Local Government Energy Audit:
Energy Audit Report

Indian Hills High School

Ramapo Indian Hills Schools

97 Yawpo Ave
Oakland, New Jersey 07436

December 3, 2018

Final Report by:

TRC Energy Services

Copyright ©2018 TRC Energy Services. All rights reserved.

Reproduction or distribution of the whole, or any part of the contents of this document without written permission of TRC is prohibited. Neither TRC nor any of its employees makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any data, information, method, product or process disclosed in this document, or represents that its use will not infringe upon any privately-owned rights, including but not limited to, patents, trademarks or copyrights.

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.

Table of Contents

Table of Figures

1 EXECUTIVE SUMMARY

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

Indian Hills High School is a 240,320 square foot facility comprised of a two-storied building and includes classrooms, administrative offices, conference rooms, indoor gymnasium, locker rooms, kitchen, auditorium, cafeteria and mechanical spaces. The building also houses the Ramapo Indian Hills Regional High School District offices. The building is occupied by approximately 1,100 students and 180 staff. The gymnasium and auditorium are used after hours. The classrooms hours of operation are between 7:00 AM and 2:45 PM during the weekdays and it operates on a 10 month schedule.

The foundation consists of cast-in-place concrete perimeter wall footings with concrete walls. Exterior walls are finished with brick masonry. The building has a flat roof covered with a multi-ply bituminous built-up membrane that is under warranty and appears to be in good condition.

The building's interior lighting consists mainly of linear fluorescent T8 fixtures with electronic ballasts as well as some LED tubes and incandescent fixtures. Lighting is controlled throughout the building by manual switches and occupancy sensors. The building's exterior illumination is provided by a combination of LED and HID fixtures that are controlled with photocells.

Heating is supplied by natural gas fired hot water boilers and natural gas fired furnaces located inside rooftop packaged units (RTUs). The majority of the building is served by the RTUs, air handling units (AHUs), split system air conditioners and heat pumps for comfort cooling and heating. Air is exhausted in restrooms, hallways and common areas by roof mounted exhaust fans that are controlled with the building energy management system (BEMS). A thorough description of the facility and our observations are located in Section 2.

1.2 Your Cost Reduction Opportunities

Energy Conservation Measures

TRC evaluated 11 measures and recommends nine measures which together represent an opportunity for Indian Hills High School to reduce annual energy costs by roughly $42,575 and annual greenhouse gas emissions by 348,655 lbs CO_2e. We estimate that if all measures were implemented as recommended, the project would pay for itself in 10.8 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 Indian Hills High School's annual energy use by 8%.

Figure 1 - Previous 12 Month Utility Costs

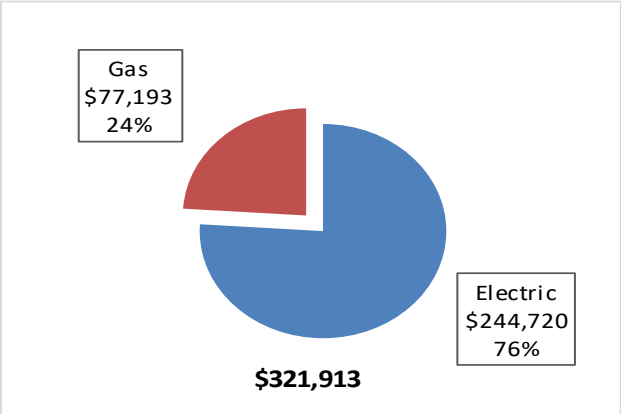
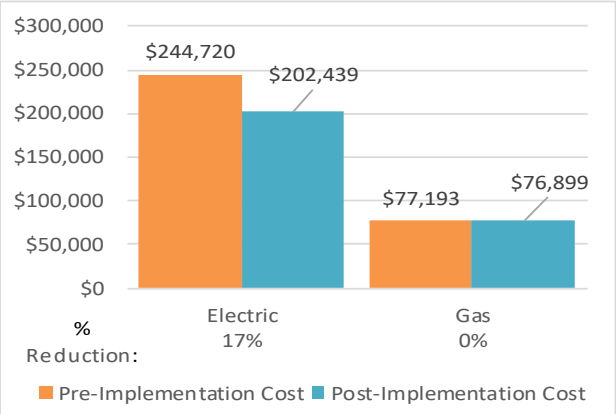


Figure 2 - Potential Post-Implementation Costs



A detailed description of Indian Hills 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			**264,883**	**118.9**	**0.0**	**$32,717.26**	**$354,739.68**	**$50,920.00**	**$303,819.68**	**9.3**	**266,735**
ECM 1	Install LED Fixtures	Yes	25,952	17.9	0.0	$3,205.47	$131,372.09	$15,700.00	$115,672.09	36.1	26,133
ECM 2	Retrofit Fixtures with LED Lamps	Yes	223,176	100.0	0.0	$27,565.72	$218,420.06	$35,220.00	$183,200.06	6.6	224,736
ECM 3	Install LED Exit Signs	Yes	15,756	1.0	0.0	$1,946.08	$4,947.53	$0.00	$4,947.53	2.5	15,866
Lighting Control Measures			**59,695**	**22.2**	**0.0**	**$7,373.30**	**$162,360.00**	**$16,520.00**	**$145,840.00**	**19.8**	**60,113**
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	50,693	19.2	0.0	$6,261.36	$142,560.00	$16,520.00	$126,040.00	20.1	51,047
ECM 5	Install High/Low Lighitng Controls	Yes	9,002	3.0	0.0	$1,111.93	$19,800.00	$0.00	$19,800.00	17.8	9,065
Variable Frequency Drive (VFD) Measures			**12,801**	**0.0**	**0.0**	**$1,581.07**	**$10,142.25**	**$2,400.00**	**$7,742.25**	**4.9**	**12,890**
ECM 6	Install VFDs on Constant Volume (CV) HVAC	Yes	12,801	0.0	0.0	$1,581.07	$10,142.25	$2,400.00	$7,742.25	4.9	12,890
Electric Unitary HVAC Measures			**26,604**	**16.2**	**0.0**	**$3,286.02**	**$377,597.25**	**$14,212.50**	**$363,384.75**	**110.6**	**26,790**
	Install High Efficiency Electric AC	No	26,604	16.2	0.0	$3,286.02	$377,597.25	$14,212.50	$363,384.75	110.6	26,790
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**356.2**	**$3,110.11**	**$58,467.25**	**$3,200.00**	**$55,267.25**	**17.8**	**41,707**
	Install High Efficiency Furnaces	No	0	0.0	356.2	$3,110.11	$58,467.25	$3,200.00	$55,267.25	17.8	41,707
Domestic Water Heating Upgrade			**0**	**0.0**	**33.7**	**$294.40**	**$150.57**	**$0.00**	**$150.57**	**0.5**	**3,948**
ECM 7	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	33.7	$294.40	$150.57	$0.00	$150.57	0.5	3,948
Food Service Equipment & Refrigeration Measures			**1,368**	**0.0**	**0.0**	**$168.98**	**$1,037.21**	**$100.00**	**$937.21**	**5.5**	**1,378**
ECM 8	Refrigeration Controls	Yes	1,368	0.0	0.0	$168.98	$1,037.21	$100.00	$937.21	5.5	1,378
Plug Load Equipment Control - Vending Machine			**3,566**	**0.0**	**0.0**	**$440.48**	**$690.00**	**$0.00**	**$690.00**	**1.6**	**3,591**
ECM 9	Vending Machine Control	Yes	3,566	0.0	0.0	$440.48	$690.00	$0.00	$690.00	1.6	3,591
TOTALS FOR HIGH PRIORITY MEASURES			**342,313**	**141.1**	**33.7**	**$42,575.49**	**$529,119.70**	**$69,940.00**	**$459,179.70**	**10.8**	**348,655**
TOTALS FOR ALL EVALUATED MEASURES			**368,918**	**157.3**	**389.9**	**$48,971.62**	**$965,184.20**	**$87,352.50**	**$877,831.70**	**17.9**	**417,151**

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

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

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

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

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

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

Gas Heating (HVAC/Process) measures generally involve replacing older inefficient hydronic heating systems with modern energy efficient systems. Gas heating systems can provide equivalent heating compared to older systems at a reduced energy cost. These measures save energy by reducing the fuel demands for heating, due to improved combustion and heat transfer efficiency.

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

Food Service Equipment & Refrigeration measures generally involve improvements in the efficiency of cooking, food service, dishwashing, and food storage equipment. These measures may include more efficient convection ovens, steamers, ice machines, or refrigeration. These measures save energy by reducing the energy usage with more energy efficient equipment.

