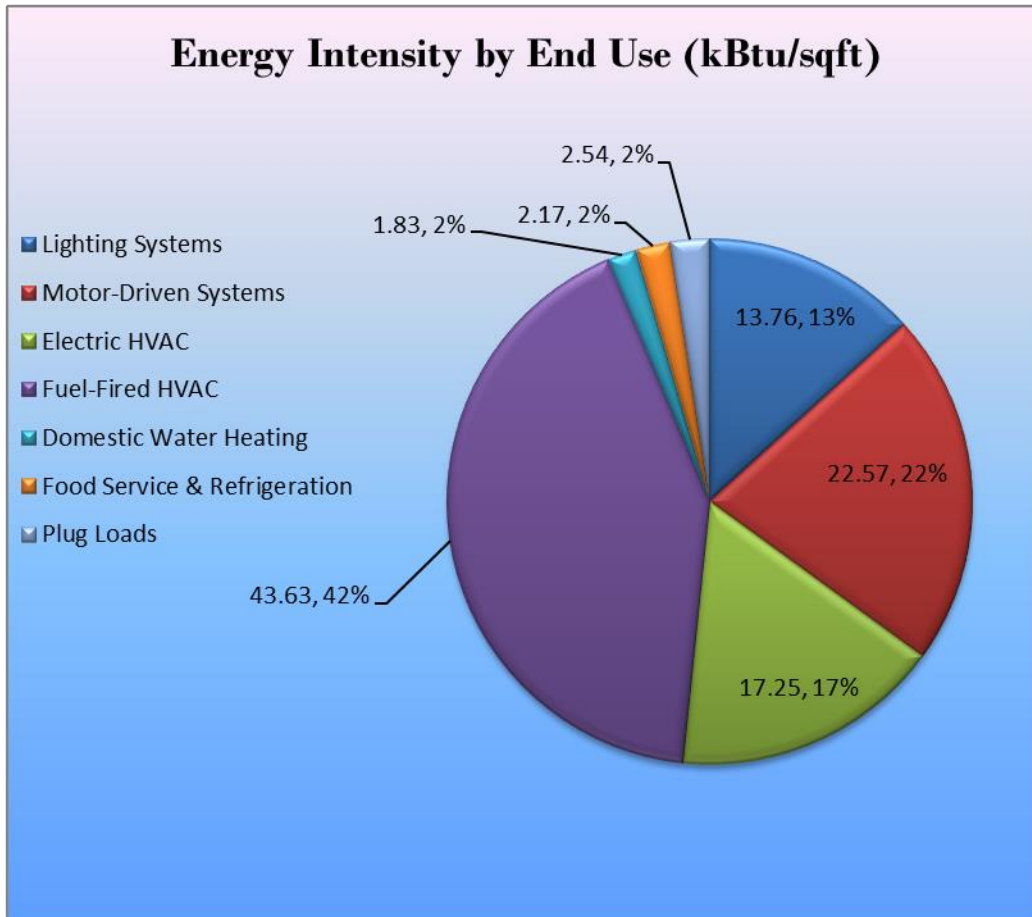
For more information on ENERGY STAR® certification go to: <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1>.

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

Level of Analysis

The goal of this audit report is to identify potential energy efficiency opportunities, help prioritize specific measures for implementation, and provide information to Community Middle 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		346,434	54.3	0.0	\$46,388.57	\$120,596.68	\$26,500.00	\$94,096.68	2.0	348,856
ECM 1	Install LED Fixtures	31,448	4.1	0.0	\$4,210.92	\$34,855.69	\$3,700.00	\$31,155.69	7.4	31,667
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	265	0.0	0.0	\$35.53	\$115.29	\$15.00	\$100.29	2.8	267
ECM 3	Retrofit Fixtures with LED Lamps	314,721	50.1	0.0	\$42,142.12	\$83,525.65	\$22,785.00	\$60,740.65	1.4	316,921
ECM 4	Install LED Exit Signs	0	0.0	0.0	\$0.00	\$2,100.05	\$0.00	\$2,100.05	0.0	0
Lighting Control Measures		71,078	11.3	0.0	\$9,517.54	\$40,192.00	\$4,715.00	\$35,477.00	3.7	71,575
ECM 5	Install Occupancy Sensor Lighting Controls	71,078	11.3	0.0	\$9,517.54	\$40,192.00	\$4,715.00	\$35,477.00	3.7	71,575
Variable Frequency Drive (VFD) Measures		192,107	101.4	0.0	\$25,723.76	\$141,129.91	\$29,360.00	\$111,769.91	4.3	193,450
ECM 6	Install VFDs on Constant Volume (CV) HVAC	149,700	97.0	0.0	\$20,045.32	\$123,695.06	\$29,360.00	\$94,335.06	4.7	150,747
ECM 7	Install VFDs on Hot Water Pumps	42,407	4.4	0.0	\$5,678.44	\$17,434.85	\$0.00	\$17,434.85	3.1	42,704
Plug Load Equipment Control - Vending Machine		4,836	0.0	0.0	\$647.49	\$690.00	\$0.00	\$690.00	1.1	4,869
ECM 8	Vending Machine Control	4,836	0.0	0.0	\$647.49	\$690.00	\$0.00	\$690.00	1.1	4,869
TOTALS		614,454	167.0	0.0	\$82,277.36	\$302,608.59	\$60,575.00	\$242,033.59	2.9	618,750

* - 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		346,434	54.3	0.0	\$46,388.57	\$120,596.68	\$26,500.00	\$94,096.68	2.0	348,856
ECM 1	Install LED Fixtures	31,448	4.1	0.0	\$4,210.92	\$34,855.69	\$3,700.00	\$31,155.69	7.4	31,667
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	265	0.0	0.0	\$35.53	\$115.29	\$15.00	\$100.29	2.8	267
ECM 3	Retrofit Fixtures with LED Lamps	314,721	50.1	0.0	\$42,142.12	\$83,525.65	\$22,785.00	\$60,740.65	1.4	316,921
ECM 4	Install LED Exit Signs	0	0.0	0.0	\$0.00	\$2,100.05	\$0.00	\$2,100.05	0.0	0

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 I: Install LED Fixtures

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0
Exterior	31,448	4.1	0.0	\$4,210.92	\$34,855.69	\$3,700.00	\$31,155.69	7.4	31,667

Measure Description

We recommend replacing exterior metal halide and high-pressure sodium fixtures with new high-performance LED light fixtures. This measure saves energy by installing LEDs which use less power than other technologies with a comparable light output.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of HID sources such as metal halide or high pressure sodium.

ECM 2: Retrofit Fluorescent Fixtures with LED Lamps and Drivers

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	265	0.0	0.0	\$35.53	\$115.29	\$15.00	\$100.29	2.8	267
Exterior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0

Measure Description

We recommend retrofitting existing fluorescent fixtures by removing fluorescent tubes and ballasts and replacing them with LEDs and LED drivers (if necessary), which are designed to be used retrofitted fluorescent fixtures. The measure uses the existing fixture housing but replaces the rest of the components with more efficient lighting technology. This measure is generally recommended for fixtures with T12 lamps or for other fixtures which have magnetic ballasts. 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.

