Local Government Energy Audit:
Energy Audit Report

Jefferson Township High School

Jefferson Township Board of Education

1010 Weldon Road
Oak Ridge, NJ 07438

July 19, 2018

Final Report by:
TRC Energy Services

Disclaimer

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

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

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

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

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1 EXECUTIVE SUMMARY

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

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

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

1.1 Facility Summary

Jefferson Township High School is a two-story building totaling 235,851 square feet and was constructed in 1962. The building has a flat roof and exterior walls are finished with brick masonry. The windows throughout the facility are a combination of double paned operable windows and fixed single paned windows. Exterior doors are constructed of metal. Interior lighting consists of a combination of linear T5-T8 lamps and fixtures, LED linear tubes, LED fixtures and lamps, compact fluorescent lamps (CFL), and incandescent lamps. Lighting control is provided by manual wall switches. The exterior lighting system consists of both LED and metal halide outdoor wall-mounted fixtures and they are controlled with photocells. Heating is provided by five non-condensing oil-fired boilers, also serving Jefferson Township Middle School, which is adjacent and has walkway connection to the high school. Cooling and ventilation are provided by roof top units.

A thorough description of the facility and our observations are located in Section 2.

1.2 Your Cost Reduction Opportunities

Energy Conservation Measures

TRC evaluated eight measures which together represent an opportunity for Jefferson Township High School to reduce annual energy costs by $47,601 and annual greenhouse gas emissions by 413,361 lbs CO_2e. We estimate that if all measures were implemented as recommended, the project would pay for itself in 6.7 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 Jefferson Township High School's annual energy use by 8%.

Figure 1 – Previous 12 Month Utility Costs

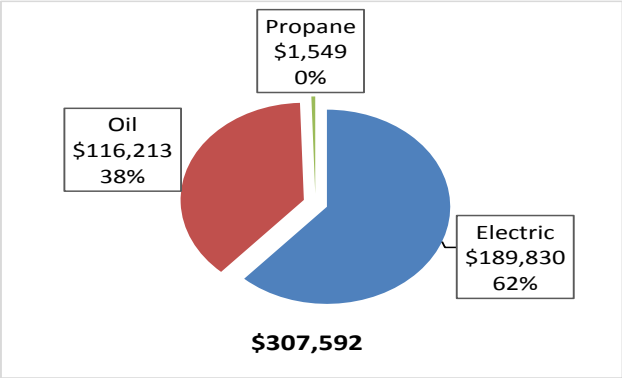
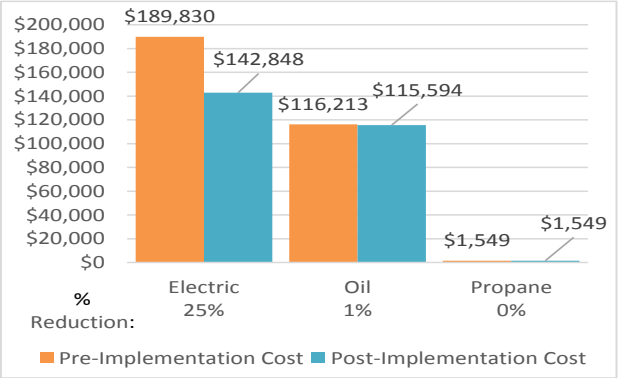


Figure 2 – Potential Post-Implementation Costs



A detailed description of Jefferson Township High School's existing energy use can be found in Section 3.

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

Figure 3 – Summary of Energy Reduction Opportunities

Energy Conservation Measure		Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**292,045**	**83.1**	**0.0**	**$34,346.87**	**$161,053.57**	**$25,420.00**	**$135,633.57**	**3.9**	**294,087**
ECM 1	Install LED Fixtures	Yes	30,597	10.9	0.0	$3,598.45	$31,106.62	$4,935.00	$26,171.62	7.3	30,811
ECM 2	Retrofit Fixtures with LED Lamps	Yes	259,091	72.0	0.0	$30,471.18	$125,752.30	$20,485.00	$105,267.30	3.5	260,902
ECM 3	Install LED Exit Signs	Yes	2,357	0.2	0.0	$277.24	$4,194.65	$0.00	$4,194.65	15.1	2,374
Lighting Control Measures			**32,444**	**9.0**	**0.0**	**$3,815.70**	**$24,360.00**	**$4,200.00**	**$20,160.00**	**5.3**	**32,671**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	32,444	9.0	0.0	$3,815.70	$24,360.00	$4,200.00	$20,160.00	5.3	32,671
Motor Upgrades			**557**	**0.3**	**0.0**	**$65.45**	**$3,073.83**	**$0.00**	**$3,073.83**	**47.0**	**560**
ECM 5	Premium Efficiency Motors	Yes	557	0.3	0.0	$65.45	$3,073.83	$0.00	$3,073.83	47.0	560
Electric Unitary HVAC Measures			**71,209**	**42.2**	**0.0**	**$8,374.72**	**$167,017.10**	**$7,406.00**	**$159,611.10**	**19.1**	**71,707**
ECM 6	Install High Efficiency Electric AC	Yes	71,209	42.2	0.0	$8,374.72	$167,017.10	$7,406.00	$159,611.10	19.1	71,707
Domestic Water Heating Upgrade			**0**	**0.0**	**67.8**	**$619.54**	**$336.99**	**$0.00**	**$336.99**	**0.5**	**11,090**
ECM 7	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	67.8	$619.54	$336.99	$0.00	$336.99	0.5	11,090
Plug Load Equipment Control - Vending Machine			**3,224**	**0.0**	**0.0**	**$379.13**	**$460.00**	**$0.00**	**$460.00**	**1.2**	**3,246**
ECM 8	Vending Machine Control	Yes	3,224	0.0	0.0	$379.13	$460.00	$0.00	$460.00	1.2	3,246
TOTALS			**399,478**	**134.6**	**67.8**	**$47,601.41**	**$356,301.48**	**$37,026.00**	**$319,275.48**	**6.7**	**413,361**

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

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

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

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

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

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

Energy Efficient Practices

TRC also identified 19 low cost or no cost energy efficient practices. A facility's energy performance can be significantly improved by employing certain behavioral or operational adjustments and by performing better routine maintenance on building systems. These practices can extend equipment lifetime, improve occupant comfort, provide better health and safety, as well as reduce annual energy and O&M costs. Potential opportunities identified at Jefferson Township High School include:

- Reduce Air Leakage
- Close Doors and Windows
- Perform Proper Lighting Maintenance
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Turn Off Unneeded Motors
- Perform Routine Motor Maintenance
- Use Fans to Reduce Cooling Load
- Practice Proper Use of Thermostat Schedules and Temperature Resets
- Ensure Economizers are Functioning Properly
- Clean Evaporator/Condenser Coils on AC Systems
- Clean and/or Replace HVAC Filters
- Check for and Seal Duct Leakage
- Perform Proper Boiler Maintenance
- Perform Proper Furnace Maintenance
- Perform Proper Water Heater Maintenance
- Install Plug Load Controls
- Replace Computer Monitors
- Water Conservation

For details on these energy efficient practices, please refer to Section 5.

On-Site Generation Measures

TRC evaluated the potential for installing on-site generation for Jefferson Township 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	429	kW DC STC
Electric Generation	511,098	kWh/yr
Displaced Cost	$44,470	/yr
Installed Cost	$1,115,400	

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

1.3 Implementation Planning

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

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

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

- SmartStart
- Pay for Performance - Existing Building (P4P)
- SREC (Solar Renewable Energy Certificate) Registration Program
- Energy Savings Improvement Program (ESIP)

For facilities wanting to pursue only selected individual measures (or planning to phase implementation of selected measures over multiple years), incentives are available through the SmartStart program. To participate in this program you may utilize internal resources, or an outside firm or contractor, to do the final design of the ECM(s) and do the installation. Program pre-approval is required for some SmartStart incentives, so only after receiving pre-approval should you proceed with ECM installation. The incentive estimates listed above in Figure 3 are based on the SmartStart program. More details on this program and others are available in Section 7.

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

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the Energy Savings Improvement Program (ESIP). Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as, attractive financing for implementing ECMs. An LGEA report (or other approved energy audit) is required for participation in ESIP. Please refer to Section 7.44 for additional information on the ESIP Program.

Additional information on relevant incentive programs is located in Section 7 or: www.njcleanenergy.com/ci.

2 FACILITY INFORMATION AND EXISTING CONDITIONS

2.1 Project Contacts

Figure 5 – Project Contacts

Name	Role	E-Mail	Phone #
Customer			
Rita Giacchi	Assistant Business Administrator	rgiacchi@jefftwp.org	973-663-3387
Designated Representative			
Joe Yuhas	Supervisor Custodian		(973) 479-9360
TRC Energy Services			
Moussa Traore	Auditor	mtraore@trcsolutions.com	(732) 855-0033

2.2 General Site Information

On March 1, 2017, TRC performed an energy audit at Jefferson Township High School located in Oak Ridge, New Jersey. TRC's auditor met with Joe Yuhas to review the facility operations and help focus our investigation on specific energy-using systems.

The 235,851 square foot high school building is a two-story facility and is comprised of classrooms, offices, gymnasiums, locker rooms, weight room, auditorium, cafeterias, kitchens, computer rooms, band rooms, mechanical rooms, and storage areas. The building was constructed in 1962 and is located next to the middle school, which has a connected walkway to the high school building. The school hours of operation are between 7:00AM and 2:30 PM during the weekdays and it operates on a 10 month schedule. The gymnasium and auditorium are used after school hours and on weekends for sports and other events. The school is also used in the summer for various classes and events.

The foundation consists of cast-in-place concrete perimeter wall footings with concrete walls. Exterior walls are finished with brick masonry. The building has a flat roof covered with a multi-ply bituminous built-up membrane as well as a black and white membrane. The portions of the roof covered with a white membrane can contribute to cooling savings by reflecting heat. The roof appears to be in good condition. The windows throughout the facility are a combination of double paned operable windows and fixed single paned small windows. They appear to be in good condition with no signs of uncontrolled moisture, air-leakage and other energy-compromising issues. Exterior doors are constructed of metal. The door seals were found to be worn out at some portions of the building. This increases the level of outside air-infiltration. We recommend the maintenance staff seal the doors. This will result in minimal energy savings, but should be part of the school's operation and maintenance plan.

Interior lighting consists of a combination of 32-Watt linear 4 foot T8 lamps and fixtures, LED-linear tubes, LED fixtures and lamps, compact fluorescent lamps (CFL), and incandescent lamps. Lighting control is provided by manual wall switches. The facility has exterior lighting which consists mostly of 250-Watt metal halide and LED Outdoor Wall-Mounted Fixtures and are controlled with photocells. As part of a renovation, the school has retrofitted the corridors, parking lot, and the outdoor wall-mounted existing lighting system with LED linear tubes and LED fixtures.

The high school building houses the central heating system for both the high school and middle school. The system consists of five non-condensing hot water oil-fired boilers. Cooling and ventilation are provided by direct expansion roof top units. Air is exhausted from rest rooms, corridors, and meeting areas through the roof exhausters. The school houses two commercial kitchens. The kitchens include propane cooking ovens, a stand-up refrigerator, and a walk-in medium temperature freezer and a walk-in cooler.

2.3 Building Occupancy

The school hours of operation are typical for a school; between 7:00AM and 2:30 PM during the week. The school operates on 10 month schedule and the gymnasium and auditorium are used after hours and weekends for sports and other events. The school is also used in the summer for various classes and events. The typical schedule is presented in the table below.

Figure 6 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
Jefferson Township High School	Weekday	7:00 AM - 4:30 PM
Jefferson Township High School	Weekend	8:00 AM - 4:00 PM

2.4 Building Envelope



The foundation consists of cast-in-place concrete perimeter wall footings with concrete walls. Exterior walls are finished with brick masonry. The building has a flat roof covered with a multi-ply bituminous built-up membrane as well as a black and white membrane. The portions of the roof covered with a white membrane can contribute to cooling savings by reflecting heat. The roof appears to be in good condition. The windows throughout the facility are a combination of double paned operable windows and fixed single paned small windows. They appear to be in good condition with no signs of uncontrolled moisture, air-leakage and other energy-compromising issues. Exterior doors are constructed of metal. The door seals were found to be worn out at some portions of the building. This increases the level of outside air-infiltration. We recommend the maintenance staff seal the doors. This will result in minimal energy savings, but should be part of the school's operation and maintenance plan.