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

Energy Efficient Practices

TRC also identified 16 low cost (or no cost) energy efficient practices. A facility's energy performance can be significantly improved by employing certain behavioral or operational adjustments and by performing better routine maintenance on building systems. These practices can extend equipment lifetime, improve occupant comfort, provide better health and safety, as well as reduce annual energy and O&M costs. Potential opportunities identified at Indian Hills High School include:

- Use Window Treatments/Coverings
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Turn Off Unneeded Motors
- Perform Routine Motor Maintenance
- Use Fans to Reduce Cooling Load
- Ensure Economizers are Functioning Properly
- Clean Evaporator/Condenser Coils on AC Systems
- Clean and/or Replace HVAC Filters
- Perform Proper Boiler Maintenance
- Perform Proper Furnace Maintenance
- Perform Proper Water Heater Maintenance
- Perform Maintenance on Compressed Air Systems
- Install Plug Load Controls
- Water Conservation
- Re-Insulate Evaporator Refrigerant Lines in Rooftop Package Units (RTUs) and DX Units

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 Indian Hills High School. Based on the configuration of the site and its loads there is a **moderate** potential for installing a photovoltaic (PV) array.

Figure 4 - Photovoltaic Potential

Potential	Medium	
System Potential	635	kW DC STC
Electric Generation	756,520	kWh/yr
Displaced Cost	$65,820	/yr
Installed Cost	$2,476,500	

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

1.3 Implementation Planning

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

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

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

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

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

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the Energy Savings Improvement Program (ESIP). Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as, attractive financing for implementing ECMs. An LGEA report (or other approved energy audit) is required for participation in ESIP. Please refer to Section 8.3 for additional information on the ESIP Program.

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

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

2 FACILITY INFORMATION AND EXISTING CONDITIONS

2.1 Project Contacts

Figure 5 - Project Contacts

Name	Role	E-Mail	Phone #
Customer			
Frank Ceurvels	School Business Administrator	fceurvels@rih.org	201-416-8100
TRC Energy Services			
Moussa Traore	Auditor	mtraore@trcsolutions.com	(732) 855-0033

2.2 General Site Information

On July 24, 2018, TRC performed an energy audit at Indian Hills High School located in Oakland, New Jersey. TRC's auditor met with Jeff Boltzer to review the facility operations and help focus our investigation on specific energy-using systems.

Indian Hills High School is a 240,320 square foot facility comprised of comprised of a two-storied building and it includes classrooms, offices, indoor gymnasium, locker rooms, kitchen, auditorium and cafeteria. The building was constructed in 1964 and was last renovated in 2004.

Image 1: School District Main Conference Room

2.3 Building Occupancy

The building is in operation ten months out of the year. General operation is 6:30 AM to 10:00 PM Monday through Friday. The school is cleaned after hours between 6:00 PM and 10:00 PM. The building is occupied by 1,100 students and about 180 staff. The typical schedule is presented in the table below.

Figure 6 – Building Schedule

Building Occupancy Schedule		
Building Name	**Weekday/Weekend**	**Operating Schedule**
Indian Hills High School - General Operating Hours	Weekday	6:30 AM - 10:00 PM
Indian Hills High School	Weekend	8:30 AM - 3:30 PM (Saturday)
Indian Hills High School - Classes Hours	Weekday	7:30 AM - 2:40 PM

2.4 Building Envelope

Image 2: Typical Window

Image 3: Exterior Wall & Door

The building is constructed of concrete block, and structural steel with a brick facade. The buildings have flat roof sections covered with roofing membrane that is in good condition. Most of the windows throughout the buildings are translucent single pane windows with aluminum frames which appear to be in poor condition and show little signs of excessive infiltration. The exterior doors are constructed of metal and glass and are in good condition.

Image 4: Facility Aerial View

2.5 On-Site Generation

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

2.6 Energy-Using Systems

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

Lighting System

Lighting at the facility is provided mostly by 32-Watt linear fluorescent T8 lamps with electronic ballasts as well as some U-shaped fluorescent lamps, compact fluorescent lamps (CFL), linear T5 fluorescent lamps, LED linear and screw-in lamps and high intensity discharge (HID) fixtures. Most of the fixtures are 1, 2 or 3-lamp, 4-foot long troffers with diffusers. The interior HID lighting is mostly in gymnasiums, fitness room and auditorium areas.

Image 5: Various Interior Lighting System

Service spaces, including restrooms and storage spaces are primarily lit with fluorescent linear T8 lamps in troffer fixtures, CFL and LED lamps in recessed can ceiling fixtures. Exit signs in the building are a mixture of incandescent lamp fixtures and LED fixtures.

Lighting is controlled by wall switches in most spaces and is turned on during operating hours of the building. In some spaces of the building, lighting fixtures (mostly LEDs) are fitted with occupancy sensors.

Image 6: LED Tubes Exit Sign & Ceiling Mounted Occupancy Sensors

The building's exterior lighting is consisting mainly of wall mounted fixtures and few parking lot pole fixtures. Sources include high pressure sodium (HPS) fixtures, metal halide (MH) fixtures, LED wall packs and CFL screw-in lamps. All exterior lighting is controlled by daylight sensors.

A significant energy savings could be achieved by retrofitting the interior and exterior lighting systems to LED lamps.

Image 7: Various Exterior Lighting System

Hot Water Heating System

The hot water system consists of six Lars Benchmark 3.0 399.99 kBtu/hr output, condensing boilers. The boilers have an estimated nominal combustion efficiency of 88%. The hot water is distributed throughout the building in two loops each of which is supplied by two 25 hp hot water pumps equipped with VFDs. The boilers provide hot water to air handlers, unit ventilators and radiators throughout the school.

The boilers operate in a lead/lag configuration. All boilers may be required during cold weather. The lead boiler is rotated weekly. The hot water system is enable based upon outside air temperature. The heating hot water system is controlled via the Johnson Controls Metasys Energy Management System. The typical space temperature set points are 72°F during occupied and 65°F during unoccupied heating periods. The boilers are in good condition and well maintained.

Image 8: Condensing Hot Water Boilers and the BEMS

Direct Expansion (DX) Air Conditioning System

Approximately 30% of the building spaces are mechanically cooled. Systems include packaged rooftop units (RTUs), direct-expansion (DX) cooling split-system ACs, split-system heat pumps and window AC units. Most of the units are located on the roof and serve various building spaces: offices, auditorium, library and a few single zone rooms. There are 20 packaged rooftop units (RTUs) with built-in DX units & natural gas furnaces throughout the building providing heating and cooling to various areas. Unit size varies from 3 to 40 tons of cooling capacity. Many of these units are nearing end of useful life and the customer is looking to replace them. The RTUs are controlled with the building energy management system (BEMS).

There are 18 split-system air conditioner and heat pumps throughout the building. The size of the units ranges from 1.5 ton to 80 tons. There are also a few window air-conditioning units that serve offices which range between 0.5 to 2 tons in capacity.

Image 9: RTUs

Image 10: Split System ACs

All of the units are connected to the Building Energy Management System (BEMS) with the exception of smaller split ac units and window units.

Building Energy Management System (BEMS)

The majority of the facility HVAC (boilers, AHUs, RTUs, DX units, unit ventilators and exhaust fans) are controlled with a Johnson Controls Metasys Building Energy Management System (BEMS).

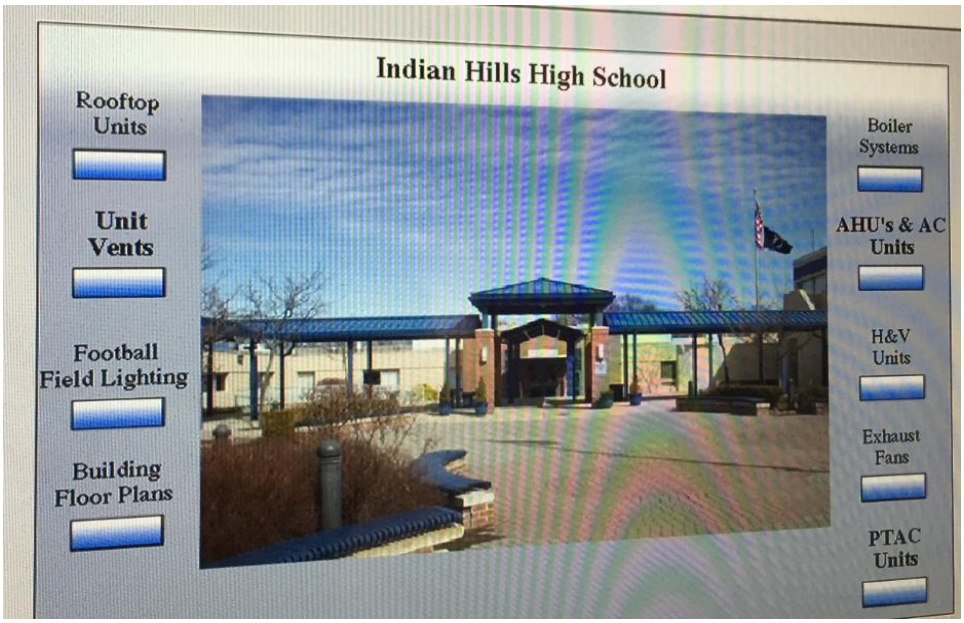


Image 11: The Metasys BEMS System Homepage

Domestic Hot Water Heating System

The domestic hot water heating system for the facility consists of three Lars gas fired storage tank condensing water heaters each with an input rating of 400 kBtu/hr and a nominal efficiency of 93%. Each water heater has a 100-gallon storage tank. These units provide domestic hot water to the entire building at 140°F. The heaters are located in the boiler room and are in good condition.

