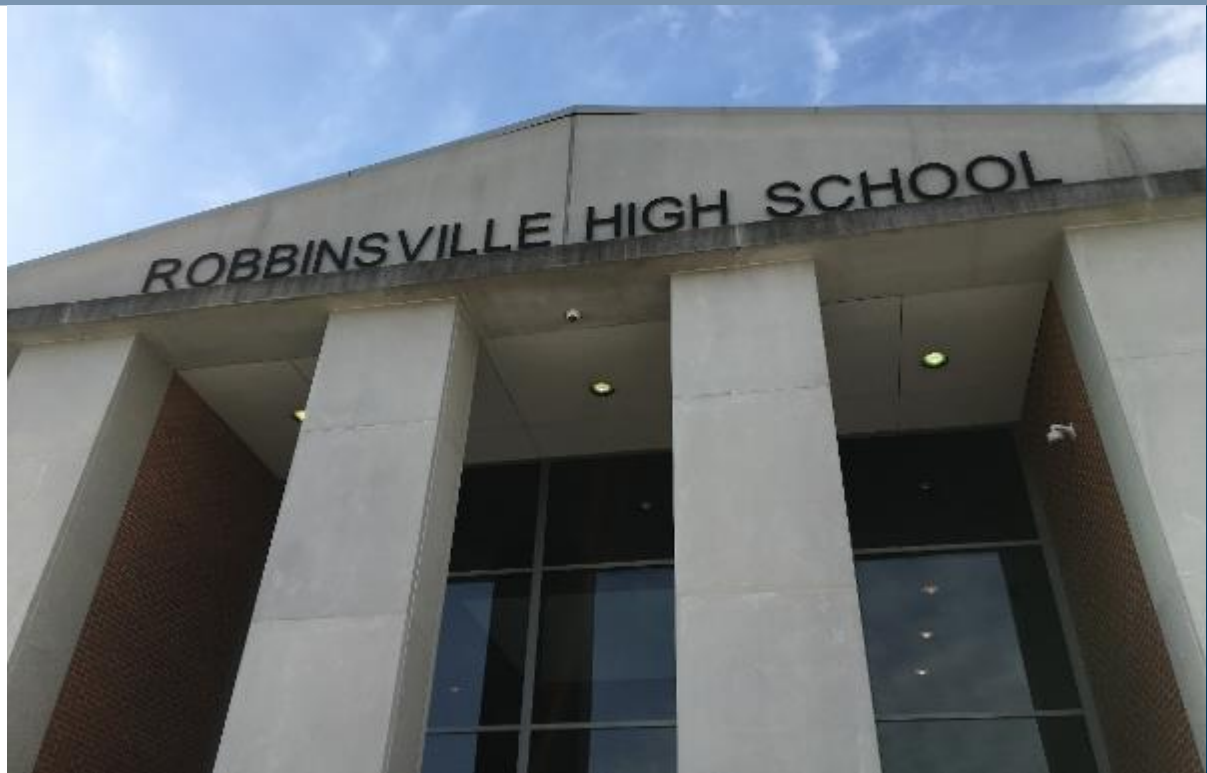




Local Government Energy Audit: Energy Audit Report



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Robbinsville High School

155 Robbinsville Edinburg Rd

Robbinsville, NJ 08691

Robbinsville Board of Education

September 5, 2018

Final Report by:

TRC Energy Services

Disclaimer

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

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

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

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

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I EXECUTIVE SUMMARY

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

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

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

I.1 Building Summary

The Robbinsville High School is a 222,000 square foot, two-story building comprised of various space types including classrooms, offices, cafeteria, commercial kitchen, auditorium, gymnasium, and fitness center.

Lighting at the Robbinsville High School consists of aging and inefficient fluorescent lighting and some incandescent light fixtures. Heating and cooling is supplied by two large absorption chillers with hot and chilled water distribution. Domestic hot water is produced by the absorption chillers via indirect storage tanks. A thorough description of the building and our observations are located in Section 2.

I.2 Your Cost Reduction Opportunities

Energy Conservation Measures

TRC evaluated six measures which together represent an opportunity for the Robbinsville High School to reduce annual energy costs by \$43,966 and annual greenhouse gas emissions by 368,143 lbs CO₂e. We estimate that if all measures were implemented as recommended, the project would pay for itself in 9.0 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 the Robbinsville High School's annual energy use by 6%.

Figure 1 – Previous 12 Month Utility Costs

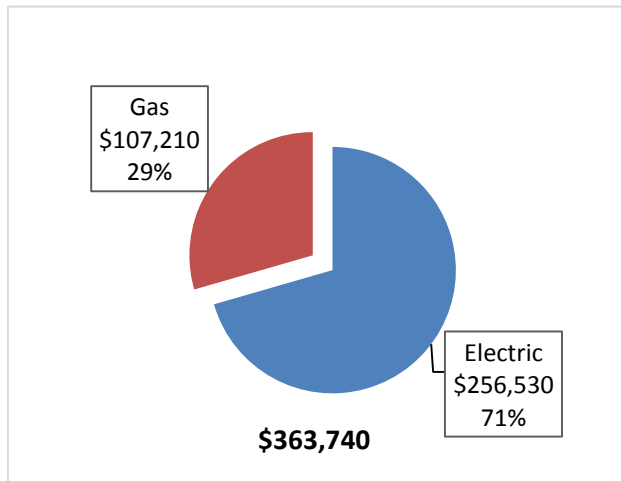
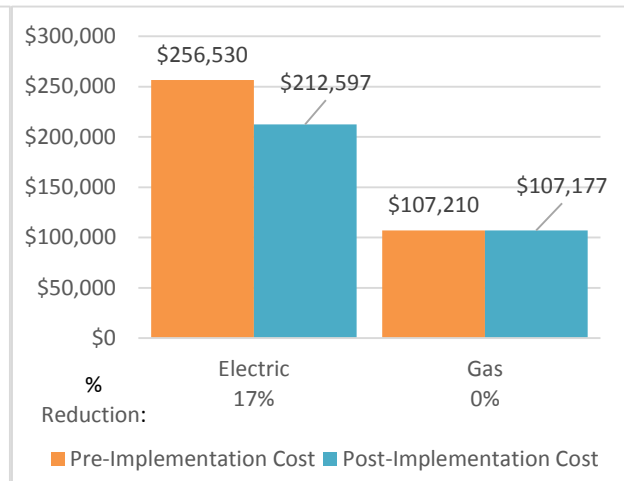


Figure 2 – Potential Post-Implementation Costs



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

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

Figure 3 – Summary of Energy Reduction Opportunities

Energy Conservation Measure	Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		321,036	90.4	0.0	\$38,633.71	\$387,558.90	\$23,265.00	\$364,293.90	9.4	323,281
ECM 1	Install LED Fixtures	114,749	41.2	0.0	\$13,808.96	\$234,673.07	\$2,980.00	\$231,693.07	16.8	115,551
ECM 2	Retrofit Fixtures with LED Lamps	206,287	49.2	0.0	\$24,824.75	\$152,885.83	\$20,285.00	\$132,600.83	5.3	207,730
Lighting Control Measures		10,432	2.1	0.0	\$1,255.35	\$10,150.00	\$880.00	\$9,270.00	7.4	10,505
ECM 3	Install Occupancy Sensor Lighting Controls	2,808	0.7	0.0	\$337.96	\$6,750.00	\$280.00	\$6,470.00	19.1	2,828
ECM 4	Install High/Low Lighting Controls	7,623	1.4	0.0	\$917.39	\$3,400.00	\$600.00	\$2,800.00	3.1	7,677
Motor Upgrades		33,603	6.2	0.0	\$4,043.79	\$22,314.25	\$0.00	\$22,314.25	5.5	33,838
ECM 5	Premium Efficiency Motors	33,603	6.2	0.0	\$4,043.79	\$22,314.25	\$0.00	\$22,314.25	5.5	33,838
HVAC System Improvements		0	0.0	4.4	\$32.91	\$65.25	\$0.00	\$65.25	2.0	520
ECM 6	Install Pipe Insulation	0	0.0	4.4	\$32.91	\$65.25	\$0.00	\$65.25	2.0	520
Plug Load Equipment Control - Vending Machine		0	0.0	0.0	\$0.00	\$1,610.00	\$0.00	\$1,610.00	0.0	0
TOTALS		365,071	98.7	4.4	\$43,965.75	\$421,698.40	\$24,145.00	\$397,553.40	9.0	368,143

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

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

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

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

Motor Upgrades generally involve replacing older standard efficiency motors with high efficiency standard (NEMA Premium). Motors replacements generally assume the same size motors, just higher

efficiency. Although occasionally additional savings can be achieved by downsizing motors to better meet current load requirements. This measure saves energy by reducing the power used by the motors, due to improved electrical efficiency.

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

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

Energy Efficient Practices

TRC also identified 13 low cost (or no cost) energy efficient practices. A building’s energy performance can be significantly improved by employing certain behavioral or operational adjustments and by performing better routine maintenance on building systems. These practices can extend equipment lifetime, improve occupant comfort, provide better health and safety, as well as reduce annual energy and O&M costs. Potential opportunities identified at the Robbinsville High School include:

- Reduce Air Leakage
- Use Window Treatments/Coverings
- Perform Proper Lighting Maintenance
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Use Fans to Reduce Cooling Load
- Practice Proper Use of Thermostat Schedules and Temperature Resets
- Assess Chillers & Request Tune-Ups
- Clean Evaporator/Condenser Coils on AC Systems
- Clean and/or Replace HVAC Filters
- Check for and Seal Duct Leakage
- 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 the Robbinsville High School. Based on the configuration of the site and its loads there is a high potential for installing a photovoltaic (PV) array.

Figure 4 – Photovoltaic Potential

Potential	High	
System Potential	397	kW DC STC
Electric Generation	472,974	kWh/yr
Displaced Cost	\$41,150	/yr
Installed Cost	\$1,548,300	

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 building upgrades or improvements.

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

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

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

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

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the Energy Savings Improvement Program (ESIP). Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as, attractive financing for implementing ECMs. An LGEA report (or other approved energy audit) is required for participation in ESIP. Please refer to Section 8.2 for additional information on the ESIP Program.