2.5 On-Site Generation

Jefferson Township High School has a 200 kW emergency backup generator that uses propane as fuel. It is used in case of emergency to light up the corridors, the auditorium, and the school's emergency lights.

2.6 Energy-Using Systems

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

Lighting System

Interior lighting consists of a combination of 28-Watt linear T5 and 32-Watt linear T8 lamps and fixtures, LED linear tubes, LED fixtures and lamps, compact fluorescent lamps (CFL), and incandescent lamps. Lighting control is provided by manual wall switches. The J-wing corridor and the main entrance corridor, rooms B5, E8, and D3 lighting have been retrofitted to LED linear tubes. The Auditorium is lit with recessed LED fixtures. Cafeteria #2 and the Auditorium's stage are lit with pendant LED fixtures and recessed compact fluorescent lamps (CFL). The kitchens and the media center are lit with incandescent lamps, linear T8 lamps and fixtures, and CFLs. The old gymnasium, the new gymnasium, and the auxiliary gymnasium are lit with linear T5 and metal halide (high bay) fixtures. Storage rooms are lit with incandescent screen in lamps. The remaining building's spaces (classrooms, restrooms, offices, locker rooms, corridors, stairwells, mechanical rooms, and conference room) are lit mainly with linear T8 amps and fixtures. Lighting control is provided by manual wall switches. Exterior lighting system consists of LED and metal halide outdoor wall-mounted fixtures. The parking lot pole lighting has been retrofitted to LED fixtures. Exterior lights are controlled with photocells.

Significant energy savings could be achieved by continuing to retrofit the existing lighting system with LED linear tubes and LED lamps fixtures. Installing occupancy sensors in select areas will yield additional energy savings.

Hot Water Heating System

The building houses the central heating system for both the high school and middle school. The system consist of five non-condensing Buderus hot water oil boilers. The boilers are 12 years old, and have an output capacity of 3,982 kBtu/hr each with a nominal efficiency of 80%. Three boilers serve the high school and two serve the middle school. The boilers operate in lead/lag operation with only two operating at a time for the high school, and one for the middle school. The heating hot water generated by the boilers are circulated to unit ventilators and the air handlers with two 20 hp hot water supply pumps equipped with variable frequency drive, and three 1.5 hp constant speed return pumps. The boilers are configured in a variable flow distribution, and they have a full modulation sequencing control system. The boiler internal control system has an outside temperature set at 51°F and interior space temperature is set at 72°F. The unit ventilators are equipped with hot water coils, and direct-expansion (DX) coils for cooling and dehumidification in the classrooms. The boilers are in good condition and are well maintained.

Direct Expansion Air Conditioning System (DX)

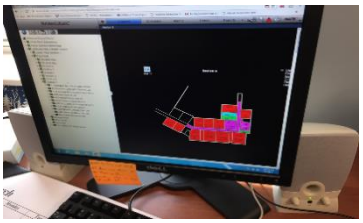
The cooling system consists of packaged rooftop air conditioning units, split-system AC, ductless mini-split heat pumps, and window units. The rooftop units vary in size between 3 to 40 tons and provide heating and air conditioning to various spaces of the facility. The split system vary in size between 1 to 6 tons and provide supplemental cooling to spaces including classrooms, computer rooms, server rooms, and other similar spaces with spot cooling requirements. The Airedale and the Lennox split systems are 18 and 16 years old respectively and have reached the end of their useful lives and were functioning with a minimal efficiency as mentioned by the site contact. The Trane and Carrier rooftop units are in good condition. There are four window units that provide cooling to classrooms. A portion of the building's classrooms have unit ventilators. The unit ventilators are equipped with hot water coils for space heating and DX coils for cooling and dehumidification.

The HVAC control system consists of a web access building management control system. The system integrates into majority of the equipment (except the boilers).

Ventilation – Air-Handling System

There are various air-handling systems throughout the facility that provide tempered air via duct distribution systems to the spaces for heating and cooling. The old and the new gymnasiums have four air handling units equipped with hot water coil only for heating. The auxiliary room also has one air handler. The make-up air for the kitchen, the locker rooms, and the cafeterias is provided by McQuay units. The units appear to be in good condition. Air is exhausted from the rest rooms, corridors, classrooms, meeting and dining areas through the roof exhausters.

Building Energy Management System (BEMS)



The majority of the facility is controlled with a web access building energy management system (BEMS). The system integrates into majority of the equipment (except the boilers).

Domestic Hot Water Heating System

Domestic hot water for the facility is provided by a series of water heaters. The boiler room #2 has two PVI non-condensing oil hot water heaters with an input rating of 1,200 kBtu/hr, a nominal efficiency of 82%, and a storage tank capacity of 600 gallons. Two 1.5 hp recirculation pumps are used to distribute 120°F water to various spaces of the facility. The two oil water heaters are 12 years old and appear to be in good condition. Supplemental domestic hot water is provided by two electric water heaters. One 12 gallon Bradford White, and one 4.5 gallon General Electric located respectively in rooms F8 and D2.

Food Service and Refrigeration

The school houses two commercial kitchens. The kitchens include propane cooking oven, a stand-up refrigerators, freezers, and a walk-in medium temperature freezer and a walk-in cooler. The walk-in units appear to be in good condition. The kitchens are well maintained.

Building Plug Load

There are 386 computers with LCD monitors and 38 computers with CRT monitors throughout the facility. The school board should plan to replace the CRT monitors with LCD monitors. There is no centralized PC power management software installed. There are several server closet scattered throughout the facility. The main server room has cooling provided by two dedicated 2.5 tons Fujitsu split system AC. There are two vending machines located in the cafeteria.

2.7 Water-Using Systems

There are several restrooms at this facility. A sampling of restrooms found that the faucets are rated for 2.2 gallons per minute (gpm) or higher, the toilets are rated at 2.5 gallons per flush (gpf) and the urinals are rated at 2 gpf. The school has a girls and boys locker rooms. The locker rooms have showerheads that are only used during the school year for after school activities.

3 SITE ENERGY USE AND COSTS

Utility data for electricity, No. 2 fuel oil and propane was analyzed to identify opportunities for savings. In addition, data for electricity, No. 2 fuel oil and propane 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 3.5 for additional information.

3.1 Total Cost of Energy

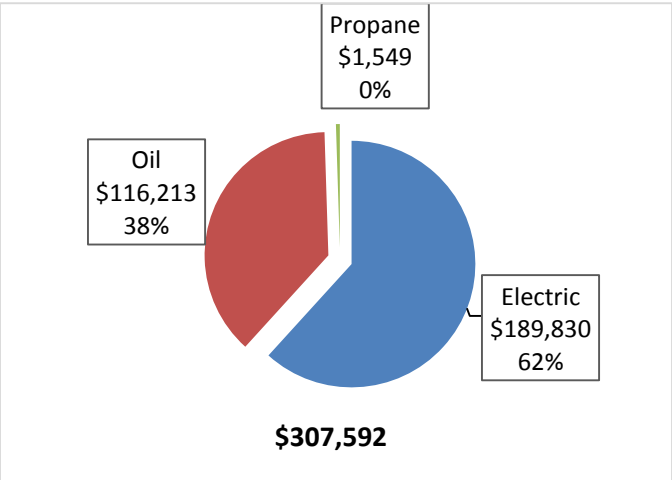
The following energy consumption and cost data is based on the last 12-month period of utility billing data that was provided for each utility. A profile of the annual energy consumption and energy cost of the facility was developed from this information.

Figure 7 - Utility Summary

Utility Summary for Jefferson Township High School		
Fuel	**Usage**	**Cost**
Electricity	1,614,089 kWh	$189,830
No. 2 Fuel Oil	91,743 Gallons	$116,213
Propane	630 Gallons	$1,549
Total		**$307,592**

The current annual energy cost for this facility is $307,592 as shown in the chart below.

Figure 8 - Energy Cost Breakdown



3.2 Electricity Usage

Electricity is provided by JCP&L. The average electric cost over the past 12 months was $0.118/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

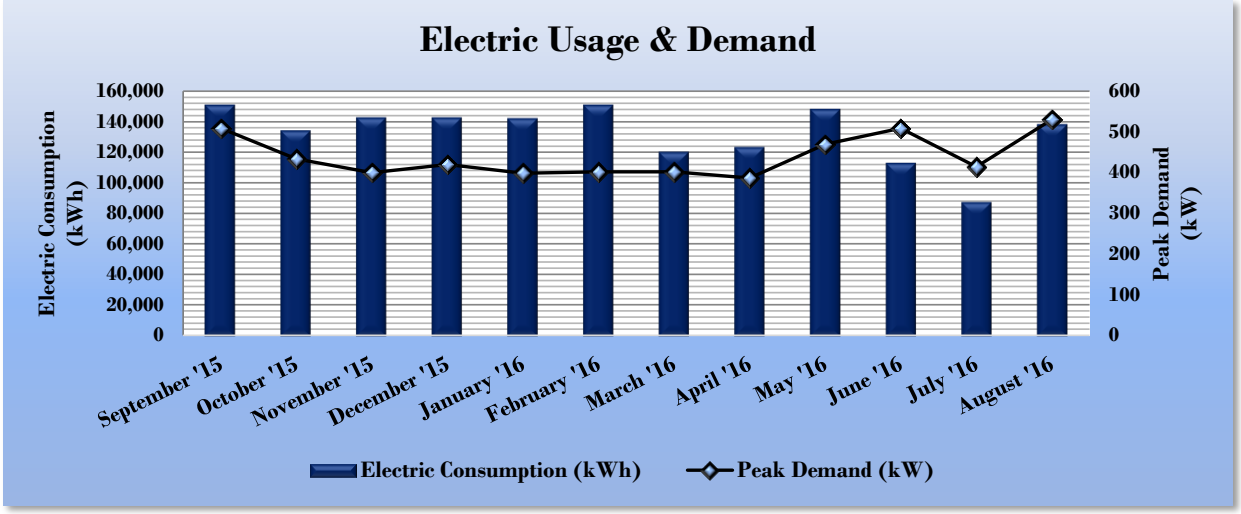


Figure 10 - Electric Usage & Demand

Electric Billing Data for Jefferson Township High School					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
10/14/15	30	151,200	509		$17,655
11/12/15	29	134,400	434		$15,605
12/14/15	32	142,800	400		$16,237
1/14/16	31	142,800	420		$16,349
2/12/16	29	142,400	398		$16,191
3/15/16	32	151,200	402		$17,074
4/13/16	29	120,400	402		$14,053
5/12/16	29	123,600	387		$14,315
6/13/16	32	148,400	469		$17,402
7/13/16	30	113,200	509		$14,021
8/10/16	28	87,600	414		$11,416
9/9/16	30	138,400	530		$17,431
Totals	**361**	**1,596,400**	**530.4**	**$0**	**$187,750**
Annual	**365**	**1,614,089**	**530.4**	**$0**	**$189,830**

3.3 No. 2 Fuel Oil Usage

No. 2 fuel oil is provided by Finch Fuel. The average oil cost for the past 12 months is $1.267/Gallon, which is the blended rate used throughout the analyses in this report. The Oil consumption is shown in the table below.

Figure 11 –No. 2 Fuel Oil Usage

No. 2 Fuel Oil Billing Data for Jefferson Township High School				
Period Ending	Days in Period	Oil Usage (Gallons)	Fuel Cost	TRC Estimated Usage?
12/5/15	30	8,100	$10,739	No
1/4/16	31	24,513	$28,890	No
2/5/16	29	20,797	$25,387	No
3/4/16	30	11,301	$14,844	No
4/5/16	30	6,016	$8,053	No
5/5/16	31	5,759	$8,541	No
6/5/16	30	500	$693	Yes
7/5/16	31	500	$693	Yes
8/5/16	31	300	$429	Yes
9/5/16	31	2,957	$3,759	Yes
10/5/16	30	4,000	$5,429	Yes
11/5/16	31	7,000	$8,756	Yes
Totals	**365**	**91,743**	**$116,213**	6
Annual	**365**	**91,743**	**$116,213**	

3.4 Propane Usage

Propane is provided by Suburban Propane. The average propane cost for the past 12 months is $2.459/Gallon, which is the blended rate used throughout the analyses in this report. The Propane consumption is shown in the table below.