Image 12: DHW heaters

Food Service & Laundry Equipment

The facility has a full commercial kitchen that is used to prepare breakfast and lunch for the employees and students. The ovens, range tops and griddle are all gas fired. There is a conveyor dishwasher with an electric water heater that provides 145°F rinse water. The kitchen is well maintained.

Image 13: Kitchen Gas Cooking Equipment and Warmers

Refrigeration

The kitchen has three walk-in units that are used to store food prepared for school lunches. Two of them are medium temperature freezers rated at 1.5 ton and 2 tons respectively and one cooler is rated at approximately 1 ton. The kitchen also has several free standing commercial size refrigerators and ice makers.

Image 14: Refrigeration System

Building Plug Load

There are roughly 60 computer work stations throughout the facility. Roughly 90% of the computers are desktop units with LCD monitors. There is no centralized PC power management software installed. The plug loads in the building also consist of refrigerators, microwaves, TV, copy machines, printers, coffee machines, toasters, water coolers and washing machines. The facility has two refrigerated vending machines and one non-refrigerated vending machine.

2.7 Water-Using Systems

There are several restrooms at this facility. A sampling of restrooms found that many of the faucets are rated for 2.2 gallons per minute (gpm) or higher. The school has a girls and boys locker room. Both locker rooms use high efficiency showerhead fittings.

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

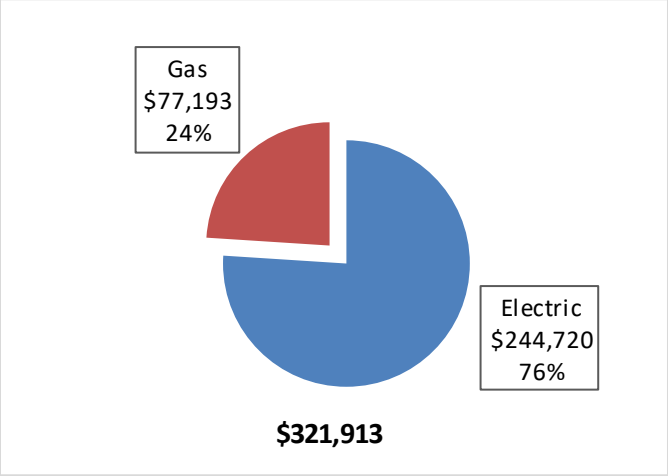
The following energy consumption and cost data is based on the last 12-month period of utility billing data that was provided for each utility. A profile of the annual energy consumption and energy cost of the facility was developed from this information.

Figure 7 - Utility Summary

Utility Summary for Indian Hills High School		
Fuel	**Usage**	**Cost**
Electricity	1,981,284 kWh	$244,720
Natural Gas	88,409 Therms	$77,193
Total		**$321,913**

The current annual energy cost for this facility is $321,913 as shown in the chart below.

Figure 8 - Energy Cost Breakdown



3.2 Electricity Usage

Electricity is provided by Rockland Electric. The average electric cost over the past 12 months was $0.124/kWh, which is the blended rate that includes energy supply, distribution, and other charges. This rate is used throughout the analyses in this report to assess energy costs and savings. The monthly electricity consumption and peak demand are shown in the chart below. Demand peaks in the summer, coincident with peak cooling load. The electricity use profile reflects low occupancy in the summer months.

Figure 9 - Electric Usage & Demand

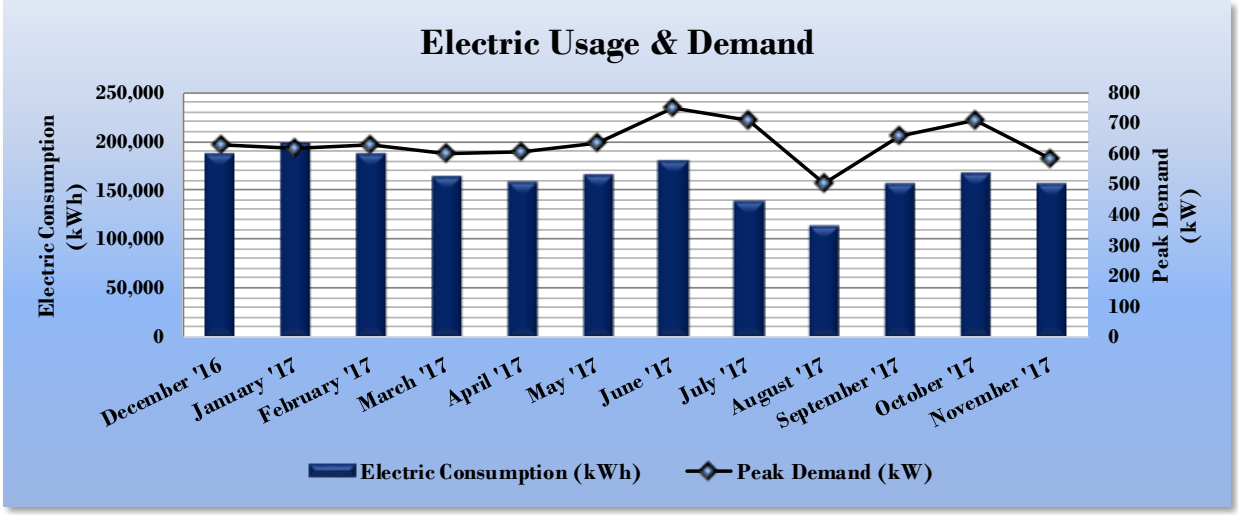


Figure 10 - Electric Usage & Demand

Electric Billing Data for Indian Hills High School					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
12/21/16	30	187,443	627	$3,674	$22,082
1/24/17	34	198,709	619	$3,652	$23,155
2/22/17	29	187,254	626	$561	$22,126
3/22/17	28	163,400	601	$3,631	$19,651
4/20/17	29	158,331	603	$3,689	$19,278
5/19/17	29	166,018	637	$3,972	$20,338
6/20/17	32	180,627	751	$5,145	$22,915
7/20/17	30	138,253	707	$5,161	$18,759
8/21/17	32	113,092	502	$3,570	$14,802
9/21/17	31	157,751	657	$4,736	$20,474
10/20/17	29	167,212	708	$4,679	$21,290
11/20/17	31	157,766	581	$3,562	$19,178
Totals	**364**	**1,975,856**	**751.16**	**$46,033**	**$244,049**
Annual	**365**	**1,981,284**	**751.16**	**$46,160**	**$244,720**

3.3 Natural Gas Usage

Natural gas is provided by PSE&G. The average gas cost for the past 12 months is $0.873/therm, which is the blended rate used throughout the analyses in this report. The monthly gas consumption is shown in the chart below. The monthly gas consumption is shown in the chart below. indicating a gas heating profile. The gas use profile is typical for a facility with a significant heating load relative to other end uses.