ECM 3: Retrofit Fixtures with LED Lamps

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	314,015	50.0	0.0	\$42,047.62	\$83,473.98	\$22,770.00	\$60,703.98	1.4	316,211
Exterior	706	0.1	0.0	\$94.49	\$51.68	\$15.00	\$36.68	0.4	711

Measure Description

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

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

ECM 4: Install LED Exit Signs

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	0	0.0	0.0	\$0.00	\$2,100.05	\$0.00	\$2,100.05	0.0	0
Exterior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0

Measure Description

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

4.1.2 Lighting Control Measures

Our recommendations for lighting control measures are summarized in 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	71,078	11.3	0.0	\$9,517.54	\$40,192.00	\$4,715.00	\$35,477.00	3.7	71,575
ECM 5 Install Occupancy Sensor Lighting Controls	71,078	11.3	0.0	\$9,517.54	\$40,192.00	\$4,715.00	\$35,477.00	3.7	71,575

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

ECM 5: Install Occupancy Sensor Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
71,078	11.3	0.0	\$9,517.54	\$40,192.00	\$4,715.00	\$35,477.00	3.7	71,575

Measure Description

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

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

4.1.3 Variable Frequency Drive Measures

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

Figure 19 – Summary of Variable Frequency Drive ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Variable Frequency Drive (VFD) Measures		192,107	101.4	0.0	\$25,723.76	\$141,129.91	\$29,360.00	\$111,769.91	4.3	193,450
ECM 6	Install VFDs on Constant Volume (CV) HVAC	149,700	97.0	0.0	\$20,045.32	\$123,695.06	\$29,360.00	\$94,335.06	4.7	150,747
ECM 7	Install VFDs on Hot Water Pumps	42,407	4.4	0.0	\$5,678.44	\$17,434.85	\$0.00	\$17,434.85	3.1	42,704

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)
149,700	97.0	0.0	\$20,045.32	\$123,695.06	\$29,360.00	\$94,335.06	4.7	150,747

Measure Description

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

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

ECM 7: Install VFDs on Hot Water Pumps

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
42,407	4.4	0.0	\$5,678.44	\$17,434.85	\$0.00	\$17,434.85	3.1	42,704

Measure Description

We recommend installing variable frequency drives (VFD) to control the 7.5 hp hot water pumps. This measure requires that many of the hot water coils be served by 2-way valves and that a differential pressure sensor is installed in the hot water loop. As the hot water valves close, the differential pressure increases. The VFD modulates pump speed to maintain a differential pressure setpoint. Energy savings results from reducing pump motor speed (and power) as hot water valves close. The magnitude of energy savings is based on the estimated amount of time that the system will operate at reduced load.

4.1.4 Plug Load Equipment Control - Vending Machines

Our recommendations for plug load equipment control measures are summarized in Figure 20 below.

Figure 20 - Summary of Plug Load Equipment Control ECMs

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Plug Load Equipment Control - Vending Machine	4,836	0.0	0.0	\$647.49	\$690.00	\$0.00	\$690.00	1.1	4,869
ECM 8 Vending Machine Control	4,836	0.0	0.0	\$647.49	\$690.00	\$0.00	\$690.00	1.1	4,869

ECM 8: 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)
4,836	0.0	0.0	\$647.49	\$690.00	\$0.00	\$690.00	1.1	4,869

Measure Description

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

4.2 ECMs Evaluated But Not Recommended

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

Figure 21 – Summary of Measures Evaluated, But Not Recommended

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Control Measures	7,397	1.2	0.0	\$990.48	\$24,600.00	\$0.00	\$24,600.00	24.8	7,449
Install High/Low Lighting Controls	7,397	1.2	0.0	\$990.48	\$24,600.00	\$0.00	\$24,600.00	24.8	7,449
Electric Unitary HVAC Measures	8,437	5.0	0.0	\$1,129.79	\$137,434.64	\$1,730.00	\$135,704.64	120.1	8,496
Install High Efficiency Electric AC	8,437	5.0	0.0	\$1,129.79	\$137,434.64	\$1,730.00	\$135,704.64	120.1	8,496
TOTALS	15,834	6.2	0.0	\$2,120.27	\$162,034.64	\$1,730.00	\$160,304.64	75.6	15,945

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

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

Install High/Low Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
7,397	1.2	0.0	\$990.48	\$24,600.00	\$0.00	\$24,600.00	24.8	7,449

Measure Description

We evaluated installing occupancy sensors to provide dual level lighting control for lighting fixtures in spaces that are infrequently occupied but may require some level of continuous lighting for safety or security reasons. Typical areas for such lighting control are stairwells, interior corridors, parking lots, and parking garages.

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

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

Reasons for not Recommending

In areas where high low controls would be useful, namely the hallways, the light fixtures are configured such that it would not be cost effective to control the lights on a high low basis at this site.

Install High Efficiency Air Conditioning Units

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
8,437	5.0	0.0	\$1,129.79	\$137,434.64	\$1,730.00	\$135,704.64	120.1	8,496

Measure Description

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

Reasons for not Recommending

Although the HVAC equipment we evaluated for replacement has reached the end of useful life (over 20 years), an investment in the measure is not justified by the pay-back period from energy savings alone. As equipment is identified for replacement, we recommend replacement with high efficiency equipment.

5 ENERGY EFFICIENT PRACTICES

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

Practice Proper Use of Thermostat Schedules and Temperature Resets

Ensure thermostats are correctly set back. By employing proper set back temperatures and schedules, facility heating and cooling costs can be reduced dramatically during periods of low or no occupancy. As such, thermostats should be programmed for a setback of 5-10°F during low occupancy hours (reduce heating setpoints and increase cooling setpoints). Cooling load can be reduced further by increasing the facility's occupied setpoint temperature. In general, during the cooling season, thermostats should be set as high as possible without sacrificing occupant comfort.

Clean and/or Replace HVAC Filters

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

Perform Proper Boiler Maintenance

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

Perform Proper Water Heater Maintenance

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

Plug Load Controls

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

Water Conservation

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

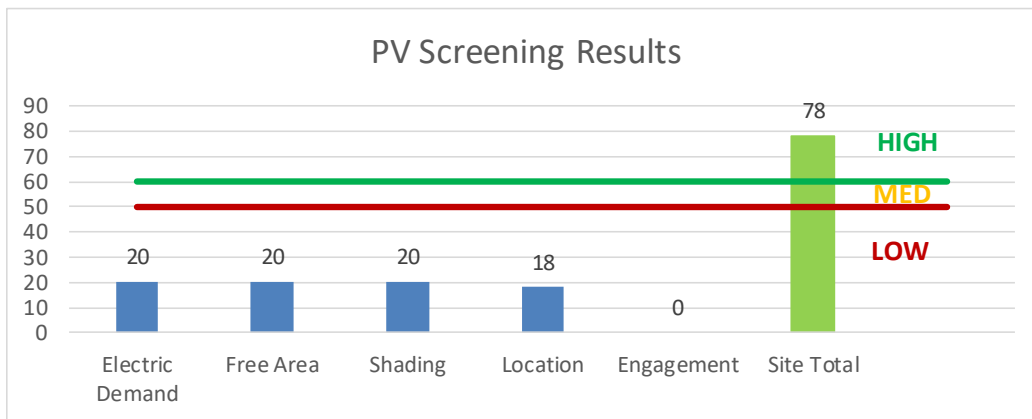
6.1 Photovoltaic

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 **high** potential for installing a PV array.

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

Figure 22 - Photovoltaic Screening



Potential	High	
System Potential	537	kWDC STC
Electric Generation	639,766	kWh/yr
Displaced Cost	\$55,660	/yr
Installed Cost	\$1,396,200	

Solar projects must register their projects in the SREC (Solar Renewable Energy Certificate) Registration Program (SRP) prior to the start of construction in order to establish the project’s eligibility to earn SRECs. Registration of the intent to participate in New Jersey’s solar marketplace provides market participants with information about developed new solar projects and insight into future SREC pricing. Refer to Section 8.3 for additional information.