Figure 12 –Propane Usage

Propane Billing Data for Jefferson Township High School				
Period Ending	Days in Period	Propane Usage (Gallons)	Fuel Cost	TRC Estimated Usage?
2/10/16	29	63	$155	Yes
3/10/16	31	63	$155	Yes
4/10/16	30	63	$155	Yes
5/10/16	31	63	$155	Yes
6/10/16	30	63	$155	Yes
7/10/16	30	0	$0	Yes
8/10/16	31	0	$0	Yes
9/10/16	30	63	$155	Yes
10/10/16	31	63	$155	Yes
11/10/16	30	63	$155	Yes
12/10/16	31	63	$155	Yes
1/10/17	31	63	$155	Yes
Totals	**365**	**630**	**$1,549**	12
Annual	**365**	**630**	**$1,549**	

3.5 Benchmarking

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

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

Figure 13 - Energy Use Intensity Comparison – Existing Conditions

Energy Use Intensity Comparison - Existing Conditions		
	Jefferson Township High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	128.0	141.4
Site Energy Use Intensity (kBtu/ft^2)	112.9	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		
	Jefferson Township High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	109.6	141.4
Site Energy Use Intensity (kBtu/ft^2)	71.4	58.2

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

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

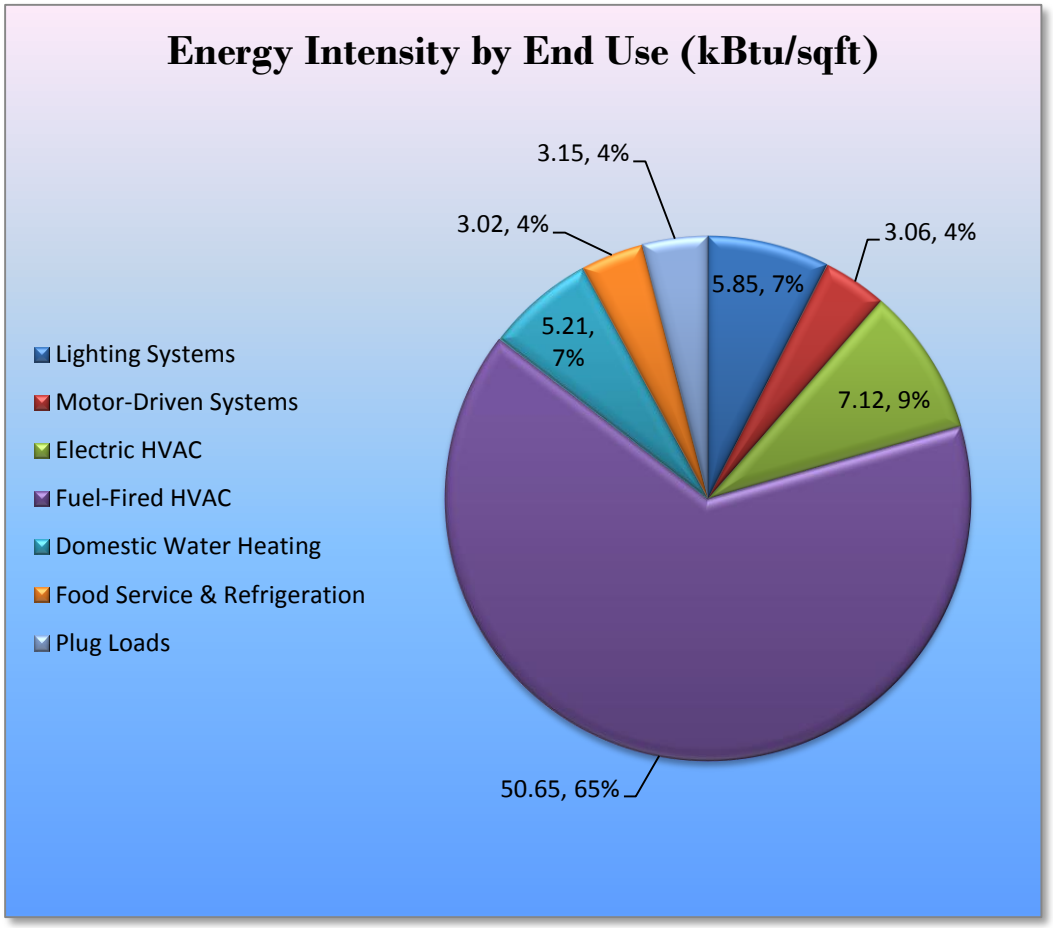
For more information on ENERGY STAR® certification go to: https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1.

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

3.6 Energy End-Use Breakdown

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

Figure 15 - Energy Balance (% and kBtu/SF)



4 ENERGY CONSERVATION MEASURES

Level of Analysis

The goal of this audit report is to identify potential energy efficiency opportunities, help prioritize specific measures for implementation, and provide information to the Jefferson Township 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 7.

The following sections describe the evaluated measures.

4.1 Recommended ECMs

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

Figure 16 – Summary of Recommended ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**292,045**	**83.1**	**0.0**	**$34,346.87**	**$161,053.57**	**$25,420.00**	**$135,633.57**	**3.9**	**294,087**
ECM 1	Install LED Fixtures	30,597	10.9	0.0	$3,598.45	$31,106.62	$4,935.00	$26,171.62	7.3	30,811
ECM 2	Retrofit Fixtures with LED Lamps	259,091	72.0	0.0	$30,471.18	$125,752.30	$20,485.00	$105,267.30	3.5	260,902
ECM 3	Install LED Exit Signs	2,357	0.2	0.0	$277.24	$4,194.65	$0.00	$4,194.65	15.1	2,374
Lighting Control Measures		**32,444**	**9.0**	**0.0**	**$3,815.70**	**$24,360.00**	**$4,200.00**	**$20,160.00**	**5.3**	**32,671**
ECM 4	Install Occupancy Sensor Lighting Controls	32,444	9.0	0.0	$3,815.70	$24,360.00	$4,200.00	$20,160.00	5.3	32,671
Motor Upgrades		**557**	**0.3**	**0.0**	**$65.45**	**$3,073.83**	**$0.00**	**$3,073.83**	**47.0**	**560**
ECM 5	Premium Efficiency Motors	557	0.3	0.0	$65.45	$3,073.83	$0.00	$3,073.83	47.0	560
Electric Unitary HVAC Measures		**71,209**	**42.2**	**0.0**	**$8,374.72**	**$167,017.10**	**$7,406.00**	**$159,611.10**	**19.1**	**71,707**
ECM 6	Install High Efficiency Electric AC	71,209	42.2	0.0	$8,374.72	$167,017.10	$7,406.00	$159,611.10	19.1	71,707
Domestic Water Heating Upgrade		**0**	**0.0**	**67.8**	**$619.54**	**$336.99**	**$0.00**	**$336.99**	**0.5**	**11,090**
ECM 7	Install Low-Flow Domestic Hot Water Devices	0	0.0	67.8	$619.54	$336.99	$0.00	$336.99	0.5	11,090
Plug Load Equipment Control - Vending Machine		**3,224**	**0.0**	**0.0**	**$379.13**	**$460.00**	**$0.00**	**$460.00**	**1.2**	**3,246**
ECM 8	Vending Machine Control	3,224	0.0	0.0	$379.13	$460.00	$0.00	$460.00	1.2	3,246
TOTALS		**399,478**	**134.6**	**67.8**	**$47,601.41**	**$356,301.48**	**$37,026.00**	**$319,275.48**	**6.7**	**413,361**

* - 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_2e Emissions Reduction (lbs)
Lighting Upgrades		**292,045**	**83.1**	**0.0**	**$34,346.87**	**$161,053.57**	**$25,420.00**	**$135,633.57**	**3.9**	**294,087**
ECM 1	Install LED Fixtures	30,597	10.9	0.0	$3,598.45	$31,106.62	$4,935.00	$26,171.62	7.3	30,811
ECM 2	Retrofit Fixtures with LED Lamps	259,091	72.0	0.0	$30,471.18	$125,752.30	$20,485.00	$105,267.30	3.5	260,902
ECM 3	Install LED Exit Signs	2,357	0.2	0.0	$277.24	$4,194.65	$0.00	$4,194.65	15.1	2,374

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

ECM 1: Install LED Fixtures

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
Interior	21,378	6.7	0.0	$2,514.26	$13,135.48	$335.00	$12,800.48	5.1	21,528
Exterior	9,219	4.3	0.0	$1,084.19	$17,971.14	$4,600.00	$13,371.14	12.3	9,283

Measure Description

We recommend replacing existing non-LED 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 10 times longer than many incandescent lamps.

ECM 2: Retrofit Fixtures with LED Lamps

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
Interior	259,091	72.0	0.0	$30,471.18	$125,752.30	$20,485.00	$105,267.30	3.5	260,902
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 10 times longer than many incandescent lamps.

ECM 3: Install LED Exit Signs

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
Interior	2,357	0.2	0.0	$277.24	$4,194.65	$0.00	$4,194.65	15.1	2,374
Exterior	0	0.0	0.0	$0.00	$0.00	$0.00	$0.00	0.0	0

Measure Description

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

4.1.2 Lighting Control Measures

Our 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_2e Emissions Reduction (lbs)
Lighting Control Measures		**32,444**	**9.0**	**0.0**	**$3,815.70**	**$24,360.00**	**$4,200.00**	**$20,160.00**	**5.3**	**32,671**
ECM 4	Install Occupancy Sensor Lighting Controls	32,444	9.0	0.0	$3,815.70	$24,360.00	$4,200.00	$20,160.00	5.3	32,671

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

ECM 4: Install Occupancy Sensor Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
32,444	9.0	0.0	$3,815.70	$24,360.00	$4,200.00	$20,160.00	5.3	32,671

Measure Description

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

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

4.1.3 Motor Upgrades

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

Figure 19 – Summary of Motor Upgrades ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Natural Gas Savings (MMBtu)	Annual No. 2 Fuel Oil Savings (MMBtu)	Annual Propane Savings (MMBtu)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Motor Upgrades		**557**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**$65.45**	**$3,073.83**	**$0.00**	**$3,073.83**	**47.0**	**560**
ECM 5	Premium Efficiency Motors	557	0.3	0.0	0.0	0.0	0.0	$65.45	$3,073.83	$0.00	$3,073.83	47.0	560

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_2e Emissions Reduction (lbs)
557	0.3	0.0	$65.45	$3,073.83	$0.00	$3,073.83	47.0	560

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.

4.1.4 Electric Unitary HVAC Measures

Our recommendations for unitary HVAC measures are summarized in Figure 20 below.

Figure 20 - Summary of Unitary HVAC ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
Electric Unitary HVAC Measures		**71,209**	**42.2**	**0.0**	**$8,374.72**	**$167,017.10**	**$7,406.00**	**$159,611.10**	**19.1**	**71,707**
ECM 6	Install High Efficiency Electric AC	71,209	42.2	0.0	$8,374.72	$167,017.10	$7,406.00	$159,611.10	19.1	71,707

ECM 6: Install High Efficiency Air Conditioning Units

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
71,209	42.2	0.0	$8,374.72	$167,017.10	$7,406.00	$159,611.10	19.1	71,707

Measure Description

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

4.1.5 Domestic Hot Water Heating System Upgrades

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

Figure 21 - Summary of Domestic Water Heating ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		**0**	**0.0**	**67.8**	**$619.54**	**$336.99**	**$0.00**	**$336.99**	**0.5**	**11,090**
ECM 7	Install Low-Flow Domestic Hot Water Devices	0	0.0	67.8	$619.54	$336.99	$0.00	$336.99	0.5	11,090

ECM 7: Install Low-Flow DHW Devices

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
0	0.0	67.8	$619.54	$336.99	$0.00	$336.99	0.5	11,090

Measure Description

We recommend installing low-flow domestic hot water devices to reduce overall hot water demand. Energy demand from domestic hot water heating systems can be reduced by reducing water usage in general. Faucet aerators and low-flow showerheads can reduce hot water usage, relative to standard showerheads and aerators, which saves energy. Low-flow devices reduce the overall water flow from the fixture, while still adequate pressure for washing. This reduces the amount of water used per day resulting in energy and water savings.