Figure 11 - Natural Gas Usage

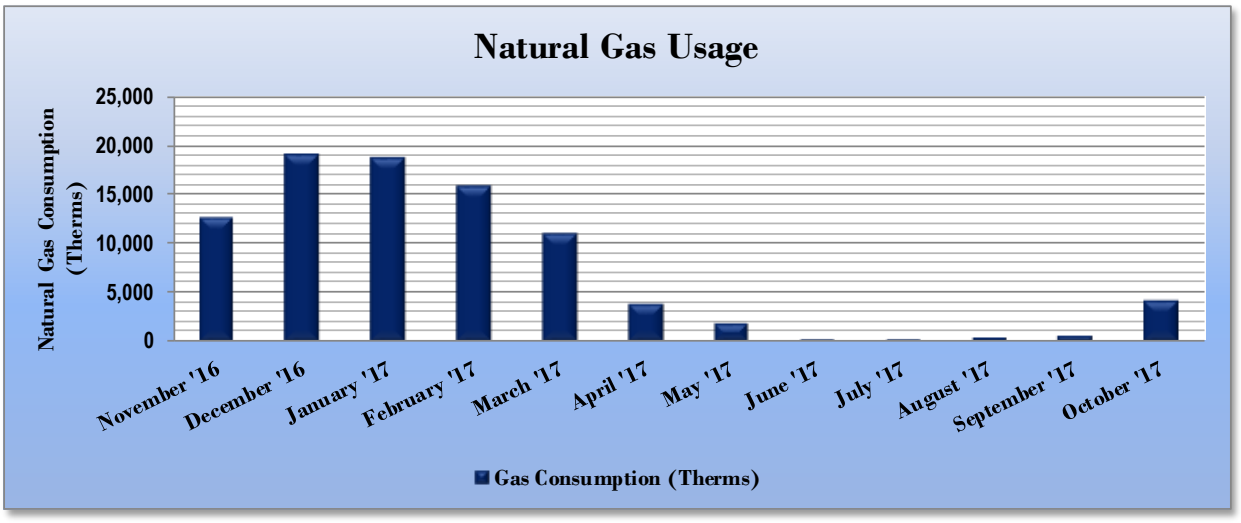


Figure 12 - Natural Gas Usage

Gas Billing Data for Indian Hills High School			
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost
12/13/16	33	12,636	$10,935
1/12/17	30	19,171	$17,885
2/13/17	32	18,671	$17,462
3/15/17	30	15,885	$15,250
4/12/17	28	10,967	$6,032
5/12/17	30	3,776	$2,278
6/13/17	32	1,814	$1,153
7/13/17	30	111	$171
8/11/17	29	23	$120
9/12/17	32	438	$351
10/11/17	29	562	$420
11/9/17	29	4,115	$4,925
Totals	**364**	**88,167**	**$76,982**
Annual	**365**	**88,409**	**$77,193**

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.

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		
	Indian Hills High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	127.0	141.4
Site Energy Use Intensity (kBtu/ft^2)	64.9	58.2

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

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

Energy Use Intensity Comparison - Following Installation of Recommended Measures		
	Indian Hills High School	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft^2)	111.5	141.4
Site Energy Use Intensity (kBtu/ft^2)	59.9	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. Your building is one of the building categories that are eligible to receive a score. This facility has a current score of 51.

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

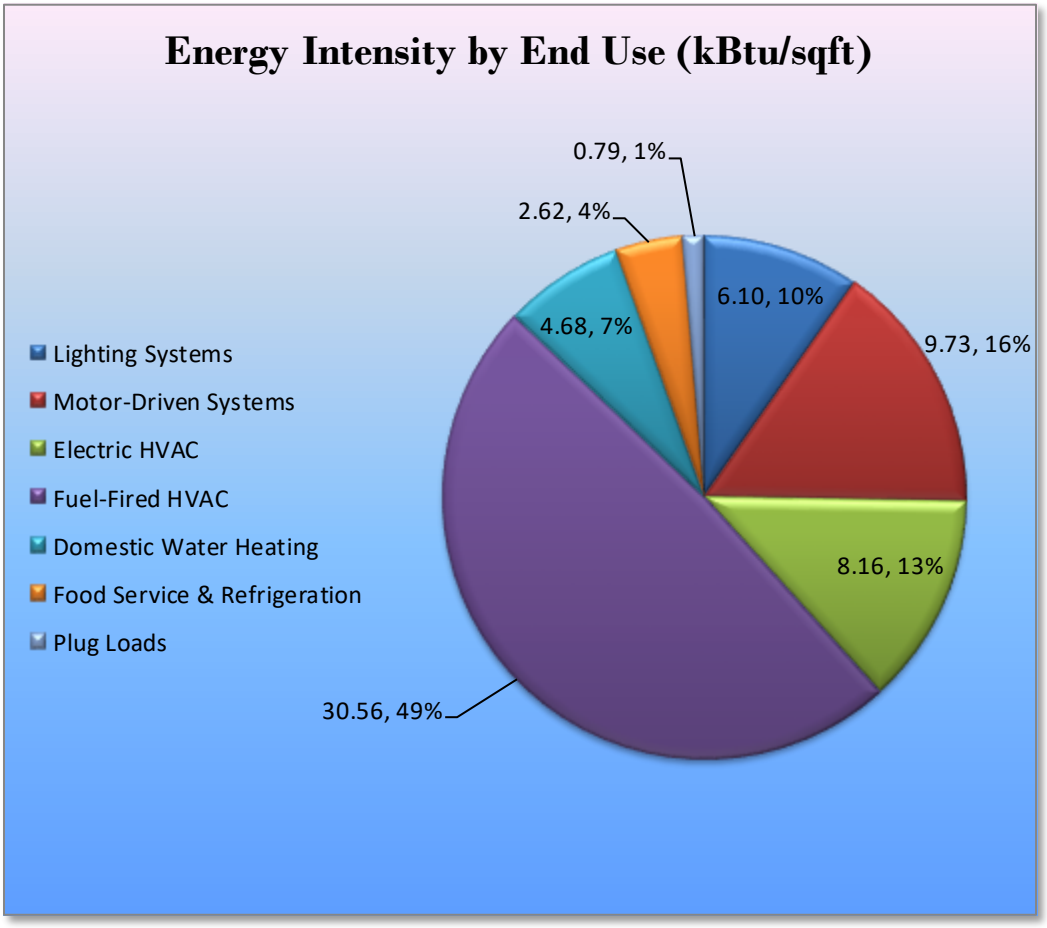
For more information on ENERGY STAR® certification go to: https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1.

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 ENERYGY 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 Indian Hills 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		**264,883**	**118.9**	**0.0**	**$32,717.26**	**$354,739.68**	**$50,920.00**	**$303,819.68**	**9.3**	**266,735**
ECM 1	Install LED Fixtures	25,952	17.9	0.0	$3,205.47	$131,372.09	$15,700.00	$115,672.09	36.1	26,133
ECM 2	Retrofit Fixtures with LED Lamps	223,176	100.0	0.0	$27,565.72	$218,420.06	$35,220.00	$183,200.06	6.6	224,736
ECM 3	Install LED Exit Signs	15,756	1.0	0.0	$1,946.08	$4,947.53	$0.00	$4,947.53	2.5	15,866
Lighting Control Measures		**59,695**	**22.2**	**0.0**	**$7,373.30**	**$162,360.00**	**$16,520.00**	**$145,840.00**	**19.8**	**60,113**
ECM 4	Install Occupancy Sensor Lighting Controls	50,693	19.2	0.0	$6,261.36	$142,560.00	$16,520.00	$126,040.00	20.1	51,047
ECM 5	Install High/Low Lighitng Controls	9,002	3.0	0.0	$1,111.93	$19,800.00	$0.00	$19,800.00	17.8	9,065
Variable Frequency Drive (VFD) Measures		**12,801**	**0.0**	**0.0**	**$1,581.07**	**$10,142.25**	**$2,400.00**	**$7,742.25**	**4.9**	**12,890**
ECM 6	Install VFDs on Constant Volume (CV) HVAC	12,801	0.0	0.0	$1,581.07	$10,142.25	$2,400.00	$7,742.25	4.9	12,890
Domestic Water Heating Upgrade		**0**	**0.0**	**33.7**	**$294.40**	**$150.57**	**$0.00**	**$150.57**	**0.5**	**3,948**
ECM 7	Install Low-Flow Domestic Hot Water Devices	0	0.0	33.7	$294.40	$150.57	$0.00	$150.57	0.5	3,948
Food Service Equipment & Refrigeration Measures		**1,368**	**0.0**	**0.0**	**$168.98**	**$1,037.21**	**$100.00**	**$937.21**	**5.5**	**1,378**
ECM 8	Refrigeration Controls	1,368	0.0	0.0	$168.98	$1,037.21	$100.00	$937.21	5.5	1,378
Plug Load Equipment Control - Vending Machine		**3,566**	**0.0**	**0.0**	**$440.48**	**$690.00**	**$0.00**	**$690.00**	**1.6**	**3,591**
ECM 9	Vending Machine Control	3,566	0.0	0.0	$440.48	$690.00	$0.00	$690.00	1.6	3,591
TOTALS		**342,313**	**141.1**	**33.7**	**$42,575.49**	**$529,119.70**	**$69,940.00**	**$459,179.70**	**10.8**	**348,655**

