Local Government Energy Audit:
Energy Audit Report

Jackson Memorial High School

101 Don Connor Blvd

Jackson, NJ 08527

Jackson Township BOE

June 21, 2018

Final Report by:

TRC Energy Services

Disclaimer

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

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

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

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

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1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) Report for Jackson Memorial 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

Jackson Memorial High School is a 375,000 square foot facility comprised of three wings (Clayton, Memorial and Fine Arts) with various space types such as classrooms, offices, hallways, gymnasium, locker rooms, cafeteria, kitchen, auditorium, storage closets, science and computer labs, restrooms and a mechanical space. Out of the three wings, the Memorial Wing has two stories and the other wings are single story. The building is occupied from 6:00 AM to 5:00 PM during the weekdays. On the weekends, the building has extra-curricular and sporting activities from 8:00 AM to 12:00 PM.

Spaces are conditioned by three gas fired hot water boilers which supply air handlers and unit ventilators, and several rooftop packaged units that have gas fired furnaces and direct expansion coils. Facility lighting is comprised of linear T8 tubes, LED fixtures, incandescent lamp fixtures, compact fluorescent lamps (CFL) and metal halide fixtures.

A thorough description of the facility and our observations are located in Section 1.3.

1.2 Your Cost Reduction Opportunities

Energy Conservation Measures

TRC Energy Services evaluated seven measures and recommends six measures which together represent an opportunity for Jackson Memorial High School to reduce annual energy costs by $110,285 and annual greenhouse gas emissions by 929,420 lbs CO_2e. We estimate that if all measures were implemented as recommended, the project would pay for itself in 6.1 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 Jackson Memorial High School's annual energy use by 22%.

Figure 1 – Previous 12 Month Utility Costs

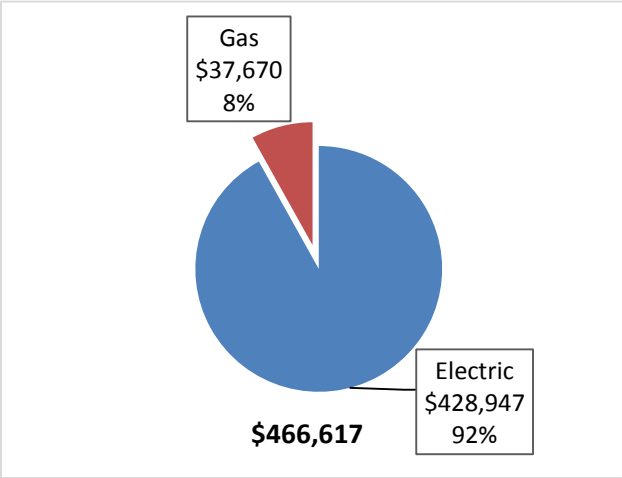
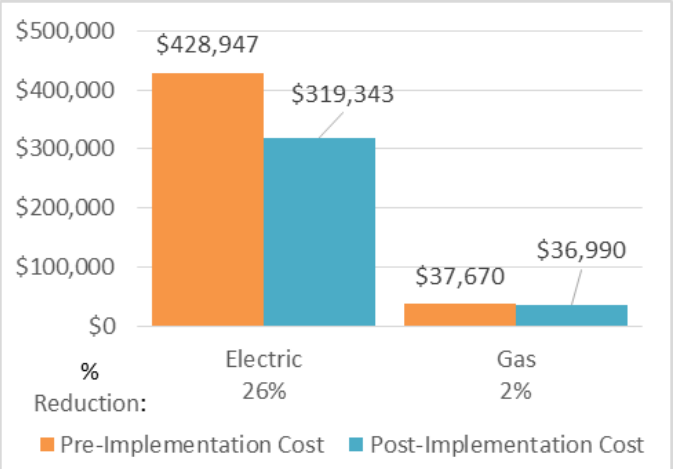


Figure 2 – Potential Post-Implementation Costs



A detailed description of Jackson Memorial 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			**774,949**	**114.5**	**0.0**	**$92,502.58**	**$661,997.20**	**$70,310.00**	**$591,687.20**	**6.4**	**780,367**
ECM 1	Install LED Fixtures	Yes	234,863	32.9	0.0	$28,034.69	$437,485.48	$31,405.00	$406,080.48	14.5	236,505
ECM 2	Retrofit Fixtures with LED Lamps	Yes	540,085	81.7	0.0	$64,467.89	$224,511.72	$38,905.00	$185,606.72	2.9	543,862
Lighting Control Measures			**118,755**	**18.0**	**0.0**	**$14,175.37**	**$89,550.00**	**$7,155.00**	**$82,395.00**	**5.8**	**119,586**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	106,129	16.1	0.0	$12,668.22	$53,750.00	$7,155.00	$46,595.00	3.7	106,871
ECM 4	Install High/Low Lighitng Controls	Yes	12,626	1.9	0.0	$1,507.14	$35,800.00	$0.00	$35,800.00	23.8	12,715
Domestic Water Heating Upgrade			**13,232**	**0.0**	**45.0**	**$2,330.01**	**$9,415.90**	**$308.00**	**$9,107.90**	**3.9**	**18,596**
	Install High Efficiency Gas Water Heater	No	0	0.0	4.2	$69.90	$8,899.66	$308.00	$8,591.66	122.9	491
ECM 5	Install Low-Flow Domestic Hot Water Devices	Yes	13,232	0.0	40.8	$2,260.10	$516.24	$0.00	$516.24	0.2	18,105
Plug Load Equipment Control - Vending Machine			**11,283**	**0.0**	**0.0**	**$1,346.79**	**$1,610.00**	**$0.00**	**$1,610.00**	**1.2**	**11,362**
ECM 6	Vending Machine Control	Yes	11,283	0.0	0.0	$1,346.79	$1,610.00	$0.00	$1,610.00	1.2	11,362
TOTAL OF ALL EVALUATED ECMS			**918,219**	**132.5**	**45.0**	**$110,354.75**	**$762,573.10**	**$77,773.00**	**$684,800.10**	**6.2**	**929,911**
TOTAL OF ALL RECOMMENDED ECMS			**918,219**	**133**	**41**	**110,285**	**753,673**	**77,465**	**676,208**	**6.1**	**929,420**
TOTAL OF ALL NON-RECOMMENDED ECMS			**0**	**0**	**4**	**70**	**8,900**	**308**	**8,592**	**122.9**	**491**

* - 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.

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 ten 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 Jackson Memorial High School include:

- Reduce Air Leakage
- Close Doors and Windows
- Use Window Treatments/Coverings
- Perform Proper Lighting Maintenance
- Ensure Lighting Controls Are Operating Properly
- Practice Proper Use of Thermostat Schedules and Temperature Resets
- Perform Proper Boiler Maintenance
- Perform Proper Water Heater Maintenance
- Install Plug Load Controls
- Water Conservation

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

On-Site Generation Measures

TRC evaluated the potential for installing on-site generation for Jackson Memorial 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	698	kW DC STC
Electric Generation	831,577	kWh/yr
Displaced Cost	$72,350	/yr
Installed Cost	$1,814,800	

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 (SRP)
- Energy Savings Improvement Program (ESIP)

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

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

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the Energy Savings Improvement Program (ESIP). Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as, attractive financing for implementing ECMs. An LGEA report (or other approved energy audit) is required for participation in ESIP. Please refer to Section 8.4 for additional information on the ESIP Program.

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

Additional information on relevant incentive programs is located in Section 8 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			
Michelle Richardson	Business Administrator	mrichardson@jacksonsd.org	732-833-4600 x 4380
John Blair	Energy Education Specialist	jblair@jacksonsd.org	732-833-4600 x 4380
TRC Energy Services			
Smruti Srinivasan	Auditor	ssrinivasan@trcsolutions.com	(732) 855-0033

2.2 General Site Information

On August 30, 2017, TRC performed an energy audit at Jackson Memorial High School located in Jackson, NJ. TRC's team met with John Blair to review the facility operations and help focus our investigation on specific energy-using systems.

Jackson Memorial High School is a 375,000 square foot facility comprised of three wings (Clayton, Memorial and Fine Arts) with various space types such as classrooms, offices, hallways, gymnasium, locker rooms, cafeteria, kitchen, auditorium, storage closets, science and computer labs, restrooms and a mechanical space. Out of the three wings, the Memorial Wing has two stories and the other wings are single story. The building is occupied from 6:00 AM to 5:00 PM during the weekdays. On the weekends, the building has extra-curricular and sporting activities from 8:00 AM to 12:00 PM.

Spaces are conditioned by three gas fired hot water boilers which supply air handlers and unit ventilators, and several rooftop packaged units that have gas fired furnaces and direct expansion coils. Facility lighting is comprised of linear T8 tubes, LED fixtures, incandescent lamp fixtures, CFLs and metal halide fixtures.

2.3 Building Occupancy

The typical schedule is presented in the table below. During a typical day, the facility is occupied by approximately 150 staff (including administrators, teachers and maintenance) and 1,592 students.

Figure 6 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
Jackson Memorial High School	Weekday	6AM - 5PM
Jackson Memorial High School	Weekend	Saturday 8AM - 12PM Sunday 8AM - 12PM

2.4 Building Envelope

The building is comprised of three wings: Memorial Wing (1964), Clayton Wing (1968) and Fine Arts Wing (1993). The buildings are constructed of concrete block and structural steel with a brick facade. All three wings have flat roof sections with different coverings. The Fine Arts Wing has TPO membrane, the Memorial and Clayton Wings have built up roofs with asphalt layering. Most of the windows in the building are double pane. There are also single pane windows in several areas. The exterior doors are constructed of aluminum and in good condition.



2.5 On-Site Generation

Jackson Memorial High School does not have any on-site electric generation systems currently installed.

2.6 Energy-Using Systems

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

Lighting System

Facility lighting is provided by 4-foot and 2-foot linear T8 tube fixtures in the classrooms, offices and hallways. The fixtures have 4-lamp, 3-lamp, 2-lamp or U-bent lamps. The entrance and auditorium areas have fixtures that contain 100-Watt and 175-Watt metal halide lamps. The Memorial Wing hallway lighting has been upgraded to use 39-Watt 4-foot LED fixtures. Storage spaces and small restrooms are illuminated using 40-watt incandescent lamp or low wattage compact fluorescent lamp fixtures.

Lighting control in most spaces is provided by manual wall switches.

The building's exterior lighting is provided by 70-Watt and 400-Watt high pressures sodium lamps in wall pack fixtures and pole fixtures respectively. Doorway canopy fixtures have 70-Watt metal halide lamps. Exterior fixtures are controlled by photocells, although the lights were observed operating on a sunny day.