4.1.6 Plug Load Equipment Control - Vending Machines

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

Figure 22 - Summary of Plug Load Equipment Controls ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Natural Gas Savings (MMBtu)	Annual No. 2 Fuel Oil Savings (MMBtu)	Annual Propane Savings (MMBtu)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Plug Load Equipment Control - Vending Machine		**3,224**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**$379.13**	**$460.00**	**$0.00**	**$460.00**	**1.2**	**3,246**
ECM 8	Vending Machine Control	3,224	0.0	0.0	0.0	0.0	0.0	$379.13	$460.00	$0.00	$460.00	1.2	3,246

ECM 8: Vending Machine Control

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
3,224	0.0	0.0	$379.13	$460.00	$0.00	$460.00	1.2	3,246

Measure Description

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

5 ENERGY EFFICIENT PRACTICES

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

Reduce Air Leakage

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

Close Doors and Windows

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

Perform Proper Lighting Maintenance

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

Develop a Lighting Maintenance Schedule

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

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.

Turn Off Unneeded Motors

Electric motors often run unnecessarily, and this is an overlooked opportunity to save energy. These motors should be identified and turned off when appropriate. For example, exhaust fans often run unnecessarily when ventilation requirements are already met. Reducing run hours for these motors can result in significant energy savings. Whenever possible, use automatic devices such as twist timers or occupancy sensors to ensure that motors are turned off when not needed.

Perform Routine Motor Maintenance

Motors consist of many moving parts whose collective degradation can contribute to a significant loss of motor efficiency. In order to prevent damage to motor components, routine maintenance should be performed. This maintenance consists of cleaning surfaces and ventilation openings on motors to prevent overheating, lubricating moving parts to reduce friction, inspecting belts and pulleys for wear and to ensure they are at proper alignment and tension, and cleaning and lubricating bearings. Consult a licensed technician to assess these and other motor maintenance strategies.

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

Ensure Economizers are Functioning Properly

Economizers, when properly configured, can be used to significantly reduce mechanical cooling. However, if the outdoor thermostat or enthalpy control is malfunctioning or the damper is stuck or improperly adjusted, benefits from the economizer may not be fully realized. As such, periodic inspection and maintenance is required to ensure proper operation. This maintenance should be scheduled with maintenance of the facility's air conditioning system and should include proper setting of the outdoor thermostat/enthalpy control, inspection of control and damper operation, lubrication of damper connections, and adjustment of minimum damper position. A malfunctioning economizer can significantly increase the amount of heating and mechanical cooling required by introducing excess amounts of cold or hot outside air.

Clean Evaporator/Condenser Coils on AC Systems

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

Clean and/or Replace HVAC Filters

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

Check for and Seal Duct Leakage

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

Perform Proper Boiler Maintenance

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

Perform Proper Furnace Maintenance

Preventative furnace maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. Following the manufacturer's instructions, a yearly tune-up should include tasks such as checking for gas / carbon monoxide leaks; changing the air and fuel filters; checking components for cracks, corrosion, dirt, or debris build-up; ensuring the ignition system is working properly; testing and adjusting operation and safety controls; inspecting the electrical connections; and ensuring proper lubrication for motors and bearings.

Perform Proper Water Heater Maintenance

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

Plug Load Controls

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

Replace Computer Monitors

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

Water Conservation

Installing low-flow faucets or faucet aerators, low-flow showerheads, and kitchen sink pre-rinse spray valves saves both energy and water. These devices save energy by reducing the overall amount of hot water used hence reducing the energy used to heat the water. The flow ratings for EPA Water Sense™ (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 Water Sense™ ratings for urinals is 0.5 gpf and toilets that use as little as 1.28 gpf (this is lower than the current 1.6 gpf federal standard).

Refer to Section 4.1.5 for any low-flow ECM recommendations.

6 On-Site Generation Measures

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

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

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

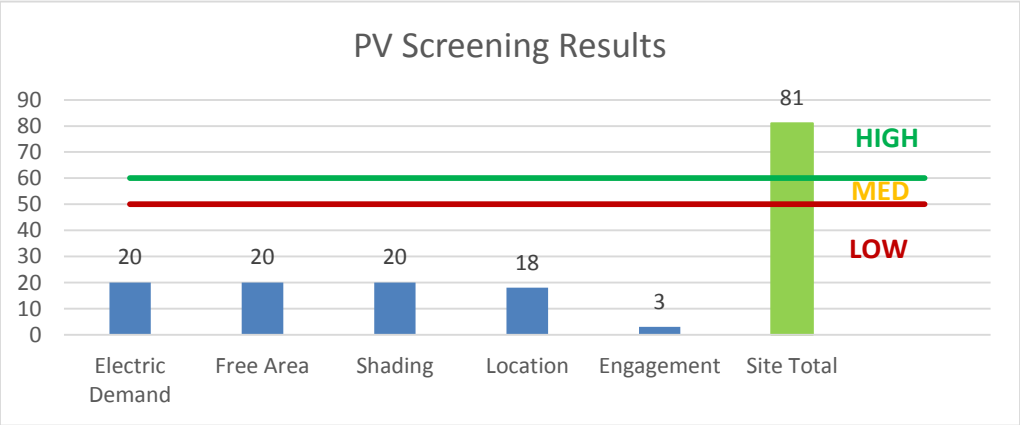
6.1 Photovoltaic

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

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

In order to be cost-effective, a solar PV array needs certain minimum criteria, such as flat or south-facing rooftop or other unshaded space on which to place the PV panels. In our opinion, the facility does appear to meet these minimum criteria for cost-effective PV installation.

Figure 23 - Photovoltaic Screening



Potential	High	
System Potential	429	kW DC STC
Electric Generation	511,098	kWh/yr
Displaced Cost	$44,470	/yr
Installed Cost	$1,115,400	

Solar projects must register their projects in the SREC (Solar Renewable Energy Certificate) Registration Program (SRP) prior to the start of construction in order to establish the project's eligibility to earn SRECs. Registration of the intent to participate in New Jersey's solar marketplace provides market participants with information about developed new solar projects and insight into future SREC pricing. Refer to Section 7.3 for additional information.

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

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

6.2 Combined Heat and Power

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

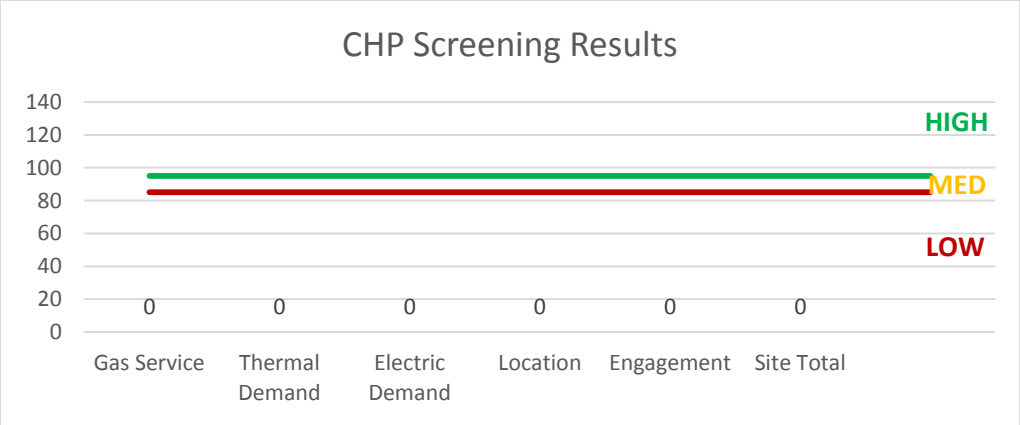
CHP systems are typically used to produce a portion of the electric power used onsite by a facility, with the balance of electric power needs supplied by grid purchases. The heat is used to supplement (or supplant) existing boilers for the purpose of space heating and/or domestic hot water heating. Waste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

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

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

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

Figure 24 - Combined Heat and Power Screening



7 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 25 for a list of the eligible programs identified for each recommended ECM.

Figure 25 - ECM Incentive Program Eligibility

Energy Conservation Measure		SmartStart Prescriptive	SmartStart Custom	Pay For Performance Existing Buildings
ECM 1	Install LED Fixtures	x		x
ECM 2	Retrofit Fixtures with LED Lamps	x		x
ECM 3	Install LED Exit Signs			x
ECM 4	Install Occupancy Sensor Lighting Controls	x		x
ECM 5	Premium Efficiency Motors	x		x
ECM 6	Install High Efficiency Electric AC			x
ECM 7	Install Low-Flow Domestic Hot Water Devices			x
ECM 8	Vending Machine Control			x

SmartStart is generally well-suited for implementation of individual measures or small group of measures. It provides flexibility to install measures at your own pace using in-house staff or a preferred contractor. 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.

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.

7.1 SmartStart

Overview

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

Equipment with Prescriptive Incentives Currently Available:

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

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

Incentives

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

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

How to Participate

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

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

7.2 Pay for Performance - Existing Buildings

Overview

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

Incentives

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

How to Participate

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

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

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

7.3 SREC Registration Program

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

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

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

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

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

7.4 Energy Savings Improvement Program

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

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

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

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

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

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

8 ENERGY PURCHASING AND PROCUREMENT STRATEGIES

8.1 Retail Electric Supply Options

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

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

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

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

8.2 Retail Natural Gas Supply Options

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

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

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

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

Appendix A: Equipment Inventory & Recommendations

Lighting Inventory & Recommendations

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room G110 - Boiler Room	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,404	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,404	0.19	480	0.0	$56.40	$526.50	$90.00	7.74
Old Gymnasium	24	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	2,112	Relamp	No	24	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,112	0.98	3,614	0.0	$425.04	$2,283.20	$480.00	4.24
Old Gymnasium	4	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	4	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	242	0.0	$28.43	$430.22	$0.00	15.13
Old Gymnasium	3	Metal Halide: (1) 400W Lamp	Wall Switch	458	2,112	Fixture Replacement	No	3	LED - Fixtures: Downlight Pendant	Wall Switch	35	2,112	0.83	3,082	0.0	$362.49	$1,825.74	$15.00	5.00
Storage 1	2	Incandescent: 60W A Lamp	Wall Switch	60	1,320	Fixture Replacement	Yes	2	LED - Fixtures: Downlight Solid State Retrofit	Occupancy Sensor	9	924	0.07	163	0.0	$19.17	$243.30	$30.00	11.12
Storage 2	2	Incandescent: 60W A Lamp	Wall Switch	60	1,320	Fixture Replacement	Yes	2	LED - Fixtures: Downlight Solid State Retrofit	Occupancy Sensor	9	924	0.07	163	0.0	$19.17	$243.30	$30.00	11.12
Storage 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,320	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,320	0.04	100	0.0	$11.78	$117.00	$20.00	8.23
Storage 3	2	Incandescent: 60W A Lamp	Wall Switch	60	1,320	Fixture Replacement	Yes	2	LED - Fixtures: Downlight Solid State Retrofit	Occupancy Sensor	9	924	0.07	163	0.0	$19.17	$243.30	$30.00	11.12
Locker Room	4	LED - Fixtures: 9W LED	Wall Switch	9	1,584	None	Yes	4	LED - Fixtures: 9W LED	Occupancy Sensor	9	1,109	0.01	20	0.0	$2.31	$116.00	$20.00	41.49
Corridor	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,442	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,442	0.06	278	0.0	$32.70	$175.50	$30.00	4.45
Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,848	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.05	177	0.0	$20.85	$233.00	$40.00	9.26
Storage	1	Incandescent: 300W Incandescent	Wall Switch	300	1,320	Fixture Replacement	No	1	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	1,320	0.19	442	0.0	$51.95	$63.65	$5.00	1.13
Storage	5	Incandescent: 60W A Lamp	Wall Switch	60	1,320	Fixture Replacement	Yes	5	LED - Fixtures: Downlight Solid State Retrofit	Occupancy Sensor	9	924	0.18	408	0.0	$47.94	$434.26	$45.00	8.12
Corridor	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,320	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,320	0.21	486	0.0	$57.13	$292.50	$50.00	4.24
Corridor	1	Exit Signs: LED - 2 W Lamp	None	6	1,320	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	1,320	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
New Gymnasium	30	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	2,112	Relamp	No	30	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,112	1.22	4,518	0.0	$531.30	$2,854.00	$600.00	4.24
New Gymnasium	3	Metal Halide: (1) 400W Lamp	Wall Switch	458	2,112	Fixture Replacement	No	3	LED - Fixtures: Downlight Pendant	Wall Switch	35	2,112	0.83	3,082	0.0	$362.49	$1,825.74	$15.00	5.00
New Gymnasium	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
Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,320	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	924	0.05	110	0.0	$12.98	$174.50	$30.00	11.13
Auxilary Gymnasium	12	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	2,112	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	2,112	0.49	1,807	0.0	$212.52	$1,141.60	$240.00	4.24
Auxilary Gymnasium	1	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	60	0.0	$7.11	$107.56	$0.00	15.13
Storage 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,320	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	924	0.05	110	0.0	$12.98	$174.50	$30.00	11.13
Storage 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,320	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	924	0.05	110	0.0	$12.98	$174.50	$30.00	11.13
Weigh Room	10	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	1,848	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.60	1,934	0.0	$227.45	$585.00	$100.00	2.13
Weigh Room	2	Compact Fluorescent: Recessed 26W CFL	Wall Switch	26	1,848	Fixture Replacement	No	2	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	1,848	0.02	72	0.0	$8.50	$127.30	$0.00	14.98