* - 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 Upgrade

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		**264,883**	**118.9**	**0.0**	**$32,717.26**	**$354,739.68**	**$50,920.00**	**$303,819.68**	**9.3**	**266,735**
ECM 1	Install LED Fixtures	25,952	17.9	0.0	$3,205.47	$131,372.09	$15,700.00	$115,672.09	36.1	26,133
ECM 2	Retrofit Fixtures with LED Lamps	223,176	100.0	0.0	$27,565.72	$218,420.06	$35,220.00	$183,200.06	6.6	224,736
ECM 3	Install LED Exit Signs	15,756	1.0	0.0	$1,946.08	$4,947.53	$0.00	$4,947.53	2.5	15,866

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	20,448	15.4	0.0	$2,525.68	$119,261.10	$12,600.00	$106,661.10	42.2	20,591
Exterior	5,504	2.5	0.0	$679.78	$12,110.99	$3,100.00	$9,010.99	13.3	5,542

Measure Description

We recommend replacing fixtures containing high intensity discharge (HID) fixtures with new high-performance LED lamps and fixtures throughout the building. Replace the metal halide (MH) and high pressure sodium (HPS) wall pack located along the building exterior, and the MH fixtures serving various gym and fitness areas inside the building. Consider specifying interior LED fixtures with on-board occupancy controls for additional savings. This measure saves energy by installing LEDs which use less power than other technologies with a comparable light output. The measure payback, especially for interior areas, is projected as long. TRC notes that pricing for LED fixtures continues to drop, and our payback estimates are accordingly conservative for this measure.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of the existing HID fixtures.

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	221,557	99.0	0.0	$27,365.71	$213,118.12	$34,735.00	$178,383.12	6.5	223,106
Exterior	1,619	1.0	0.0	$200.00	$5,301.94	$485.00	$4,816.94	24.1	1,631

Measure Description

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

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

ECM 3: Install LED Exit Signs

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
Interior	15,756	1.0	0.0	$1,946.08	$4,947.53	$0.00	$4,947.53	2.5	15,866
Exterior	0	0.0	0.0	$0.00	$0.00	$0.00	$0.00	0.0	0

Measure Description

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

4.1.2 Lighting Control Measures

Our recommendations for lighting control measures are summarized in Figure 18 below.

Figure 18 - Summary of Lighting Control ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
Lighting Control Measures		**59,695**	**22.2**	**0.0**	**$7,373.30**	**$162,360.00**	**$16,520.00**	**$145,840.00**	**19.8**	**60,113**
ECM 4	Install Occupancy Sensor Lighting Controls	50,693	19.2	0.0	$6,261.36	$142,560.00	$16,520.00	$126,040.00	20.1	51,047
ECM 5	Install High/Low Lighitng Controls	9,002	3.0	0.0	$1,111.93	$19,800.00	$0.00	$19,800.00	17.8	9,065

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. Please see

ECM 4: Install Occupancy Sensor Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
50,693	19.2	0.0	$6,261.36	$142,560.00	$16,520.00	$126,040.00	20.1	51,047

Measure Description

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

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

ECM 5: 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)
9,002	3.0	0.0	$1,111.93	$19,800.00	$0.00	$19,800.00	17.8	9,065

Measure Description

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

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

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

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

4.1.3 Variable Frequency Drive Measures

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

Figure 19 - Summary of Variable Frequency Drive ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
Variable Frequency Drive (VFD) Measures		**12,801**	**0.0**	**0.0**	**$1,581.07**	**$10,142.25**	**$2,400.00**	**$7,742.25**	**4.9**	**12,890**
ECM 6	Install VFDs on Constant Volume (CV) HVAC	12,801	0.0	0.0	$1,581.07	$10,142.25	$2,400.00	$7,742.25	4.9	12,890

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

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
12,801	0.0	0.0	$1,581.07	$10,142.25	$2,400.00	$7,742.25	4.9	12,890

Measure Description

We recommend installing variable frequency drives (VFDs) on supply fan motors in AHUs- 1 & 1C serving the gym and cafeteria respectively. The VFDs would control supply fan motor speeds to convert a constant-volume, single-zone air handling system into a variable-air-volume (VAV) system. A separate VFD is usually required to control the return fan motor or dedicated exhaust fan motor, if the air handler has one. Zone thermostats will cause the VFD to modulate fan speed to maintain the appropriate temperature in the zone, while maintaining a constant supply air temperature. Energy savings results from reducing fan speed (and power) when there is a reduced load required for the zone. The magnitude of energy savings is based on the estimated amount of time that fan motors operate at partial load.

For the air handlers with direct expansion (DX) cooling systems, savings from VFDs are achieved primarily during heating mode, since the fan needs to operate at near full speed during cooling mode to keep the evaporator coil from freezing.

4.1.4 Domestic Hot Water Heating System Upgrades

Our recommendations for domestic water heating system improvements 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)
Domestic Water Heating Upgrade		**0**	**0.0**	**33.7**	**$294.40**	**$150.57**	**$0.00**	**$150.57**	**0.5**	**3,948**
ECM 7	Install Low-Flow Domestic Hot Water Devices	0	0.0	33.7	$294.40	$150.57	$0.00	$150.57	0.5	3,948

ECM 7: Install Low-Flow DHW Devices

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
0	0.0	33.7	$294.40	$150.57	$0.00	$150.57	0.5	3,948

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 can reduce hot water usage, relative to standard aerators, which saves energy.

Low-flow devices reduce the overall water flow from the fixture, while still adequate pressure for washing. This reduces the amount of water used per day resulting in energy and water savings.

4.1.5 Food Service Equipment & Refrigeration Measures

Our recommendations for food service and refrigeration measures are summarized in Figure 21 below.

Figure 21 - Summary of Food Service Equipment & Refrigeration 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)
Food Service Equipment & Refrigeration Measures		**1,368**	**0.0**	**0.0**	**$168.98**	**$1,037.21**	**$100.00**	**$937.21**	**5.5**	**1,378**
ECM 8	Refrigeration Controls	1,368	0.0	0.0	$168.98	$1,037.21	$100.00	$937.21	5.5	1,378

ECM 8: Walk-In Freezer 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)
1,368	0.0	0.0	$168.98	$1,037.21	$100.00	$937.21	5.5	1,378

Measure Description

We recommend the installation of additional controls to optimize the operation of the walk-in freezer.

Many walk-in freezers have continuously operating electric heaters on the doors to prevent condensation formation. This measure adds a control system feature to shut off the door heaters when the humidity level is low enough that condensation will not occur if the heaters are off. This is accomplished by measuring the ambient humidity and temperature of the store, comparing that to the dewpoint, and using pulse width modulation to control the anti-sweat door heaters.

Defrost controllers can be used to override defrost of evaporator fans when the defrost operation is not necessary, reducing annual energy consumption. This measure is applicable to existing evaporator fans with a traditional electric defrost mechanism.

Many walk-in freezers have evaporator fans which run continuously. The measure adds a control system feature to automatically shut off evaporator fans when the cooler's thermostat is not calling for cooling.

Energy savings for each of the control measures account for reduction in compressor and fan operating hours as well as reduction in the refrigeration heat load as appropriate.

4.1.6 Plug Load Equipment Control - Vending Machines

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

Figure 22-Summary of Plug Load Equipment Control ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Plug Load Equipment Control - Vending Machine		**3,566**	**0.0**	**0.0**	**$440.48**	**$690.00**	**$0.00**	**$690.00**	**1.6**	**3,591**
ECM 9	Vending Machine Control	3,566	0.0	0.0	$440.48	$690.00	$0.00	$690.00	1.6	3,591

ECM 9: Vending Machine Control

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
3,566	0.0	0.0	$440.48	$690.00	$0.00	$690.00	1.6	3,591

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. However, as some of the equipment have passed their useful service life, also taking into consideration the operation and maintenance costs, it is likely in the best interest of the school district to replace them prior to a catastrophic failure.