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

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

6.2 Combined Heat and Power

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

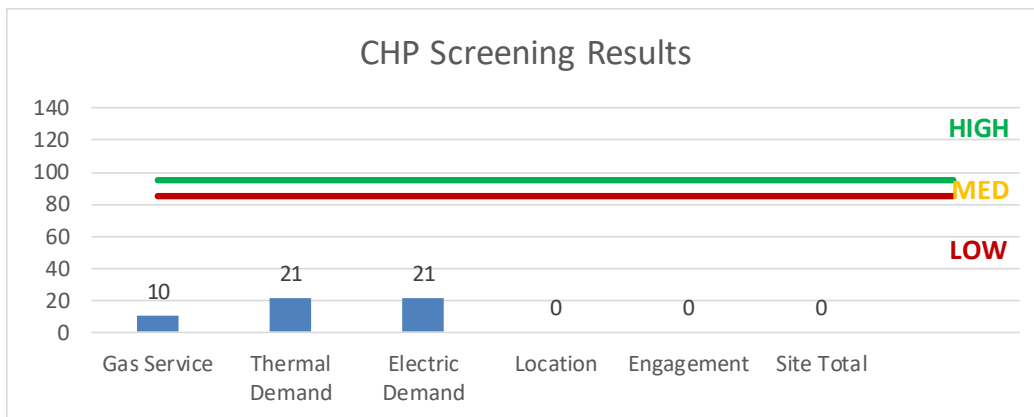
CHP systems are typically used to produce a portion of the electric power used onsite by a facility, with the balance of electric power needs supplied by grid purchases. The heat is used to supplement (or supplant) existing boilers for the purpose of space heating and/or domestic hot water heating. Waste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

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

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

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

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.

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

8 PROJECT FUNDING / INCENTIVES

The NJCEP is able to provide the incentive programs described below, and other benefits to ratepayers, because of the Societal Benefits Charge (SBC) Fund. The SBC was created by the State of New Jersey’s Electricity Restructuring Law (1999), which requires all customers of investor-owned electric and gas utilities to pay a surcharge on their monthly energy bills. As a customer of a state-regulated electric or gas utility and therefore a contributor to the fund your organization is eligible to participate in the LGEA program and also eligible to receive incentive payment for qualifying energy efficiency measures. Also available through the NJBPU are some alternative financing programs described later in this section. Please refer to Figure 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	Install LED Fixtures	x					
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	x					
ECM 3	Retrofit Fixtures with LED Lamps	x					
ECM 4	Install LED Exit Signs						
ECM 5	Install Occupancy Sensor Lighting Controls	x					
ECM 6	Install VFDs on Constant Volume (CV) HVAC						
ECM 7	Install VFDs on Hot Water Pumps						
ECM 8	Vending Machine Control						

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

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

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

8.1 SmartStart

Overview

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

Equipment with Prescriptive Incentives Currently Available:

Electric Chillers

Electric Unitary HVAC

Gas Cooling

Gas Heating

Gas Water Heating

Ground Source Heat Pumps

Lighting

Lighting Controls

Refrigeration Doors

Refrigeration Controls

Refrigerator/Freezer Motors

Food Service Equipment

Variable Frequency Drives

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

Incentives

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

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

How to Participate

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

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

8.2 Pay for Performance - Existing Buildings

Overview

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

Incentives

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

How to Participate

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

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

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

8.3 SREC Registration Program

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

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

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

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

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

8.4 Energy Savings Improvement Program

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

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

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

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

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

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

9 ENERGY PURCHASING AND PROCUREMENT STRATEGIES

9.1 Retail Electric Supply Options

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

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

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

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

9.2 Retail Natural Gas Supply Options

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

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

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

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

Appendix A: Equipment Inventory & Recommendations

Lighting Inventory & Recommendations

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	17	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	17	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.37	2,308	0.0	\$309.01	\$620.76	\$170.00	1.46
Boiler room	1	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$72.42	\$0.00	0.00
Generator room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.04	271	0.0	\$36.35	\$73.03	\$20.00	1.46
Auxiliary Gym	18	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,577	Relamp	Yes	18	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,504	0.87	5,435	0.0	\$727.74	\$1,854.54	\$430.00	1.96
Auxiliary Gym	2	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$144.83	\$0.00	0.00
604 Main Gym Storage	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.25	1,544	0.0	\$206.72	\$598.64	\$90.00	2.46
604 storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,577	0.01	72	0.0	\$9.64	\$18.26	\$5.00	1.38
Gym locker room	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.66	4,117	0.0	\$551.26	\$1,416.36	\$310.00	2.01
Office 605	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$225.55	\$50.00	2.55
Office 605 restroom	1	Incandescent: Screw-in 4 lamps	Wall Switch	240	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 4 lamps	Wall Switch	36	3,577	0.13	839	0.0	\$112.37	\$68.90	\$20.00	0.44
Main gym	32	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	3,577	Relamp	Yes	32	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,504	1.67	10,452	0.0	\$1,399.52	\$3,216.96	\$780.00	1.74
Main gym	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Gym/locker room hallway	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	No	2	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.02	132	0.0	\$17.63	\$65.03	\$20.00	2.55
Door 1 vestibule	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.01	66	0.0	\$8.81	\$32.52	\$10.00	2.55
Door 2 Vestibule	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.01	66	0.0	\$8.81	\$32.52	\$10.00	2.55
Door 1 vestibule	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Gym storage hall 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Gym storage hall 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.04	271	0.0	\$36.35	\$73.03	\$20.00	1.46
Main gym storage room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.11	686	0.0	\$91.88	\$416.06	\$40.00	4.09
Main gym locker room	23	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	23	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.63	3,945	0.0	\$528.29	\$1,379.85	\$300.00	2.04
Boys locker room office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Boys locker room - restroom	1	Incandescent: Screw-in - 3 lamps	Wall Switch	180	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 3 lamps	Wall Switch	27	3,577	0.10	629	0.0	\$84.28	\$51.68	\$15.00	0.44
Boys locker/Gym Hallway	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.01	66	0.0	\$8.81	\$32.52	\$10.00	2.55
Gym/Cafeteria hall	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	None	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Gym - Door 7 vestibule	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	None	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	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
Gym - Door 7 vestibule	1	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$72.42	\$0.00	0.00
Gym - Door 7 vestibule - restroom	1	Incandescent: Screw-in 2 lamp	Wall Switch	120	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 2 lamps	Wall Switch	18	3,577	0.07	420	0.0	\$56.18	\$34.45	\$10.00	0.44
Weight room	9	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	9	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.12	781	0.0	\$104.60	\$562.64	\$125.00	4.18
Gym/Common front hall	22	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	22	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.07	462	0.0	\$61.80	\$3,200.00	\$0.00	51.78
Gym/Common front hall	2	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$144.83	\$0.00	0.00
Custodian closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,577	0.01	72	0.0	\$9.64	\$18.26	\$5.00	1.38
Boys restroom	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.19	1,201	0.0	\$160.78	\$525.61	\$105.00	2.62
Girls restroom	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.19	1,201	0.0	\$160.78	\$525.61	\$105.00	2.62
Main office	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.33	2,058	0.0	\$275.63	\$1,248.18	\$225.00	3.71
Main office	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	2	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.03	174	0.0	\$23.24	\$65.03	\$55.00	0.43
Main office	5	Incandescent: Recessed fixture - flood light - 1 lamp	Wall Switch	200	3,577	Relamp	Yes	5	LED Screw-In Lamps: Recessed fixture - 1 lamp	Occupancy Sensor	30	2,504	0.59	3,682	0.0	\$492.98	\$175.90	\$60.00	0.24
Main office	1	Compact Fluorescent: Recessed fixture - flood light - 1 lamp	Wall Switch	26	3,577	Relamp	Yes	1	LED Screw-In Lamps: Recessed fixture - 1 lamp	Occupancy Sensor	18	2,504	0.01	55	0.0	\$7.30	\$17.23	\$40.00	-3.12
Conference room	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,577	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,504	0.19	1,208	0.0	\$161.72	\$408.12	\$100.00	1.91
Office 101 CST	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Main office - Schimpt office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$225.55	\$50.00	2.55
Main office - Boland office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Cappalar office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Hutton office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Copy/Break room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.12	772	0.0	\$103.36	\$280.32	\$65.00	2.08
Main office restroom	1	Incandescent: Screw-in 3 lamps	Wall Switch	180	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 3 lamps	Wall Switch	27	3,577	0.10	629	0.0	\$84.28	\$51.68	\$15.00	0.44
Carter office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Cafeteria / Commons	28	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	28	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	1.15	7,204	0.0	\$964.70	\$2,343.63	\$525.00	1.89
Cafeteria / Commons	2	Halogen Incandescent: Spot light - 1 lamp	Wall Switch	50	3,577	Relamp	Yes	2	LED Screw-In Lamps: Spot light - 1 lamp	Occupancy Sensor	8	2,504	0.06	368	0.0	\$49.30	\$60.42	\$45.00	0.31
Cafeteria / Commons	21	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	21	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.29	1,823	0.0	\$244.07	\$682.82	\$245.00	1.79
Cafeteria / Commons	3	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$217.25	\$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
Cafeteria / Commons	6	Incandescent: Recessed can - 1 Lamp	Wall Switch	60	3,577	Relamp	Yes	6	LED Screw-In Lamps: Recessed can - 1 lamp	Occupancy Sensor	9	2,504	0.21	1,325	0.0	\$177.47	\$103.35	\$65.00	0.22
Display cabinet	2	Linear Fluorescent - T8: 3' T8 (25W) - 2L	Wall Switch	48	3,577	Relamp	No	2	LED - Linear Tubes: (2) 3' Lamps	Wall Switch	21	3,577	0.04	222	0.0	\$29.74	\$73.03	\$0.00	2.46
Kitchen area	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	14	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.45	2,851	0.0	\$381.72	\$766.82	\$210.00	1.46
Kitchen area	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.01	66	0.0	\$8.81	\$32.52	\$10.00	2.55
Kitchen area	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
Walk in cooler	1	Incandescent Screw-in 1 lamp	Wall Switch	40	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	6	3,577	0.02	140	0.0	\$18.73	\$17.23	\$5.00	0.65
Walk in freezer	1	Incandescent: Screw-in lamp	Wall Switch	40	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	6	3,577	0.02	140	0.0	\$18.73	\$17.23	\$5.00	0.65
Storage room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.02	136	0.0	\$18.18	\$36.52	\$10.00	1.46
Hood	3	Incandescent: Screw-in 1 lamp	Wall Switch	60	3,577	Relamp	No	3	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	9	3,577	0.10	629	0.0	\$84.28	\$51.68	\$15.00	0.44
Hood	3	Incandescent: Screw-in 1 lamp	Wall Switch	60	3,577	Relamp	No	3	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	9	3,577	0.10	629	0.0	\$84.28	\$51.68	\$15.00	0.44
Hood locker	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.01	66	0.0	\$8.81	\$32.52	\$10.00	2.55
Hood locker - restroom	1	Incandescent: Screw-in 4 lamps	Wall Switch	240	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 4 lamps	Wall Switch	36	3,577	0.13	839	0.0	\$112.37	\$68.90	\$20.00	0.44
Common storage 606	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.16	1,029	0.0	\$137.81	\$489.09	\$60.00	3.11
Storage room	5	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	Yes	5	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,504	0.07	449	0.0	\$60.18	\$361.29	\$25.00	5.59
Electrical room 505	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.04	271	0.0	\$36.35	\$73.03	\$20.00	1.46
500 hallway	5	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	5	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.07	434	0.0	\$58.11	\$362.58	\$50.00	5.38
CR503 - Wood shop	29	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	29	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	1.19	7,462	0.0	\$999.16	\$1,858.40	\$470.00	1.39
CR503 - Wood 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
CR503 - Wood shop - storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$379.55	\$30.00	5.07
CR503 - Wood shop	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.05	343	0.0	\$45.94	\$343.03	\$55.00	6.27
Wood shop storage closet	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.04	271	0.0	\$36.35	\$73.03	\$20.00	1.46
Wood shop restroom	1	Incandescent: Screw-in 2 lamps	Wall Switch	120	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 2 lamps	Wall Switch	18	3,577	0.07	420	0.0	\$56.18	\$34.45	\$10.00	0.44
CR 504	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	16	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.66	4,117	0.0	\$551.26	\$1,146.36	\$275.00	1.58
CR 504	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
CR 502	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	18	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.74	4,631	0.0	\$620.17	\$1,255.91	\$305.00	1.53