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

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

2 BUILDING INFORMATION AND EXISTING CONDITIONS

2.1 Project Contacts

Figure 5 – Project Contacts

Name	Role	E-Mail	Phone #
Customer			
Kim Keener	Manager of Facilities and Community Education	kkeener@robbinsville.k12.nj.us	609-632-0910
Designated Representative			
Kim Keener	Manager of Facilities and Community Education	kkeener@robbinsville.k12.nj.us	609-632-0910
TRC Energy Services			
Alexander Klieverik	Auditor	aklieverik@trcsolutions.com	(732) 855-0033

2.2 General Site Information

On January 04, 2018, TRC performed an energy audit at the Robbinsville High School located in Robbinsville, New Jersey. TRC’s team met with Kim Keener, Manager of Facilities and Community Education to review the building operations and help focus our investigation on specific energy-using systems.

The Robbinsville High School is a 222,000 square foot, two-story building comprised of various space types including classrooms, offices, cafeteria, commercial kitchen, auditorium, gymnasium, and fitness center.

The building was constructed in 2005.

2.3 Building Occupancy

The school building is open Monday through Friday and on weekends when necessary. The typical schedule is presented in the table below. The entire building is used year round by the community and camps are run throughout the summer. During a typical day, the building is occupied by 200 staff and 1,000 students.

Figure 6 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
Robbinsville High School	Weekday	6:00 AM to 4:00 PM
Robbinsville High School	Weekend	As Needed

2.4 Building Envelope

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



2.5 On-Site Generation

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

2.6 Energy-Using Systems

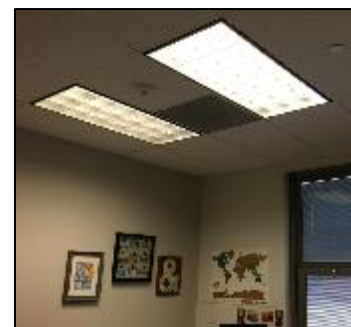
Please see Appendix A: Equipment Inventory & Recommendations for an inventory of the building's equipment.

Lighting System

Lighting at the building is provided mostly by 32-Watt linear fluorescent T8 lamps with electronic ballasts as well as some compact fluorescent lamps (CFL). Several configurations of fluorescent fixtures are used, including lensed and louvered direct lighting and suspended semi-direct lighting systems.

The auditorium contains a mixture of halogen, metal halide, and incandescent fixtures.

Lighting control in most spaces is provided by occupancy sensors. Occupancy sensors are either wall or ceiling mounted depending on the space layout. Stairwells, corridors, and main lobby areas do not contain any occupancy sensors and are operated on a switch.



The building's exterior lighting consists primarily of metal halide and LED fixtures that are controlled by photocells or timers.



Chilled Water & Heating Water System

The building has two hybrid, natural gas-fired, 330-ton absorption chillers with a heating capacity of 5,500 MBH. The units provide either heating water or chilled water for unit ventilators and rooftop units located throughout the building. The system generally operates in heating mode from mid-October through mid-April and in cooling mode the rest of the year. Supply heating water is circulated by three 20 hp variable flow pumps. Supply chilled water is circulated by two 30 hp variable flow pumps. Heating water is supplied at 170°F and chilled water is supplied at 45°F. On the roof of the building there is an open cell cooling tower with two 25 hp fans and two 25 hp circulation pumps. Because of the size of the building, the return line for heating water has two 7.5 hp booster pumps.



The absorption chillers are controlled by a Broad AI Control panel and operate in a lead/lag configuration. Both boilers may be required during cold weather. The lead boiler is rotated weekly.

The boilers are in good condition and well maintained.

Heating and Cooling Distribution System

The building heating and cooling system supplies hot and chilled water to unit ventilators, air handlers, and rooftop units throughout the building. There is a mechanical room on the second floor containing four air handler units (AHUs) with hot water and chilled water coils which serve the media center, Café area, the east side auditorium hallway and rooms, and 19 classrooms.

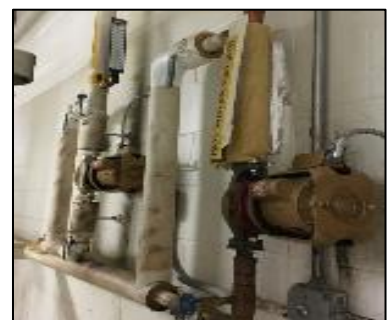


The roof contains additional AHUs which serve the west and south side of the auditorium, main gymnasium, auxiliary gymnasium, auditorium seating area (front and back), stage area, and the black box. The classrooms, offices, and various other spaces not served by these units, have AHUs in mechanical closets located between classrooms in the A, B, C, and D wings of the building.



Domestic Hot Water Heating System

Domestic hot water is produced by the absorption chillers that heat and cool the building. The mechanical room contains two storage tanks, each with a mixing valve and ¼ hp circulation pump. Domestic hot water is mixed down and circulated throughout the building at 125°F. The recirculation pumps operate on an aquastat.



Food Service Equipment

The building has a full commercial kitchen that is used to prepare breakfast and lunch for the students and staff. Approximately 300 breakfasts and 500 lunches are prepared every weekday. The ovens, range tops and griddle are all gas fired. The ovens and griddle are turned on at 6:00 AM when the kitchen staff arrives and turned off at 2:00 PM when lunch service stops. There is a conveyor dishwasher with a booster heater that provides 145°F rinse water. The dishwasher operates from 7:00 AM to 10:00 AM and again from noon to 3:00 PM. Steam is supplied to the kitchen equipment from the central steam plant.



Refrigeration

The building has two different cold storage areas: a walk-in cooler area and a walk-in freezer area. The cooler area is maintained at a constant temperature of 35°F and the freezer area is maintained at a constant -5°F. The cooler area is served by two evaporators and the freezer area is served by three evaporators, each having a single 1/8 HP motor. There are two 5 hp condensing units with reciprocating compressors connected to evaporators serving the cooler and freezer sections.



Building Plug Load

There are roughly 250 computer work stations throughout the building. Roughly 90% of the computers are desktop units with LCD monitors. There is no centralized PC power management software installed.



There are six refrigerated beverage vending machines located throughout the building. Four are located in the cafeteria, one in the hallway near the weight room, and one located in the mechanical room hallway. There is also a non-refrigerated snack vending machine located in the cafeteria. All refrigerated vending machines have controls installed.



Also contributing to the building's plug load, is an electric kiln located in the art room, as well as a variety of shop equipment in the tech room.



2.7 Water-Using Systems

There are 18 restrooms at this building. A sampling of restrooms found that the faucets are rated for 2.2 gallons per minute (gpm) or lower, the toilets are rated at 2.5 gallons per flush (gpf) and the urinals are rated at 2 gpf. There is one restroom located near the weight room with a shower that some students and staff occasionally use. The showerhead is rated at 2.5 gpm.

The school has a girls and boys locker room. The girl's locker room has 14 showerheads and the boy's locker room has 18 showerheads. All of the showerheads are rated at 2.5 gpm. The showers in the boy's and girl's locker rooms are only used during the school year for after school sports teams.

3 SITE ENERGY USE AND COSTS

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

3.1 Total Cost of Energy

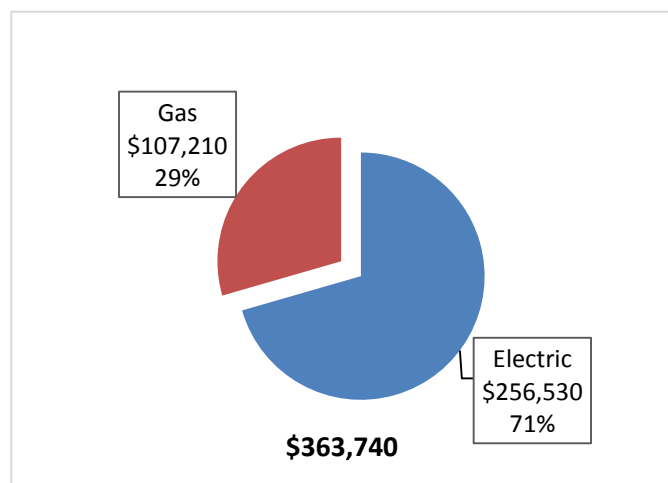
The following energy consumption and cost data is based on the last 12-month period of utility billing data that was provided for each utility. A profile of the annual energy consumption and energy cost of the building was developed from this information.

Figure 7 - Utility Summary

Utility Summary for Robbinsville High School		
Fuel	Usage	Cost
Electricity	2,131,696 kWh	\$256,530
Natural Gas	144,698 Therms	\$107,210
Total		\$363,740

The current annual energy cost for this building is \$363,740 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 \$0.120/kWh, which is the blended rate that includes energy supply, distribution, and other charges. This rate is used throughout the analyses in this report to assess energy costs and savings. The monthly electricity consumption and peak demand are shown in the chart below.

Figure 9 - Electric Usage & Demand

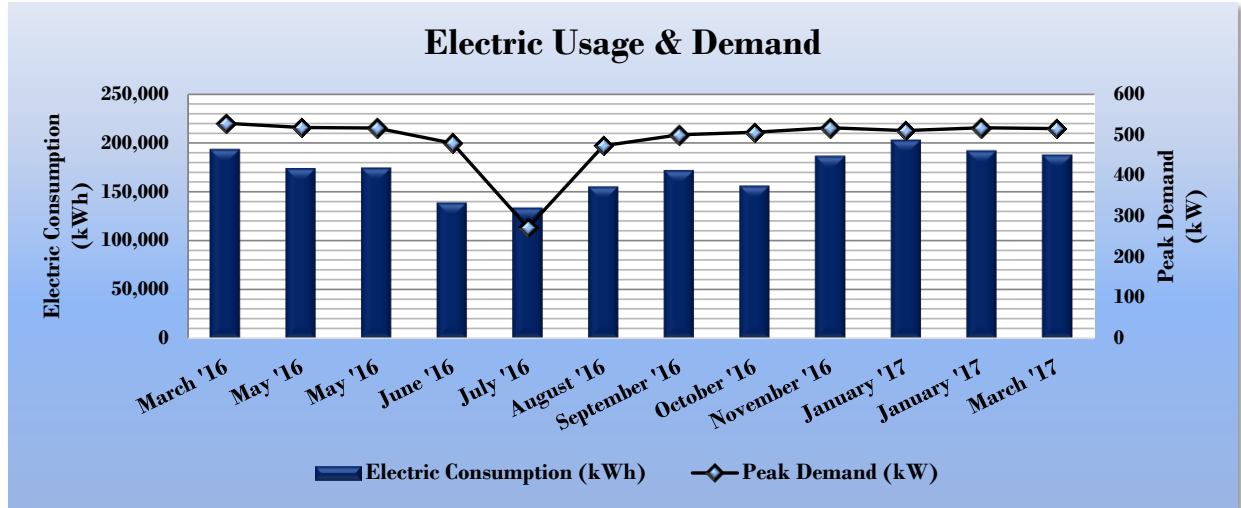


Figure 10 - Electric Usage & Demand

Electric Billing Data for Robbinsville High School					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
4/15/16	29	193,619	529	\$1,937	\$21,356
5/16/16	30	174,040	518	\$1,899	\$19,395
6/15/16	29	174,595	517	\$1,894	\$23,954
7/15/16	29	138,877	480	\$1,758	\$20,446
8/15/16	30	133,674	271	\$994	\$17,336
9/14/16	29	155,221	473	\$1,746	\$22,070
10/13/16	28	171,821	501	\$1,864	\$19,546
11/11/16	28	155,981	507	\$1,886	\$17,744
12/14/16	32	186,658	517	\$1,927	\$20,970
1/17/17	33	203,065	511	\$1,901	\$22,748
2/14/17	27	192,130	518	\$1,925	\$21,670
3/16/17	30	187,772	516	\$1,931	\$21,565
Totals	354	2,067,453	528.7	\$21,665	\$248,799
Annual	365	2,131,696	528.7	\$22,338	\$256,530