Figure 23 - 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)
Electric Unitary HVAC Measures	**26,604**	**16.2**	**0.0**	**$3,286.02**	**$377,597.25**	**$14,212.50**	**$363,384.75**	**110.6**	**26,790**
Install High Efficiency Electric AC	26,604	16.2	0.0	$3,286.02	$377,597.25	$14,212.50	$363,384.75	110.6	26,790
Gas Heating (HVAC/Process) Replacement	**0**	**0.0**	**356.2**	**$3,110.11**	**$58,467.25**	**$3,200.00**	**$55,267.25**	**17.8**	**41,707**
Install High Efficiency Furnaces	0	0.0	356.2	$3,110.11	$58,467.25	$3,200.00	$55,267.25	17.8	41,707
TOTALS	**26,604**	**16.2**	**356.2**	**$6,396.13**	**$436,064.50**	**$17,412.50**	**$418,652.00**	**65.5**	**68,497**

* - 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 Air Conditioning Units

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)	Estimated Net Cost ($)	Simple Payback Period (yrs)	CO_2e Emissions Reduction (lbs)
26,604	16.2	0.0	$3,286.02	$377,597.25	$14,212.50	$363,384.75	110.6	26,790

Measure Description

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

Reasons for not Recommending

Although the school showed interest in implementing this measure, due to the long payback period, it is not recommended on the basis of energy savings alone. We recommend that high efficiency units be considered when unit replacement is being considered. Packaged AC units at this site are equipped with gas fired furnaces, therefore, this measure and the following can be instituted concurrently, potentially at a lower overall cost than has been conservatively estimated.

Install High Efficiency Furnaces

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	356.2	$3,110.11	$58,467.25	$3,200.00	$55,267.25	17.8	41,707

Measure Description

We recommend replacing existing standard efficiency furnaces with condensing furnaces and replacing the furnaces in the old RTUs with new and more efficient furnaces when replacing the RTUs. Improved combustion technology and heat exchanger design optimize heat recovery from the combustion gases which can significantly improve furnace efficiency. Savings result from improved system efficiency.

Reasons for not Recommending

Although the school showed interest in implementing this measure, due to the long payback period, it is not recommended on the basis of energy savings alone.

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.

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.

Develop a Lighting Maintenance Schedule

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

Ensure Lighting Controls Are Operating Properly

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

Turn Off Unneeded Motors

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

Perform Routine Motor Maintenance

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

Use Fans to Reduce Cooling Load

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

Ensure Economizers are Functioning Properly

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

Clean Evaporator/Condenser Coils on AC Systems

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

Clean and/or Replace HVAC Filters

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

Perform Proper Boiler Maintenance

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

Perform Proper Furnace Maintenance

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

Perform Proper Water Heater Maintenance

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

Perform Maintenance on Compressed Air Systems

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

Plug Load Controls

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

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 gallons per flush (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 4.1.4 for any low-flow ECM recommendations.

Re-Insulate Evaporator Refrigerant Lines in RTUs & DX Units

During the site visit, it was observed that most of the insulation on the evaporator refrigerant lines serving RTUs & DX units on the roof were either partially or completely missing. Due to lack of insulation, the refrigerant liquid going from condenser to evaporator picks up excess heat before reaching the evaporator. This means that more energy is consumed by the system to reject the additional heat picked up by the uninsulated refrigerant line.

It is recommended to re-insulate the exposed evaporator refrigerant lines in these units. This would help achieve significant energy savings.

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.

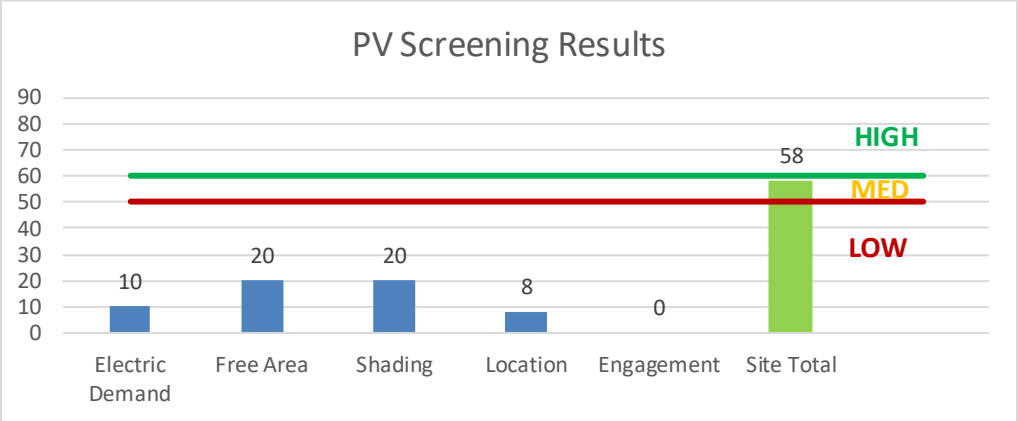
6.1 Photovoltaic

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

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

Figure 24 - Photovoltaic Screening



Potential	Medium	
System Potential	635	kW DC STC
Electric Generation	756,520	kWh/yr
Displaced Cost	$65,820	/yr
Installed Cost	$2,476,500	

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.

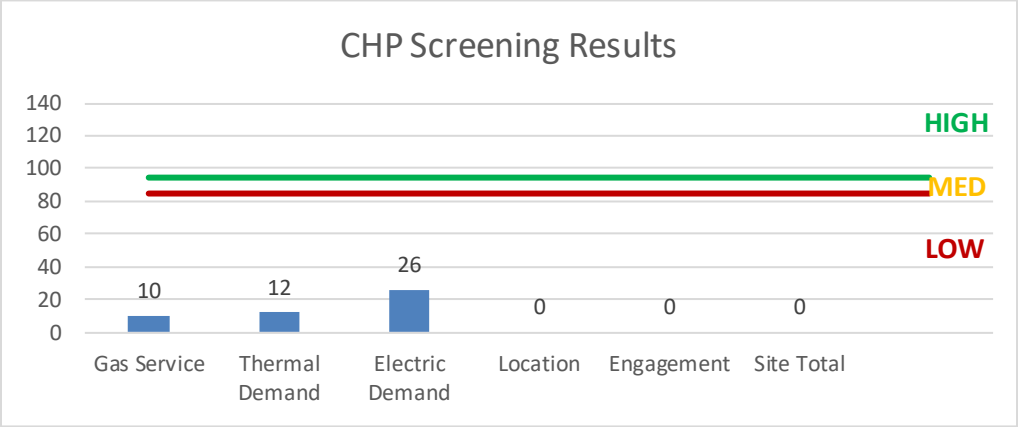
A preliminary screening based on heating and electrical demand, siting, and interconnection shows that the facility has a Low potential for installing a cost-effective CHP system.

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 25 - 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.

Typically, this program is not recommended for schools. but if the facility is interested, we recommend you reach out to a Curtailment Service Provider for more details on this 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 26 for a list of the eligible programs identified for each recommended ECM.

Figure 26 - ECM Incentive Program Eligibility

Energy Conservation Measure		SmartStart Prescriptive	SmartStart Custom	Direct Install	Pay For Performance Existing Buildings	Large Energy Users Program	Combined Heat & Power and Fuel Cell
ECM 1	Install LED Fixtures	X					
ECM 2	Retrofit Fixtures with LED Lamps	X					
ECM 3	Install LED Exit Signs						
ECM 4	Install Occupancy Sensor Lighting Controls	X					
ECM 5	Install High/Low Lighitng Controls	X					
ECM 6	Install VFDs on Constant Volume (CV) HVAC	X					
ECM 7	Install Low-Flow Domestic Hot Water Devices						
ECM 8	Refrigeration Controls	X					
ECM 9	Vending Machine Control						

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

Generally, the incentive values provided throughout the report assume the Smart Start 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 Smart Start prescriptive incentive program provides fixed incentives for specific energy efficiency measures, whereas the custom Smart Start program provides incentives for more unique or specialized technologies or systems that are not addressed through prescriptive incentive offerings for specific devices.

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

How to Participate

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

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

8.2 SREC Registration Program

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

After the registration is accepted, construction is complete, and final paperwork has been submitted and is deemed complete, the project is issued a New Jersey certification number which enables it to generate New Jersey SRECs. 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.