Hot Water and Forced Air Heating Systems

The hot water system consists of three Aerco condensing hot water boilers. These boilers are all located in the Fine Arts Wing and distribute hot water to the other wings. Each boiler has an output capacity of 3000 MBh and an nominal efficiency of 92.7%. Hot water is circulated to unit ventilators and Memorial Wing air handlers by two 15 hp pumps; to the Clayton Wing using two 15 hp pumps; and to the Fine Arts Wing using two 5 hp pumps. All of these pumps have variable speed drive (VFD) control installed. Hot water is supplied at 180°F when the outside air temperature is below 50°F and modulated accordingly until the when the outside air is 65°F. When the outside temperature is above 65°F th boiler is shut off.

Gas fired forced air provides heating for areas not served by the three boiler loops. The gym located in the Clayton Wing is heated using two rooftop packaged units (AAON) with 324 Mbh output gas fired furnaces. Both cafeterias (Clayton Wing and Memorial Wing) are heated by roof top packaged units with gas fired furnaces with rated output capacities of 864 MBh and 648 MBh respectively. The auditorium located in the Fine Arts Wing is heated using one roof top unit with a 950 MBh output gas fired furnace

There are various spaces (such as hallways, classrooms, music rooms, TV studios, locker rooms, shops, dance studios, and lecture halls) in all the three wings are heated using various rooftop packaged units (Trane, Reznor and AAON) with gas fired furnaces. The rooftop units were installed in 2015 and have output capacities range from 48 MBh to 120 MBh each. All of the furnaces have an efficiency of 80%.

Space temperatures are controlled using building automation system provided by Johnson Control Metasys. The occupied heating setpoint is 68.5°F and the unoccupied heating setpoint is 60°F. The boilers and packaged units were installed in 2015 and are in good condition and well maintained.



Direct Expansion Air Conditioning System (DX)

Cooling for the Fine Arts Wing auditorium area is provided by two Trane 70-ton rooftop package units. Music rooms, a TV studio, hallways, arts rooms, graphics art room and other areas in the Fine Arts section are cooled by rooftop packaged units with cooling capacities ranging from 5-tons to 12.5 tons.

The Memorial Wing (A, B and C) consists mainly of classrooms and shops that are cooled using Trane split system AC units with cooling capacities ranging from 3-tons to 8.5 tons. The gym, cafeteria, and auxiliary gym are cooled using rooftop packaged with units ranging from 7.5 to 31 tons. The Memorial D-wing consists of classrooms that are cooled by 27 and 20 ton roof top package units.

The Clayton Wing consists of the locker rooms, classrooms, cafeteria, lecture hall and a gymnasium. The locker rooms are cooled using two 15-ton Reznor rooftop packaged units. The cafeteria and gym located in this wing are cooled by 50-ton and 18-ton AAON rooftop packaged units respectively. The lecture hall has a 7.5-ton Lennox packaged unit providing cooling. Cooling for classrooms in this wing is provided by split AC units and packaged units with cooling capacities that range from 2.5-tons to 7.5-tons.

The majority of these units were installed in 2015. All units are controlled using the building automation system provided by Johnson Controls Metasys. The individual zones also have thermostats where the occupants are allowed to adjust the setpoint within a narrow band. The occupied cooling setpoint is 73.5°F and the unoccupied cooling setpoint is 85°F.




Domestic Hot Water Heating System

Domestic hot water (DHW) for the facility is provided by one gas fired hot water heater and several distributed electric water heaters. DHW for the Fine Arts Wing is provided by one AO Smith natural gas fired water heater with an input capacity of 154 MBh, a tank capacity of 89 gallons and efficiency of 78%. The unit is at least 25 years old and has been evaluated for replacement. There are six electric water heaters ranging from 19- to 50-gallons in capacity. These water heaters serve the other portions of the school including restrooms and kitchen. All the electric water heaters are 15 years old or more.



Food Service & Refrigeration

The kitchen functions from 7:00 AM to 1:00 PM everyday weekday from September through June. There is both electric and gas fired kitchen equipment, including ice-cream chests, milk coolers, food warmers, four gas fired convection heaters, commercial refrigerators, cash registers, two walk-in freezers and walk-in refrigerators. Most of the equipment is relatively new, however, some equipment is original to the building.

Building Plug Load

There are roughly 400 computer work stations, Chromebooks for students and Chromebook carts in most classrooms throughout the facility. The office plug loads at the facility include printers, paper shredders, projectors and smart boards. A few private offices and the teacher's lounge have kitchenette plug load equipment such as small refrigerators, coffee machines, electric cooking ranges and microwave ovens. There are two electric kilns in the art room. The school has seven refrigerated and four non-refrigerated vending machine without controls. There is no centralized PC power management software installed.

2.7 Water-Using Systems

The restroom faucets are rated for 2.2 gallons per minute (gpm) or higher, the toilets are rated at 1.6 gallons per flush (gpf) and the urinals are rated at 1 gpf. Some of these rooms have been recommended for installing low flow fixtures thereby reducing the load on the domestic hot water heaters.

3 SITE ENERGY USE AND COSTS

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

3.1 Total Cost of Energy

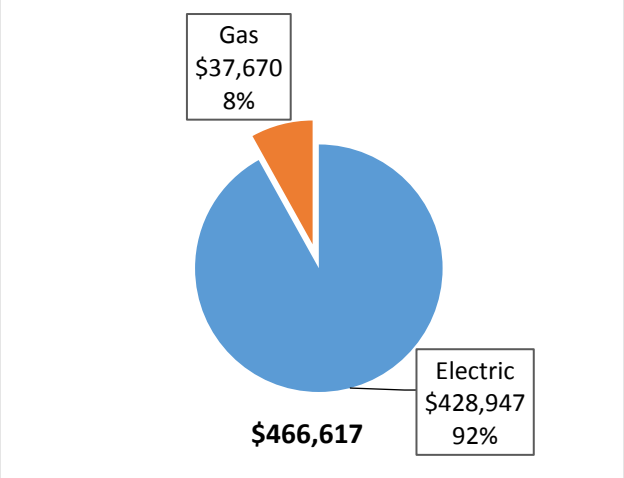
The following energy consumption and cost data is based on the last 12-month period of utility billing data that was provided for each utility. A profile of the annual energy consumption and energy cost of the facility was developed from this information.

Figure 7 - Utility Summary

Utility Summary for Jackson Memorial High School		
Fuel	**Usage**	**Cost**
Electricity	3,593,539 kWh	$428,947
Natural Gas	22,599 Therms	$37,670
Total		**$466,617**

The current annual energy cost for this facility is $466,617 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 $0.119/kWh, which is the blended rate that includes energy supply, distribution, and other charges. This rate is used throughout the analyses in this report to assess energy costs and savings. The third party electric supply is provided by New Constellation Energy. The monthly electricity consumption and peak demand are shown in the chart below.

Figure 9 - Electric Usage & Demand

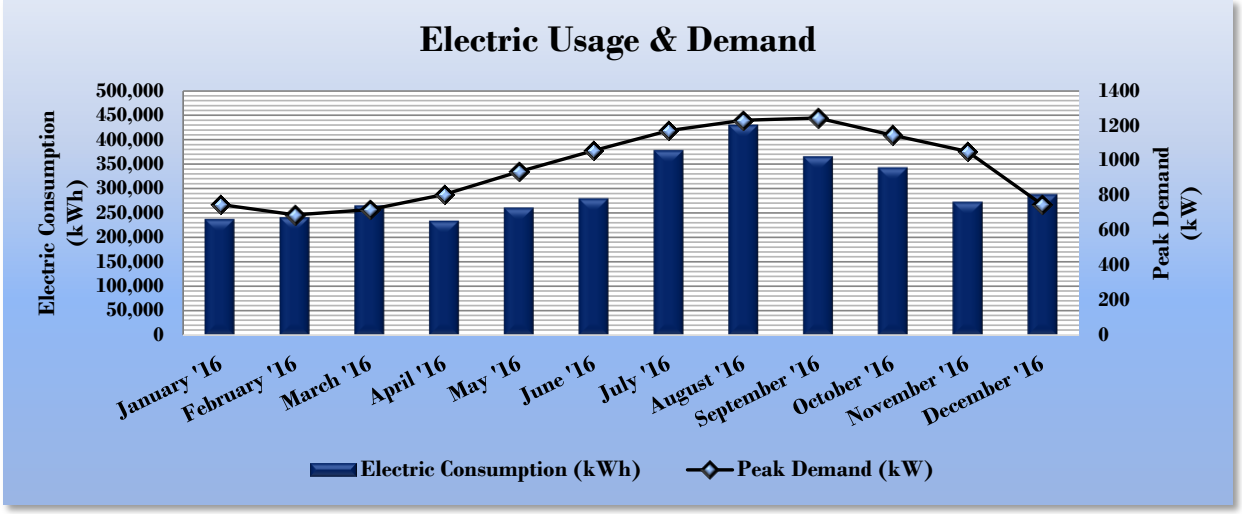


Figure 10 - Electric Usage & Demand

Electric Billing Data for Jackson Memorial High School					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
1/31/16	30	237,575	748		$27,758
3/1/16	30	241,088	689		$27,793
4/1/16	31	264,902	719		$30,374
4/29/16	28	233,813	806		$27,762
5/31/16	32	260,637	937		$31,412
6/29/16	29	279,655	1,058		$34,675
8/1/16	33	378,031	1,172		$45,302
8/30/16	29	429,758	1,231		$50,814
9/28/16	29	365,041	1,244		$44,796
10/31/16	33	342,607	1,146		$42,431
12/1/16	31	272,697	1,052		$33,925
12/31/16	30	287,735	748		$31,904
Totals	**365**	**3,593,539**	**1244.2**	**$0**	**$428,947**
Annual	**365**	**3,593,539**	**1244.2**	**$0**	**$428,947**

3.3 Natural Gas Usage

Natural gas is provided by NJ Natural Gas. The average gas cost for the past 12 months is $1.667/therm, which is the blended rate used throughout the analyses in this report. The monthly gas consumption is shown in the chart below.