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Weigh Room	1	Exit Signs: LED - 2 W Lamp	None	6	1,848	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	1,848	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium	4	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	4	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	242	0.0	$28.43	$430.22	$0.00	15.13
Auditorium	43	LED - Fixtures: Recessed 9W LED	Wall Switch	9	1,584	None	No	43	LED - Fixtures: Recessed 9W LED	Wall Switch	9	1,584	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium Stage	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,584	0.13	361	0.0	$42.42	$351.00	$60.00	6.86
Auditorium Stage	3	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	181	0.0	$21.33	$322.67	$0.00	15.13
Auditorium Stage	28	LED - Fixtures: 85W Hanging Pendant (Spot Light)	Wall Switch	85	1,584	None	No	28	LED - Fixtures: 85W Hanging Pendant (Spot Light)	Wall Switch	85	1,584	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium Stage	2	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	1,584	None	No	2	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	1,584	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Cafeteria 1	54	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,848	Relamp	No	54	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	1.17	3,787	0.0	$445.39	$3,159.00	$540.00	5.88
Cafeteria 1	3	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	181	0.0	$21.33	$322.67	$0.00	15.13
Cafeteria 2	25	LED - Fixtures: 11W Hanging Pendant	Wall Switch	11	1,848	None	No	25	LED - Fixtures: 11W Hanging Pendant	Wall Switch	11	1,848	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Cafeteria 2	40	Compact Fluorescent: 2x26W Recessed CFL 4-pin	Wall Switch	52	1,848	Fixture Replacement	No	40	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	1,848	1.13	3,655	0.0	$429.90	$2,546.04	$0.00	5.92
Cafeteria 2	3	Exit Signs: LED - 2 W Lamp	None	6	1,848	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	1,848	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen 2	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,848	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.32	1,052	0.0	$123.72	$877.50	$150.00	5.88
Kitchen 2	4	Exit Signs: LED - 2 W Lamp	None	6	1,848	None	No	4	Exit Signs: LED - 2 W Lamp	None	6	1,848	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen 2	7	Incandescent: 60W A Lamp	Wall Switch	60	1,848	Fixture Replacement	No	7	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	1,848	0.23	759	0.0	$89.23	$445.56	$35.00	4.60
Kitchen 2	2	Halogen Incandescent: 75W Halogen Incadescent	Wall Switch	75	1,848	Fixture Replacement	No	2	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	1,848	0.09	281	0.0	$32.99	$127.30	$10.00	3.56
Kitchen 2	4	Compact Fluorescent: 14W Screen in CFL	Wall Switch	14	1,848	Fixture Replacement	No	4	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	5	1,848	0.02	77	0.0	$9.00	$254.60	$0.00	28.30
Kitchen 2	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,848	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.42	1,360	0.0	$159.96	$585.00	$100.00	3.03
Room F121 - Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,320	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	924	0.19	441	0.0	$51.92	$350.00	$60.00	5.59
Walk in Cooler - Refrigeartor	6	Incandescent: 60W A Lamp	Wall Switch	60	880	Fixture Replacement	No	6	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	880	0.20	310	0.0	$36.42	$381.91	$30.00	9.66
Kitchen 1	26	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,848	Relamp	No	26	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.56	1,823	0.0	$214.45	$1,521.00	$260.00	5.88
Kitchen 1	4	Incandescent: 40W Incandescent	Wall Switch	40	1,848	Fixture Replacement	No	4	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	1,848	0.08	264	0.0	$30.99	$254.60	$20.00	7.57
Kitchen 1	4	Incandescent: 60W A Lamp	Wall Switch	60	1,848	Fixture Replacement	No	4	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	1,848	0.13	434	0.0	$50.99	$254.60	$20.00	4.60
Storage	4	Incandescent: 150W Incandescent	Wall Switch	150	1,584	Fixture Replacement	Yes	4	LED - Fixtures: Downlight Solid State Retrofit	Occupancy Sensor	9	1,109	0.38	1,047	0.0	$123.14	$370.60	$40.00	2.68
Room F107 - Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.05	152	0.0	$17.87	$233.00	$40.00	10.80

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Corridor	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,584	Relamp	No	3	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,584	0.03	96	0.0	$11.25	$107.70	$15.00	8.24
Corridor	1	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	60	0.0	$7.11	$107.56	$0.00	15.13
Room F106 - Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,584	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,109	0.04	119	0.0	$14.04	$223.70	$35.00	13.44
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,584	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,584	0.01	32	0.0	$3.75	$35.90	$5.00	8.24
Walk in Cooler	1	Compact Fluorescent: 14W Screen in CFL	Wall Switch	14	1,584	Fixture Replacement	No	1	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	5	1,584	0.01	16	0.0	$1.93	$63.65	$0.00	33.01
Girls Locker Room	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.38	1,063	0.0	$125.07	$935.00	$160.00	6.20
Girls Locker Room	3	Exit Signs: LED - 2 W Lamp	None	6	1,584	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	1,584	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.14	397	0.0	$46.72	$291.50	$50.00	5.17
Shower Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.11	304	0.0	$35.73	$350.00	$60.00	8.12
Room J117	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.19	530	0.0	$62.30	$350.00	$60.00	4.65
Room J122	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.10	265	0.0	$31.15	$233.00	$40.00	6.20
Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.14	397	0.0	$46.72	$291.50	$50.00	5.17
Office	1	Exit Signs: LED - 2 W Lamp	None	6	1,584	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	1,584	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boys Locker Room	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.33	912	0.0	$107.20	$818.00	$140.00	6.32
Boys Locker Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,584	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,584	0.06	155	0.0	$18.21	$58.50	$10.00	2.66
Shower Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,584	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.12	341	0.0	$40.15	$233.00	$40.00	4.81
Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,584	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,109	0.03	80	0.0	$9.36	$187.80	$30.00	16.86
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,584	0.02	60	0.0	$7.07	$58.50	$10.00	6.86
Storage	1	Incandescent: 60W A Lamp	Wall Switch	60	1,584	Fixture Replacement	Yes	1	LED - Fixtures: Downlight Solid State Retrofit	Occupancy Sensor	9	1,109	0.04	98	0.0	$11.50	$179.65	$25.00	13.44
Office	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.43	1,192	0.0	$140.17	$642.50	$110.00	3.80
Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.19	530	0.0	$62.30	$350.00	$60.00	4.65
Shower Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.11	304	0.0	$35.73	$350.00	$60.00	8.12
Corrdor Locker Room	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,584	0.22	601	0.0	$70.70	$585.00	$100.00	6.86
Corrdor Locker Room	2	Exit Signs: LED - 2 W Lamp	None	6	1,584	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	1,584	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.08	228	0.0	$26.80	$291.50	$50.00	9.01

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Locker Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.05	152	0.0	$17.87	$233.00	$40.00	10.80
Exit Door 21	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,584	0.13	350	0.0	$41.13	$175.50	$30.00	3.54
Exit Door 21	1	Exit Signs: LED - 2 W Lamp	None	6	1,584	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	1,584	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Stairwell Exit 25	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,584	0.13	350	0.0	$41.13	$175.50	$30.00	3.54
Stairwell Exit 25	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,584	0.02	60	0.0	$7.07	$58.50	$10.00	6.86
Stairwell Exit 25	1	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	60	0.0	$7.11	$107.56	$0.00	15.13
Stairwell Exit 25	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
Corridor - J Wing	76	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,112	None	No	76	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Corridor - J Wing	3	Exit Signs: LED - 2 W Lamp	None	6	2,112	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Corridor - J Wing	4	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	4	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	242	0.0	$28.43	$430.22	$0.00	15.13
Corridor - E Wing	43	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	43	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.93	3,446	0.0	$405.33	$2,515.50	$430.00	5.15
Corridor - E Wing	2	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	121	0.0	$14.22	$215.11	$0.00	15.13
Corridor - M Wing	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.63	2,332	0.0	$274.22	$877.50	$150.00	2.65
Corridor - M Wing	2	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	2,112	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.03	117	0.0	$13.71	$117.00	$20.00	7.07
Corridor - M Wing	3	Exit Signs: LED - 2 W Lamp	None	6	2,112	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Corridor - M Wing	1	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	60	0.0	$7.11	$107.56	$0.00	15.13
Corridor Exposition Light	6	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,442	Relamp	No	6	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,442	0.07	295	0.0	$34.68	$215.40	$30.00	5.35
Room M6	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room M3A	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.34	1,244	0.0	$146.25	$468.00	$80.00	2.65
Room M3B	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.29	1,059	0.0	$124.60	$467.00	$80.00	3.11
Room M2	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.33	1,236	0.0	$145.37	$525.50	$90.00	3.00
Room M5	13	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	13	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.62	2,295	0.0	$269.96	$876.50	$150.00	2.69
Room M4	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.33	1,236	0.0	$145.37	$525.50	$90.00	3.00
Room M1 (Band Room)	36	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	36	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	1.72	6,357	0.0	$747.59	$2,222.00	$380.00	2.46
Room M1C	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.10	353	0.0	$41.53	$233.00	$40.00	4.65

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room M1B	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.14	530	0.0	$62.30	$291.50	$50.00	3.88
Room M1B	1	Exit Signs: LED - 2 W Lamp	None	6	2,112	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room M1A	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.38	1,413	0.0	$166.13	$584.00	$100.00	2.91
Corridor Exposition Light	2	Compact Fluorescent: 23W Screen in CFL	Wall Switch	23	2,112	Fixture Replacement	No	2	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	2,112	0.02	68	0.0	$8.00	$127.30	$0.00	15.92
Corridor Main Entrance	17	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	None	No	17	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Corridor Main Entrance	2	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	121	0.0	$14.22	$215.11	$0.00	15.13
Main Office	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room A6	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.05	203	0.0	$23.82	$233.00	$40.00	8.10
Room A9	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,112	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,112	0.01	43	0.0	$5.00	$35.90	$5.00	6.18
Corridor	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.11	401	0.0	$47.13	$292.50	$50.00	5.15
Room A30	1	LED - Fixtures: 9W LED	Wall Switch	9	2,112	None	No	1	LED - Fixtures: 9W LED	Wall Switch	9	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room A31	1	LED - Fixtures: 9W LED	Wall Switch	9	2,112	None	No	1	LED - Fixtures: 9W LED	Wall Switch	9	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room A29	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.14	530	0.0	$62.30	$291.50	$50.00	3.88
Room A5	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room A4	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room A8 - Conference Room	6	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	Yes	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,478	0.27	1,004	0.0	$118.09	$495.20	$20.00	4.02
Room A3	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.10	353	0.0	$41.53	$233.00	$40.00	4.65
Room A27	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.05	177	0.0	$20.77	$174.50	$30.00	6.96
Room A11	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.38	1,413	0.0	$166.13	$584.00	$100.00	2.91
Room A11	3	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	Yes	3	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,478	0.14	502	0.0	$59.04	$305.60	$20.00	4.84
Corridor A Wing	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,112	None	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Corridor A Wing	5	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,112	Relamp	No	5	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,112	0.06	213	0.0	$24.99	$179.50	$25.00	6.18
Corridor A Wing	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.09	321	0.0	$37.71	$234.00	$40.00	5.15
Corridor A Wing	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.17	622	0.0	$73.13	$234.00	$40.00	2.65
Room A26	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.14	530	0.0	$62.30	$291.50	$50.00	3.88