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 502	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
Storage room 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Storage room 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
CR 501	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
Custodial closet	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,577	0.02	144	0.0	\$19.28	\$36.52	\$10.00	1.38
Auditorium	43	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	11	3,577	None	No	43	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	11	3,577	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Auditorium	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Stage	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	10	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.32	2,036	0.0	\$272.65	\$547.73	\$150.00	1.46
Stage	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Office 102	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Office 103	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Office 104	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Nurse's office	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.19	1,222	0.0	\$163.59	\$328.64	\$90.00	1.46
Nurse's Doyle office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Nurse's office storage closet	1	Incandescent: Screw-in 2 lamp	Wall Switch	120	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 2 lamps	Wall Switch	18	3,577	0.07	420	0.0	\$56.18	\$34.45	\$10.00	0.44
Nurse's office restroom	2	Incandescent: Screw-in 2 lamp	Wall Switch	120	3,577	Relamp	No	2	LED Screw-In Lamps: Screw-in 2 lamps	Wall Switch	18	3,577	0.13	839	0.0	\$112.37	\$68.90	\$20.00	0.44
Electrical room	1	Linear Fluorescent - T12: 4' T12 (40W) - 1L	Wall Switch	46	3,577	Relamp & Reballast	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,577	0.02	130	0.0	\$17.35	\$50.52	\$5.00	2.62
Office 105	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$225.55	\$50.00	2.55
CR 106	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
Office 107	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,577	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,504	0.10	604	0.0	\$80.86	\$262.06	\$60.00	2.50
Faculty lounge 108	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.12	772	0.0	\$103.36	\$280.32	\$65.00	2.08
Faculty women's restroom	1	Incandescent: Screw-in 3 lamps	Wall Switch	180	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 3 lamps	Wall Switch	27	3,577	0.10	629	0.0	\$84.28	\$51.68	\$15.00	0.44
Faculty men's restroom	1	Incandescent: Screw-in 3 lamps	Wall Switch	180	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 3 lamps	Wall Switch	27	3,577	0.10	629	0.0	\$84.28	\$51.68	\$15.00	0.44
Music 602	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	6	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.08	521	0.0	\$69.73	\$195.09	\$95.00	1.44
Music 602	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.22	1,372	0.0	\$183.75	\$292.12	\$115.00	0.96

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 602	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.41	2,573	0.0	\$344.54	\$817.73	\$185.00	1.84
Music office 610	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.05	343	0.0	\$45.94	\$343.03	\$20.00	7.03
Music - Electrical room	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Music 610A	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Music - Practice can	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Orchestra 611	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	No	6	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.06	395	0.0	\$52.88	\$195.09	\$60.00	2.55
Orchestra 611	5	Linear Fluorescent - T8: 3' T8 (25W) - 2L	Wall Switch	48	3,577	Relamp	No	5	LED - Linear Tubes: (2) 3' Lamps	Wall Switch	21	3,577	0.09	555	0.0	\$74.36	\$182.58	\$0.00	2.46
Orchestra 611	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	16	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.52	3,258	0.0	\$436.25	\$876.36	\$240.00	1.46
Orchestra 611	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	No	6	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.06	395	0.0	\$52.88	\$195.09	\$60.00	2.55
CR 401	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.55	3,431	0.0	\$459.38	\$1,000.30	\$235.00	1.67
CR 401 restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,577	0.01	72	0.0	\$9.64	\$18.26	\$5.00	1.38
Storage - 402	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,504	0.10	640	0.0	\$85.71	\$559.84	\$0.00	6.53
Office 403	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$225.55	\$50.00	2.55
Small CR 404	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$225.55	\$50.00	2.55
CR 405	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.25	1,544	0.0	\$206.72	\$444.64	\$110.00	1.62
Custodial closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,577	0.01	72	0.0	\$9.64	\$18.26	\$5.00	1.38
CR 407	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 407	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 408	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 408	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 409	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 409	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 410	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 410	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 411	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91