Figure 11 - Natural Gas Usage

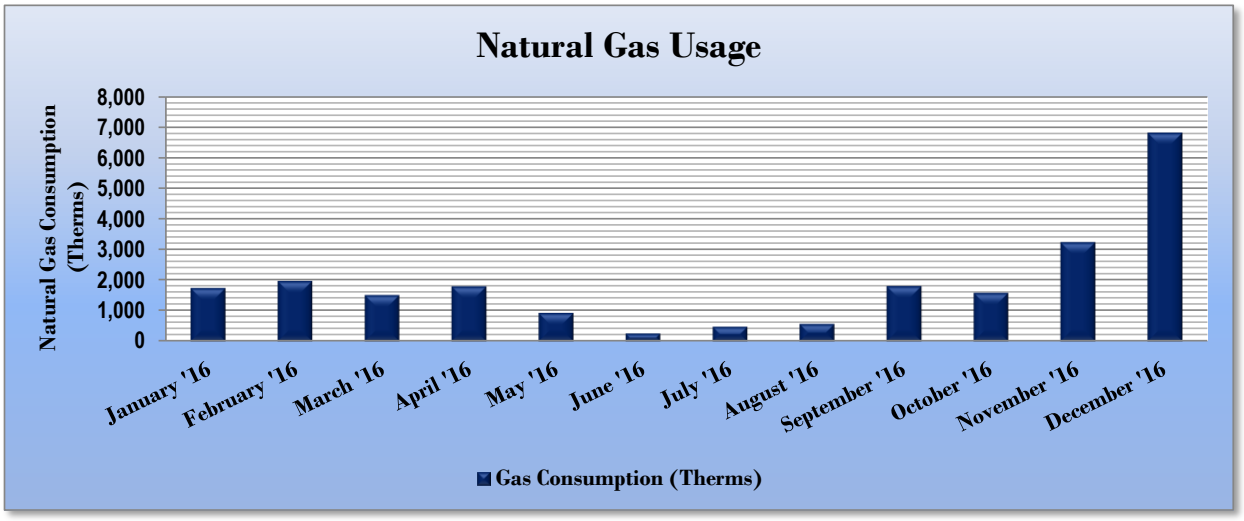


Figure 12 - Natural Gas Usage

Gas Billing Data for Jackson Memorial High School			
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost
2/4/16	30	1,732	$3,492
3/4/16	29	1,962	$3,731
4/6/16	33	1,507	$3,123
5/4/16	28	1,788	$3,138
6/8/16	35	926	$2,445
7/8/16	30	258	$1,910
8/8/16	31	472	$2,147
9/1/16	24	571	$1,539
10/3/16	32	1,796	$3,294
11/4/16	32	1,577	$1,968
12/2/16	28	3,225	$3,485
1/4/17	33	6,786	$7,400
Totals	**365**	**22,599**	**$37,670**
Annual	**365**	**22,599**	**$37,670**

3.4 Benchmarking

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

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

Figure 13 - Energy Use Intensity Comparison – Existing Conditions

Energy Use Intensity Comparison - Existing Conditions		
	Jackson Memorial High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	109.0	141.4
Site Energy Use Intensity (kBtu/ft^2)	38.7	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		
	Jackson Memorial High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	82.6	141.4
Site Energy Use Intensity (kBtu/ft^2)	30.3	58.2

Many types of commercial buildings are also eligible to receive an ENERGY STAR® score. This score is a percentile ranking from 1 to 100. It compares your building's energy performance to similar buildings nationwide. A score of 50 represents median energy performance, while a score of 75 means your building performs better than 75 percent of all similar buildings nationwide and may be eligible for ENERGY STAR® certification. This facility has a current score of 88.

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

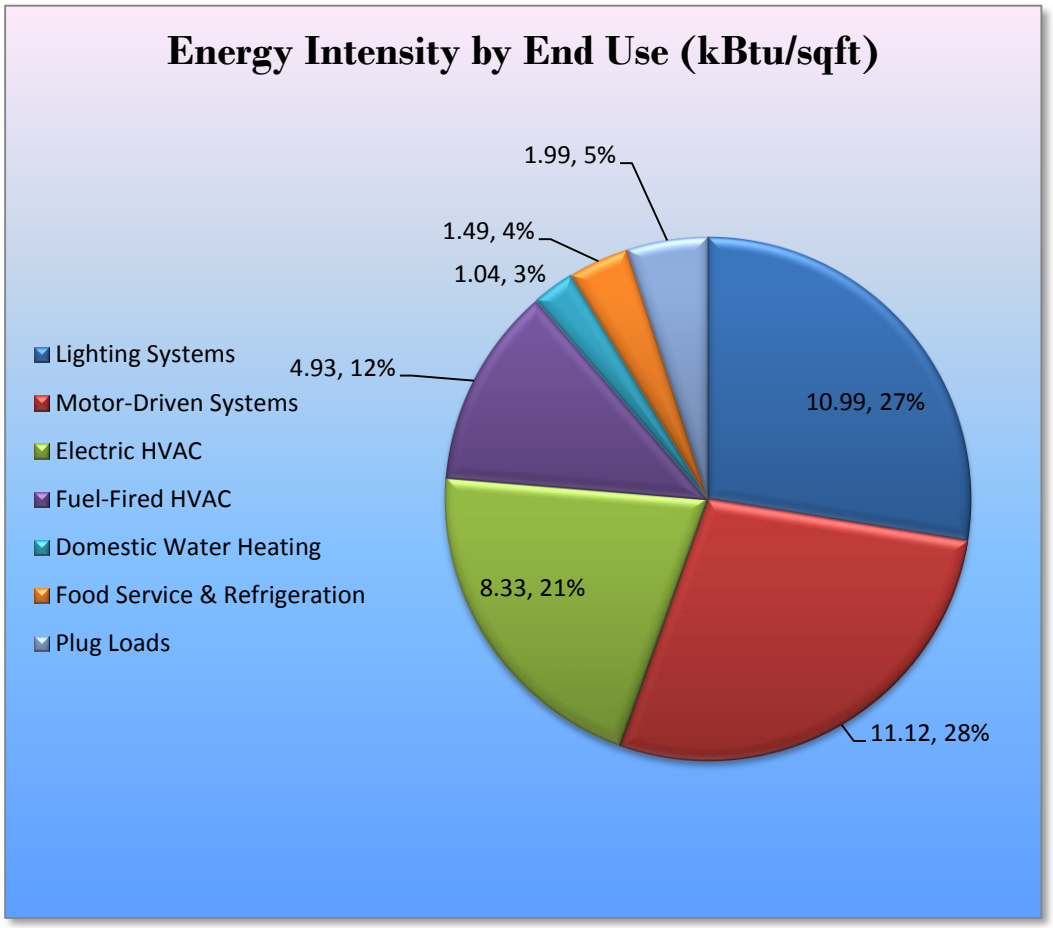
For more information on ENERGY STAR® certification go to: https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1.

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

3.5 Energy End-Use Breakdown

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

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



4 ENERGY CONSERVATION MEASURES

Level of Analysis

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

The following sections describe the evaluated measures.

4.1 Recommended ECMs

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

Figure 16 – Summary of Recommended ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**774,949**	**114.5**	**0.0**	**$92,502.58**	**$661,997.20**	**$70,310.00**	**$591,687.20**	**6.4**	**780,367**
ECM 1	Install LED Fixtures	234,863	32.9	0.0	$28,034.69	$437,485.48	$31,405.00	$406,080.48	14.5	236,505
ECM 2	Retrofit Fixtures with LED Lamps	540,085	81.7	0.0	$64,467.89	$224,511.72	$38,905.00	$185,606.72	2.9	543,862
Lighting Control Measures		**118,755**	**18.0**	**0.0**	**$14,175.37**	**$89,550.00**	**$7,155.00**	**$82,395.00**	**5.8**	**119,586**
ECM 3	Install Occupancy Sensor Lighting Controls	106,129	16.1	0.0	$12,668.22	$53,750.00	$7,155.00	$46,595.00	3.7	106,871
ECM 4	Install High/Low Lighitng Controls	12,626	1.9	0.0	$1,507.14	$35,800.00	$0.00	$35,800.00	23.8	12,715
Domestic Water Heating Upgrade		**13,232**	**0.0**	**40.8**	**$2,260.10**	**$516.24**	**$0.00**	**$516.24**	**0.2**	**18,105**
ECM 5	Install Low-Flow Domestic Hot Water Devices	13,232	0.0	40.8	$2,260.10	$516.24	$0.00	$516.24	0.2	18,105
Plug Load Equipment Control - Vending Machine		**11,283**	**0.0**	**0.0**	**$1,346.79**	**$1,610.00**	**$0.00**	**$1,610.00**	**1.2**	**11,362**
ECM 6	Vending Machine Control	11,283	0.0	0.0	$1,346.79	$1,610.00	$0.00	$1,610.00	1.2	11,362
TOTALS		**918,219**	**132.5**	**40.8**	**$110,284.85**	**$753,673.44**	**$77,465.00**	**$676,208.44**	**6.1**	**929,420**

* - 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		**774,949**	**114.5**	**0.0**	**$92,502.58**	**$661,997.20**	**$70,310.00**	**$591,687.20**	**6.4**	**780,367**
ECM 1	Install LED Fixtures	234,863	32.9	0.0	$28,034.69	$437,485.48	$31,405.00	$406,080.48	14.5	236,505
ECM 2	Retrofit Fixtures with LED Lamps	540,085	81.7	0.0	$64,467.89	$224,511.72	$38,905.00	$185,606.72	2.9	543,862

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	115,088	17.3	0.0	$13,737.64	$356,256.80	$22,950.00	$333,306.80	24.3	115,893
Exterior	119,775	15.6	0.0	$14,297.05	$81,228.67	$8,455.00	$72,773.67	5.1	120,612

Measure Description

We recommend replacing existing fixtures containing HID 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. Interior fixtures considered for replacement include the metal halide fixtures located in both gyms, the auditorium, and the main entrance. Controls have been recommended for some of these interior fixtures in a following section. Exterior fixtures evaluated for replacement include pole and building mounted fixtures.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of a HID lamps, including high pressure sodium and metal halide sources.

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	533,907	80.9	0.0	$63,730.40	$221,613.22	$38,905.00	$182,708.22	2.9	537,640
Exterior	6,178	0.8	0.0	$737.49	$2,898.50	$0.00	$2,898.50	3.9	6,222

Measure Description

We recommend retrofitting existing incandescent lamps and linear T8 fluorescent lamp 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.

4.1.2 Lighting Control Measures

Our recommendations for light 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		**118,755**	**18.0**	**0.0**	**$14,175.37**	**$89,550.00**	**$7,155.00**	**$82,395.00**	**5.8**	**119,586**
ECM 3	Install Occupancy Sensor Lighting Controls	106,129	16.1	0.0	$12,668.22	$53,750.00	$7,155.00	$46,595.00	3.7	106,871
ECM 4	Install High/Low Lighitng Controls	12,626	1.9	0.0	$1,507.14	$35,800.00	$0.00	$35,800.00	23.8	12,715

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

ECM 3: Install Occupancy Sensor Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
106,129	16.1	0.0	$12,668.22	$53,750.00	$7,155.00	$46,595.00	3.7	106,871

Measure Description

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

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

ECM 4: Install High/Low Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
12,626	1.9	0.0	$1,507.14	$35,800.00	$0.00	$35,800.00	23.8	12,715

Measure Description

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

Lighting fixtures with these controls operate at default low levels when the area is not occupied to provide minimal lighting to meet security or safety requirements. Sensors detect occupancy using ultrasonic and/or infrared sensors. The lighting systems are switched to full lighting levels whenever an occupant is detected. Fixtures are automatically switched back to low level after an area has been vacant for a preset period of time. In parking lots and parking garages with significant ambient lighting this control can sometimes be combined with photocell controls to turn the lights off when there is sufficient daylighting. Energy savings results from only providing full lighting levels when it is required.