3.3 Natural Gas Usage

Natural gas is provided by PSE&G. The average gas cost for the past 12 months is \$0.741/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

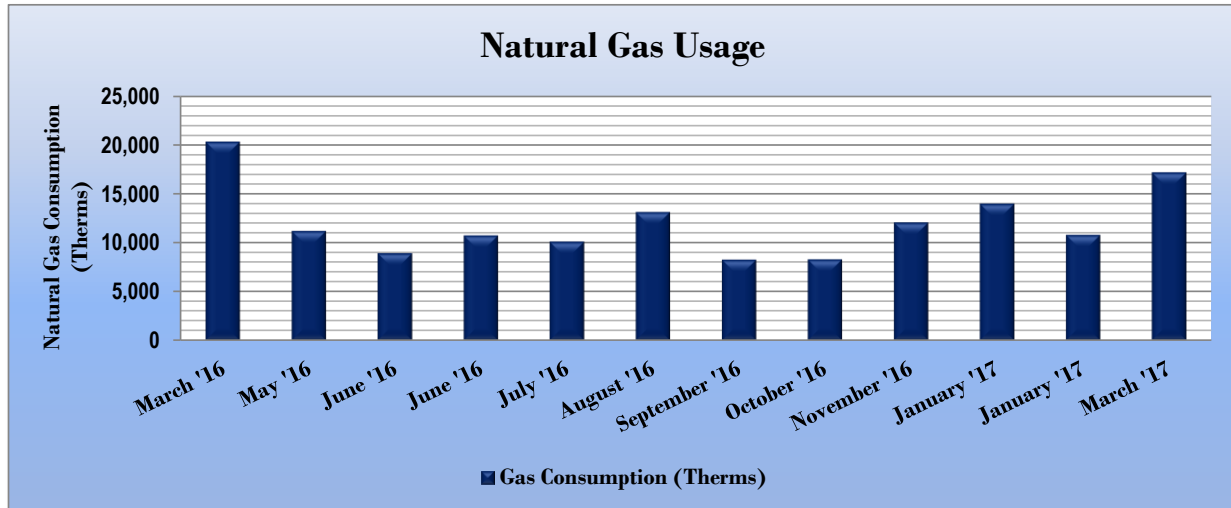


Figure 12 - Natural Gas Usage

Gas Billing Data for Robbinsville High School			
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost
4/15/16	30	20,289	\$12,625
5/16/16	31	11,180	\$6,488
6/16/16	31	8,908	\$5,197
7/15/16	29	10,716	\$6,230
8/15/16	31	10,082	\$5,868
9/14/16	30	13,108	\$7,487
10/13/16	29	8,242	\$4,608
11/11/16	29	8,259	\$6,885
12/14/16	33	12,037	\$9,442
1/17/17	34	13,955	\$13,406
2/14/17	28	10,769	\$12,080
3/16/17	30	17,155	\$16,894
Totals	365	144,698	\$107,210
Annual	365	144,698	\$107,210

3.4 Benchmarking

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

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

Figure 13 - Energy Use Intensity Comparison – Existing Conditions

Energy Use Intensity Comparison - Existing Conditions		
	Robbinsville High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft ²)	171.3	141.4
Site Energy Use Intensity (kBtu/ft ²)	97.9	58.2

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

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

Energy Use Intensity Comparison - Following Installation of Recommended Measures		
	Robbinsville High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft ²)	153.7	141.4
Site Energy Use Intensity (kBtu/ft ²)	92.3	58.2

Many types of commercial buildings are also eligible to receive an ENERGY STAR® score. This score is a percentile ranking from 1 to 100. It compares your building’s energy performance to similar buildings nationwide. A score of 50 represents median energy performance, while a score of 75 means your building performs better than 75% of all similar buildings nationwide and may be eligible for ENERGY STAR® certification. This facility has a current score of 39.

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

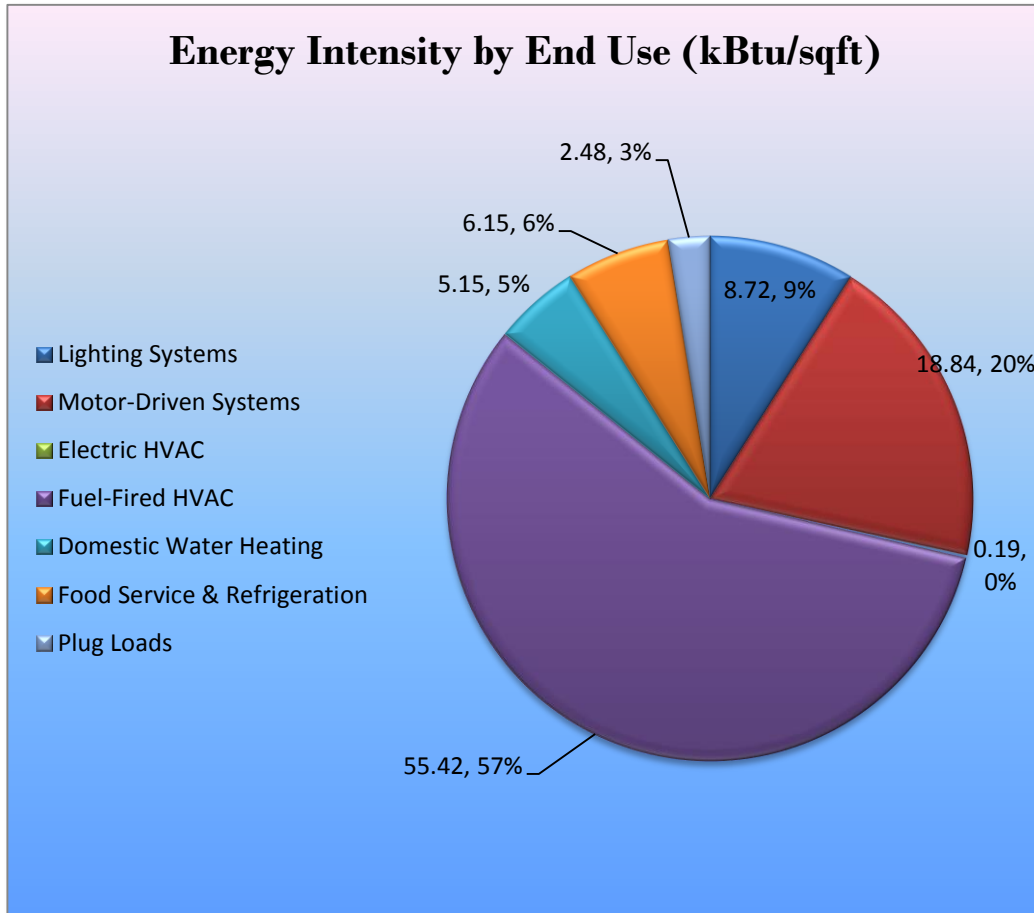
For more information on ENERGY STAR® certification go to: <https://www.energystar.gov/buildings/building-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1>.

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

3.5 Energy End-Use Breakdown

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

Figure 15 - Energy Balance (kBtu/SF)



4 ENERGY CONSERVATION MEASURES

Level of Analysis

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

The following sections describe the evaluated measures.

4.1 Recommended ECMs

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

Figure 16 – Summary of Recommended ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		321,036	90.4	0.0	\$38,633.71	\$387,558.90	\$23,265.00	\$364,293.90	9.4	323,281
ECM 1	Install LED Fixtures	114,749	41.2	0.0	\$13,808.96	\$234,673.07	\$2,980.00	\$231,693.07	16.8	115,551
ECM 2	Retrofit Fixtures with LED Lamps	206,287	49.2	0.0	\$24,824.75	\$152,885.83	\$20,285.00	\$132,600.83	5.3	207,730
Lighting Control Measures		10,432	2.1	0.0	\$1,255.35	\$10,150.00	\$880.00	\$9,270.00	7.4	10,505
ECM 3	Install Occupancy Sensor Lighting Controls	2,808	0.7	0.0	\$337.96	\$6,750.00	\$280.00	\$6,470.00	19.1	2,828
ECM 4	Install High/Low Lighting Controls	7,623	1.4	0.0	\$917.39	\$3,400.00	\$600.00	\$2,800.00	3.1	7,677
Motor Upgrades		33,603	6.2	0.0	\$4,043.79	\$22,314.25	\$0.00	\$22,314.25	5.5	33,838
ECM 5	Premium Efficiency Motors	33,603	6.2	0.0	\$4,043.79	\$22,314.25	\$0.00	\$22,314.25	5.5	33,838
HVAC System Improvements		0	0.0	4.4	\$32.91	\$65.25	\$0.00	\$65.25	2.0	520
ECM 6	Install Pipe Insulation	0	0.0	4.4	\$32.91	\$65.25	\$0.00	\$65.25	2.0	520
TOTALS		365,071	98.7	4.4	\$43,965.75	\$420,088.40	\$24,145.00	\$395,943.40	9.0	368,143

* - 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		321,036	90.4	0.0	\$38,633.71	\$387,558.90	\$23,265.00	\$364,293.90	9.4	323,281
ECM 1	Install LED Fixtures	114,749	41.2	0.0	\$13,808.96	\$234,673.07	\$2,980.00	\$231,693.07	16.8	115,551
ECM 2	Retrofit Fixtures with LED Lamps	206,287	49.2	0.0	\$24,824.75	\$152,885.83	\$20,285.00	\$132,600.83	5.3	207,730