8.3 Energy Savings Improvement Program

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

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

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

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

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Entities should carefully consider all alternatives to develop an approach that best meets their needs. A detailed program 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
Upper Gym Mech Room	3	Incandescent: (1) 150W Lamp Screw-In	Wall Switch	150	756	Relamp	Yes	3	LED Screw-In Lamps: (1) 23W LED Lamp Screw-In	Occupancy Sensor	23	529	0.26	350	0.0	$43.25	$431.26	$50.00	8.82
Room 097B	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	756	0.02	30	0.0	$3.76	$71.80	$10.00	16.44
File Room 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	756	0.06	86	0.0	$10.63	$150.40	$30.00	11.33
File Room 1 (097A)	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	529	0.04	57	0.0	$7.04	$377.70	$15.00	51.53
Classroom 097	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.33	725	0.0	$89.56	$1,242.00	$190.00	11.75
Classroom 097	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Classroom 096	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.33	725	0.0	$89.56	$1,242.00	$190.00	11.75
Classroom 096	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Room 099B	1	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	1,260	Relamp	No	1	LED - Linear Tubes: (4) 2' Lamps	Wall Switch	34	1,260	0.02	42	0.0	$5.19	$76.53	$20.00	10.89
Room 099G	1	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	1,260	Relamp	No	1	LED - Linear Tubes: (4) 2' Lamps	Wall Switch	34	1,260	0.02	42	0.0	$5.19	$76.53	$20.00	10.89
Room 098	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	756	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	756	0.07	97	0.0	$12.03	$190.27	$40.00	12.49
Little Hallway	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	882	0.08	181	0.0	$22.39	$375.50	$30.00	15.43
Little Hallway	2	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.04	685	0.0	$84.61	$215.11	$0.00	2.54
Air Handler Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	756	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	756	0.04	49	0.0	$6.01	$95.13	$20.00	12.49
Air Handler Room	1	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	756	Relamp	No	1	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Wall Switch	16	756	0.00	6	0.0	$0.74	$53.75	$5.00	65.80
Room 099	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.33	725	0.0	$89.56	$1,242.00	$190.00	11.75
Room 099 Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,260	0.04	96	0.0	$11.81	$117.00	$20.00	8.21
Room 099 Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	1,260	Relamp	No	1	LED - Linear Tubes: (4) 2' Lamps	Wall Switch	34	1,260	0.02	42	0.0	$5.19	$76.53	$20.00	10.89
Storage Hallway	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,260	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	882	0.38	851	0.0	$105.09	$1,161.07	$160.00	9.53
Storage Hallway	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Room 099D	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.16	218	0.0	$26.87	$621.00	$95.00	19.58
Room099F	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.38	508	0.0	$62.69	$1,629.00	$245.00	22.08
Room 099C (Boys Team Room)	6	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	1,260	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	882	0.31	690	0.0	$85.26	$840.80	$155.00	8.04
Room 099C (Boys Team Room)	2	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.04	685	0.0	$84.61	$215.11	$0.00	2.54
Stairwell	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.08	254	0.0	$31.35	$375.50	$30.00	11.02

	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
Stairwell	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,764	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	1,764	0.04	114	0.0	$14.03	$95.13	$20.00	5.35
Stairwell	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Cafeteria Hallway	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	1,764	Relamp	No	2	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	1,764	0.02	65	0.0	$8.02	$96.40	$20.00	9.53
Cafeteria Hallway	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.08	254	0.0	$31.35	$375.50	$30.00	11.02
Cafeteria Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
100 Wing Hallway	23	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	23	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.63	1,946	0.0	$240.32	$2,145.50	$230.00	7.97
100 Wing Hallway	7	Compact Fluorescent: (2) 26W CFL Lamps 4-Pin	Wall Switch	52	1,764	Relamp	Yes	7	LED Screw-In Lamps: (2) 18W LED Lamp 4-Pin	High/Low Control	36	1,235	0.12	377	0.0	$46.51	$1,358.34	$0.00	29.20
100 Wing Hallway	2	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.04	685	0.0	$84.61	$215.11	$0.00	2.54
100 Wing Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
300 Wing Hallway	2	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	1,764	Relamp	No	2	LED - Linear Tubes: (4) 2' Lamps	Wall Switch	34	1,764	0.04	118	0.0	$14.53	$153.07	$40.00	7.78
300 Wing Hallway	33	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	33	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.90	2,792	0.0	$344.80	$3,130.50	$330.00	8.12
500 Wing Hallway	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,764	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	1,235	0.14	447	0.0	$55.17	$485.40	$60.00	7.71
500 Wing Hallway	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,764	0.03	100	0.0	$12.40	$75.20	$15.00	4.85
500 Wing Hallway	23	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	23	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.63	1,946	0.0	$240.32	$2,145.50	$230.00	7.97
500 Wing Hallway	1	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	1,764	Relamp	No	1	LED - Linear Tubes: (4) 2' Lamps	Wall Switch	34	1,764	0.02	59	0.0	$7.27	$76.53	$20.00	7.78
500 Wing Hallway	3	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.07	1,028	0.0	$126.92	$322.67	$0.00	2.54
500 Wing Hallway	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
700 Wing Hallway	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.57	1,776	0.0	$219.42	$2,028.50	$210.00	8.29
700 Wing Hallway	9	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,764	None	Yes	9	LED - Linear Tubes: (1) 4' Lamp	High/Low Control	15	1,235	0.03	79	0.0	$9.81	$400.00	$0.00	40.78
700 Wing Hallway	2	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.04	685	0.0	$84.61	$215.11	$0.00	2.54
Stairwell	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.11	338	0.0	$41.79	$434.00	$40.00	9.43
800 Wing Hallway	30	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	30	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.82	2,538	0.0	$313.46	$2,755.00	$300.00	7.83
800 Wing Hallway	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	1,764	0.02	59	0.0	$7.27	$63.20	$0.00	8.70
800 Wing Hallway	4	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	4	LED Exit Signs: 2 W Lamp	None	6	8,760	0.09	1,370	0.0	$169.22	$430.22	$0.00	2.54
600 Wing Hallway	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.22	677	0.0	$83.59	$868.00	$80.00	9.43

	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
600 Wing Hallway	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	20	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	1,235	0.82	2,538	0.0	$313.46	$2,304.00	$300.00	6.39
600 Wing Hallway	6	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	6	LED Exit Signs: 2 W Lamp	None	6	8,760	0.13	2,055	0.0	$253.84	$645.33	$0.00	2.54
Media Center Hallway	3	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,764	None	Yes	3	LED - Linear Tubes: (1) 4' Lamp	High/Low Control	15	1,235	0.01	26	0.0	$3.27	$200.00	$0.00	61.16
Media Center Hallway	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.66	2,030	0.0	$250.76	$2,204.00	$240.00	7.83
Media Center Hallway	2	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	No	2	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Wall Switch	16	1,764	0.01	28	0.0	$3.46	$107.51	$10.00	28.20
Lower Gym Hallway	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.16	508	0.0	$62.69	$551.00	$60.00	7.83
Lower Gym Hallway	11	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,764	None	Yes	11	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.06	194	0.0	$23.98	$400.00	$0.00	16.68
Lower Gym Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	6,132	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	6,132	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
400 Wing Hallway	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	27	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.74	2,284	0.0	$282.11	$2,579.50	$270.00	8.19
200 Wing Hallway	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	1,235	0.25	761	0.0	$94.04	$651.20	$90.00	5.97
200 Wing Hallway	5	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	Yes	5	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	High/Low Control	16	1,235	0.04	119	0.0	$14.70	$468.77	$25.00	30.20
200 Wing Hallway	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.38	1,184	0.0	$146.28	$1,419.00	$140.00	8.74
200 Wing Hallway	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
200 Wing Hallway	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium Hallway	22	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	22	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	1,235	0.90	2,792	0.0	$344.80	$2,454.40	$330.00	6.16
Auditorium Hallway	8	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	Yes	8	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	High/Low Control	16	1,235	0.06	190	0.0	$23.51	$830.02	$40.00	33.60
Auditorium Hallway	4	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	1,764	Relamp	Yes	4	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	1,235	0.06	171	0.0	$21.15	$392.80	$40.00	16.68
Auditorium Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium Lobby	8	LED - Fixtures: Ceiling Mount	Wall Switch	40	1,764	None	No	8	LED - Fixtures: Ceiling Mount	Wall Switch	40	1,764	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium Lobby	13	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	Yes	13	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Occupancy Sensor	16	1,235	0.10	309	0.0	$38.21	$968.79	$65.00	23.65
Auditorium Lobby	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium	30	Halogen Incandescent: (1) 750W Halogen Lamp	Wall Switch	750	250	Relamp	No	30	LED Screw-In Lamps: (1) 113W LED Lamp Screw-In	Wall Switch	113	250	12.54	5,498	0.0	$679.14	$1,612.59	$150.00	2.15
Auditorium	13	Halogen Incandescent: (1) 1000W Halogen Lamp	Wall Switch	1,000	250	Relamp	No	13	LED Screw-In Lamps: (1) 150W LED Lamp Screw-In	Wall Switch	150	250	7.24	3,177	0.0	$392.39	$698.79	$65.00	1.62
Auditorium	8	Halogen Incandescent: (1) 500W Halogen Lamp	Wall Switch	500	250	Relamp	No	8	LED Screw-In Lamps: (1) 75W LED Lamp Screw-In	Wall Switch	75	250	2.23	978	0.0	$120.74	$430.02	$40.00	3.23
Auditorium	5	Halogen Incandescent: (1) 250W Halogen Lamp	Wall Switch	250	250	Relamp	No	5	LED Screw-In Lamps: (1) 38W LED Lamp Screw-In	Wall Switch	38	250	0.70	305	0.0	$37.73	$268.77	$25.00	6.46