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

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

4.1.3 Domestic Hot Water Heating System Upgrades

Our recommendations for domestic water heating system improvements are summarized in Figure 19 below.

Figure 19 - 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		**13,232**	**0.0**	**40.8**	**$2,260.10**	**$516.24**	**$0.00**	**$516.24**	**0.2**	**18,105**
ECM 5	Install Low-Flow Domestic Hot Water Devices	13,232	0.0	40.8	$2,260.10	$516.24	$0.00	$516.24	0.2	18,105

ECM 5: 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)
13,232	0.0	40.8	$2,260.10	$516.24	$0.00	$516.24	0.2	18,105

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. Pre-rinse spray valves (PRSVs)—often used in commercial and institutional kitchens—are designed to remove food waste from dishes prior to dishwashing. Replacing standard pre-rinse spray valves with low flow PRSVs will reduce hot water usage and save 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.

4.1.4 Plug Load Equipment Control - Vending Machines

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

Figure 20 - 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)
Plug Load Equipment Control - Vending Machine		**11,283**	**0.0**	**0.0**	**$1,346.79**	**$1,610.00**	**$0.00**	**$1,610.00**	**1.2**	**11,362**
ECM 6	Vending Machine Control	11,283	0.0	0.0	$1,346.79	$1,610.00	$0.00	$1,610.00	1.2	11,362

ECM 6: 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)
11,283	0.0	0.0	$1,346.79	$1,610.00	$0.00	$1,610.00	1.2	11,362

Measure Description

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

4.2 ECMs Evaluated But Not Recommended

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

Figure 21 – Summary of Measures Evaluated, But Not Recommended

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade	**0**	**0.0**	**4.2**	**$69.90**	**$8,899.66**	**$308.00**	**$8,591.66**	**122.9**	**491**
Install High Efficiency Gas Water Heater	0	0.0	4.2	$69.90	$8,899.66	$308.00	$8,591.66	122.9	491
TOTALS	**0**	**0.0**	**4.2**	**$69.90**	**$8,899.66**	**$308.00**	**$8,591.66**	**122.9**	**491**

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

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

Install High Efficiency Gas Water Heater

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	4.2	$69.90	$8,899.66	$308.00	$8,591.66	122.9	491

Measure Description

We evaluated replacing the existing tank water heater with a high efficiency tank water heater. Improvements in combustion efficiency and reductions in heat losses have improved the overall efficiency of storage water heaters. Energy savings results from using less gas to heat water, due to higher unit efficiency, and fewer run hours to maintain the tank water temperature.

Reasons for not Recommending

The water heater is approaching the end of its useful life, and was therefore evaluated for replacement. The payback period for investment in the replacement equipment is longer than the expected useful life of the proposed replacement equipment. The measure is therefore not cost effective on the basis of energy savings alone. As the District plans for replacement of this equipment, we suggest consideration be given to replacement with a higher efficiency equivalent of the unit.

5 ENERGY EFFICIENT PRACTICES

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

Reduce Air Leakage

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

Close Doors and Windows

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

Use Window Treatments/Coverings

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

Perform Proper Lighting Maintenance

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

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.

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.

Perform Proper Boiler Maintenance

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

Perform Proper Water Heater Maintenance

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

Plug Load Controls

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

Water Conservation

Installing low-flow faucets or faucet aerators, low-flow showerheads, and kitchen sink pre-rinse spray valves saves both energy and water. These devices save energy by reducing the overall amount of hot water used hence reducing the energy used to heat the water. The flow ratings for EPA WaterSense™ (http://www3.epa.gov/watersense/products) labeled devices are 1.5 gpm for bathroom faucets, 2.0 gpm for showerheads, and 1.28 gpm for pre-rinse spray valves.

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

Refer to Section 4.1.3 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.

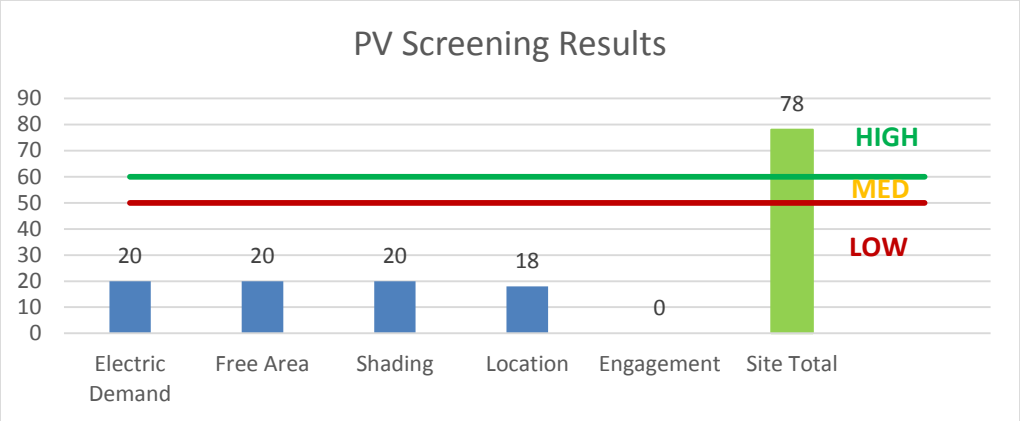
6.1 Photovoltaic

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.

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

Figure 22 - Photovoltaic Screening



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

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

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

6.2 Combined Heat and Power

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

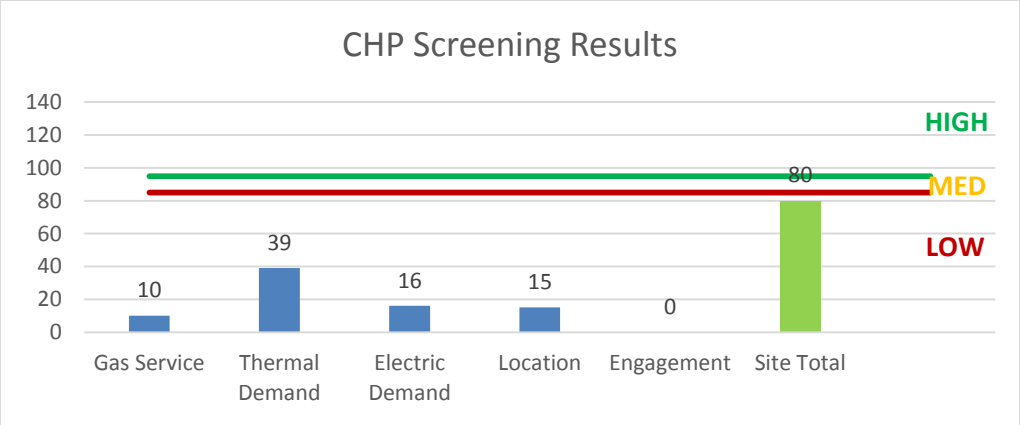
CHP systems are typically used to produce a portion of the electric power used onsite by a facility, with the balance of electric power needs supplied by grid purchases. The heat is used to supplement (or supplant) existing boilers for the purpose of space heating and/or domestic hot water heating. Waste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

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

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

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

Figure 23 - Combined Heat and Power Screening



7 DEMAND RESPONSE

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

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

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

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

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

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

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

This building is already participating in a district wide demand response program.

8 PROJECT FUNDING / INCENTIVES

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

Figure 24 - ECM Incentive Program Eligibility

Energy Conservation Measure		SmartStart Prescriptive	Pay For Performance Existing Buildings
ECM 1	Install LED Fixtures	x	x
ECM 2	Retrofit Fixtures with LED Lamps	x	x
ECM 3	Install Occupancy Sensor Lighting Controls	x	x
ECM 4	Install High/Low Lighitng Controls		x
ECM 5	Install Low-Flow Domestic Hot Water Devices		x
ECM 6	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

8.1 SmartStart

Overview

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

Equipment with Prescriptive Incentives Currently Available:

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

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

Incentives

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

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

How to Participate

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

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

8.2 Pay for Performance - Existing Buildings

Overview

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

Incentives

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

How to Participate

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

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

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

8.3 SREC Registration Program

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

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

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

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

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

8.4 Energy Savings Improvement Program

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

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

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

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

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

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

9 ENERGY PURCHASING AND PROCUREMENT STRATEGIES

9.1 Retail Electric Supply Options

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

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

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

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

9.2 Retail Natural Gas Supply Options

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

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

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

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

Appendix A: Equipment Inventory & Recommendations

Lighting Inventory & Recommendations

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Boiler room - Fine arts	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.13	865	0.0	$103.28	$351.00	$60.00	2.82
Memorial C wing storage	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.17	1,154	0.0	$137.71	$468.00	$80.00	2.82
C-wing Clayton CR601, 606,605,604,603,608,602, 609,601,600,610,611	240	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	240	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	6.56	43,735	0.0	$5,220.47	$17,280.00	$2,820.00	2.77
C-wing - Clayton Girls' restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,400	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,680	0.11	460	0.0	$54.95	$504.00	$75.00	7.81
C-wing - Clayton Boys' restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,400	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,680	0.11	460	0.0	$54.95	$504.00	$75.00	7.81
C-wing Clayton hallway	23	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	23	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,660	0.63	4,191	0.0	$500.30	$4,545.50	$230.00	8.63
CR 623,612,622,612,621,614, 620,615,619,616,617,618	240	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	240	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	6.56	43,735	0.0	$5,220.47	$17,280.00	$2,820.00	2.77
Electrical closet (2)	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	260	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	182	0.03	13	0.0	$1.56	$303.80	$50.00	162.73
C-wing - Clayton Girls' restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,400	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,680	0.08	345	0.0	$41.21	$445.50	$65.00	9.23
C-wing - Clayton Girls' restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	2,400	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,400	0.01	44	0.0	$5.27	$48.20	$10.00	7.25
C-wing - Clayton Boys' restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	2,400	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,680	0.04	181	0.0	$21.60	$377.70	$50.00	15.17
C-wing - Clayton Boys' restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	2,400	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,400	0.01	44	0.0	$5.27	$48.20	$10.00	7.25
Custodial closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	260	Relamp	Yes	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	182	0.01	7	0.0	$0.78	$151.90	$25.00	162.73
Custodial closet	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	260	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	182	0.04	20	0.0	$2.34	$223.70	$35.00	80.66
Connector hallway	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,660	0.38	2,551	0.0	$304.53	$1,619.00	$140.00	4.86
Lecture hall 527	24	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,800	Relamp	No	24	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,800	0.78	5,192	0.0	$619.70	$1,804.80	$360.00	2.33
Study office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82
Lecture hall 526	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.26	1,731	0.0	$206.57	$702.00	$120.00	2.82
B-wing 520,519,518,517,516,515, 514	140	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	140	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	3.83	25,512	0.0	$3,045.27	$10,080.00	$1,645.00	2.77
B-wing Boys' restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,400	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,680	0.08	345	0.0	$41.21	$445.50	$65.00	9.23
B-wing Girls' restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,400	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,680	0.08	345	0.0	$41.21	$445.50	$65.00	9.23
Custodial closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	260	Relamp	Yes	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	182	0.01	7	0.0	$0.78	$151.90	$25.00	162.73
Electrical closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	260	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	182	0.03	12	0.0	$1.49	$174.50	$30.00	97.09
Science room - 523	33	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,800	Relamp	No	33	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,800	0.38	2,524	0.0	$301.24	$1,184.70	$165.00	3.38
Science room - 522	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82