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 412	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 413	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 413	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 414	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 414	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Girls restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56
Storage 415	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,577	0.01	72	0.0	\$9.64	\$18.26	\$5.00	1.38
Boys restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$109.55	\$65.00	0.65
Media Center	12	Linear Fluorescent - T8: 3' T8 (25W) - 2L	Wall Switch	48	3,577	Relamp	Yes	12	LED - Linear Tubes: (2) 3' Lamps	Occupancy Sensor	21	2,504	0.26	1,644	0.0	\$220.11	\$438.18	\$35.00	1.83
Media Center	48	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	48	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	1.31	8,234	0.0	\$1,102.52	\$1,752.72	\$515.00	1.12
Media Center	64	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	64	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.89	5,555	0.0	\$743.82	\$3,160.96	\$780.00	3.20
Media Center	2	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$144.83	\$0.00	0.00
Media Center office	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.21	1,287	0.0	\$172.27	\$389.86	\$95.00	1.71
Media center storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.16	1,029	0.0	\$137.81	\$489.09	\$60.00	3.11
Media center work room	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.16	1,029	0.0	\$137.81	\$335.09	\$80.00	1.85
Art room 201	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
Art storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.02	136	0.0	\$18.18	\$36.52	\$10.00	1.46
Art storage	1	Linear Fluorescent - T12: 2' T12 (20W) - 2L	Wall Switch	50	3,577	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.02	136	0.0	\$18.18	\$64.77	\$10.00	3.01
203 Sener room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$225.55	\$50.00	2.55
Other 204	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.06	407	0.0	\$54.53	\$109.55	\$30.00	1.46
CR 206	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.25	1,544	0.0	\$206.72	\$598.64	\$125.00	2.29
Custodial closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,577	0.01	72	0.0	\$9.64	\$18.26	\$5.00	1.38
Boys restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56
CR 207	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.25	1,544	0.0	\$206.72	\$598.64	\$125.00	2.29
CR 207	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
CR 208	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 208	1	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$72.42	\$0.00	0.00
CR 209	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 210	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 211	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 212	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
Girls restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$225.55	\$50.00	2.55
CR 213	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 213	1	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$72.42	\$0.00	0.00
CR 214	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 214	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
Book storage 215	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,577	0.01	72	0.0	\$9.64	\$18.26	\$5.00	1.38
CR 216	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.57	3,602	0.0	\$482.35	\$1,036.82	\$245.00	1.64
Connected storage 216-218	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.04	271	0.0	\$36.35	\$73.03	\$20.00	1.46
Connected storage 216-218	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.04	271	0.0	\$36.35	\$73.03	\$20.00	1.46
CR 218	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
CR 619	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.33	2,058	0.0	\$275.63	\$438.18	\$155.00	1.03
CR 616	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.33	2,058	0.0	\$275.63	\$438.18	\$155.00	1.03
CR 616	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.55	3,431	0.0	\$459.38	\$1,270.30	\$270.00	2.18
CR 616	7	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	7	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.10	608	0.0	\$81.36	\$227.61	\$105.00	1.51
CR 616	2	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$144.83	\$0.00	0.00
621 copy room	3	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.04	260	0.0	\$34.87	\$213.55	\$50.00	4.69
621 copy room	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
621 copy room restroom	1	Incandescent Screw-in 4 lamps	Wall Switch	240	3,577	Relamp	No	1	LED Screw-In Lamps: Screw in 4 lamps	Wall Switch	36	3,577	0.13	839	0.0	\$112.37	\$68.90	\$20.00	0.44
Custodial office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46

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
620	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,577	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,504	0.19	1,208	0.0	\$161.72	\$408.12	\$100.00	1.91
617 CR	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.33	2,058	0.0	\$275.63	\$978.18	\$190.00	2.86
618 studio	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.21	1,287	0.0	\$172.27	\$273.86	\$110.00	0.95
618 studio	3	Incandescent: Screw-in 1 lamp	Wall Switch	60	3,577	Relamp	Yes	3	LED Screw-In Lamps: Screw-in 1 lamp	Occupancy Sensor	9	2,504	0.11	663	0.0	\$88.74	\$51.68	\$50.00	0.02
618 Studio	8	Incandescent: Recessed screw-in 1 lamp	Wall Switch	60	3,577	Relamp	Yes	8	LED Screw-In Lamps: Recessed - Screw-in 1 lamp	Occupancy Sensor	9	2,504	0.28	1,767	0.0	\$236.63	\$407.80	\$75.00	1.41
Control room	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Control room	2	Incandescent: Recessed screw-in 1 lamp	Wall Switch	60	3,577	Relamp	No	2	LED Screw-In Lamps: Recessed - Screw-in 1 lamp	Wall Switch	9	3,577	0.07	420	0.0	\$56.18	\$34.45	\$10.00	0.44
CR 306	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
CR 301	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 302	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
Book storage 305	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,504	0.03	180	0.0	\$24.07	\$306.52	\$10.00	12.32
Teachers workroom	29	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	29	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	1.19	7,462	0.0	\$999.16	\$2,128.40	\$505.00	1.62
Teachers workroom	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Conference room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$225.55	\$50.00	2.55
Conference room restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.03	204	0.0	\$27.27	\$54.77	\$15.00	1.46
Conference room copy room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.06	407	0.0	\$54.53	\$109.55	\$30.00	1.46
CR 303	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 304	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
Electrical closet	3	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.04	260	0.0	\$34.87	\$367.55	\$30.00	9.68
Electrical control room	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.01	66	0.0	\$8.81	\$32.52	\$10.00	2.55
CR 416	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.57	3,602	0.0	\$482.35	\$1,036.82	\$245.00	1.64
CR 416	4	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	22	3,577	Relamp	Yes	4	LED - Linear Tubes: (1) 2' Lamp	Occupancy Sensor	9	2,504	0.04	264	0.0	\$35.36	\$65.03	\$55.00	0.28
CR 416 storage room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$379.55	\$30.00	5.07
CR 416 lab storage connected 417	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$379.55	\$30.00	5.07
CR 418	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72

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 311	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
Storage room 325	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$30.00	5.07
CR 316	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.27	1,715	0.0	\$229.69	\$635.15	\$135.00	2.18
CR 317	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.22	1,372	0.0	\$183.75	\$562.12	\$115.00	2.43
Boys restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56
CR 318	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.27	1,715	0.0	\$229.69	\$635.15	\$135.00	2.18
CR 319	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.27	1,715	0.0	\$229.69	\$635.15	\$135.00	2.18
Girls restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56
CR 326	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56
CR 320	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.27	1,715	0.0	\$229.69	\$635.15	\$135.00	2.18
CR 321	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.27	1,715	0.0	\$229.69	\$635.15	\$135.00	2.18
CR 322	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.27	1,715	0.0	\$229.69	\$635.15	\$135.00	2.18
CR 323	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.25	1,544	0.0	\$206.72	\$598.64	\$125.00	2.29
CR 323	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.03	172	0.0	\$22.97	\$36.52	\$45.00	-0.37
CR 324	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56
CR 324 restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.02	136	0.0	\$18.18	\$36.52	\$10.00	1.46
CR 315	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 314	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
Storage closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,577	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,577	0.01	72	0.0	\$9.64	\$18.26	\$5.00	1.38
Office 310	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$225.55	\$50.00	2.55
Office 309	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.16	1,029	0.0	\$137.81	\$335.09	\$80.00	1.85
Office 309	1	Incandescent Screw-in 1 lamp	Wall Switch	120	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	3,577	0.07	420	0.0	\$56.18	\$17.23	\$5.00	0.22
Office 309	1	Incandescent Screw-in 1 lamp	Wall Switch	60	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	9	3,577	0.03	210	0.0	\$28.09	\$17.23	\$5.00	0.44
307 Conference room	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.16	1,029	0.0	\$137.81	\$335.09	\$80.00	1.85
Office 308	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$225.55	\$50.00	2.55