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

ECM 1: Install LED Fixtures

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	107,880	40.1	0.0	\$12,982.38	\$219,828.52	\$380.00	\$219,448.52	16.9	108,635
Exterior	6,869	1.1	0.0	\$826.58	\$14,844.55	\$2,600.00	\$12,244.55	14.8	6,917

Measure Description

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

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

ECM 2: Retrofit Fixtures with LED Lamps

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	206,287	49.2	0.0	\$24,824.75	\$152,885.83	\$20,285.00	\$132,600.83	5.3	207,730
Exterior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.0	0

Measure Description

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

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

4.1.2 Lighting Control Measures

Our recommendations for 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		10,432	2.1	0.0	\$1,255.35	\$10,150.00	\$880.00	\$9,270.00	7.4	10,505
ECM 3	Install Occupancy Sensor Lighting Controls	2,808	0.7	0.0	\$337.96	\$6,750.00	\$280.00	\$6,470.00	19.1	2,828
ECM 4	Install High/Low Lighting Controls	7,623	1.4	0.0	\$917.39	\$3,400.00	\$600.00	\$2,800.00	3.1	7,677

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

ECM 3: Install Occupancy Sensor Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
2,808	0.7	0.0	\$337.96	\$6,750.00	\$280.00	\$6,470.00	19.1	2,828

Measure Description

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

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

ECM 4: 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)
7,623	1.4	0.0	\$917.39	\$3,400.00	\$600.00	\$2,800.00	3.1	7,677

Measure Description

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

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

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

Additional savings from reduced lighting maintenance may also result from this measure, due to reduced lamp operation.

4.1.3 Motor Upgrades

Our recommendations for motor upgrades are summarized in Figure 19 below.

Figure 19 – Summary of Motor Upgrade ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Motor Upgrades		33,603	6.2	0.0	\$4,043.79	\$22,314.25	\$0.00	\$22,314.25	5.5	33,838
ECM 5	Premium Efficiency Motors	33,603	6.2	0.0	\$4,043.79	\$22,314.25	\$0.00	\$22,314.25	5.5	33,838

ECM 5: Premium Efficiency Motors

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
33,603	6.2	0.0	\$4,043.79	\$22,314.25	\$0.00	\$22,314.25	5.5	33,838

Measure Description

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

This measure pertains to the large, older motors associated with hot water and chilled water distribution.

4.1.4 HVAC System Upgrades

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

Figure 20 - Summary of HVAC System Improvement ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
HVAC System Improvements		0	0.0	4.4	\$32.91	\$65.25	\$0.00	\$65.25	2.0	520
ECM 6	Install Pipe Insulation	0	0.0	4.4	\$32.91	\$65.25	\$0.00	\$65.25	2.0	520

ECM 6: Install Pipe Insulation

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
0	0.0	4.4	\$32.91	\$65.25	\$0.00	\$65.25	2.0	520

Measure Description

We recommend installing insulation on heating system piping. Distribution system losses are dependent on heating water system temperature, the size of the distribution system, and the level of insulation of the piping. Significant energy savings can be achieved when insulation has not been well maintained. When the insulation is exposed to water, when the insulation has been removed from some areas of the pipe, or when valves have not been properly insulated system efficiency can be significantly reduced. In this case, we noted a need for insulation for the domestic hot water piping, around the mixing valve

This measure saves energy by reducing heat losses from the heating and/or hot water distribution system.

5 ENERGY EFFICIENT PRACTICES

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

Reduce Air Leakage

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

Use Window Treatments/Coverings

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

Perform Proper Lighting Maintenance

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

Develop a Lighting Maintenance Schedule

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

Ensure Lighting Controls Are Operating Properly

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

Use Fans to Reduce Cooling Load

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

Practice Proper Use of Thermostat Schedules and Temperature Resets

Ensure thermostats are correctly set back. By employing proper set back temperatures and schedules, building 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°F -10°F during low occupancy hours (reduce heating setpoints and increase cooling setpoints). Cooling load can be reduced further by increasing the building's occupied setpoint temperature. In general, during the cooling season, thermostats should be set as high as possible without sacrificing occupant comfort.

Assess Chillers & Request Tune-Ups

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

Clean Evaporator/Condenser Coils on AC Systems

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

Clean and/or Replace HVAC Filters

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

Check for and Seal Duct Leakage

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

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 building, often repurposing any waste heat where applicable. Also referred to as distributed generation, these systems contribute to Greenhouse Gas (GHG) emission reductions, demand reductions and reduced customer electricity purchases, resulting in the electric system reliability through improved transmission and distribution system utilization.

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

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

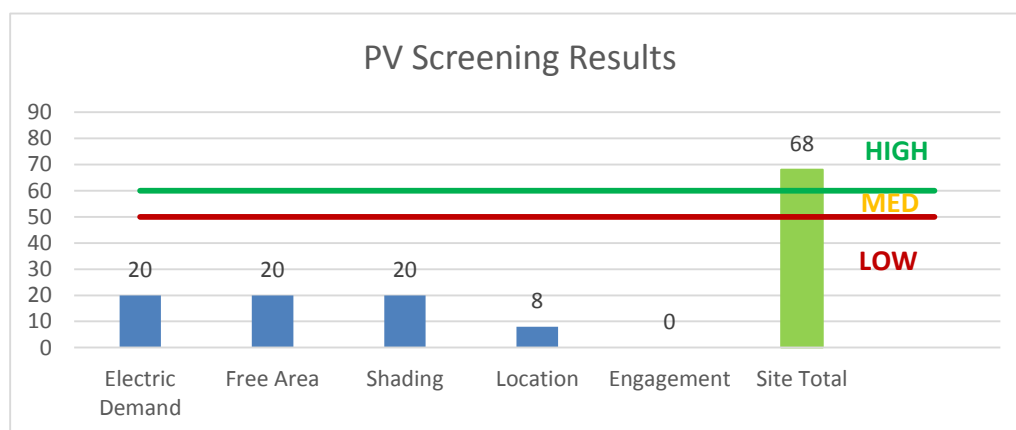
6.1 Photovoltaic

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

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

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

Figure 21 - Photovoltaic Screening



Solar projects must register their projects in the SREC (Solar Renewable Energy Certificate) Registration Program 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.

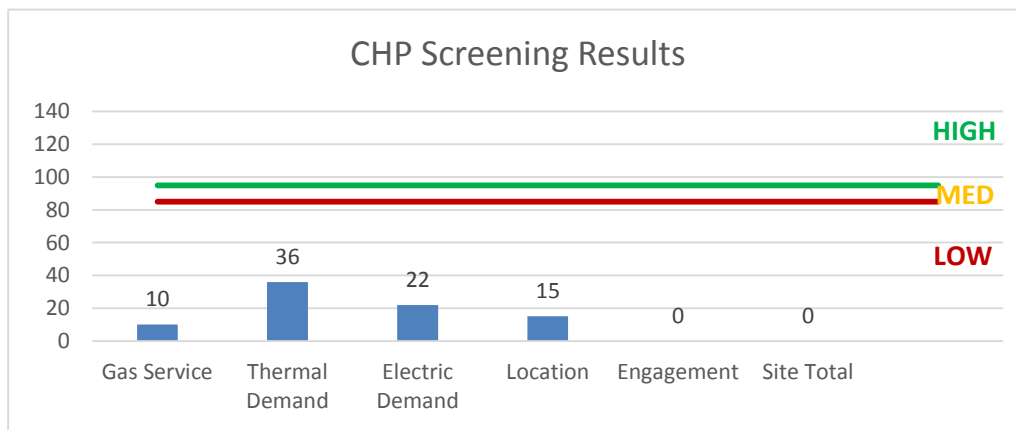
CHP systems are typically used to produce a portion of the electric power used onsite by a building, with the balance of electric power needs supplied by grid purchases. The heat is used to supplement (or supplant) existing boilers for the purpose of space heating and/or domestic hot water heating. Waste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

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

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

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

Figure 22 - 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.

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

Figure 23 - ECM Incentive Program Eligibility

Energy Conservation Measure		SmartStart Prescriptive	SmartStart Custom	Direct Install	Pay For Performance Existing Buildings	Large Energy Users Program	Combined Heat & Power and Fuel Cell
ECM 1	Install LED Fixtures	X					
ECM 2	Retrofit Fixtures with LED Lamps	X					
ECM 3	Install Occupancy Sensor Lighting Controls	X					
ECM 4	Install High/Low Lighting Controls	X					
ECM 5	Premium Efficiency Motors						
ECM 6	Install Pipe Insulation						

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

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

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

8.1 SmartStart

Overview

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

Equipment with Prescriptive Incentives Currently Available:

Electric Chillers

Electric Unitary HVAC

Gas Cooling

Gas Heating

Gas Water Heating

Ground Source Heat Pumps

Lighting

Lighting Controls

Refrigeration Doors

Refrigeration Controls

Refrigerator/Freezer Motors

Food Service Equipment

Variable Frequency Drives

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

Incentives

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

Since your building is an existing building, only the retrofit incentives have been applied in this report. Custom measure incentives are calculated at \$0.16/kWh and \$1.60/therm based on estimated annual savings, capped at 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 Energy Savings Improvement Program

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

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

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

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

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

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

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. SRECs are generated once the solar project has been authorized to be energized by the Electric Distribution Company (EDC).