	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
Science room - 521	25	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	25	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.54	3,605	0.0	$430.34	$1,462.50	$250.00	2.82
B-wing hallway	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	22	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,660	0.60	4,009	0.0	$478.54	$3,087.00	$220.00	5.99
513	30	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	30	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.65	4,326	0.0	$516.41	$1,755.00	$300.00	2.82
511	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.32	2,163	0.0	$258.21	$877.50	$150.00	2.82
510	13	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	13	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.28	1,875	0.0	$223.78	$760.50	$130.00	2.82
Electrical room	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	260	Relamp	Yes	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	182	0.01	7	0.0	$0.78	$151.90	$25.00	162.73
Memorial Cwing storage	2	LED Screw-In Lamps: 2 Lamps	Wall Switch	14	3,800	None	Yes	2	LED Screw-In Lamps: 2 Lamps	Occupancy Sensor	14	2,660	0.01	37	0.0	$4.38	$116.00	$20.00	21.91
Memorial Cwing storage	1	Compact Fluorescent: 1 Lamp	Wall Switch	42	3,800	Relamp	Yes	1	LED Screw-In Lamps: 1 Lamp	Occupancy Sensor	14	2,660	0.02	141	0.0	$16.80	$169.75	$20.00	8.92
A-wing Clayton-506,505,504,503,501,502, 500	140	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	140	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	3.83	25,512	0.0	$3,045.27	$10,080.00	$1,645.00	2.77
A-wing Girls' restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,400	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,680	0.08	345	0.0	$41.21	$445.50	$65.00	9.23
A-wing Boys' restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,400	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,680	0.08	345	0.0	$41.21	$445.50	$65.00	9.23
509-Science room	33	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	33	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.71	4,759	0.0	$568.05	$1,930.50	$330.00	2.82
5009-Science room	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,800	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,800	0.02	153	0.0	$18.26	$71.80	$10.00	3.38
A-wing Clayton hallway	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,660	0.33	2,187	0.0	$261.02	$1,502.00	$120.00	5.29
Offices	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	No	12	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,800	0.44	2,937	0.0	$350.54	$1,141.60	$240.00	2.57
Offices	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82
TV studio - Clayton	39	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	39	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.84	5,624	0.0	$671.34	$2,281.50	$390.00	2.82
TV studio - Clayton	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82
Custodian closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	260	Relamp	Yes	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	182	0.01	7	0.0	$0.78	$151.90	$25.00	162.73
Faculty restroom-Men	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$20.00	4.90
Faculty restroom-Women	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,040	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	728	0.05	100	0.0	$11.91	$233.00	$20.00	17.89
Teachers lounge	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.25	1,640	0.0	$195.77	$796.50	$125.00	3.43
Nurse's office - Clayton	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.17	1,154	0.0	$137.71	$468.00	$80.00	2.82
Nurse's office - restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	22	3,800	Relamp	No	1	LED - Linear Tubes: (1) 2' Lamp	Wall Switch	9	3,800	0.01	59	0.0	$7.04	$31.90	$5.00	3.82
Cafeteria	36	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	No	36	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,800	1.32	8,810	0.0	$1,051.61	$3,424.80	$720.00	2.57

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Stage	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	14	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.30	2,019	0.0	$240.99	$819.00	$140.00	2.82
Electrical room	5	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	260	Relamp	No	5	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	260	0.06	26	0.0	$3.12	$179.50	$25.00	49.47
Cafeteria hallway Clayton	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,660	0.25	1,640	0.0	$195.77	$726.50	$90.00	3.25
524-Home Economics	19	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	19	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.41	2,740	0.0	$327.06	$1,111.50	$190.00	2.82
525-Home Economics	35	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	35	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.76	5,047	0.0	$602.48	$2,047.50	$350.00	2.82
Restroom opposite to 525 - Boys'	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,400	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,680	0.08	345	0.0	$41.21	$445.50	$65.00	9.23
Restroom opposite to 525 - Girls'	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,400	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,680	0.08	345	0.0	$41.21	$445.50	$65.00	9.23
Custodial closet opposite to 524	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	260	Relamp	Yes	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	182	0.01	7	0.0	$0.78	$151.90	$25.00	162.73
Gym Hallway-Clayton	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.19	1,298	0.0	$154.92	$526.50	$90.00	2.82
Girls locker room	9	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,800	Relamp	Yes	9	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,660	0.13	859	0.0	$102.58	$863.10	$115.00	7.29
Girls locker room office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.06	433	0.0	$51.64	$175.50	$30.00	2.82
Locker space	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.22	1,458	0.0	$174.02	$584.00	$100.00	2.78
Office restroom	1	Compact Fluorescent: 2 Lamps	Wall Switch	52	1,040	Relamp	Yes	1	LED Screw-In Lamps: 2 Lamps	Occupancy Sensor	28	728	0.02	39	0.0	$4.63	$223.51	$0.00	48.32
Shower	4	Incandescent: 1 Lamp	Wall Switch	40	1,040	Relamp	No	4	LED Screw-In Lamps: 1 Lamp	Wall Switch	11	1,040	0.08	139	0.0	$16.56	$215.01	$20.00	11.78
Girls team room	20	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	Yes	20	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,660	0.28	1,844	0.0	$220.13	$1,234.00	$235.00	4.54
Boys' locker room	9	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,800	Relamp	Yes	9	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,660	0.13	859	0.0	$102.58	$863.10	$115.00	7.29
Boys locker room office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.06	433	0.0	$51.64	$175.50	$30.00	2.82
Locker space	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.22	1,458	0.0	$174.02	$584.00	$100.00	2.78
Office restroom	1	Compact Fluorescent: 2 Lamps	Wall Switch	52	1,040	Relamp	Yes	1	LED Screw-In Lamps: 2 Lamps	Occupancy Sensor	28	728	0.02	39	0.0	$4.63	$223.51	$0.00	48.32
Shower	4	Incandescent: 1 Lamp	Wall Switch	40	1,040	Relamp	No	4	LED Screw-In Lamps: 1 Lamp	Wall Switch	11	1,040	0.08	139	0.0	$16.56	$215.01	$20.00	11.78
Boys team room	20	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	Yes	20	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,660	0.28	1,844	0.0	$220.13	$1,234.00	$235.00	4.54
Front hall - Clayton	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.11	721	0.0	$86.07	$292.50	$50.00	2.82
Main entrance	19	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	19	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.41	2,740	0.0	$327.06	$1,111.50	$190.00	2.82
Gym Clayton	32	Metal Halide: (1) 400W Lamp	Wall Switch	458	3,800	Fixture Replacement	No	32	LED - Fixtures: High-Bay	Wall Switch	120	3,800	7.09	47,266	0.0	$5,641.95	$85,926.40	$4,800.00	14.38
Supervisor office	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.25	1,640	0.0	$195.77	$796.50	$125.00	3.43

	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
Main Office	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	No	8	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,800	0.29	1,958	0.0	$233.69	$761.07	$160.00	2.57
Main office	4	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	4	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.04	280	0.0	$33.38	$192.80	$40.00	4.58
Security	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82
Main office - Women's restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Main Office- Men's restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
SAC office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
VP office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
VP office	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.01	70	0.0	$8.35	$48.20	$10.00	4.58
Director of Guidance	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
Director of Guidance	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.01	70	0.0	$8.35	$48.20	$10.00	4.58
Guidance	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.16	1,093	0.0	$130.51	$467.00	$80.00	2.97
Councelor office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.08	547	0.0	$65.26	$291.50	$50.00	3.70
Councelor office 9th	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Copy room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Guidance councelor	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.16	1,093	0.0	$130.51	$467.00	$80.00	2.97
Testing materials	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	22	3,800	Relamp	Yes	1	LED - Linear Tubes: (1) 2' Lamp	Occupancy Sensor	9	2,660	0.01	70	0.0	$8.37	$147.90	$5.00	17.07
SC-z	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Guidance councelor	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.08	547	0.0	$65.26	$291.50	$50.00	3.70
Guidance councelor	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.08	547	0.0	$65.26	$291.50	$50.00	3.70
Storage	1	Compact Fluorescent: 1 Lamp	Wall Switch	42	3,800	Relamp	Yes	1	LED Screw-In Lamps: 1 Lamp	Occupancy Sensor	14	2,660	0.02	141	0.0	$16.80	$169.75	$20.00	8.92
Fine Arts - Main entrances	79	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	79	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.83	5,524	0.0	$659.34	$3,807.80	$790.00	4.58
Fine Arts-Hallway	35	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	Yes	35	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,660	0.48	3,227	0.0	$385.22	$8,887.00	$350.00	22.16
Fine Arts-Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.09	577	0.0	$68.86	$234.00	$40.00	2.82