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room A26	1	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,478	0.05	167	0.0	$19.68	$179.20	$20.00	8.09
Room A9	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.49	1,821	0.0	$214.12	$584.00	$100.00	2.26
Room A25	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.33	1,236	0.0	$145.37	$525.50	$90.00	3.00
Room A25	3	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	Yes	3	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,478	0.14	502	0.0	$59.04	$305.60	$20.00	4.84
Room A25	2	Exit Signs: LED - 2 W Lamp	None	6	2,112	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room A12	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room A13	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Main Server Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,584	0.04	120	0.0	$14.14	$117.00	$20.00	6.86
Main Server Room	3	Incandescent: 60W A Lamp	Wall Switch	60	1,584	Fixture Replacement	Yes	3	LED - Fixtures: Downlight Solid State Retrofit	Occupancy Sensor	9	1,109	0.11	293	0.0	$34.51	$306.95	$35.00	7.88
Principal Office	10	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,478	0.45	1,673	0.0	$196.81	$748.00	$20.00	3.70
Coference Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.29	1,059	0.0	$124.60	$467.00	$80.00	3.11
Corridor A Wing	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,848	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.63	2,040	0.0	$239.94	$877.50	$150.00	3.03
Corridor A Wing	3	Exit Signs: LED - 2 W Lamp	None	6	1,584	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	1,584	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room A23	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room A14	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room A24	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room A15	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room A16	6	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	Yes	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,478	0.27	1,004	0.0	$118.09	$495.20	$20.00	4.02
Room A22	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.10	353	0.0	$41.53	$233.00	$40.00	4.65
Room A32	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.24	883	0.0	$103.83	$408.50	$70.00	3.26
Room A32	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Conference Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,848	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.19	618	0.0	$72.68	$350.00	$60.00	3.99
Room A20	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.10	353	0.0	$41.53	$233.00	$40.00	4.65
Room A17	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room A18	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room A19	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Corridor G Wing	17	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	No	17	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.71	2,643	0.0	$310.78	$994.50	$170.00	2.65
Corridor G Wing	5	Exit Signs: LED - 2 W Lamp	Wall Switch	6	8,760	None	No	5	Exit Signs: LED - 2 W Lamp	Wall Switch	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room G100C	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.48	1,766	0.0	$207.67	$701.00	$120.00	2.80
Room G100B	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.14	530	0.0	$62.30	$291.50	$50.00	3.88
Room G100A	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.29	1,059	0.0	$124.60	$467.00	$80.00	3.11
Room G100	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.95	3,531	0.0	$415.33	$1,402.00	$240.00	2.80
Men Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,848	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.10	309	0.0	$36.34	$233.00	$40.00	5.31
Men Restroom	2	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	1,848	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.03	102	0.0	$12.00	$117.00	$20.00	8.09
Room G101	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,848	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.43	1,391	0.0	$163.54	$642.50	$110.00	3.26
Room G101	2	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	1,848	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	1,848	0.08	251	0.0	$29.49	$126.40	$0.00	4.29
Girls Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,848	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.10	309	0.0	$36.34	$233.00	$40.00	5.31
Girls Restroom	2	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	1,848	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.03	102	0.0	$12.00	$117.00	$20.00	8.09
Room G102	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.43	1,589	0.0	$186.90	$642.50	$110.00	2.85
Room G102	2	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.09	348	0.0	$40.96	$233.00	$40.00	4.71
Elevator Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,320	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,320	0.01	27	0.0	$3.12	$35.90	$5.00	9.89
Room G104	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.43	1,589	0.0	$186.90	$642.50	$110.00	2.85
Room G104	2	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,112	0.08	287	0.0	$33.71	$126.40	$0.00	3.75
Room G105	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.67	2,472	0.0	$290.73	$935.00	$160.00	2.67
Room G105	2	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,112	0.08	287	0.0	$33.71	$126.40	$0.00	3.75
Room G105A	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room G105A	1	Exit Signs: LED - 2 W Lamp	Wall Switch	6	2,112	None	No	1	Exit Signs: LED - 2 W Lamp	Wall Switch	6	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room G103	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room G106	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.71	2,649	0.0	$311.50	$993.50	$170.00	2.64
Room G107	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.03	101	0.0	$11.91	$174.50	$30.00	12.13

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Corridor B Wing	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	22	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.48	1,763	0.0	$207.38	$1,287.00	$220.00	5.15
Corridor B Wing	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,112	Relamp	No	3	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,112	0.03	128	0.0	$15.00	$107.70	$15.00	6.18
Corridor B Wing	3	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	181	0.0	$21.33	$322.67	$0.00	15.13
Corridor Exposition Light	2	Incandescent: 50W Incandescent	Wall Switch	50	2,112	Fixture Replacement	No	2	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	2,112	0.05	199	0.0	$23.42	$127.30	$10.00	5.01
Women Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,848	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.11	354	0.0	$41.69	$350.00	$60.00	6.96
Room L6	6	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	Yes	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,478	0.27	1,004	0.0	$118.09	$495.20	$20.00	4.02
Room L7	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,112	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,112	0.01	43	0.0	$5.00	$35.90	$5.00	6.18
Media Center	51	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	1,848	Relamp	Yes	51	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,294	2.30	7,468	0.0	$878.27	$3,455.20	$40.00	3.89
Media Center	30	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,848	Relamp	Yes	30	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.82	2,659	0.0	$312.68	$1,987.00	$340.00	5.27
Media Center	32	Compact Fluorescent: 2x26W Recessed CFL 4-pin	Wall Switch	52	1,848	Fixture Replacement	Yes	32	LED - Fixtures: Downlight Solid State Retrofit	Occupancy Sensor	9	1,294	0.96	3,108	0.0	$365.51	$2,268.83	$40.00	6.10
Media Center	1	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	60	0.0	$7.11	$107.56	$0.00	15.13
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
Room L3	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.14	530	0.0	$62.30	$291.50	$50.00	3.88
Room L4	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.29	1,059	0.0	$124.60	$467.00	$80.00	3.11
Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.14	397	0.0	$46.72	$291.50	$50.00	5.17
Room B1	18	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	1.11	4,096	0.0	$481.77	$1,169.00	$200.00	2.01
Room B2	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room B3	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.66	2,431	0.0	$285.88	$1,520.00	$260.00	4.41
Room B4	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room B5	12	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	None	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.07	254	0.0	$29.82	$116.00	$20.00	3.22
Room B6	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room B7	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room B8	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.33	1,215	0.0	$142.94	$818.00	$140.00	4.74
Room B9	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room B10	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room B12	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.22	810	0.0	$95.29	$584.00	$100.00	5.08
Room B12	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,112	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,112	0.01	43	0.0	$5.00	$35.90	$5.00	6.18
Room B12	1	LED - Fixtures: 9W LED	Wall Switch	9	2,112	None	No	1	LED - Fixtures: 9W LED	Wall Switch	9	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Restroom	2	Compact Fluorescent: 14W Screen in CFL	Wall Switch	14	1,848	Fixture Replacement	No	2	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	5	1,848	0.01	38	0.0	$4.50	$127.30	$0.00	28.30
Restroom	2	Incandescent: 135W Incandescent	Wall Switch	135	1,848	Fixture Replacement	Yes	2	LED - Fixtures: Downlight Solid State Retrofit	Occupancy Sensor	9	1,294	0.17	547	0.0	$64.33	$243.30	$30.00	3.32
Corridor F Wing	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.32	1,202	0.0	$141.40	$877.50	$150.00	5.15
Corridor F Wing	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room 2	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,848	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.17	542	0.0	$63.73	$175.50	$30.00	2.28
Boiler Room 2	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,848	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.06	210	0.0	$24.74	$175.50	$30.00	5.88
Boiler Room 2	2	Compact Fluorescent: 14W Screen in CFL	Wall Switch	14	1,848	Fixture Replacement	No	2	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	5	1,848	0.01	38	0.0	$4.50	$127.30	$0.00	28.30
Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.03	76	0.0	$8.93	$174.50	$30.00	16.17
Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,848	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,294	0.03	93	0.0	$10.92	$187.80	$30.00	14.45
Room F111	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.12	455	0.0	$53.53	$233.00	$40.00	3.61
Room F111	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.06	240	0.0	$28.28	$175.50	$30.00	5.15
Room F4	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,112	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,112	0.01	43	0.0	$5.00	$35.90	$5.00	6.18
Room F4	17	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	17	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.81	3,002	0.0	$353.03	$1,110.50	$190.00	2.61
Room F4	5	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	No	5	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,112	0.19	716	0.0	$84.27	$316.00	$0.00	3.75
Room M12A	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.03	101	0.0	$11.91	$174.50	$30.00	12.13
Room M12	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.06	228	0.0	$26.77	$174.50	$30.00	5.40
Room M13	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.05	203	0.0	$23.82	$233.00	$40.00	8.10
Room M8	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.06	228	0.0	$26.77	$174.50	$30.00	5.40
Room M9	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.06	228	0.0	$26.77	$174.50	$30.00	5.40
Room M10	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.06	228	0.0	$26.77	$174.50	$30.00	5.40
Storage	6	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	1,584	None	Yes	6	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	1,109	0.02	56	0.0	$6.56	$116.00	$20.00	14.64
Room F7	3	Incandescent: 150W Incandescent	Wall Switch	150	2,112	Fixture Replacement	Yes	3	LED - Fixtures: Downlight Solid State Retrofit	Occupancy Sensor	9	1,478	0.28	1,047	0.0	$123.14	$306.95	$35.00	2.21

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room F8	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.03	101	0.0	$11.91	$174.50	$30.00	12.13
Room F8	1	Incandescent: 100W Incandescent	Wall Switch	100	2,112	Fixture Replacement	No	1	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	2,112	0.06	221	0.0	$25.99	$63.65	$5.00	2.26
Main Corridor	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	27	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.58	2,164	0.0	$254.51	$1,579.50	$270.00	5.15
Main Corridor	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,112	None	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Corridor Exposition Light	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,112	Relamp	No	4	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,112	0.05	170	0.0	$20.00	$143.60	$20.00	6.18
Corridor E Wing	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	24	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.52	1,924	0.0	$226.23	$1,404.00	$240.00	5.15
Shipping-Receiving Room	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.25	912	0.0	$107.20	$642.50	$110.00	4.97
Wood Shop Room	35	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	35	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.96	3,545	0.0	$416.90	$2,279.50	$390.00	4.53
Wood Shop Room	2	Compact Fluorescent: 14W Screen in CFL	Wall Switch	14	2,112	Fixture Replacement	No	2	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	7	2,112	0.01	34	0.0	$4.00	$127.30	$0.00	31.83
Wood Shop Room	1	Incandescent: 150W Incandescent	Wall Switch	150	2,112	Fixture Replacement	No	1	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	2,112	0.09	342	0.0	$40.28	$63.65	$5.00	1.46
Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.05	203	0.0	$23.82	$233.00	$40.00	8.10
Room E10	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.71	2,649	0.0	$311.50	$993.50	$170.00	2.64
Room E8	25	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	None	Yes	25	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.14	528	0.0	$62.13	$232.00	$40.00	3.09
Room E2	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Women Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,848	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.05	177	0.0	$20.85	$233.00	$40.00	9.26
Men Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,848	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.05	177	0.0	$20.85	$233.00	$40.00	9.26
Room E12	23	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	23	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	1.10	4,061	0.0	$477.63	$1,577.50	$270.00	2.74
Room E27	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.71	2,649	0.0	$311.50	$993.50	$170.00	2.64
Room E30	6	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	Yes	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,478	0.27	1,004	0.0	$118.09	$495.20	$20.00	4.02
Supervisor Office	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.29	1,059	0.0	$124.60	$467.00	$80.00	3.11
Electrical Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,584	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.11	304	0.0	$35.73	$350.00	$60.00	8.12
Room E13B	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.05	177	0.0	$20.77	$174.50	$30.00	6.96
Room E13	11	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	11	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.52	1,942	0.0	$228.43	$759.50	$130.00	2.76
Snack Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.14	530	0.0	$62.30	$291.50	$50.00	3.88
Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.11	405	0.0	$47.65	$350.00	$60.00	6.09