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

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

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

9 ENERGY PURCHASING AND PROCUREMENT STRATEGIES

9.1 Retail Electric Supply Options

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

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

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

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

9.2 Retail Natural Gas Supply Options

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

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

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

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

Appendix A: Equipment Inventory & Recommendations

Lighting Inventory & Recommendations

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	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	520	Relamp	No	20	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.38	343	0.0	\$41.30	\$1,170.00	\$200.00	23.49
Boiler Room	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
DHW Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	520	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.13	118	0.0	\$14.25	\$351.00	\$60.00	20.42
DHW Room	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Auditorium	8	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	8	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Auditorium	38	Metal Halide: (1) 200W Lamp	Wall Switch	232	1,300	Fixture Replacement	No	38	LED - Fixtures: Ceiling Mount	Wall Switch	46	1,300	4.63	10,567	0.0	\$1,271.60	\$15,828.52	\$380.00	12.15
Auditorium	24	Halogen Incandescent: Quartz - (500W) - 1L	Wall Switch	500	1,300	Relamp	No	24	LED Screw-In Lamps: LED Screw-In	Wall Switch	90	1,300	6.45	14,711	0.0	\$1,770.31	\$10,560.96	\$120.00	5.90
Auditorium Stage	36	Halogen Incandescent: Ellipsoidal - (750W) - 1L	Wall Switch	750	1,560	Fixture Replacement	No	36	LED - Fixtures: Other	Wall Switch	230	1,560	12.27	33,584	0.0	\$4,041.48	\$90,000.00	\$0.00	22.27
Auditorium Stage	20	Incandescent: PAR64 - (1000W) - 1L	Wall Switch	1,000	1,560	Fixture Replacement	No	20	LED - Fixtures: Other	Wall Switch	72	1,560	12.17	33,297	0.0	\$4,006.94	\$10,000.00	\$0.00	2.50
Auditorium Stage	8	Halogen Incandescent: Halogen - (1000W) - 3L	Wall Switch	3,000	1,560	Fixture Replacement	No	8	LED - Fixtures: Other	Wall Switch	1,200	1,560	9.44	25,834	0.0	\$3,108.83	\$80,000.00	\$0.00	25.73
Auditorium Stage	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,560	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,560	0.30	829	0.0	\$99.74	\$819.00	\$140.00	6.81
Black Box	8	Incandescent: PAR64 - (1000W) - 1L	Wall Switch	1,000	1,560	Fixture Replacement	No	8	LED - Fixtures: Other	Wall Switch	72	1,560	4.87	13,319	0.0	\$1,602.78	\$4,000.00	\$0.00	2.50
Black Box	8	Halogen Incandescent: Ellipsoidal - (750W) - 1L	Wall Switch	750	1,560	Fixture Replacement	No	8	LED - Fixtures: Other	Wall Switch	230	1,560	2.73	7,463	0.0	\$898.11	\$20,000.00	\$0.00	22.27
Black Box	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
B201 AB	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.39	1,503	0.0	\$180.85	\$1,053.00	\$180.00	4.83
2nd Floor Boys RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,200	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,540	0.05	211	0.0	\$25.39	\$387.00	\$20.00	14.45
2nd Floor Girls RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,200	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,540	0.05	211	0.0	\$25.39	\$387.00	\$20.00	14.45
A202 AB	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.39	1,503	0.0	\$180.85	\$1,053.00	\$180.00	4.83
A204	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
A204	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
A206	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
A206	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
A201	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
A201	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
A203	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83

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
A203	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
A205	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
A205	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
A208	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.39	1,503	0.0	\$180.85	\$1,053.00	\$180.00	4.83
A208	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
A210	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.39	1,503	0.0	\$180.85	\$1,053.00	\$180.00	4.83
A210	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
A209 (S.O.A.R)	2	Compact Fluorescent: Pin Style: (26W) - 1L	Occupancy Sensor	26	2,200	Relamp	No	2	LED Screw-In Lamps: Pin Style: (19W) 1L	Occupancy Sensor	19	2,200	0.01	35	0.0	\$4.26	\$88.10	\$0.00	20.67
A209 (S.O.A.R)	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.32	1,252	0.0	\$150.71	\$877.50	\$150.00	4.83
A209 (S.O.A.R)	4	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Occupancy Sensor	22	2,200	Relamp	No	4	LED - Linear Tubes: (1) 2' Lamp	Occupancy Sensor	9	2,200	0.04	137	0.0	\$16.44	\$127.60	\$20.00	6.54
A209 Conf. Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.13	501	0.0	\$60.28	\$351.00	\$60.00	4.83
2nd Floor End Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.06	250	0.0	\$30.14	\$175.50	\$30.00	4.83
A & B Wing Hallway	35	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	35	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,184	0.89	4,885	0.0	\$587.87	\$2,412.00	\$0.00	4.10
A & B Wing Hallway	10	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	10	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Stairwell B1	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.16	898	0.0	\$108.03	\$551.00	\$60.00	4.54
Stairwell B1	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
2nd Floor B Wing End Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.06	250	0.0	\$30.14	\$175.50	\$30.00	4.83
2nd Floor Conf Room	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
2nd Floor Conf Room RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,200	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,200	0.02	83	0.0	\$10.05	\$58.50	\$10.00	4.83
2nd Floor Conf Room Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.02	39	0.0	\$4.75	\$58.50	\$10.00	10.21
2nd Floor Conf Room B2	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.13	501	0.0	\$60.28	\$351.00	\$60.00	4.83
B209	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.39	1,503	0.0	\$180.85	\$1,053.00	\$180.00	4.83
B209	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
B207	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.39	1,503	0.0	\$180.85	\$1,053.00	\$180.00	4.83
B207	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80

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
B204	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.39	1,503	0.0	\$180.85	\$1,053.00	\$180.00	4.83
B204	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
B205	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
B205	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
B203	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
B203	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
B202	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
B202	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
B202 Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	728	0.08	150	0.0	\$18.01	\$445.50	\$30.00	23.08
TV Office Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,040	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	728	0.08	150	0.0	\$18.01	\$420.40	\$30.00	21.68
TV Production E106	11	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	11	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.36	1,595	0.0	\$192.00	\$827.20	\$165.00	3.45
Control Room	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.26	1,160	0.0	\$139.64	\$601.60	\$120.00	3.45
TV Production Area Hall	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.08	524	0.0	\$63.02	\$445.50	\$65.00	6.04
TV Production Area 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
Dressing Room Boys w/ RR	3	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,640	Relamp	No	3	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,640	0.03	201	0.0	\$24.18	\$144.60	\$30.00	4.74
Dressing Room Girls w/ RR	3	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,640	Relamp	No	3	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,640	0.03	201	0.0	\$24.18	\$144.60	\$30.00	4.74
Black Box Area	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,640	0.26	1,658	0.0	\$199.48	\$702.00	\$120.00	2.92
Black Box 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
Black Box Hallway (E-Wing)	13	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	Yes	13	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,548	0.33	2,117	0.0	\$254.74	\$1,021.60	\$0.00	4.01
Black Box Hallway (E-Wing)	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
E-Wing Hallway	48	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	48	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,184	1.22	6,700	0.0	\$806.22	\$3,233.60	\$0.00	4.01
E-Wing Hallway	11	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	11	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
E-Wing Hallway	2	Compact Fluorescent: Pin Style: (26W) - 1L	Wall Switch	26	3,120	Relamp	Yes	2	LED Screw-In Lamps: Pin Style: (19W) 1L	Occupancy Sensor	19	2,184	0.02	91	0.0	\$10.97	\$88.10	\$0.00	8.03
Auditorium Seating (Back Section)	36	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	No	36	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,640	0.78	4,973	0.0	\$598.45	\$2,106.00	\$360.00	2.92
Auditorium Seating (Back Section)	20	Incandescent Inc: (20W) - 1L	Wall Switch	20	3,640	None	No	20	Incandescent Inc: (20W) - 1L	Wall Switch	20	3,640	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
Auditorium Seating (Back Section)	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
Main Gym	24	Linear Fluorescent - T8: 4' T8 (32W) - 6L	Occupancy Sensor	176	2,548	Relamp	No	24	LED - Linear Tubes: (6) 4' Lamps	Occupancy Sensor	87	2,548	1.40	6,259	0.0	\$753.20	\$3,221.36	\$720.00	3.32
Main Gym	8	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	8	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen Custodial	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.02	39	0.0	\$4.75	\$58.50	\$10.00	10.21
Kitchen Custodial Storage	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	728	0.16	299	0.0	\$36.01	\$621.00	\$60.00	15.58
Food Services Office (C131)	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.02	97	0.0	\$11.64	\$58.50	\$10.00	4.17
Kitchen Serving Area	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen Storage 2	1	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	1,040	Relamp	No	1	LED - Linear Tubes: (3) 2' Lamps	Wall Switch	26	1,040	0.02	33	0.0	\$3.96	\$61.70	\$15.00	11.80
Kitchen Hood 1	6	Compact Fluorescent: Screw-In: (13W) - 1L	Wall Switch	13	3,640	Relamp	No	6	LED Screw-In Lamps: Screw-In LED (9.5W) 1L	Wall Switch	10	3,640	0.01	88	0.0	\$10.58	\$322.52	\$0.00	30.49
Kitchen Hood 2	4	Compact Fluorescent: Screw-In: (13W) - 1L	Wall Switch	13	3,640	Relamp	No	4	LED Screw-In Lamps: Screw-In LED (9.5W) 1L	Wall Switch	10	3,640	0.01	59	0.0	\$7.05	\$215.01	\$0.00	30.49
Set Design Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.06	290	0.0	\$34.91	\$175.50	\$30.00	4.17
Vocal Music (E102)	35	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	35	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	1.14	5,077	0.0	\$610.92	\$2,632.00	\$525.00	3.45
Vocal Music (E102)	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
Vocal Music Storage (E102)	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,040	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	728	0.12	224	0.0	\$27.01	\$495.60	\$45.00	16.68
Practice Rooms (4)	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	728	0.33	598	0.0	\$72.02	\$972.00	\$155.00	11.34
Ensemble Room	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.39	1,741	0.0	\$209.46	\$902.40	\$180.00	3.45
Music Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,640	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.16	1,047	0.0	\$126.04	\$570.80	\$60.00	4.05
Band Room	56	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	56	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	1.21	5,415	0.0	\$651.65	\$3,276.00	\$560.00	4.17
Instrument Storage	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	728	0.16	299	0.0	\$36.01	\$621.00	\$60.00	15.58
Weight Room	16	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,640	Relamp	No	16	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,640	0.18	1,172	0.0	\$141.05	\$574.40	\$80.00	3.51
Weight Room Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,548	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,548	0.02	103	0.0	\$12.34	\$71.80	\$10.00	5.01
Weight Room RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,640	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,640	0.01	73	0.0	\$8.82	\$35.90	\$5.00	3.51
Weight Room Trainers Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,548	Relamp	No	6	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,548	0.07	308	0.0	\$37.03	\$215.40	\$30.00	5.01
Aux Gym	12	Linear Fluorescent - T8: 4' T8 (32W) - 6L	High/Low Control	176	2,548	Relamp	No	12	LED - Linear Tubes: (6) 4' Lamps	High/Low Control	87	2,548	0.70	3,129	0.0	\$376.60	\$1,610.68	\$360.00	3.32
Aux 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