	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
Side entrance	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82
CR 408	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.33	2,187	0.0	$261.02	$972.00	$155.00	3.13
CR 408	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,800	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,800	0.02	153	0.0	$18.26	$71.80	$10.00	3.38
CR 407 - Music	19	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	19	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	0.91	6,094	0.0	$727.46	$2,347.53	$450.00	2.61
CR 407 - Music	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82
CR 407 - Music	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.01	70	0.0	$8.35	$48.20	$10.00	4.58
Closet	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	260	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	182	0.08	37	0.0	$4.46	$291.50	$50.00	54.09
Practice booth 2	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.06	433	0.0	$51.64	$175.50	$30.00	2.82
Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.06	433	0.0	$51.64	$175.50	$30.00	2.82
CR 406-Band	11	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	11	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	0.53	3,528	0.0	$421.16	$1,316.47	$255.00	2.52
Instrument room	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.01	70	0.0	$8.35	$48.20	$10.00	4.58
Band room	29	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	29	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	1.40	9,302	0.0	$1,110.34	$3,028.87	$615.00	2.17
Band room office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82
Electrical room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.16	1,093	0.0	$130.51	$467.00	$80.00	2.97
Boys' restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$504.00	$75.00	4.93
Girls' restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$504.00	$75.00	4.93
Custodian closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	260	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	182	0.03	12	0.0	$1.49	$174.50	$30.00	97.09
Display cases	5	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,800	Relamp	No	5	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,800	0.06	382	0.0	$45.64	$179.50	$25.00	3.38
Main entrance	19	Metal Halide: (1) 100W Lamp	Wall Switch	128	3,800	Fixture Replacement	No	19	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	50	3,800	0.97	6,476	0.0	$773.06	$7,422.86	$1,900.00	7.14
Main entrance	21	Metal Halide: (1) 175W Lamp	Daylight Dimming	215	4,380	Fixture Replacement	No	21	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	89	4,380	1.73	13,328	0.0	$1,590.90	$8,204.22	$2,100.00	3.84
Auditorium	71	Metal Halide: (1) 100W Lamp	Wall Switch	128	3,800	Fixture Replacement	No	71	LED - Fixtures: High-Bay	Wall Switch	30	3,800	4.56	30,406	0.0	$3,629.50	$190,649.20	$10,650.00	49.59
Auditorium	15	Metal Halide: (1) 100W Lamp	Wall Switch	128	3,800	Fixture Replacement	No	15	LED - Fixtures: High-Bay	Wall Switch	30	3,800	0.96	6,424	0.0	$766.80	$40,278.00	$2,250.00	49.59
Auditorium	9	Metal Halide: (1) 100W Lamp	Wall Switch	128	3,800	Fixture Replacement	No	9	LED - Fixtures: High-Bay	Wall Switch	30	3,800	0.58	3,854	0.0	$460.08	$24,166.80	$1,350.00	49.59
Admin office	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.32	2,163	0.0	$258.21	$877.50	$150.00	2.82
Ladies room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$10.00	7.56

	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
Men's room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$10.00	7.56
Closet admin	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	260	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	182	0.03	12	0.0	$1.49	$174.50	$30.00	97.09
Conference room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$504.00	$75.00	4.93
VP office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Toilet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Principal's office	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.14	911	0.0	$108.76	$408.50	$70.00	3.11
Women's restroom	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.25	1,640	0.0	$195.77	$796.50	$125.00	3.43
Men's room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.16	1,093	0.0	$130.51	$621.00	$95.00	4.03
Coat room	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.27	1,822	0.0	$217.52	$701.00	$120.00	2.67
CR 404 - Graphics	27	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	27	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	1.30	8,660	0.0	$1,033.77	$2,838.60	$575.00	2.19
CR 404- Graphics	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82
CR 403-Art	17	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	17	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	0.82	5,453	0.0	$650.89	$1,887.27	$375.00	2.32
CR 403 Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
CR 403 Copy room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
CR 401	18	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	18	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	0.87	5,774	0.0	$689.18	$1,982.40	$395.00	2.30
CR 401 Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
CR 402 - Art	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.41	2,733	0.0	$326.28	$1,147.50	$185.00	2.95
CR 402 - Storage	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,660	0.01	92	0.0	$11.01	$164.20	$30.00	12.19
CR 400	15	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	15	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	0.72	4,811	0.0	$574.31	$1,697.00	$335.00	2.37
CR 400	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.01	70	0.0	$8.35	$48.20	$10.00	4.58
Hallway - art	8	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	Yes	8	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,660	0.11	738	0.0	$88.05	$585.60	$80.00	5.74
Storage	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.14	911	0.0	$108.76	$408.50	$70.00	3.11
Hallway entrance	4	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	2,660	0.06	369	0.0	$44.03	$392.80	$40.00	8.01
Memorial Wing - Media center	42	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	42	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	2.02	13,472	0.0	$1,608.08	$5,075.60	$980.00	2.55
Media center office	20	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	20	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	0.96	6,415	0.0	$765.75	$2,442.67	$470.00	2.58

	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
Gym	16	Metal Halide: (1) 400W Lamp	Wall Switch	458	3,800	Fixture Replacement	Yes	16	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Occupancy Sensor	194	2,660	3.38	22,528	0.0	$2,689.11	$7,130.83	$1,740.00	2.00
Cafeteria	42	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	42	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.91	6,057	0.0	$722.98	$2,457.00	$420.00	2.82
Stairwell	3	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	3	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.03	210	0.0	$25.04	$144.60	$30.00	4.58
Stairwell	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,800	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,800	0.01	76	0.0	$9.13	$35.90	$5.00	3.38
Awing 2nd floor hallway	10	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	None	Yes	10	LED - Fixtures: Ambient - 4' - Direct Fixture	Occupancy Sensor	39	2,660	0.08	511	0.0	$61.03	$400.00	$0.00	6.55
CR 204	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.66	4,373	0.0	$522.05	$1,674.00	$275.00	2.68
204 storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
CR 203	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.49	3,280	0.0	$391.54	$1,323.00	$215.00	2.83
CR 201	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	22	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.60	4,009	0.0	$478.54	$1,557.00	$255.00	2.72
CR 201 storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
CR 202	26	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	26	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.71	4,738	0.0	$565.55	$1,791.00	$295.00	2.65
CST office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
CST office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
CST office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Girls' restroom	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.22	1,458	0.0	$174.02	$738.00	$115.00	3.58
Boys' restroom	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.22	1,458	0.0	$174.02	$738.00	$115.00	3.58
Custodian closet (2)	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	260	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	182	0.11	50	0.0	$5.95	$350.00	$60.00	48.71
Faculty restroom (2)	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
Stairwell	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	6	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.06	420	0.0	$50.08	$289.20	$60.00	4.58
Stairwell	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	3,800	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	3,800	0.02	153	0.0	$18.26	$71.80	$10.00	3.38
Hallway	11	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	None	Yes	11	LED - Fixtures: Ambient - 4' - Direct Fixture	High/Low Control	39	2,660	0.08	562	0.0	$67.13	$800.00	$0.00	11.92
CR 205,206,207,208,210	90	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	90	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	2.46	16,401	0.0	$1,957.68	$6,615.00	$1,075.00	2.83
Map room	66	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	66	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	1.43	9,518	0.0	$1,136.11	$3,861.00	$660.00	2.82
Office in map room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.16	1,093	0.0	$130.51	$467.00	$80.00	2.97
CR 212,214,216,218,220,222	108	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	108	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	2.95	19,681	0.0	$2,349.21	$7,938.00	$1,290.00	2.83

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
CR 209 - lab	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	24	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.52	3,461	0.0	$413.13	$1,404.00	$240.00	2.82
Office 209A	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.22	1,458	0.0	$174.02	$584.00	$100.00	2.78
CR 224	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.49	3,280	0.0	$391.54	$1,323.00	$215.00	2.83
Office USAF	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
CR 211	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.49	3,280	0.0	$391.54	$1,323.00	$215.00	2.83
CR 226	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.66	4,373	0.0	$522.05	$1,674.00	$275.00	2.68
CR 213	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.49	3,280	0.0	$391.54	$1,323.00	$215.00	2.83
Hallway	20	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	None	Yes	20	LED - Fixtures: Ambient - 4' - Direct Fixture	High/Low Control	39	2,660	0.15	1,023	0.0	$122.06	$1,800.00	$0.00	14.75
Stairwell	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.09	577	0.0	$68.86	$234.00	$40.00	2.82
Hallway ground floor	16	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	None	Yes	16	LED - Fixtures: Ambient - 4' - Direct Fixture	High/Low Control	39	2,660	0.12	818	0.0	$97.65	$1,800.00	$0.00	18.43
Athlectic director	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
Athlectic director	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Athlectic director	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
Athlectic director	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
CR 100	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.66	4,373	0.0	$522.05	$1,674.00	$275.00	2.68
Tech department	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.27	1,822	0.0	$217.52	$701.00	$120.00	2.67
Servers room	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.66	4,373	0.0	$522.05	$1,674.00	$275.00	2.68
Tech room	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.66	4,373	0.0	$522.05	$1,674.00	$275.00	2.68
Child study suite	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.22	1,442	0.0	$172.14	$585.00	$100.00	2.82
Child study office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Child study office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
Child study office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Child study office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Faculty Men's room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$20.00	4.90
Faculty Women's room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$20.00	4.90

	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
Main entrance memorial	8	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	None	No	8	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main office suite	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	27	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.58	3,894	0.0	$464.77	$1,579.50	$270.00	2.82
Principal's office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
Copy room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$40.00	4.44
Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
Faculty Men's room	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,660	0.03	170	0.0	$20.29	$179.20	$0.00	8.83
Faculty Women's room	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,660	0.03	170	0.0	$20.29	$179.20	$0.00	8.83
Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
Records room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Nurse's ofice suite	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	22	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.48	3,173	0.0	$378.70	$1,287.00	$220.00	2.82
Nurse's ofice suite	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.01	70	0.0	$8.35	$48.20	$10.00	4.58
Nurse's office restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,660	0.01	92	0.0	$11.01	$164.20	$10.00	14.01
Nurse's office restroom	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,660	0.03	170	0.0	$20.29	$179.20	$0.00	8.83
Offices (2)	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.08	547	0.0	$65.26	$407.50	$70.00	5.17
Faculty Men's room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$10.00	7.56
Faculty Women's room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$10.00	7.56
CR 107,108,109,117,116,110, 111,112,113,114,115	198	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	198	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	5.41	36,081	0.0	$4,306.89	$12,859.00	$2,200.00	2.47
Girls' restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.01	70	0.0	$8.35	$48.20	$10.00	4.58
Girls' restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$504.00	$75.00	4.93
Boys' restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.01	70	0.0	$8.35	$48.20	$10.00	4.58
Boys' restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$504.00	$75.00	4.93
Custodial closet	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	260	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	182	0.01	6	0.0	$0.75	$164.20	$30.00	178.20
Security office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.08	547	0.0	$65.26	$291.50	$50.00	3.70
Security office	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,660	0.03	184	0.0	$22.01	$212.40	$40.00	7.83
Faculty lounge	22	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	22	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.60	4,009	0.0	$478.54	$1,557.00	$255.00	2.72