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Closet	1	Compact Fluorescent: 34W CFL	Wall Switch	34	2,112	Fixture Replacement	No	1	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	2,112	0.02	61	0.0	$7.14	$63.65	$0.00	8.91
Corridor C Wing	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	24	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.52	1,924	0.0	$226.23	$1,404.00	$240.00	5.15
Corridor C Wing	2	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	121	0.0	$14.22	$215.11	$0.00	15.13
Room C10	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room C11	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room C12	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room C13	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room C14	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room C15	29	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	29	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	1.38	5,121	0.0	$602.23	$1,928.50	$330.00	2.65
Room C16	19	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	19	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.91	3,355	0.0	$394.56	$1,227.50	$210.00	2.58
Corridor C Wing	27	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	No	27	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	1.13	4,197	0.0	$493.60	$1,579.50	$270.00	2.65
Corridor C Wing	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
Women Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,848	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.11	354	0.0	$41.69	$350.00	$60.00	6.96
Room C1	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.66	2,431	0.0	$285.88	$1,636.00	$280.00	4.74
Room C2	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.66	2,431	0.0	$285.88	$1,636.00	$280.00	4.74
Room C3	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.41	1,519	0.0	$178.67	$993.50	$170.00	4.61
Room C4	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.44	1,620	0.0	$190.58	$1,052.00	$180.00	4.58
Room C5	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room C6	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.33	1,215	0.0	$142.94	$818.00	$140.00	4.74
Room C7	21	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	1.00	3,708	0.0	$436.10	$1,344.50	$230.00	2.56
Room C7	2	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	121	0.0	$14.22	$215.11	$0.00	15.13
Room C8	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.95	3,531	0.0	$415.33	$1,286.00	$220.00	2.57
Room C8	2	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	121	0.0	$14.22	$215.11	$0.00	15.13
Room C8	3	Incandescent: 100W Incandescent	Wall Switch	100	2,112	Fixture Replacement	No	3	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	2,112	0.18	663	0.0	$77.98	$190.95	$15.00	2.26
Room C8B	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.05	177	0.0	$20.77	$174.50	$30.00	6.96

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room C8C	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.14	530	0.0	$62.30	$291.50	$50.00	3.88
Room C9	21	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	1.00	3,708	0.0	$436.10	$1,460.50	$250.00	2.78
Room C9	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.06	240	0.0	$28.28	$175.50	$30.00	5.15
Room C9	2	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.01	121	0.0	$14.22	$215.11	$0.00	15.13
Room D8	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.43	1,589	0.0	$186.90	$642.50	$110.00	2.85
Room D9	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Corridor D Wing	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.25	933	0.0	$109.69	$351.00	$60.00	2.65
Corridor D Wing	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	24	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.52	1,924	0.0	$226.23	$1,404.00	$240.00	5.15
Corridor D Wing	3	Exit Signs: LED - 2 W Lamp	Wall Switch	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	Wall Switch	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Men Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,848	Relamp	Yes	4	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,294	0.06	186	0.0	$21.84	$259.60	$40.00	10.05
Men Restroom	1	Incandescent: 150W Incandescent	Wall Switch	100	1,848	Fixture Replacement	No	1	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	1,848	0.06	193	0.0	$22.74	$63.65	$5.00	2.58
Room D1	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.61	2,276	0.0	$267.65	$701.00	$120.00	2.17
Women Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,848	Relamp	Yes	4	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,294	0.06	186	0.0	$21.84	$259.60	$40.00	10.05
Room D2	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room D3	12	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	None	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.07	254	0.0	$29.82	$116.00	$20.00	3.22
Room D4	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.61	2,276	0.0	$267.65	$701.00	$120.00	2.17
Room D5	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.61	2,276	0.0	$267.65	$701.00	$120.00	2.17
Room D6	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room D7	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room D10	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.71	2,649	0.0	$311.50	$993.50	$170.00	2.64
Room D10A	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.11	405	0.0	$47.65	$350.00	$60.00	6.09
Room D11	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.71	2,649	0.0	$311.50	$993.50	$170.00	2.64
Room D12	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room D13	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room D14	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room D15	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room D16	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.61	2,276	0.0	$267.65	$701.00	$120.00	2.17
Room D17	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room D18	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room D19	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.27	1,013	0.0	$119.11	$701.00	$120.00	4.88
Room L8	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.06	228	0.0	$26.77	$174.50	$30.00	5.40
Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,584	0.04	117	0.0	$13.71	$58.50	$10.00	3.54
Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Office	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Stairwell Exit 4	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,112	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.09	321	0.0	$37.71	$234.00	$40.00	5.15
Stairwell Exit 4	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	2,112	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.06	206	0.0	$24.28	$58.50	$10.00	2.00
Stairwell Exit 4	1	Exit Signs: Fluorescent	None	12	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.00	60	0.0	$7.11	$107.56	$0.00	15.13
Corridor G Wing - 2nd Floor	28	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	No	28	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	1.17	4,352	0.0	$511.88	$1,638.00	$280.00	2.65
Corridor G Wing - 2nd Floor	7	Exit Signs: LED - 2 W Lamp	None	6	2,112	None	No	7	Exit Signs: LED - 2 W Lamp	None	6	2,112	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room G214A	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room G216	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.14	530	0.0	$62.30	$291.50	$50.00	3.88
Room G210	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.43	1,589	0.0	$186.90	$642.50	$110.00	2.85
Room G210	2	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,112	0.08	287	0.0	$33.71	$126.40	$0.00	3.75
Room G208	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.43	1,589	0.0	$186.90	$642.50	$110.00	2.85
Room G208	2	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,112	0.08	287	0.0	$33.71	$126.40	$0.00	3.75
Room G206	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.43	1,589	0.0	$186.90	$642.50	$110.00	2.85
Room G206	2	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,112	0.08	287	0.0	$33.71	$126.40	$0.00	3.75
Room G204	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room G202	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room G200	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.43	1,589	0.0	$186.90	$642.50	$110.00	2.85

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room G200	2	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,112	0.08	287	0.0	$33.71	$126.40	$0.00	3.75
Room G201	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Boys Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	1,848	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.02	51	0.0	$6.00	$58.50	$10.00	8.09
Boys Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,848	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.19	618	0.0	$72.68	$350.00	$60.00	3.99
Girls Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	1,848	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,848	0.02	51	0.0	$6.00	$58.50	$10.00	8.09
Girls Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,848	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.19	618	0.0	$72.68	$350.00	$60.00	3.99
Room G203	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.24	883	0.0	$103.83	$408.50	$70.00	3.26
Room G205	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.71	2,649	0.0	$311.50	$993.50	$170.00	2.64
Room G205A	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.19	706	0.0	$83.07	$350.00	$60.00	3.49
Room G207	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.67	2,472	0.0	$290.73	$935.00	$160.00	2.67
Room G207	1	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Wall Switch	92	2,112	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,112	0.04	143	0.0	$16.85	$63.20	$0.00	3.75
Room G209	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.71	2,649	0.0	$311.50	$993.50	$170.00	2.64
Room G211A	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.24	883	0.0	$103.83	$408.50	$70.00	3.26
Room G211	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.24	883	0.0	$103.83	$408.50	$70.00	3.26
Room G213	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Room G214	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,478	0.57	2,119	0.0	$249.20	$818.00	$140.00	2.72
Auditorium Stage Boot Light	5	Incandescent: 60W A Lamp	Wall Switch	60	1,056	Fixture Replacement	No	5	LED - Fixtures: Downlight Solid State Retrofit	Wall Switch	9	1,056	0.17	310	0.0	$36.42	$318.26	$25.00	8.05
Exit 19 Stairwell	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	2,112	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,112	0.04	155	0.0	$18.28	$58.50	$10.00	2.65
Exit 19 Stairwell	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,112	Relamp	No	4	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,112	0.05	170	0.0	$20.00	$143.60	$20.00	6.18
Exterior Perimeter Light	24	Metal Halide: 125 W Metal Halide	Daylight Dimming	125	1,221	Fixture Replacement	No	24	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	25	1,221	1.57	3,370	0.0	$396.33	$9,376.25	$2,400.00	17.60
Exteror front Entrance	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	35	1,221	None	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	35	1,221	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Exteror front Entrance	4	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	9	1,221	None	No	4	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	9	1,221	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Exterior Perimeter Light	7	Metal Halide: (1) 150W Lamp	Daylight Dimming	190	1,221	Fixture Replacement	No	7	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	25	1,221	0.76	1,622	0.0	$190.74	$2,734.74	$700.00	10.67
Exterior Perimeter Light	14	Metal Halide: (1) 175W Lamp	Daylight Dimming	215	1,221	Fixture Replacement	No	14	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	25	1,221	1.74	3,735	0.0	$439.27	$5,469.48	$1,400.00	9.26
Parking Lot	16	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Daylight Dimming	45	1,221	None	No	16	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Daylight Dimming	45	1,221	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Exterior Perimeter Light	30	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	9	1,221	None	No	30	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	9	1,221	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Exterior Perimeter Light	10	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	45	1,221	None	No	10	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	45	1,221	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Exterior Perimeter Light	1	Metal Halide: (1) 250W Lamp	Daylight Dimming	295	1,584	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	25	1,584	0.18	492	0.0	$57.84	$390.68	$100.00	5.03
Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,584	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,109	0.05	132	0.0	$15.57	$174.50	$30.00	9.28
Men Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,848	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,294	0.19	618	0.0	$72.68	$350.00	$60.00	3.99
Men Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	1,848	Relamp	No	1	LED - Linear Tubes: (3) 2' Lamps	Wall Switch	26	1,848	0.02	58	0.0	$6.87	$61.70	$15.00	6.79

Motor Inventory & Recommendations

		Existing Conditions						Proposed Conditions				Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Annual Operating Hours	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room 1	Boilers	1	Combustion Air Fan	2.0	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room 1	School Building	1	Heating Hot Water Pump	20.0	91.0%	Yes	1,248	Yes	93.0%	No		0.20	330	0.0	$38.81	$2,247.73	$0.00	57.91
Boiler Room 1	School Building	3	Heating Hot Water Pump	1.5	80.0%	No	1,248	No	80.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room 2	Domestic Water Heater	2	Combustion Air Fan	0.2	77.0%	No	1,248	No	77.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room 2	School Building	2	Water Supply Pump	20.0	86.0%	No	1,248	No	86.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room 2	Domestic Water Heater	2	Other	0.8	69.0%	No	1,248	Yes	81.1%	No		0.13	226	0.0	$26.64	$826.10	$0.00	31.02
Boiler Room 2	School Building	2	Heating Hot Water Pump	40.0	94.5%	Yes	1,248	No	94.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room 2	School Building	2	Other	1.5	82.0%	No	1,248	No	82.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Gymnasium Locker Room Unit HV-3	1	Other	5.0	80.0%	No	1,248	No	80.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Gymnasium Locker Room Unit HV-3	1	Other	1.5	80.0%	No	1,248	No	80.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Gymnasium Locker Room Unit HV-4	1	Other	5.0	80.0%	No	1,248	No	80.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Gymnasium Locker Room Unit HV-4	1	Other	1.5	80.0%	No	1,248	No	80.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Gymnasium Locker Room Unit HV-2B	2	Other	20.0	84.0%	No	1,248	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Gymnasium Locker Room Unit HV-2B	2	Other	15.0	84.0%	No	1,248	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Old Cafeteria Unit HV-1	1	Other	5.0	80.0%	No	1,248	No	80.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Old Cafeteria Room Unit HV-1	1	Other	1.5	80.0%	No	1,248	No	80.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Corridors - Restrooms - Locker Rooms	2	Exhaust Fan	0.5	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Corridors - Restrooms - Locker Rooms	7	Exhaust Fan	0.5	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Corridors - Restrooms - Locker Rooms	2	Exhaust Fan	0.1	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Corridors - Restrooms - Locker Rooms	1	Exhaust Fan	0.2	75.0%	No	1,248	No	75.0%	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 Top	Corridors - Restrooms - Locker Rooms	5	Exhaust Fan	0.3	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Corridors - Restrooms - Locker Rooms	3	Exhaust Fan	0.1	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Corridors - Restrooms - Locker Rooms	1	Exhaust Fan	0.5	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Old Cafeteria	1	Exhaust Fan	0.5	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Old Boiler Room	1	Exhaust Fan	0.5	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Old Boiler Room	1	Exhaust Fan	0.3	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Old Boiler Room	1	Exhaust Fan	0.5	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Kitchen	2	Exhaust Fan	0.5	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Corridors - Restrooms - Locker Rooms	1	Exhaust Fan	0.5	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Corridors - Restrooms - Locker Rooms	1	Exhaust Fan	0.3	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
School	School Building	37	Other	0.3	75.0%	No	1,248	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room 1	Boilers	1	Combustion Air Fan	2.0	75.0%	No	0	No	75.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room 1	School Building	1	Heating Hot Water Pump	20.0	91.0%	Yes	0	No	91.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room 1	School Building	2	Heating Hot Water Pump	1.5	80.0%	No	0	No	80.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Electric HVAC Inventory & Recommendations