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
Electrical room	1	Compact Fluorescent: Screw-in 1 lamp	Wall Switch	9	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	6	3,577	0.00	11	0.0	\$1.49	\$17.23	\$5.00	8.22
Boys restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.05	343	0.0	\$45.94	\$189.03	\$20.00	3.68
Girls restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.05	343	0.0	\$45.94	\$189.03	\$20.00	3.68
Staff restroom	1	Incandescent: Screw-in - 3 Lamp	Wall Switch	180	3,577	Relamp	No	1	LED Screw-In Lamps: Screw-in 3 lamps	Wall Switch	27	3,577	0.10	629	0.0	\$84.28	\$51.68	\$15.00	0.44
CR 313	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
CR 312	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.37	2,316	0.0	\$310.08	\$762.95	\$170.00	1.91
700 section - storage closet	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.05	343	0.0	\$45.94	\$343.03	\$20.00	7.03
Staff restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.02	136	0.0	\$18.18	\$36.52	\$10.00	1.46
CR 710	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
CR 711	96	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	96	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	2.62	16,467	0.0	\$2,205.03	\$4,855.44	\$1,135.00	1.69
CR 711	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 711	13	Incandescent: PAR 38 - Screw-in 1 Lamp	Wall Switch	75	3,577	Relamp	Yes	13	LED Screw-In Lamps: PAR 38 - Screw-in 1 lamp	Occupancy Sensor	11	2,504	0.57	3,590	0.0	\$480.66	\$223.93	\$100.00	0.26
CR 709	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
CR 712	11	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	11	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.45	2,830	0.0	\$378.99	\$872.50	\$200.00	1.77
CR 712	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 707	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	20	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.82	5,146	0.0	\$689.07	\$1,365.45	\$335.00	1.50
CR 707	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.04	257	0.0	\$34.45	\$54.77	\$50.00	0.14
CR 707 - storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.05	343	0.0	\$45.94	\$343.03	\$20.00	7.03
708	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.12	772	0.0	\$103.36	\$280.32	\$65.00	2.08
CR 706	21	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	21	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.86	5,403	0.0	\$723.53	\$1,420.22	\$350.00	1.48
CR 706 - server slideroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.05	343	0.0	\$45.94	\$189.03	\$40.00	3.24
CR 713	11	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	11	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.45	2,830	0.0	\$378.99	\$872.50	\$200.00	1.77
CR 713	2	Incandescent: Screw-in 1 lamp	Wall Switch	150	3,577	Relamp	Yes	2	LED Screw-In Lamps: Screw-in 1 lamp	Occupancy Sensor	23	2,504	0.18	1,104	0.0	\$147.89	\$70.36	\$45.00	0.17
CR 713	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boys restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56

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
Girls restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56
Girls restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.01	87	0.0	\$11.62	\$32.52	\$45.00	-1.07
Electrical room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.02	136	0.0	\$18.18	\$36.52	\$10.00	1.46
CR 705	11	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	11	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.45	2,830	0.0	\$378.99	\$872.50	\$200.00	1.77
CR 701	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	20	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.82	5,146	0.0	\$689.07	\$1,365.45	\$335.00	1.50
Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.08	515	0.0	\$68.91	\$379.55	\$30.00	5.07
CR 701 - Labroom	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.14	858	0.0	\$114.85	\$452.58	\$85.00	3.20
CR 701 - Labroom	1	Incandescent Screw-in 1 lamp	Wall Switch	60	3,577	Relamp	Yes	1	LED Screw-In Lamps: Screw-in 1 lamp	Occupancy Sensor	9	2,504	0.04	221	0.0	\$29.58	\$17.23	\$40.00	-0.77
CR 702	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	20	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.82	5,146	0.0	\$689.07	\$1,365.45	\$335.00	1.50
CR 703	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.12	772	0.0	\$103.36	\$434.32	\$80.00	3.43
CR 704	11	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	11	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.45	2,830	0.0	\$378.99	\$872.50	\$200.00	1.77
CR 704	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
816	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56
CR 805	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
CR 804	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.33	2,058	0.0	\$275.63	\$708.18	\$155.00	2.01
CR 806	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
CR 806	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 803	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.33	2,058	0.0	\$275.63	\$708.18	\$155.00	2.01
CR 802	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.33	2,058	0.0	\$275.63	\$708.18	\$155.00	2.01
CR 801	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	7	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.29	1,801	0.0	\$241.18	\$653.41	\$140.00	2.13
CR 807	11	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	11	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.45	2,830	0.0	\$378.99	\$872.50	\$200.00	1.77
CR 808	25	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	25	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	1.03	6,433	0.0	\$861.34	\$1,639.31	\$410.00	1.43
Boys restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56
Boys restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.01	87	0.0	\$11.62	\$32.52	\$45.00	-1.07
Electrical	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.02	136	0.0	\$18.18	\$36.52	\$10.00	1.46

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
Girls restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.08	515	0.0	\$68.91	\$379.55	\$65.00	4.56
Girls restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,504	0.01	87	0.0	\$11.62	\$32.52	\$45.00	-1.07
CR 809 office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.12	772	0.0	\$103.36	\$280.32	\$65.00	2.08
CR 809	19	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	19	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.78	4,889	0.0	\$654.62	\$1,310.68	\$320.00	1.51
CR 809 Kiln room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.02	136	0.0	\$18.18	\$36.52	\$10.00	1.46
CR 809 storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.05	343	0.0	\$45.94	\$343.03	\$20.00	7.03
814 conference room	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
CR 813	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
Custodial closet	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.09	543	0.0	\$72.71	\$146.06	\$40.00	1.46
CR 812	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
CR 812	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 815	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
CR 815	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
Storage closet	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,504	0.05	343	0.0	\$45.94	\$189.03	\$20.00	3.68
Staff restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.02	136	0.0	\$18.18	\$36.52	\$10.00	1.46
CR 811	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.49	3,088	0.0	\$413.44	\$927.27	\$215.00	1.72
CR 810	11	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,577	Relamp	Yes	11	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,504	0.45	2,830	0.0	\$378.99	\$872.50	\$200.00	1.77
Exterior - Building lights	2	Metal Halide: (1) 1000W Lamp	Wall Switch	1,080	4,380	Fixture Replacement	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	324	4,380	0.99	7,616	0.0	\$1,019.80	\$1,931.93	\$200.00	1.70
Exterior - Building lights	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	50	4,380	None	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	50	4,380	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Bollard	5	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	10	4,380	None	No	5	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	10	4,380	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Center entry front area	4	LED - Fixtures: Bollard Fixture	Wall Switch	10	4,380	None	No	4	LED - Fixtures: Bollard Fixture	Wall Switch	10	4,380	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Front canopy	3	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	28	4,380	None	No	3	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	28	4,380	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Front pole light	3	Metal Halide: (1) 250W Lamp	Wall Switch	295	4,380	Fixture Replacement	No	3	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Wall Switch	89	4,380	0.41	3,120	0.0	\$417.83	\$2,791.69	\$300.00	5.96
Door 22	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	4,380	None	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	4,380	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Door 21	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	28	4,380	None	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	28	4,380	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
Door 20	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	28	4,380	None	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	28	4,380	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Annex section	8	High-Pressure Sodium: (1) 150W Lamp	Wall Switch	188	4,380	Fixture Replacement	No	8	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	56	4,380	0.69	5,303	0.0	\$710.08	\$7,727.72	\$800.00	9.76
Door 17	2	Incandescent: Spot light - 1 lamp	Wall Switch	75	4,380	Relamp	No	2	LED Screw-In Lamps: Spot light - 1 lamp	Wall Switch	11	4,380	0.08	642	0.0	\$85.99	\$34.45	\$10.00	0.28
Door 11	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	4,380	None	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	4,380	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Door 10	1	High-Pressure Sodium: (1) 70W Lamp	Wall Switch	95	4,380	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	29	4,380	0.04	335	0.0	\$44.85	\$965.97	\$100.00	19.31
Door 9	1	High-Pressure Sodium: (1) 70W Lamp	Wall Switch	95	4,380	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	29	4,380	0.04	335	0.0	\$44.85	\$965.97	\$100.00	19.31
Door 8	1	Compact Fluorescent: Screw-in 1 lamp	Wall Switch	42	4,380	Relamp	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	29	4,380	0.01	63	0.0	\$8.50	\$17.23	\$5.00	1.44
Door 7	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	4,380	None	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	4,380	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Door 6	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	4,380	None	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	4,380	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Door 5	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	4,380	None	No	1	LED Screw-In Lamps: Screw-in 1 lamp	Wall Switch	18	4,380	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Side pole high	22	Metal Halide: (1) 150W Lamp	Wall Switch	190	4,380	Fixture Replacement	No	22	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Wall Switch	57	4,380	1.92	14,738	0.0	\$1,973.50	\$20,472.41	\$2,200.00	9.26
100 Hallway	11	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	11	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.15	955	0.0	\$127.84	\$1,157.67	\$110.00	8.19
100 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
200 Hallway	12	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	12	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.17	1,042	0.0	\$139.47	\$1,190.18	\$120.00	7.67
200 Hallway	2	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$144.83	\$0.00	0.00
200 Hallway	30	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	30	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.10	629	0.0	\$84.28	\$5,000.00	\$0.00	59.33
200 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
200 Hallway	18	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	18	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.06	378	0.0	\$50.57	\$1,800.00	\$0.00	35.60
200 Hallway	6	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	6	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.02	126	0.0	\$16.86	\$200.00	\$0.00	11.87
200 Hallway	1	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$72.42	\$0.00	0.00
200 Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
300 Hallway	8	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	8	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.03	168	0.0	\$22.47	\$200.00	\$0.00	8.90
300 Hallway	4	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	4	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$289.66	\$0.00	0.00
300 Hallway	24	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	None	Yes	24	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,504	0.14	859	0.0	\$115.01	\$3,200.00	\$0.00	27.82
300 Hallway	12	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	12	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.04	252	0.0	\$33.71	\$800.00	\$0.00	23.73