	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
Faculty restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$10.00	7.56
Hallway	22	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	None	Yes	22	LED - Fixtures: Ambient - 4' - Direct Fixture	High/Low Control	39	2,660	0.17	1,125	0.0	$134.27	$3,200.00	$0.00	23.83
B-wing hallway	34	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	None	Yes	34	LED - Fixtures: Ambient - 4' - Direct Fixture	High/Low Control	39	2,660	0.26	1,738	0.0	$207.50	$7,200.00	$0.00	34.70
Room 120	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.22	1,458	0.0	$174.02	$738.00	$115.00	3.58
Room 120 office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Faculty Men's room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$10.00	7.56
Faculty Women's room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.05	364	0.0	$43.50	$233.00	$20.00	4.90
Room 123-graphics	39	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	39	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.84	5,624	0.0	$671.34	$2,281.50	$390.00	2.82
Room 125-Lab	32	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	32	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.69	4,615	0.0	$550.84	$1,872.00	$320.00	2.82
Room 127	48	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	48	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	1.04	6,922	0.0	$826.26	$2,808.00	$480.00	2.82
B-wing hallway	11	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	None	Yes	11	LED - Fixtures: Ambient - 4' - Direct Fixture	High/Low Control	39	2,660	0.08	562	0.0	$67.13	$800.00	$0.00	11.92
Room 126-Weight room	48	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	48	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	1.31	8,747	0.0	$1,044.09	$5,448.00	$900.00	4.36
Weight room office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$350.00	$60.00	3.33
Girls' restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.01	70	0.0	$8.35	$48.20	$10.00	4.58
Girls' restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82
Boys' restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	3,800	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	3,800	0.01	70	0.0	$8.35	$48.20	$10.00	4.58
Boys' restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.04	288	0.0	$34.43	$117.00	$20.00	2.82
Custodial closet	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	260	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	182	0.01	6	0.0	$0.75	$164.20	$30.00	178.20
Wood shop	42	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	42	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,800	0.91	6,057	0.0	$722.98	$2,457.00	$420.00	2.82
Wood shop	3	Incandescent: 1 Lamp - wall hanging fixture	Wall Switch	100	3,800	Relamp	No	3	LED Screw-In Lamps: 1 Lamp - wall hanging fixture	Wall Switch	17	3,800	0.16	1,088	0.0	$129.89	$293.56	$15.00	2.14
Receiving	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.25	1,640	0.0	$195.77	$796.50	$125.00	3.43
Mezzanine	16	Compact Fluorescent: 1 Lamp Wall hanging fixture	Wall Switch	42	3,800	Relamp	No	16	LED Screw-In Lamps: 1 Lamp - wall hanging fixture	Wall Switch	14	3,800	0.29	1,958	0.0	$233.69	$860.05	$0.00	3.68
Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	22	3,800	Relamp	Yes	1	LED - Linear Tubes: (1) 2' Lamp	Occupancy Sensor	9	2,660	0.01	70	0.0	$8.37	$147.90	$5.00	17.07
Gym Hallway	25	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	None	Yes	25	LED - Fixtures: Ambient - 4' - Direct Fixture	High/Low Control	39	2,660	0.19	1,278	0.0	$152.58	$3,200.00	$0.00	20.97
D-wing hallway	5	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	39	3,800	None	Yes	5	LED - Fixtures: Ambient - 4' - Direct Fixture	High/Low Control	39	2,660	0.04	256	0.0	$30.52	$200.00	$0.00	6.55

	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
Faculty Men's room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$10.00	7.56
Faculty Women's room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$10.00	7.56
Dance studio	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.22	1,458	0.0	$174.02	$738.00	$115.00	3.58
Dance studio office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Dance studio office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Dance studio office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Adventure bound room	4	Metal Halide: (1) 175W Lamp	Wall Switch	215	3,800	Fixture Replacement	No	4	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	89	3,800	0.33	2,202	0.0	$262.90	$1,562.71	$400.00	4.42
Adventure office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Adventure office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Adventure office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$30.00	6.64
Girls' restroom	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.16	1,093	0.0	$130.51	$621.00	$95.00	4.03
Boys' restroom	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.16	1,093	0.0	$130.51	$621.00	$95.00	4.03
Hallway D-wing	11	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	11	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,660	0.30	2,005	0.0	$239.27	$1,443.50	$110.00	5.57
CR 150,152,162	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,800	Relamp	Yes	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,660	0.57	3,827	0.0	$456.79	$1,862.80	$315.00	3.39
Athletic training 511	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,800	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,660	0.49	3,280	0.0	$391.54	$1,172.40	$215.00	2.45
Athletic training restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.03	182	0.0	$21.75	$174.50	$10.00	7.56
CR 154,164	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,800	Relamp	Yes	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,660	0.57	3,827	0.0	$456.79	$1,592.80	$280.00	2.87
D-wing hallway	16	Compact Fluorescent: 2 Lamps - Plug in lamp	Wall Switch	26	3,800	Relamp	Yes	16	LED Screw-In Lamps: 2 Lamps - Plug in	High/Low Control	12	2,660	0.18	1,231	0.0	$146.89	$2,520.10	$0.00	17.16
CR 156,166,165,157	48	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,800	Relamp	Yes	48	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,660	1.97	13,120	0.0	$1,566.14	$4,689.60	$860.00	2.45
Hallway C-wing	11	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	35	3,800	None	Yes	11	LED - Fixtures: Ambient - 4' - Direct Fixture	High/Low Control	35	2,660	0.08	505	0.0	$60.25	$800.00	$0.00	13.28
CR 144,145,142,143,140,141, 138,137	144	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	144	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	3.94	26,241	0.0	$3,132.28	$10,584.00	$1,720.00	2.83
Sports storage	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.22	1,458	0.0	$174.02	$584.00	$100.00	2.78
139-CR Lab-Chemistry	28	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	28	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.77	5,102	0.0	$609.05	$2,178.00	$350.00	3.00
Girls' restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$504.00	$75.00	4.93
Boys' restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.11	729	0.0	$87.01	$504.00	$75.00	4.93

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Custodial closet	1	Compact Fluorescent: 1 Lamp - wall hanging fixture	Wall Switch	18	260	Relamp	Yes	1	LED Screw-In Lamps: 1 Lamp - wall hanging fixture	Occupancy Sensor	6	182	0.01	4	0.0	$0.49	$169.75	$20.00	304.05
Vestibule	1	Compact Fluorescent: 2 Lamps - Wall hanging fixture	Wall Switch	36	3,800	Relamp	Yes	1	LED Screw-In Lamps: 2 Lamps - Wall hanging fixture	Occupancy Sensor	12	2,660	0.02	121	0.0	$14.40	$223.51	$20.00	14.14
Facilities Office	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,660	0.08	547	0.0	$65.26	$291.50	$50.00	3.70
Science room	20	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	20	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	0.96	6,415	0.0	$765.75	$2,172.67	$435.00	2.27
Science room prep	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	No	4	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,800	0.15	979	0.0	$116.85	$380.53	$80.00	2.57
Science room	20	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	Yes	20	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,660	0.96	6,415	0.0	$765.75	$2,172.67	$435.00	2.27
Science room prep	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	3,800	Relamp	No	4	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	3,800	0.15	979	0.0	$116.85	$380.53	$80.00	2.57
Around the building - Wall packs	34	Metal Halide: (1) 175W Lamp	Daylight Dimming	215	4,380	Fixture Replacement	No	34	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Daylight Dimming	53	4,380	3.62	27,829	0.0	$3,321.89	$13,283.02	$3,400.00	2.98
Under the door - Canopy fixtures	43	Compact Fluorescent: 1 Lamp	Daylight Dimming	26	4,380	Relamp	No	43	LED Screw-In Lamps: 1 Lamp - Canopy fixture	Daylight Dimming	8	4,380	0.51	3,942	0.0	$470.54	$2,311.38	$0.00	4.91
Poles with single fixture	14	High-Pressure Sodium: (1) 400W Lamp	Daylight Dimming	465	4,380	Fixture Replacement	No	14	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Daylight Dimming	120	4,380	3.17	24,329	0.0	$2,904.02	$27,341.90	$1,400.00	8.93
Shorter poles	6	High-Pressure Sodium: (1) 70W Lamp	Daylight Dimming	95	4,380	Fixture Replacement	No	6	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Daylight Dimming	21	4,380	0.29	2,236	0.0	$266.95	$11,717.96	$600.00	41.65
Poles with two fixtures	1	High-Pressure Sodium: (1) 400W Lamp	Daylight Dimming	800	4,380	Fixture Replacement	No	1	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Daylight Dimming	240	4,380	0.37	2,821	0.0	$336.70	$1,952.99	$100.00	5.50
Poles with four fixtures	8	High-Pressure Sodium: (1) 400W Lamp	Daylight Dimming	1,600	4,380	Fixture Replacement	No	8	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Daylight Dimming	480	4,380	5.87	45,132	0.0	$5,387.17	$15,623.94	$800.00	2.75
Canopy fixtures	6	Metal Halide: (1) 70W Lamp	Daylight Dimming	95	4,380	Relamp	No	6	LED Screw-In Lamps: 1 Lamp - Canopy fixture	Daylight Dimming	21	4,380	0.29	2,236	0.0	$266.95	$587.12	$0.00	2.20
Garden poles	11	High-Pressure Sodium: (1) 70W Lamp	Daylight Dimming	95	4,380	Fixture Replacement	No	11	LED - Fixtures: Other	Daylight Dimming	21	4,380	0.53	4,100	0.0	$489.42	$3,104.64	$55.00	6.23
Kitchen	28	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,800	Relamp	No	28	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,800	0.91	6,057	0.0	$722.98	$2,105.60	$420.00	2.33
Kitchen	3	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	3,800	Relamp	No	3	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	3,800	0.06	380	0.0	$45.38	$189.60	$0.00	4.18
Exit lights	65	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	65	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen office	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	3,800	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,660	0.04	273	0.0	$32.63	$191.20	$35.00	4.79
Kitchen Storage	1	Incandescent: 1 Lamp	Wall Switch	60	3,800	Relamp	Yes	1	LED Screw-In Lamps: 1 Lamp	Occupancy Sensor	9	2,660	0.04	235	0.0	$28.01	$169.75	$25.00	5.17
Kitchen restroom	2	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	22	3,800	Relamp	Yes	2	LED - Linear Tubes: (1) 2' Lamp	Occupancy Sensor	9	2,660	0.02	140	0.0	$16.74	$179.80	$10.00	10.14

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 - fine arts section	Memorial section	2	Heating Hot Water Pump	15.0	92.4%	Yes	3,391	No	92.4%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler room - fine arts section	Clayton section	2	Heating Hot Water Pump	15.0	92.4%	Yes	3,391	No	92.4%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler room - fine arts section	Fine arts section	2	Heating Hot Water Pump	5.0	89.5%	Yes	2,745	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	MAU-2 - Kitchen	1	Supply Fan	0.8	60.0%	No	2,745	No	60.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Classrooms	Unit ventilators and fan coil units	122	Supply Fan	0.3	60.0%	No	2,745	No	60.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Classrooms	Exhaust fans	75	Exhaust Fan	0.3	60.0%	No	2,745	No	60.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F2	1	Supply Fan	50.0	94.5%	No	4,067	No	94.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F2	1	Return Fan	15.0	92.4%	No	3,391	No	92.4%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F1	1	Supply Fan	50.0	90.3%	No	4,067	No	90.3%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F1	1	Return Fan	15.0	88.2%	No	3,391	No	88.2%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Locker rooms	2	Supply Fan	7.5	91.7%	No	3,391	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Locker rooms	2	Return Fan	3.0	89.5%	No	2,745	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M 26	1	Supply Fan	7.5	91.7%	No	3,391	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M 26	1	Return Fan	3.0	89.5%	No	2,745	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	ERU M2, ERU M1	2	Supply Fan	10.0	91.7%	No	3,391	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	ERU M2, ERU M1	2	Exhaust Fan	10.0	91.7%	No	3,391	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	1	Supply Fan	10.0	91.7%	No	3,391	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	1	Supply Fan	7.5	91.7%	No	3,391	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Cafeteria - RTU C15	1	Supply Fan	7.5	91.7%	No	3,391	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Cafeteria - RTU C15	1	Return Fan	2.0	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00