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
2nd Weight Room Office	2	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Occupancy Sensor	53	2,548	Relamp	No	2	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,548	0.04	161	0.0	\$19.39	\$123.40	\$30.00	4.82
2nd Weight Room Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.06	290	0.0	\$34.91	\$150.40	\$30.00	3.45
Weight Room/Gym Hallway	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.27	1,496	0.0	\$180.05	\$785.00	\$100.00	3.80
Weight Room/Gym Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Gym/Mech. Hallway	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.19	1,047	0.0	\$126.04	\$609.50	\$70.00	4.28
Gym/Mech. 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
Gym Main hallway	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.38	2,095	0.0	\$252.07	\$1,019.00	\$140.00	3.49
Gym Main 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
Gym Main hallway display cab.	16	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,640	Relamp	No	16	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,640	0.18	1,172	0.0	\$141.05	\$574.40	\$80.00	3.51
Boys Team Locker Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,040	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,040	0.01	21	0.0	\$2.52	\$35.90	\$5.00	12.27
Girls Team Locker Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,040	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,040	0.01	21	0.0	\$2.52	\$35.90	\$5.00	12.27
Boys Locker Entry	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,640	0.04	276	0.0	\$33.25	\$117.00	\$20.00	2.92
Girls Locker Entry	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,640	0.04	276	0.0	\$33.25	\$117.00	\$20.00	2.92
Boys Locker Room	34	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,548	Relamp	No	34	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,548	0.39	1,743	0.0	\$209.81	\$1,220.60	\$170.00	5.01
Boys Locker Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.06	290	0.0	\$34.91	\$175.50	\$30.00	4.17
Boys Locker Room Office	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.11	483	0.0	\$58.18	\$292.50	\$50.00	4.17
Girls Locker Room	34	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,548	Relamp	No	34	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,548	0.39	1,743	0.0	\$209.81	\$1,220.60	\$170.00	5.01
Girls Locker Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.06	290	0.0	\$34.91	\$175.50	\$30.00	4.17
Girls Locker Room Office	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.11	483	0.0	\$58.18	\$292.50	\$50.00	4.17
Cafeteria	42	Compact Fluorescent: Pin Style: (26W) - 2L	Wall Switch	52	3,120	Relamp	Yes	42	LED Screw-In Lamps: Pin Style: (19W) 2L	High/Low Control	19	2,184	1.07	5,832	0.0	\$701.82	\$4,100.28	\$1,470.00	3.75
Cafeteria	10	Compact Fluorescent: Pin Style: (26W) - 2L	Wall Switch	52	3,120	Relamp	Yes	10	LED Screw-In Lamps: Pin Style: (19W) 2L	High/Low Control	19	2,184	0.25	1,389	0.0	\$167.10	\$1,081.02	\$350.00	4.37
Cafeteria under walkway	15	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	No	15	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	3,120	0.29	1,561	0.0	\$187.83	\$948.00	\$0.00	5.05
Cafeteria	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
Cafeteria Vending Area	2	Incandescent Screw-In: (100W) - 1L	Wall Switch	100	3,120	Relamp	No	2	LED Screw-In Lamps: LED Screw-In: (15W) 1L	Wall Switch	15	3,120	0.11	610	0.0	\$73.40	\$107.51	\$10.00	1.33
Cafeteria Vestibule	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

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 Vestibule	3	Compact Fluorescent: Pin Style: (26W) - 2L	Wall Switch	52	3,120	Relamp	No	3	LED Screw-In Lamps: Pin Style: (19W) 2L	Wall Switch	19	3,120	0.06	355	0.0	\$42.75	\$264.31	\$0.00	6.18
Maintenance Room	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	728	0.19	349	0.0	\$42.01	\$679.50	\$105.00	13.67
Receiving Room	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.25	1,571	0.0	\$189.06	\$796.50	\$125.00	3.55
Receiving Corridor	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.19	1,222	0.0	\$147.04	\$679.50	\$105.00	3.91
Receiving Corridor	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.08	524	0.0	\$63.02	\$445.50	\$65.00	6.04
Kitchen	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen RR	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,548	0.02	85	0.0	\$10.23	\$63.20	\$0.00	6.18
Kitchen	13	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,640	Relamp	Yes	13	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.53	3,404	0.0	\$409.62	\$1,247.60	\$230.00	2.48
Kitchen Serving Area	16	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	3,640	Relamp	Yes	16	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,548	0.37	2,354	0.0	\$283.31	\$1,257.20	\$275.00	3.47
Athletics Office	6	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Occupancy Sensor	53	2,548	Relamp	No	6	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,548	0.11	483	0.0	\$58.18	\$370.20	\$90.00	4.82
Security Office	3	Compact Fluorescent: Pin Style: (26W) - 2L	Occupancy Sensor	52	2,548	Relamp	No	3	LED Screw-In Lamps: Pin Style: (19W) 2L	Occupancy Sensor	19	2,548	0.06	290	0.0	\$34.91	\$264.31	\$0.00	7.57
Security Office	6	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,548	0.11	510	0.0	\$61.36	\$379.20	\$0.00	6.18
Security Office IT Closet	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,040	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,040	0.06	118	0.0	\$14.25	\$150.40	\$30.00	8.45
Security Office Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.02	39	0.0	\$4.75	\$58.50	\$10.00	10.21
Student Center	28	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	28	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.61	2,708	0.0	\$325.82	\$1,638.00	\$280.00	4.17
Student Center Office 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.06	290	0.0	\$34.91	\$150.40	\$30.00	3.45
Student Center Office 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.06	290	0.0	\$34.91	\$150.40	\$30.00	3.45
Student Center Office 3	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.06	290	0.0	\$34.91	\$150.40	\$30.00	3.45
Storage Room	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	1,040	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	1,040	0.01	19	0.0	\$2.30	\$48.20	\$10.00	16.59
Tech Lab (M102)	36	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	36	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.78	3,481	0.0	\$418.92	\$2,106.00	\$360.00	4.17
Tech Lab (M102)	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
Tech Lab (M102) Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,040	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.06	118	0.0	\$14.25	\$175.50	\$30.00	10.21
Dust Collection Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,640	0.02	138	0.0	\$16.62	\$58.50	\$10.00	2.92
Electrical Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.02	39	0.0	\$4.75	\$58.50	\$10.00	10.21

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
C101	29	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	29	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.63	2,804	0.0	\$337.46	\$1,696.50	\$290.00	4.17
C101 Prep Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.04	193	0.0	\$23.27	\$117.00	\$20.00	4.17
C103	29	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	29	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.63	2,804	0.0	\$337.46	\$1,696.50	\$290.00	4.17
C104	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	22	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.48	2,127	0.0	\$256.00	\$1,287.00	\$220.00	4.17
C104 Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	728	0.08	150	0.0	\$18.01	\$445.50	\$30.00	23.08
CAD Lab C102	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.43	1,934	0.0	\$232.73	\$1,170.00	\$200.00	4.17
D Wing Boys RR	1	Compact Fluorescent: Pin Style: (26W) - 2L	Wall Switch	52	3,640	Relamp	No	1	LED Screw-In Lamps: Pin Style: (19W) 2L	Wall Switch	19	3,640	0.02	138	0.0	\$16.62	\$88.10	\$0.00	5.30
D Wing Boys RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.05	349	0.0	\$42.01	\$387.00	\$20.00	8.74
D Wing Girls RR	1	Compact Fluorescent: Pin Style: (26W) - 2L	Wall Switch	52	3,640	Relamp	No	1	LED Screw-In Lamps: Pin Style: (19W) 2L	Wall Switch	19	3,640	0.02	138	0.0	\$16.62	\$88.10	\$0.00	5.30
D Wing Girls RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.05	349	0.0	\$42.01	\$387.00	\$20.00	8.74
Health Suite	11	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	11	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.24	1,064	0.0	\$128.00	\$643.50	\$110.00	4.17
Health Suite RR	1	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Occupancy Sensor	53	2,548	Relamp	No	1	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,548	0.02	81	0.0	\$9.70	\$61.70	\$15.00	4.82
Health Suite Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	728	0.05	100	0.0	\$12.00	\$387.00	\$20.00	30.57
D102	26	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	26	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.56	2,514	0.0	\$302.55	\$1,521.00	\$260.00	4.17
D102 Prep Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.09	387	0.0	\$46.55	\$234.00	\$40.00	4.17
D104	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,548	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,548	0.01	51	0.0	\$6.17	\$35.90	\$5.00	5.01
D104	26	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	26	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.56	2,514	0.0	\$302.55	\$1,521.00	\$260.00	4.17
D103	26	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	26	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.56	2,514	0.0	\$302.55	\$1,521.00	\$260.00	4.17
D103 Prep Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.09	387	0.0	\$46.55	\$234.00	\$40.00	4.17
D101	26	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	26	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.56	2,514	0.0	\$302.55	\$1,521.00	\$260.00	4.17
M103 3D Art	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	27	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.58	2,611	0.0	\$314.19	\$1,579.50	\$270.00	4.17
M103 3D Art	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
M101 2D Art	26	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	26	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.56	2,514	0.0	\$302.55	\$1,521.00	\$260.00	4.17
M101 2D Art	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
M101 2D Art	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,548	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,548	0.01	51	0.0	\$6.17	\$35.90	\$5.00	5.01

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
M 101 2D Art Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	728	0.08	150	0.0	\$18.01	\$445.50	\$30.00	23.08
B Wing 1st Floor Storage	1	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	60	1,040	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.02	37	0.0	\$4.46	\$58.50	\$10.00	10.87
Foster Board Office	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.17	774	0.0	\$93.09	\$468.00	\$80.00	4.17
Tew Board Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
Director of Special Services Board Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
Conf. Room C-3	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.17	774	0.0	\$93.09	\$468.00	\$80.00	4.17
Work Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.06	290	0.0	\$34.91	\$150.40	\$30.00	3.45
Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
Flocco Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
Career Center	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.32	1,450	0.0	\$174.55	\$877.50	\$150.00	4.17
Brooks Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
Guidance Office	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.17	774	0.0	\$93.09	\$468.00	\$80.00	4.17
Guidance Office	7	Compact Fluorescent: Pin Style: (26W) - 2L	Occupancy Sensor	52	2,548	Relamp	No	7	LED Screw-In Lamps: Pin Style: (19W) 2L	Occupancy Sensor	19	2,548	0.15	677	0.0	\$81.46	\$616.71	\$0.00	7.57
Guidance Office	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Conf. Room C-2	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.22	967	0.0	\$116.37	\$585.00	\$100.00	4.17
Rotondo Office	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.22	967	0.0	\$116.37	\$585.00	\$100.00	4.17
Richard Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.06	290	0.0	\$34.91	\$150.40	\$30.00	3.45
Walker Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
Dills Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
File/Records Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,040	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	728	0.12	224	0.0	\$27.01	\$495.60	\$45.00	16.68
End Office	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.19	870	0.0	\$104.73	\$451.20	\$90.00	3.45
Watson Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
B101	13	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	13	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.28	1,257	0.0	\$151.27	\$760.50	\$130.00	4.17
B101 RR	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,640	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,640	0.01	67	0.0	\$8.06	\$48.20	\$10.00	4.74
B101 Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,040	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	728	0.16	299	0.0	\$36.01	\$570.80	\$60.00	14.18