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
300 Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
300 section annex	4	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	No	4	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
300 section annex	6	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	6	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
300 section annex	1	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$72.42	\$0.00	0.00
300 section annex	13	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	13	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
400 Hallway	32	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	32	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.11	671	0.0	\$89.89	\$5,000.00	\$0.00	55.62
400 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
400 Hallway	4	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	4	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$289.66	\$0.00	0.00
400 Hallway	18	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	None	Yes	18	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,504	0.10	644	0.0	\$86.26	\$1,800.00	\$0.00	20.87
400 Hallway	8	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	8	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.03	168	0.0	\$22.47	\$200.00	\$0.00	8.90
400 Hallway	7	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	7	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.02	147	0.0	\$19.66	\$200.00	\$0.00	10.17
600 section - Music center hall	5	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	No	5	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
700 section	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	1	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.00	21	0.0	\$2.81	\$200.00	\$0.00	71.20
700 section	4	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	None	Yes	4	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	2,504	0.03	215	0.0	\$28.75	\$0.00	\$0.00	0.00
700 section	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	None	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,504	0.02	143	0.0	\$19.17	\$0.00	\$0.00	0.00
700 section	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
700 section	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
700 section	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
700 section	12	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	None	Yes	12	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,504	0.07	429	0.0	\$57.51	\$200.00	\$0.00	3.48
700 section	10	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	None	Yes	10	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	2,504	0.09	537	0.0	\$71.88	\$200.00	\$0.00	2.78
Stairwell 702	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
Stairwell 702	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	None	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
800 section hall	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
800 section hall	8	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	None	Yes	8	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	2,504	0.07	429	0.0	\$57.51	\$200.00	\$0.00	3.48
800 section hall	9	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	None	Yes	9	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,504	0.05	322	0.0	\$43.13	\$200.00	\$0.00	4.64

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
800 section hall	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	None	Yes	1	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.00	21	0.0	\$2.81	\$0.00	\$0.00	0.00
Stairwell 711	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	None	No	3	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,577	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Stairwell 711	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
500 section hall	9	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	Yes	9	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,504	0.12	781	0.0	\$104.60	\$492.64	\$90.00	3.85
500 section hall	1	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$72.42	\$0.00	0.00
Basement	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,577	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,577	0.01	66	0.0	\$8.81	\$32.52	\$10.00	2.55
Basement	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.04	271	0.0	\$36.35	\$73.03	\$20.00	1.46
Basement	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,577	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,577	0.32	2,036	0.0	\$272.65	\$547.73	\$150.00	1.46
Basement	1	Exit Signs: Fluorescent	None	6	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$72.42	\$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	Heating system	1	Heating Hot Water Pump	7.5	85.5%	No	3,391	No	85.5%	Yes	1	0.99	9,653	0.0	\$1,292.53	\$3,606.80	\$0.00	2.79
Boiler room	Heating system	1	Heating Hot Water Pump	7.5	84.0%	No	3,391	No	84.0%	Yes	1	1.00	9,825	0.0	\$1,315.62	\$3,606.80	\$0.00	2.74
Boiler room	Heating system	1	Heating Hot Water Pump	3.0	81.5%	No	2,745	No	81.5%	Yes	1	0.41	3,279	0.0	\$439.06	\$3,007.65	\$0.00	6.85
Boiler room	Heating system	2	Heating Hot Water Pump	7.5	84.0%	No	3,391	No	84.0%	Yes	2	2.01	19,650	0.0	\$2,631.23	\$7,213.60	\$0.00	2.74
Boiler room	DHW system	1	Water Supply Pump	0.1	60.0%	No	2,745	No	60.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler room	DHW system	1	Water Supply Pump	1.0	72.0%	No	2,745	No	72.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	101 section	2	Supply Fan	35.0	93.6%	No	4,067	No	93.6%	Yes	2	18.75	32,333	0.0	\$4,329.53	\$16,944.10	\$5,600.00	2.62
Roof	Section 103	1	Supply Fan	10.0	91.7%	No	3,391	No	91.7%	Yes	1	2.73	3,931	0.0	\$526.38	\$3,807.95	\$800.00	5.71
Roof	Section 102	2	Supply Fan	35.0	93.6%	No	4,067	No	93.6%	Yes	2	18.75	32,333	0.0	\$4,329.53	\$16,944.10	\$5,600.00	2.62
Roof	300 section	2	Supply Fan	15.0	92.4%	No	3,391	No	92.4%	Yes	2	8.14	11,704	0.0	\$1,567.19	\$10,388.90	\$2,400.00	5.10
Roof	300 section	1	Return Fan	10.0	91.7%	No	3,391	No	91.7%	Yes	1	2.73	3,931	0.0	\$526.38	\$3,807.95	\$800.00	5.71
Roof	600 section	1	Supply Fan	20.0	93.0%	No	3,391	No	93.0%	Yes	1	5.39	7,752	0.0	\$1,038.05	\$6,334.30	\$1,600.00	4.56
Roof	600 section	1	Return Fan	10.0	91.7%	No	3,391	No	91.7%	Yes	1	2.73	3,931	0.0	\$526.38	\$3,807.95	\$800.00	5.71
Roof	400 section	2	Supply Fan	20.0	93.0%	No	3,391	No	93.0%	Yes	2	10.78	15,505	0.0	\$2,076.11	\$12,668.60	\$3,200.00	4.56
Roof	400 section	1	Return Fan	10.0	91.7%	No	3,391	No	91.7%	Yes	1	2.73	3,931	0.0	\$526.38	\$3,807.95	\$800.00	5.71
Roof	200 section	1	Supply Fan	20.0	93.0%	No	3,391	No	93.0%	Yes	1	5.39	7,752	0.0	\$1,038.05	\$6,334.30	\$1,600.00	4.56
Roof	200 section	1	Return Fan	10.0	91.7%	No	3,391	No	91.7%	Yes	1	2.73	3,931	0.0	\$526.38	\$3,807.95	\$800.00	5.71
Roof	Stage Auditorium	1	Supply Fan	5.0	89.5%	No	2,745	No	89.5%	Yes	1	0.68	824	0.0	\$110.29	\$3,275.85	\$400.00	26.07
Roof	Unknown	1	Supply Fan	10.0	91.7%	No	3,391	No	91.7%	Yes	1	2.73	3,931	0.0	\$526.38	\$3,807.95	\$800.00	5.71
Roof	Unknown	1	Return Fan	5.0	89.5%	No	2,745	No	89.5%	Yes	1	0.68	824	0.0	\$110.29	\$3,275.85	\$400.00	26.07