		Existing Conditions				Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Cooling Mode Efficiency (SEER/EER)	Heating Mode Efficiency (COP)	Install Dual Enthalpy Economizer?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Locker Room Office	Locker Room Office	1	Split-System AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Locker Room Office	Locker Room Office	1	Split-System AC	1.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Server Room	Main Server Room	2	Split-System AC	2.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room G100C	Room G100C	1	Ductless Mini-Split HP	1.00	13.30	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room B2	Room B2	1	Window AC	0.95		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room B3	Room B3	1	Window AC	2.90		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room F111	Room F111	1	Window AC	0.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room C4	Room C4	1	Window AC	2.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room D9	Room D9	1	Split-System AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room D12	Room D12	1	Split-System AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room G204	Room G204	1	Split-System AC	2.80		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room G202	Room G202	1	Split-System AC	2.80		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room G203	Room G203	1	Ductless Mini-Split HP	1.00	13.30	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Media Center/Band Room - RTU7/RTU8	2	Packaged AC	7.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Corridors/Rooms A14, A25 - RTU3/RTU4	2	Packaged AC	7.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Copy Room	1	Packaged AC	4.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Main Office	2	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Office	1	Packaged AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	School Building	1	Split-System AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	School Building	1	Split-System AC	1.50		No							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	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Cooling Mode Efficiency (SEER/EER)	Heating Mode Efficiency (COP)	Install Dual Enthalpy Economizer?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof Top	School Building	3	Ductless Mini-Split AC	1.00		Yes	3	Ductless Mini-Split AC	1.00		18.00		No	1.50	2,528	0.0	$297.33	$8,218.48	$0.00	27.64
Roof Top	School Building	3	Ductless Mini-Split AC	3.00		Yes	3	Ductless Mini-Split AC	3.00		18.00		No	4.49	7,584	0.0	$891.98	$24,655.44	$0.00	27.64
Roof Top	School Building	8	Split-System AC	3.00		Yes	8	Split-System AC	3.00		14.00		No	8.92	15,055	0.0	$1,770.55	$35,909.28	$2,208.00	19.03
Roof Top	School Building	8	Split-System AC	3.50		Yes	8	Split-System AC	3.00		14.00		No	12.70	21,441	0.0	$2,521.69	$35,909.28	$2,208.00	13.36
Roof Top	School Building	1	Ductless Mini-Split HP	1.00	13.30	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Faculty Room	1	Packaged AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Cafeteria - RTU11A/RTU11B	2	Packaged AC	13.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	School Building	3	Ductless Mini-Split HP	6.00	60.00	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	School Building	1	Ductless Mini-Split HP	4.00	48.00	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	School Building	2	Ductless Mini-Split HP	3.00	36.00	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Auditorium	1	Packaged AC	40.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	School Building	1	Split-System AC	1.75		Yes	1	Split-System AC	1.75		14.00		No	0.65	1,098	0.0	$129.10	$2,618.39	$161.00	19.03
Roof Top	School Building	1	Split-System AC	0.75		Yes	1	Split-System AC	0.75		14.00		No	0.28	470	0.0	$55.33	$1,122.17	$69.00	19.03
Roof Top	Corridors RTU14	1	Packaged AC	20.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	J100 & Corridor RTU13	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Gymnasium Offices (Unit A.C.C.U 11, 12, 6)	3	Ductless Mini-Split AC	1.00		Yes	3	Ductless Mini-Split AC	1.00		18.00		No	1.50	2,528	0.0	$297.33	$8,218.48	$0.00	27.64
Roof Top	Gymnasium Offices (Unit A.C.C.U 6)	1	Ductless Mini-Split AC	2.00		Yes	1	Ductless Mini-Split AC	2.00		18.00		No	1.00	1,685	0.0	$198.22	$5,478.99	$0.00	27.64
Roof Top	Gymnasium Offices	1	Ductless Mini-Split HP	2.00	27.60	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Old Cafeteria	1	Packaged AC	6.25		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Old Cafeteria	1	Packaged AC	5.00		No							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	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Cooling Mode Efficiency (SEER/EER)	Heating Mode Efficiency (COP)	Install Dual Enthalpy Economizer?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof Top	New Cafeteria	1	Packaged AC	25.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Old Boiler Room	1	Packaged AC	2.75		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Music Room RTU9 - M7	2	Packaged AC	10.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Corridor RTU10	1	Packaged AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof Top	Band Room RTU8 - M1	1	Packaged AC	12.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Ground Floor	Room C5	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	1.11	1,882	0.0	$221.32	$4,488.66	$276.00	19.03
Ground Floor	Room C6	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	1.11	1,882	0.0	$221.32	$4,488.66	$276.00	19.03
Ground Floor	Room C10	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	1.11	1,882	0.0	$221.32	$4,488.66	$276.00	19.03
Ground Floor	Room C11	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	1.11	1,882	0.0	$221.32	$4,488.66	$276.00	19.03
Ground Floor	Room C12	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	1.11	1,882	0.0	$221.32	$4,488.66	$276.00	19.03
Ground Floor	Room C13	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	1.11	1,882	0.0	$221.32	$4,488.66	$276.00	19.03
Ground Floor	Room C14	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	1.11	1,882	0.0	$221.32	$4,488.66	$276.00	19.03
Ground Floor	Room C15	1	Ductless Mini-Split HP	4.00	48.00	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Ground Floor	Room C16	1	Ductless Mini-Split HP	4.00	48.00	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Ground Floor	Room G101	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	1.11	1,882	0.0	$221.32	$4,488.66	$276.00	19.03
Ground Floor	Room G102	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	1.11	1,882	0.0	$221.32	$4,488.66	$276.00	19.03
Ground Floor	Room G104	1	Split-System AC	3.00		Yes	1	Split-System AC	3.00		14.00		No	1.11	1,882	0.0	$221.32	$4,488.66	$276.00	19.03

Fuel Heating Inventory & Recommendations

		Existing Conditions			Proposed Conditions						Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Output Capacity per Unit (MBh)	Install High Efficiency System?	System Quantity	System Type	Output Capacity per Unit (MBh)	Heating Efficiency	Heating Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room	High School & Middle School	2	Non-Condensing Hot Water Boiler	3,982.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	High School & Middle School	1	Non-Condensing Hot Water Boiler	3,982.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00

DHW Inventory & Recommendations

		Existing Conditions		Proposed Conditions						Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Replace?	System Quantity	System Type	Fuel Type	System Efficiency	Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler Room 2	School Building	2	Storage Tank Water Heater (> 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room F8	School Building	1	Storage Tank Water Heater (≤ 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room D2	School Building	1	Storage Tank Water Heater (≤ 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Low-Flow Device Recommendations

	Recommedation Inputs				Energy Impact & Financial Analysis						
Location	Device Quantity	Device Type	Existing Flow Rate (gpm)	Proposed Flow Rate (gpm)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	4	Faucet Aerator (Kitchen)	3.00	2.20	0.00	0	4.0	$36.18	$28.68	$0.00	0.79
School Restrooms	43	Faucet Aerator (Lavatory)	2.20	1.00	0.00	0	63.8	$583.37	$308.31	$0.00	0.53

Walk-In Cooler/Freezer Inventory & Recommendations

	Existing Conditions		Proposed Conditions			Energy Impact & Financial Analysis						
Location	Cooler/ Freezer Quantity	Case Type/Temperature	Install EC Evaporator Fan Motors?	Install Electric Defrost Control?	Install Evaporator Fan Control?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen 2	1	Cooler (35F to 55F)	No	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen 2	1	Medium Temp Freezer (0F to 30F)	No	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Commercial Refrigerator/Freezer Inventory & Recommendations

	Existing Conditions			Proposed Condi	Energy Impact & Financial Analysis						
Location	Quantity	Refrigerator/ Freezer Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen 1	1	Stand-Up Refrigerator, Glass Door (>50 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen 1	1	Stand-Up Refrigerator, Solid Door (31 - 50 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen 1	3	Stand-Up Refrigerator, Solid Door (≤15 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Commercial Ice Maker Inventory & Recommendations

	Existing Conditions			Proposed Condi	Energy Impact & Financial Analysis						
Location	Quantity	Ice Maker Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen 2	1	Ice Making Head (≥450 lbs/day), Batch	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Cooking Equipment Inventory & Recommendations

	Existing Conditions			Proposed Conditions	Energy Impact & Financial Analysis						
Location	Quantity	Equipment Type	High Efficiency Equipement?	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen 2	1	Propane Convection Oven (Full Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen 2	1	Propane Combination Oven/Steam Cooker (<15 Pans)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen 2	1	Electric Convection Oven (Full Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
kitchen 1	1	Electric Convection Oven (Full Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
kitchen 1	1	Electric Convection Oven (Half Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
kitchen 1	1	Electric Convection Oven (Full Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Dishwasher Inventory & Recommendations

	Existing Conditions					Proposed Conditions	Energy Impact & Financial Analysis						
Location	Quantity	Dishwasher Type	Water Heater Fuel Type	Booster Heater Fuel Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Payback w/ Incentives in Years
Kitchen 1	1	Single Tank Conveyor (Low Temp)	Electric	N/A	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?
Cafeteria	1	Food Warmer	640.0	Yes
Kitchen 2	2	Refrigerator	225.0	Yes
Kitchen	2	Refrigerator	372.0	Yes
Kitchen 2	2	Refrigerator	1,500.0	Yes
Kitchen 2	1	Commercial Convection Microwave	3,500.0	No
kitchen 1	1	Electric Convection	5,000.0	No
Kitchen 2	3	Refrigerator	385.0	Yes
Kitchen 2	1	Electric Convection	760.0	No
Kitchen 1	3	Food Warmer	2,920.0	Yes
Kitchen 1	1	Cooler	1,092.0	No
School	338	Desktop Computer (LCD)	110.0	Yes
School	38	Desktop Computer Not LCD	155.0	No
School	48	Desktop Computer (LCD)	144.0	Yes
School	5	Electic Range	1,250.0	Yes
School	1	Electric Dryer	1,500.0	Yes
School	4	Water Fountain	175.0	Yes
School	3	Coffee Machine	950.0	Yes
School	12	Refrigerator	185.0	Yes
School	7	Toaster	155.0	No
School	19	Printer	125.0	Yes
School	93	Small Printer	46.0	Yes
School	25	Microwave	1,100.0	No
School	2	Diswasher	265.0	No
School	8	Copy Machine	1,400.0	Yes
School	7	Small Freezer	85.0	Yes

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
Cafeterias	2	Refrigerated	Yes	0.00	3,224	0.0	$379.13	$460.00	$0.00	1.21

Appendix B: ENERGY STAR® Statement of Energy Performance

ENERGY STAR® Statement of Energy Performance

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ENERGY STAR® Score[1]

Jefferson Township High School (Estimated)

Primary Property Type: K-12 School
Gross Floor Area (ft²): 235,851
Built: 1962

For Year Ending: August 31, 2016
Date Generated: April 25, 2017

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

Property & Contact Information

Property Address	Property Owner	Primary Contact
Jefferson Township High School (Estimated) 1010 Weldon Road Oak Ridge, New Jersey 07438	Jefferson Township Pubic Schools 31 Route 181 Lake Hopatcong, NJ 07849 (____)____-_____	Rita Giacchi 31 Route 181 Lake Hopatcong, NJ 07849 (973) 663-3387 rgiacchi@jefftwp.org

Property ID: 5845342

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
68.1 kBtu/ft²

Source EUI
118.7 kBtu/ft²

Annual Energy by Fuel	
Propane (kBtu)	12,944 (0%)
Electric - Grid (kBtu)	5,529,163 (34%)
Fuel Oil (No. 2) (kBtu)	10,522,138 (66%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	87.7
National Median Source EUI (kBtu/ft²)	152.9
% Diff from National Median Source EUI	-22%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,416

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)