		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	ERU-C1, ERU-C2 - Gym (Clayton)	2	Supply Fan	7.5	91.7%	No	3,391	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	ERU-C1, ERU-C2 - Gym (Clayton)	2	Exhaust Fan	7.5	91.7%	No	3,391	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Various packaged units	60	Supply Fan	2.0	86.5%	No	2,745	No	86.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Various packaged units	60	Return Fan	0.5	60.0%	No	2,745	No	60.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Various packaged units	7	Supply Fan	3.0	89.5%	No	2,745	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Various packaged units	7	Return Fan	2.3	60.0%	No	2,745	No	60.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Electric HVAC Inventory & Recommendations

		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 RTU F2	Right side of Fine arts	1	Packaged AC	70.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Hallway rooms	1	Split-System AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Hallway rooms	1	Split-System AC	3.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - F9 - Music room	1	Packaged AC	12.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - F8 - Music room	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - F7 - Music room	1	Packaged AC	7.67		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - F6 TV studio	1	Packaged AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F5 - Hallway rooms	1	Packaged AC	12.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Unknown	1	Split-System AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - F1 - Left side of Fine Arts	1	Packaged AC	70.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F10	1	Packaged AC	10.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F11, F14, F4, F3	4	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F12 and F13	2	Packaged AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F17 Classroom	1	Packaged AC	10.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - 18 Hallway	1	Packaged AC	6.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU -F 16	1	Packaged AC	6.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F-15	1	Packaged AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Art room	2	Split-System AC	4.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classroom - Graphics,Art	2	Split-System AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classroom	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	RTU F-19	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classroom	1	Split-System AC	4.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	MUA - M-4	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Unknown	1	Split-System AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	MUA M-5	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M-28, RTU M-27	2	Packaged AC	7.67		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classroom	1	Split-System AC	4.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	MUA M2, MUA M3	2	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	1	Split-System AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	6	Split-System AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	3	Split-System AC	3.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Offices	2	Split-System AC	2.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms and offices	6	Split-System AC	2.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms and offices	13	Split-System AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms and offices	5	Split-System AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M-1	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M-2	1	Packaged AC	7.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	19	Split-System AC	3.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M-3, M-5, M-11, M-12, M-6	5	Packaged AC	6.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M-4	1	Packaged AC	10.00		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	RTU M-10, M-13, M-9, M-7, M-8	5	Packaged AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	209C	1	Split-System AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	209D	1	Packaged AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Memorial A wing	2	Split-System AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	M-23, M-20, M-16 - Shops	3	Packaged AC	7.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	3	Split-System AC	3.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Offices	1	Split-System AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Memorial B wing	2	Split-System AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	MUA M1	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	1	Split-System AC	4.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Locker rooms	2	Packaged AC	15.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof RTU M-17, M-18, M-19	Wood shop and waiting rooms	3	Packaged AC	8.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M14, M15, M25	3	Packaged AC	8.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classroom	1	Split-System AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M-24 RTU M-29 - Dance Studio	2	Packaged AC	6.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M-26 - Cafeteria	1	Packaged AC	31.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof ERU - M2 - ERU M1	Gym	2	Packaged AC	25.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - M-30 - Auxillary Gym	1	Packaged AC	7.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	209	1	Split-System AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	1	Packaged AC	27.00		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	Classrooms	1	Packaged AC	20.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Offices	2	Split-System AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU C19, C20 - Locker rooms	2	Packaged AC	15.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU C-14, C17, C18, C16, C7, C6, C5, C2	8	Packaged AC	7.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	4	Split-System AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Office	1	Split-System AC	2.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU C-13	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	C-11, C-9	2	Packaged AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	21	Split-System AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	C-8,C-4, C-10, C-3, C-1	5	Packaged AC	8.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	22	Split-System AC	3.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classroom	2	Split-System AC	4.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Lecture hall	1	Packaged AC	7.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Cafeteria	1	Packaged AC	50.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	ERU-C1, ERU-C2 - Gym (Clayton)	2	Packaged AC	18.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Attic	1	Electric Resistance Heat		51.18	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

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 - Fine arts section	All school - sections with hot water coils	3	Condensing Hot Water Boiler	3,000.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof RTU F2	Right side of Fine arts	1	Furnace	950.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - F9 - Music room	1	Furnace	140.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - F8 - Music room	1	Furnace	104.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - F7 - Music room	1	Furnace	162.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - F6 TV studio	1	Furnace	96.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F5 - Hallway rooms	1	Furnace	140.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof RTU F2	Right side of Fine arts	1	Furnace	950.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F10	1	Furnace	202.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F11, F14, F4, F3 - Hallway, offices, Stage	4	Furnace	104.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F12 and F13	2	Furnace	48.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F17 Classroom	1	Furnace	160.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU - 18 Hallway	1	Furnace	96.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU -F 16	1	Furnace	104.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F-15	1	Furnace	48.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU F-19	1	Furnace	104.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	MUA - M-4, MUA M-5, MUA M3, MUA M2	4	Furnace	80.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M-1	1	Furnace	104.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	RTU M-2	1	Furnace	120.00	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 fine arts section	Fine arts section	1	Storage Tank Water Heater (> 50 Gal)	Yes	1	Storage Tank Water Heater (> 50 Gal)	Natural Gas	93.00%	Et	0.00	0	4.2	$69.90	$8,899.66	$308.00	122.91
Connector hallway	C-wing bathrooms	1	Storage Tank Water Heater (≤ 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Custodian closet	C-wing bathrooms	1	Storage Tank Water Heater (≤ 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Custodian closet	C-wing bathrooms	1	Storage Tank Water Heater (≤ 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Custodian closet	Memorial wing ground floor	1	Storage Tank Water Heater (≤ 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Custodian closet	D wing	1	Storage Tank Water Heater (≤ 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Custodian closet	C-wing	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
513 labs, 508 labs, FRR Men and women	33	Faucet Aerator (Kitchen)	2.50	2.20	0.00	0	16.2	$270.64	$236.61	$0.00	0.87
Electrical closet room, Nurse's office restroom, All Fac MRR,WRR	20	Faucet Aerator (Lavatory)	2.50	1.00	0.00	12,139	0.0	$1,449.00	$143.40	$0.00	0.10
Home Ec room, Room 404, Room 100, Nurse's office	9	Faucet Aerator (Kitchen)	2.50	2.20	0.00	1,093	0.0	$130.41	$64.53	$0.00	0.49
Fine arts main entrance WRR, MRR	10	Faucet Aerator (Lavatory)	2.50	1.00	0.00	0	24.6	$410.06	$71.70	$0.00	0.17

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	Medium Temp Freezer (0F to 30F)	No	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	1	Cooler (35F to 55F)	No	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Commercial Refrigerator/Freezer Inventory & Recommendations

	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	3	Stand-Up Refrigerator, Glass Door (≤15 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	2	Stand-Up Refrigerator, Solid Door (31 - 50 cu. ft.)	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	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	4	Insulated Food Holding Cabinet (1/2 Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	1	Electric Combination Oven/Steam Cooker (<15 Pans)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	5	Gas Convection Oven (Half 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	Multi-Tank Conveyor (High 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?
Jackson memorial high school	400	Computer	150.0	Yes
Jackson memorial high school	126	Laptop	45.0	Yes
Jackson memorial high school	11	Printer - Small	20.0	Yes
Jackson memorial high school	15	Printer - Medium	40.0	Yes
Jackson memorial high school	16	Printer - Big	220.0	Yes
Jackson memorial high school	4	Paper shredder	150.0	Yes
Jackson memorial high school	103	Projector	200.0	Yes
Jackson memorial high school	20	Microwave	1,000.0	Yes
Jackson memorial high school	5	Refrigerator - Small	40.0	No
Jackson memorial high school	9	Refrigerator - Medium	60.0	No
Jackson memorial high school	8	Refrigerator - Large	220.0	Yes
Jackson memorial high school	12	Coffee machine	400.0	Yes
Jackson memorial high school	3	Toaster	850.0	No
Jackson memorial high school	1	Toaster oven	1,200.0	No
Jackson memorial high school	3	Clothes washer	900.0	Yes
Jackson memorial high school	3	Clothes dryer	3,000.0	Yes
Jackson memorial high school	2	Dishwasher	1,200.0	Yes
Jackson memorial high school	1	Television - CRT	120.0	No
Jackson memorial high school	2	TV - LED	100.0	Yes
Jackson memorial high school	1	TV LCD	100.0	Yes
Jackson memorial high school	1	Water dispenser - hot and cold	500.0	Yes
Jackson memorial high school	1	Kettle	1,000.0	No
Jackson memorial high school	5	Burner stove - induction	3,000.0	No
Jackson memorial high school	47	Chrome book carts	40.0	Yes
Jackson memorial high school	2	Electric kilns	13,000.0	No

Vending Machine Inventory & Recommendations

	Existing Conditions		Proposed Conditions	Energy Impact & Financial Analysis						
Location	Quantity	Vending Machine Type	Install Controls?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
All school	7	Refrigerated	Yes	0.00	11,283	0.0	$1,346.79	$1,610.00	$0.00	1.20

Appendix B: ENERGY STAR® Statement of Energy Performance

ENERGY STAR® Statement of Energy Performance

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ENERGY STAR® Score[1]

Jackson Memorial High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 375,000
Built: 1964

For Year Ending: December 31, 2016
Date Generated: March 28, 2018

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

Property & Contact Information

Property Address	Property Owner	Primary Contact
Jackson Memorial High School 101 Don Connor Boulevard Jackson, New Jersey 08527	Jackson Township BOE 151 Don Connor Boulevard Jackson, NJ 08527 (732) 833-4600	Michelle Richardson 151 Don Connor Boulevard Jackson, NJ 08527 (732) 833-4600 sstewart@trcsolutions.com

Property ID: 2552305

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
38.7 kBtu/ft²

Source EUI
109 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	12,261,155 (84%)
Natural Gas (kBtu)	2,264,397 (16%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	60.6
National Median Source EUI (kBtu/ft²)	170.7
% Diff from National Median Source EUI	-36%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,480

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)