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
A101 Computer Lab	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.39	1,741	0.0	\$209.46	\$1,053.00	\$180.00	4.17
A-Wing Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
A102	29	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	29	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.63	2,804	0.0	\$337.46	\$1,696.50	\$290.00	4.17
A103	29	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	29	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.63	2,804	0.0	\$337.46	\$1,696.50	\$290.00	4.17
A103 Pantry	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,040	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	728	0.12	224	0.0	\$27.01	\$495.60	\$45.00	16.68
Main Office	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	27	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.58	2,611	0.0	\$314.19	\$1,579.50	\$270.00	4.17
Main Office	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
Main Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.04	188	0.0	\$22.57	\$58.50	\$10.00	2.15
Principal's Office	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.15	677	0.0	\$81.46	\$409.50	\$70.00	4.17
Conf. Room C-1	13	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	13	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.28	1,257	0.0	\$151.27	\$760.50	\$130.00	4.17
Main Office RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,640	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,640	0.02	138	0.0	\$16.62	\$58.50	\$10.00	2.92
D206	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
D206	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
D208	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
D208	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
D209 Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.09	334	0.0	\$40.19	\$234.00	\$40.00	4.83
D207 (CST)	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
D207 (CST)	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
D207 Conf Room D-2	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.13	501	0.0	\$60.28	\$351.00	\$60.00	4.83
D207 RR	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.02	97	0.0	\$11.64	\$58.50	\$10.00	4.17
D205	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
D205	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
2nd Floor D Wing Boys RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.04	193	0.0	\$23.27	\$117.00	\$20.00	4.17
2nd Floor D Wing Girls RR	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.04	193	0.0	\$23.27	\$117.00	\$20.00	4.17
C201	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83

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
C201	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
C202	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
C202	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
C203	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
C203	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
C204	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
C204	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
C205	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
C205	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
C206	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
C206	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
Mech Room AHU1	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,040	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.11	197	0.0	\$23.75	\$292.50	\$50.00	10.21
Mech Room AHU2	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.09	387	0.0	\$46.55	\$234.00	\$40.00	4.17
Mech Room AHU3	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,040	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.11	197	0.0	\$23.75	\$292.50	\$50.00	10.21
Mech Room HX1	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	728	0.11	199	0.0	\$24.01	\$504.00	\$40.00	19.33
Mech Room HX1	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.02	39	0.0	\$4.75	\$58.50	\$10.00	10.21
D201	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
D201	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
D202	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
D202	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
D203	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
D203	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
D204	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
D204	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,200	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,200	0.01	44	0.0	\$5.33	\$35.90	\$5.00	5.80
C Wing Work Room	2	Compact Fluorescent: Pin Style: (26W) - 2L	Occupancy Sensor	52	2,200	Relamp	No	2	LED Screw-In Lamps: Pin Style: (19W) 2L	Occupancy Sensor	19	2,200	0.04	167	0.0	\$20.09	\$176.20	\$0.00	8.77

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
C Wing Work Room	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.30	1,169	0.0	\$140.66	\$819.00	\$140.00	4.83
C Wing Work Room	4	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Occupancy Sensor	22	2,200	Relamp	No	4	LED - Linear Tubes: (1) 2' Lamp	Occupancy Sensor	9	2,200	0.04	137	0.0	\$16.44	\$127.60	\$20.00	6.54
C Wing End Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,200	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,200	0.06	250	0.0	\$30.14	\$175.50	\$30.00	4.83
Media Center	56	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Occupancy Sensor	120	2,548	Relamp	No	56	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,548	2.28	10,174	0.0	\$1,224.30	\$5,327.47	\$1,120.00	3.44
Media Center	24	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Occupancy Sensor	60	2,548	Relamp	No	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.49	2,180	0.0	\$262.35	\$1,404.00	\$240.00	4.44
Media Center	6	High-Pressure Sodium: (1) 100W Lamp	Occupancy Sensor	138	2,548	Relamp	No	6	LED - Fixtures: Downlight Surface Mount	Occupancy Sensor	20	2,548	0.46	2,075	0.0	\$249.66	\$2,045.46	\$0.00	8.19
Media Center	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Media Center Stairs	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.04	193	0.0	\$23.27	\$117.00	\$20.00	4.17
Media Center Entry Area	6	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Occupancy Sensor	53	2,548	Relamp	No	6	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,548	0.11	483	0.0	\$58.18	\$370.20	\$90.00	4.82
Media Center Entry Area	15	Compact Fluorescent: Pin Style: (26W) - 2L	Occupancy Sensor	52	2,548	Relamp	No	15	LED Screw-In Lamps: Pin Style: (19W) 2L	Occupancy Sensor	19	2,548	0.32	1,450	0.0	\$174.55	\$1,321.53	\$0.00	7.57
Media Center Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,040	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,040	0.06	118	0.0	\$14.25	\$150.40	\$30.00	8.45
Media Center RRs (2)	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	2,548	Relamp	No	2	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,548	0.02	94	0.0	\$11.28	\$96.40	\$20.00	6.77
Media Center Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
Media Center Work Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	2,548	Relamp	No	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,548	0.10	435	0.0	\$52.36	\$225.60	\$45.00	3.45
Media Center Work Room	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Stairwell A-1	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,184	0.16	898	0.0	\$108.03	\$551.00	\$60.00	4.54
Stairwell A-1	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
2nd Floor A Wing Hallway	18	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	18	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,184	0.46	2,512	0.0	\$302.33	\$1,537.60	\$0.00	5.09
A-B Wing Hallway	9	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	9	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor B Wing Hallway	18	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,120	Relamp	Yes	18	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,184	0.46	2,512	0.0	\$302.33	\$1,537.60	\$0.00	5.09
2nd Floor Center Hallway	69	Compact Fluorescent: Pin Style: (26W) - 2L	Wall Switch	52	3,120	Relamp	Yes	69	LED Screw-In Lamps: Pin Style: (19W) 2L	High/Low Control	19	2,184	1.75	9,581	0.0	\$1,152.99	\$6,279.04	\$0.00	5.45
2nd Floor Center Hallway	9	Compact Fluorescent: Pin Style: (26W) - 1L	Wall Switch	26	3,120	Relamp	Yes	9	LED Screw-In Lamps: Pin Style: (19W) 1L	High/Low Control	19	2,184	0.07	410	0.0	\$49.35	\$596.46	\$0.00	12.09
2nd Floor Center Hallway	10	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	10	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Near Cafeteria	16	Compact Fluorescent: Pin Style: (26W) - 2L	Wall Switch	52	3,120	Relamp	No	16	LED Screw-In Lamps: Pin Style: (19W) 2L	Wall Switch	19	3,120	0.35	1,894	0.0	\$227.98	\$1,409.63	\$0.00	6.18
2nd Floor Near Cafeteria	15	Compact Fluorescent: Pin Style: (26W) - 1L	Wall Switch	26	3,120	Relamp	No	15	LED Screw-In Lamps: Pin Style: (19W) 1L	Wall Switch	19	3,120	0.07	377	0.0	\$45.34	\$660.77	\$0.00	14.57

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
Computer Lab 201	30	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	30	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.65	2,901	0.0	\$349.10	\$1,755.00	\$300.00	4.17
M203	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	2,548	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,548	0.30	1,354	0.0	\$162.91	\$819.00	\$140.00	4.17
M203	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	32	2,548	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,548	0.01	51	0.0	\$6.17	\$35.90	\$5.00	5.01
Center Hallway Display Cabinets	14	Linear Fluorescent - T5: 3' T5 (21W) - 1L	Wall Switch	27	3,120	Relamp	No	14	LED - Linear Tubes: (1) 3' Lamp	Wall Switch	11	3,120	0.15	829	0.0	\$99.74	\$487.20	\$0.00	4.88
Entry Area	3	Metal Halide: (1) 175W Lamp	Wall Switch	215	3,120	Fixture Replacement	No	3	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	40	3,120	0.34	1,884	0.0	\$226.69	\$1,172.03	\$300.00	3.85
Door Lighting	7	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	40	3,640	None	No	7	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	40	3,640	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Door Lighting	20	Metal Halide: (1) 50W Lamp	Wall Switch	72	3,640	Fixture Replacement	No	20	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	12	3,640	0.79	5,023	0.0	\$604.50	\$7,813.54	\$2,000.00	9.62
Pole Lights	46	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Wall Switch	150	3,640	None	No	46	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Wall Switch	150	3,640	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Back Parking Lot	3	Metal Halide: (1) 70W Lamp	Wall Switch	95	3,640	Fixture Replacement	No	3	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Wall Switch	16	3,640	0.16	992	0.0	\$119.39	\$5,858.98	\$300.00	46.56
Back Courtyard	12	LED - Fixtures: Bollard Fixture	Wall Switch	15	1	None	No	12	LED - Fixtures: Bollard Fixture	Wall Switch	15	1	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Football Field	48	High-Pressure Sodium: (1) 1000W Lamp	Wall Switch	1,100	60	None	No	48	High-Pressure Sodium: (1) 1000W Lamp	Wall Switch	1,100	60	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Motor Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions						Proposed Conditions				Energy Impact & Financial Analysis						
		Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Annual Operating Hours	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	Whole Building	1	Heating Hot Water Pump	20.0	86.0%	Yes	3,391	Yes	93.0%	No		0.72	3,321	0.0	\$399.66	\$2,515.93	\$0.00	6.30
Boiler Room	Whole Building	1	Heating Hot Water Pump	20.0	86.0%	Yes	0	Yes	93.0%	No		0.00	0	0.0	\$0.00	\$2,515.93	\$0.00	0.00
Boiler Room	Whole Building	1	Heating Hot Water Pump	20.0	93.6%	Yes	3,391	No	93.6%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	Whole Building	1	Chilled Water Pump	30.0	85.0%	Yes	4,067	Yes	93.6%	No		1.34	7,379	0.0	\$888.00	\$3,438.70	\$0.00	3.87
Boiler Room	Whole Building	1	Chilled Water Pump	30.0	85.0%	Yes	4,067	Yes	93.6%	No		1.34	7,379	0.0	\$888.00	\$3,438.70	\$0.00	3.87
Boiler Room	Whole Building	1	Condenser Water Pump	25.0	83.0%	Yes	4,067	Yes	93.6%	No		1.41	7,762	0.0	\$934.07	\$3,468.33	\$0.00	3.71
Boiler Room	Whole Building	1	Condenser Water Pump	25.0	83.0%	Yes	4,067	Yes	93.6%	No		1.41	7,762	0.0	\$934.07	\$3,468.33	\$0.00	3.71
Boiler Room	Whole Building	1	Condenser Water Pump	25.0	83.0%	Yes	0	Yes	93.6%	No		0.00	0	0.0	\$0.00	\$3,468.33	\$0.00	0.00
Boiler Room	Heating System	1	Other	15.0	91.0%	No	3,391	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	Whole Building	4	Process Pump	0.3	70.0%	No	2,745	No	70.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	Whole Building	2	Water Supply Pump	7.5	89.5%	No	3,391	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Mech Room	Media Center	1	Supply Fan	10.0	89.5%	Yes	3,391	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Mech Room	2nd Floor Classroom Ventilation Units	1	Supply Fan	15.0	91.0%	No	3,391	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Mech Room	Café Area	1	Supply Fan	20.0	91.0%	Yes	3,391	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Mech Room	1/st/2nd Floor Classroom Ventilation	1	Supply Fan	15.0	91.0%	Yes	3,391	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Mech Room	1/st/2nd Floor Classroom Ventilation	1	Return Fan	10.0	89.5%	Yes	3,391	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Mech Room	1/st/2nd Floor Classroom Ventilation	1	Other	0.5	70.0%	No	2,745	No	70.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Mech Room	1/st/2nd Floor Classroom Ventilation	1	Supply Fan	20.0	91.0%	Yes	3,391	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Mech Room	1/st/2nd Floor Classroom Ventilation	1	Return Fan	15.0	89.5%	Yes	3,391	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
2nd Floor Mech Room	1/st/2nd Floor Classroom Ventilation	1	Other	0.5	70.0%	No	2,745	No	70.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