Location	Area(s)/System(s) Served	Existing Conditions						Proposed Conditions				Energy Impact & Financial Analysis						
		Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Annual Operating Hours	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof	500 section	1	Supply Fan	10.0	91.7%	No	3,391	No	91.7%	Yes	1	2.73	3,931	0.0	\$526.38	\$3,807.95	\$800.00	5.71
Roof	500 section	2	Return Fan	2.0	86.5%	No	2,745	No	86.5%	Yes	2	0.56	682	0.0	\$91.30	\$5,457.71	\$320.00	56.28
Roof	Unknown	1	Supply Fan	15.0	92.4%	No	3,391	No	92.4%	Yes	1	4.07	5,852	0.0	\$783.60	\$5,194.45	\$1,200.00	5.10
Roof	Unknown	1	Return Fan	7.5	85.5%	No	3,391	No	85.5%	Yes	1	2.20	3,162	0.0	\$423.42	\$3,606.80	\$600.00	7.10
Roof	All school	14	Exhaust Fan	0.3	60.0%	No	2,745	No	60.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Unknown	1	Supply Fan	7.5	91.7%	No	3,391	No	91.7%	Yes	1	2.05	2,948	0.0	\$394.79	\$3,606.80	\$600.00	7.62
Roof	Unknown	1	Return Fan	3.0	86.5%	No	2,745	No	86.5%	Yes	1	0.42	511	0.0	\$68.47	\$3,007.65	\$240.00	40.42
Classroom	Classrooms	75	Supply Fan	0.3	60.0%	No	2,745	No	60.0%	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
1/2 - 700-800, upper and lower, front half	Section 101	1	Packaged AC	70.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Section 103	1	Packaged AC	13.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Section 102	1	Packaged AC	70.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	300 section	1	Packaged AC	60.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	600 section	1	Packaged AC	40.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	400 section	1	Packaged AC	50.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	200 section	1	Packaged AC	50.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Stage Auditorium	1	Packaged AC	13.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Unknown	1	Packaged AC	40.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	500 section	1	Packaged AC	20.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Unknown	1	Packaged AC	50.00		Yes	1	Packaged AC	50.00		11.00		No	3.65	6,169	0.0	\$826.06	\$110,798.58	\$0.00	134.13
Roof	Unknown	1	Packaged AC	40.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Gym	1	Split-System AC	2.50		Yes	1	Split-System AC	2.50		14.00		No	0.66	1,114	0.0	\$149.19	\$3,740.55	\$230.00	23.53
Roof	Unknown	1	Split-System AC	12.00		Yes	1	Split-System AC	12.00		11.50		No	0.46	780	0.0	\$104.39	\$13,918.18	\$948.00	124.25
Roof	Unknown	1	Split-System AC	4.00		Yes	1	Split-System AC	4.00		14.00		No	-0.04	-75	0.0	-\$9.99	\$5,984.88	\$368.00	-562.19
Roof	Unknown	1	Split-System AC	2.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Unknown	1	Packaged AC	20.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Server closet	1	Split-System AC	2.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Classrooms 318,319,326,320,321,322, 323,324,Kitchen	Classrooms 318,319,326,320,321,322, 323,324,Kitchen	8	Packaged Terminal AC	2.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Grounds	Wood shop	1	Split-System AC	2.00		Yes	1	Split-System AC	2.00		14.00		No	0.27	449	0.0	\$60.14	\$2,992.44	\$184.00	46.70

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	Non-Condensing Hot Water Boiler	1,540.00	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler room	Whole building	1	Non-Condensing Hot Water Boiler	1,752.00	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler room	Whole building	1	Non-Condensing Hot Water Boiler	2,094.00	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	All school	1	Storage Tank Water Heater (> 50 Gal)	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Walk-In Cooler/Freezer Inventory & Recommendations

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

Commercial Refrigerator/Freezer Inventory & Recommendations

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	1	Freezer Chest	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	1	Stand-Up Refrigerator, Glass Door (16 - 30 cu. ft.)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	1	Stand-Up Refrigerator, Glass Door (≤15 cu. ft.)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	1	Refrigerator Chest	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 Equipement?	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	2	Insulated Food Holding Cabinet (Full Size)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	2	Gas Convection Oven (Half Size)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	1	Electric Steamer	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	1	Insulated Food Holding Cabinet (Full Size)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	2	Insulated Food Holding Cabinet (1/2 Size)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00


Plug Load Inventory

Existing Conditions				
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?
Kitchen	1	Pretzel Warmer	1,550.0	Yes
Commuinty MS	198	Desktop	145.0	Yes
Commuinty MS	50	Desk Printer	60.0	Yes
Commuinty MS	50	Projectors	200.0	Yes
Commuinty MS	5	Photo copier	200.0	Yes
Commuinty MS	14	Laptop	75.0	Yes
Commuinty MS	1	Photo copier	60.0	Yes
Commuinty MS	8	Smart Board	5.0	Yes
Commuinty MS	11	Refrigerator	220.0	Yes
Commuinty MS	7	LCD TV	100.0	Yes
Commuinty MS	19	Mini Fridge	60.0	Yes
Commuinty MS	20	Microwave	900.0	Yes
Commuinty MS	2	CRT TV	120.0	Yes
Commuinty MS	1	Air compressor	2,000.0	Yes
Commuinty MS	3	Shredder	200.0	Yes
Commuinty MS	5	Small 3-D printer	60.0	Yes
Commuinty MS	2	Dishwasher	1,500.0	Yes
Commuinty MS	1	Clothes dryer	900.0	Yes
Commuinty MS	1	Clothes washer	1,500.0	Yes
Commuinty MS	2	Water cooler/heater	550.0	Yes
Commuinty MS	5	Electrical stove	3,000.0	Yes
Commuinty MS	1	Air purifier	50.0	Yes
Commuinty MS	1	Standing fan	60.0	Yes
Commuinty MS	7	Chrome book cart	40.0	Yes
Commuinty MS	4	Document scanner	40.0	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
Gym/Commons hall - front	1	Refrigerated	Yes	0.00	1,612	0.0	\$215.83	\$230.00	\$0.00	1.07
Gate/Commons	1	Refrigerated	Yes	0.00	1,612	0.0	\$215.83	\$230.00	\$0.00	1.07
Faculty Lounge	1	Refrigerated	Yes	0.00	1,612	0.0	\$215.83	\$230.00	\$0.00	1.07

Appendix B: ENERGY STAR® Statement of Energy Performance



ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

10

ENERGY STAR®
Score¹

Community Middle School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 141,802
Built: 1988

For Year Ending: November 30, 2017
Date Generated: September 17, 2018

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

Property & Contact Information			
Property Address	Property Owner	Primary Contact	
Community Middle School 95 Grovers Mill Road Plainboro, New Jersey 08536	_____ () - _____	_____ () - _____	
Property ID: 6389186			
Energy Consumption and Energy Use Intensity (EUI)			
Site EUI	Annual Energy by Fuel		National Median Comparison
106.5 kBtu/ft ²	Electric - Grid (kBtu)	8,518,886 (56%)	National Median Site EUI (kBtu/ft ²) 66.7
	Natural Gas (kBtu)	6,584,084 (44%)	National Median Source EUI (kBtu/ft ²) 136
			% Diff from National Median Source EUI 60%
Source EUI	Annual Emissions		
217 kBtu/ft ²	Greenhouse Gas Emissions (Metric Tons CO ₂ e/year)		1,213

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)