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	Auditorium East Hallway and Rooms	1	Supply Fan	3.0	87.5%	Yes	2,745	No	87.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium East Hallway and Rooms	1	Return Fan	3.0	87.5%	Yes	2,745	No	87.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium East Hallway and Rooms	1	Other	0.5	70.0%	No	2,745	No	70.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium South and West Hallways and Rooms	1	Supply Fan	3.0	87.5%	Yes	2,745	No	87.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium South and West Hallways and Rooms	1	Return Fan	3.0	87.5%	Yes	2,745	No	87.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium South and West Hallways and Rooms	1	Other	0.5	70.0%	No	2,745	No	70.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Kitchen	1	Makeup Air Fan	3.0	87.5%	No	2,745	No	87.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Kitchen	1	Makeup Air Fan	3.0	87.5%	No	2,745	No	87.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Mechanical Room Closets	1/st/2nd Floor Classroom Ventilation	19	Supply Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Classroom Ceilings	1/st/2nd Floor Classroom Ventilation	5	Supply Fan	1.5	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Gymnasium	1	Supply Fan	20.0	91.0%	No	3,391	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Gymnasium	1	Return Fan	10.0	89.5%	No	3,391	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Gymnasium	1	Supply Fan	20.0	91.0%	No	3,391	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Gymnasium	1	Return Fan	10.0	89.5%	No	3,391	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Aux Gymnasium	1	Supply Fan	20.0	91.0%	No	3,391	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Aux Gymnasium	1	Return Fan	10.0	89.5%	No	3,391	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium	1	Supply Fan	20.0	91.0%	No	3,391	No	91.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium	1	Return Fan	10.0	89.5%	No	3,391	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium Seating Front	1	Supply Fan	3.0	87.5%	No	2,745	No	87.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium Seating Front	1	Return Fan	1.0	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

		Existing Conditions						Proposed Conditions				Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Annual Operating Hours	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof	Auditorium Seating Back	1	Supply Fan	3.0	87.5%	No	2,745	No	87.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Auditorium Seating Back	1	Return Fan	1.0	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Stage Area	1	Supply Fan	5.0	87.5%	No	2,745	No	87.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Stage Area	1	Return Fan	2.0	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Black Box Room	1	Supply Fan	3.0	87.5%	No	2,745	No	87.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Black Box Room	1	Return Fan	1.0	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof	Cooling Tower Fans	2	Cooling Tower Fan	25.0	92.5%	No	4,067	No	92.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof Exhaust Fans	Whole Building	20	Exhaust Fan	0.2	70.0%	No	2,745	No	70.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof Exhaust Fans	Whole Building	3	Exhaust Fan	2.0	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof Exhaust Fans	Whole Building	4	Exhaust Fan	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof Exhaust Fans	Whole Building	4	Exhaust Fan	0.5	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Roof Exhaust Fans	Whole Building	1	Exhaust Fan	10.0	89.5%	No	3,391	No	89.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
In Ceilings	Media Center	2	Ventilation Fan	0.5	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
In Ceilings	Café Area	7	Ventilation Fan	0.5	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
In Ceilings	Mechanical Rooms	2	Supply Fan	0.5	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
In Ceilings	Stairwell	1	Supply Fan	0.5	75.0%	No	2,745	No	75.0%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

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
Exterior	MDF Room	1	Split-System AC	13.00		No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Fuel Heating Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions		Proposed Conditions							Energy Impact & Financial Analysis						
		System Quantity	System Type	Output Capacity per Unit (MBh)	Install High Efficiency System?	System Quantity	System Type	Output Capacity per Unit (MBh)	Heating Efficiency	Heating Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	Whole Building	2	Furnace	5,500.00	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Boiler Room	Whole Building	2	Furnace	3,960.00	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Pipe Insulation Recommendations

Location	Area(s)/System(s) Affected	Recommendation Inputs		Energy Impact & Financial Analysis						
		Length of Uninsulated Pipe (ft)	Pipe Diameter (in)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
DHW Room	Domestic Hot Water piping around mixing valve	15	2.50	0.00	0	4.4	\$32.91	\$65.25	\$0.00	1.98

DHW Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions		Proposed Conditions						Energy Impact & Financial Analysis						
		System Quantity	System Type	Replace?	System Quantity	System Type	Fuel Type	System Efficiency	Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	Whole Building	2	Storage Tank Water Heater (> 50 Gal)	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Walk-In Cooler/Freezer Inventory & Recommendations

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

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	2	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	2	Stand-Up Refrigerator, Solid Door (31 - 50 cu. ft.)	No	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

Novelty Cooler Inventory & Recommendations

Location	Existing Conditions		Proposed Conditions	Energy Impact & Financial Analysis							
	Quantity	Cooler Description	Install Automatic Shutoff Control?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years	
Kitchen	2	Beverage Cooler	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00	

Cooking Equipment Inventory & Recommendations

Location	Existing Conditions			Proposed Conditions	Energy Impact & Financial Analysis						
	Quantity	Equipment Type	High Efficiency Equipment?	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	1	Gas Rack Oven (Double)	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	1	Gas Steamer	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	4	Gas Griddle (3 Feet Width)	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	2	Electric Griddle (≤2 Feet Width)	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Kitchen	2	Electric Convection Oven (Half Size)	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Dishwasher Inventory & Recommendations

Location	Existing Conditions					Proposed Conditions	Energy Impact & Financial Analysis						
	Quantity	Dishwasher Type	Water Heater Fuel Type	Booster Heater Fuel Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Payback w/ Incentives in Years
Kitchen	1	Door Type (High Temp)	Natural Gas	Electric	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00


Plug Load Inventory


Existing Conditions				
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?
Whole Building	248	Desktop Computers	150.0	Yes
Whole Building	60	Projectors	153.0	Yes
Whole Building	25	Desk Printer	20.0	Yes
Whole Building	4	Mini Fridge	153.0	No
Whole Building	8	Refrigerator	172.0	No
Whole Building	4	Photocopier	600.0	Yes
Whole Building	1	Ice machine	100.0	Yes
Whole Building	900	Laptops	40.0	Yes
Whole Building	12	Microwave	1,000.0	No
Whole Building	6	Paper Shredder	150.0	Yes
Whole Building	2	Clothes Washer	900.0	Yes
Whole Building	2	Clothes Dryer	5,000.0	Yes
Whole Building	10	Electric Oven	2,000.0	Yes
Whole Building	1	Electric Kiln	14,300.0	No
Whole Building	4	Dishwashers	150.0	Yes
Tech Room	10	Misc. Tech Equipment	500.0	No

Vending Machine Inventory & Recommendations

Existing Conditions		Proposed Conditions	Energy Impact & Financial Analysis							
Location	Quantity	Vending Machine Type	Install Controls?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Weight Room Hallway	1	Refrigerated	No	0.00	0	0.0	\$0.00	\$230.00	\$0.00	0.00
Mech Room Hallway	1	Refrigerated	No	0.00	0	0.0	\$0.00	\$230.00	\$0.00	0.00
Cafeteria	4	Refrigerated	No	0.00	0	0.0	\$0.00	\$920.00	\$0.00	0.00
Cafeteria	1	Non-Refrigerated	No	0.00	0	0.0	\$0.00	\$230.00	\$0.00	0.00

Appendix B: ENERGY STAR® Statement of Energy Performance


ENERGY STAR® Statement of Energy Performance



**ENERGY STAR®
Score ¹**

Robbinsville High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 222,000
Built: 2005

For Year Ending: February 28, 2017
Date Generated: March 14, 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 Robbinsville High School 155 Robbinsville-Edinburg Road Robbinsville, New Jersey 08691	Property Owner Robbinsville Board of Education 155 Robbinsville-Edinburg Road Robbinsville, NJ 08691 609-632-0910	Primary Contact Kimberly Keener 155 Robbinsville-Edinburg Road Robbinsville, NJ 08691 609-632-0910 ext 3022 kkeener@robbinsville.k12.nj.us
Property ID: 6252675		

Energy Consumption and Energy Use Intensity (EUI)			
Site EUI 96.4 kBtu/ft ²	Annual Energy by Fuel		National Median Comparison
	Electric - Grid (kBtu)	7,077,744 (33%)	National Median Site EUI (kBtu/ft ²)
	Natural Gas (kBtu)	14,316,080 (67%)	National Median Source EUI (kBtu/ft ²)
			% Diff from National Median Source EUI
			Annual Emissions
Source EUI 167.8 kBtu/ft ²			Greenhouse Gas Emissions (Metric Tons CO ₂ e/year)
			1,546

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)