	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
900 Wing Hallway	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	1,235	0.37	1,142	0.0	$141.05	$1,076.80	$135.00	6.68
900 Wing Hallway	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Main Hallway	36	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	36	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.98	3,045	0.0	$376.15	$3,306.00	$360.00	7.83
Main Hallway	18	LED - Fixtures: Architectural Flood/Spot Luminaire	Wall Switch	21	1,764	None	No	18	LED - Fixtures: Architectural Flood/Spot Luminaire	Wall Switch	21	1,764	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Hallway	12	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	Yes	12	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	High/Low Control	16	1,235	0.09	286	0.0	$35.27	$1,045.04	$60.00	27.93
Main Hallway	3	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	3	LED Exit Signs: 2 W Lamp	None	6	8,760	0.07	1,028	0.0	$126.92	$322.67	$0.00	2.54
Main Lobby	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,235	0.10	316	0.0	$38.99	$522.80	$0.00	13.41
Main Lobby	15	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	Yes	15	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Occupancy Sensor	16	1,235	0.12	357	0.0	$44.09	$1,616.30	$75.00	34.96
Main Lobby	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Upper Gym Hallway	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	1,235	0.12	381	0.0	$47.02	$425.60	$45.00	8.09
Upper Gym Hallway	2	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.04	685	0.0	$84.61	$215.11	$0.00	2.54
Upper Gym Hallway	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.14	423	0.0	$52.24	$492.50	$50.00	8.47
Upper Gym Hallway	5	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	5	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	1,235	0.13	395	0.0	$48.73	$516.00	$0.00	10.59
Upper Gym Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	6,132	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	6,132	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Upper Gym	40	Metal Halide: (1) 400W MH Lamp	Wall Switch	400	756	Fixture Replacement	Yes	40	LED - Fixtures: Low-Bay	Occupancy Sensor	120	529	8.29	10,989	0.0	$1,357.34	$58,681.00	$6,245.00	38.63
Upper Gym	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 082A	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,764	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,764	0.02	71	0.0	$8.77	$71.80	$10.00	7.05
Room 092 (Aux Gym)	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	27	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.74	2,284	0.0	$282.11	$2,929.50	$445.00	8.81
Room 092 (Aux Gym)	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Storage Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	529	0.12	163	0.0	$20.15	$495.60	$80.00	20.62
Storage Room	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Room 095A (Snack Bar)	3	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	3	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,235	0.08	237	0.0	$29.24	$459.60	$35.00	14.52
Upper Gym Lobby	16	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	Yes	16	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Occupancy Sensor	16	1,235	0.12	381	0.0	$47.03	$1,670.05	$80.00	33.81
Upper Gym Lobby	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boys Restroom	4	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	1,764	Relamp	Yes	4	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	1,235	0.09	285	0.0	$35.23	$516.80	$60.00	12.97

	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
Girls Restroom	4	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	1,764	Relamp	Yes	4	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	1,235	0.09	285	0.0	$35.23	$516.80	$60.00	12.97
Room 095C	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	756	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	756	0.01	14	0.0	$1.72	$48.20	$10.00	22.23
Expo Light	5	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,764	Relamp	Yes	5	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,235	0.07	222	0.0	$27.37	$449.50	$25.00	15.51
Room 087 (Boys Locker Room)	23	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,764	None	Yes	23	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.13	406	0.0	$50.14	$1,080.00	$0.00	21.54
Room 087 (Boys Locker Room)	7	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	7	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 087 (Boys Restroom)	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,764	None	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.02	53	0.0	$6.54	$270.00	$0.00	41.29
Room 087 (Boys Restroom)	6	LED Screw-In Lamps: (1) 9W LED Lamp	Occupancy Sensor	9	1,764	None	No	6	LED Screw-In Lamps: (1) 9W LED Lamp	Occupancy Sensor	9	1,764	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 087A (Caoches Office)	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.08	181	0.0	$22.39	$445.50	$65.00	16.99
Room 087A (Caoches Office)	1	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,260	Relamp	No	1	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Wall Switch	16	1,260	0.00	10	0.0	$1.23	$53.75	$5.00	39.48
Room 081 - Training Offices	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	1,260	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	1,260	0.01	23	0.0	$2.86	$48.20	$10.00	13.34
Room 081 - Training Offices	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.33	725	0.0	$89.56	$1,242.00	$190.00	11.75
Storage Room	11	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	11	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.30	399	0.0	$49.26	$1,183.50	$180.00	20.37
Storage Room	2	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.04	685	0.0	$84.61	$215.11	$0.00	2.54
Storage Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	756	0.03	43	0.0	$5.32	$75.20	$15.00	11.33
Storage Room	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	756	Relamp	No	2	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	756	0.04	50	0.0	$6.23	$126.40	$0.00	20.29
Room 090A	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,764	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,764	0.02	71	0.0	$8.77	$71.80	$10.00	7.05
Stairwell Exit A06	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.08	254	0.0	$31.35	$375.50	$30.00	11.02
Stairwell Exit A06	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	1,764	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	1,764	0.01	32	0.0	$4.01	$48.20	$10.00	9.53
Stairwell Exit A06	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Team Locker Room	6	Linear Fluorescent - T5: 4' T5 (28W) - 4L	Wall Switch	120	1,764	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,235	0.31	966	0.0	$119.37	$840.80	$155.00	5.75
Team Locker Room	2	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.04	685	0.0	$84.61	$215.11	$0.00	2.54
Shower Room	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.38	1,184	0.0	$146.28	$1,629.00	$245.00	9.46
Restroom	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,764	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,235	0.38	1,191	0.0	$147.13	$1,301.07	$160.00	7.76
Restroom	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Room 099D	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.16	363	0.0	$44.78	$621.00	$95.00	11.75

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room 071 (Girls Locker Room)	30	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	30	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.82	1,088	0.0	$134.34	$3,105.00	$300.00	20.88
Room 071 (Girls Shower Room)	16	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	756	Relamp	Yes	16	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Occupancy Sensor	16	529	0.12	163	0.0	$20.15	$1,670.05	$80.00	78.90
Room 071 (Girls Shower Room)	2	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.04	685	0.0	$84.61	$215.11	$0.00	2.54
Room 071 (Girls Restroom)	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.11	145	0.0	$17.91	$504.00	$40.00	25.90
Room 071B (Coaches Offices)	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.22	483	0.0	$59.71	$1,008.00	$150.00	14.37
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.03	36	0.0	$4.48	$328.50	$10.00	71.13
Storage Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	756	0.02	30	0.0	$3.76	$71.80	$10.00	16.44
Lower Gym Hallway	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	529	0.41	544	0.0	$67.17	$1,477.50	$150.00	19.76
Lower Gym Hallway	1	Exit Signs: LED - 2 W Lamp	None	6	2,628	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	2,628	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Lower Gym Hallway	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Room 072 (Storage)	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.25	326	0.0	$40.30	$1,066.50	$90.00	24.23
Room 074 (Fitness Center)	12	Metal Halide: (1) 400W MH Lamp	Wall Switch	400	756	Fixture Replacement	Yes	12	LED - Fixtures: Low-Bay	Occupancy Sensor	120	529	2.49	3,297	0.0	$407.20	$18,927.30	$2,045.00	41.46
Room 074 (Fitness Center)	2	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	2	LED Exit Signs: 2 W Lamp	None	6	8,760	0.04	685	0.0	$84.61	$215.11	$0.00	2.54
Room 073 (Lower Gym)	32	Metal Halide: (1) 400W MH Lamp	Wall Switch	400	756	Fixture Replacement	Yes	32	LED - Fixtures: Low-Bay	Occupancy Sensor	120	529	6.63	8,791	0.0	$1,085.87	$47,322.80	$5,045.00	38.93
Room 073 (Lower Gym)	4	Exit Signs: LED - 2 W Lamp	None	6	6,132	None	No	4	Exit Signs: LED - 2 W Lamp	None	6	6,132	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Cafeteria	71	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,764	Relamp	Yes	71	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,235	3.42	10,572	0.0	$1,305.79	$9,994.47	$1,840.00	6.24
Cafeteria	18	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,764	Relamp	Yes	18	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,235	0.87	2,680	0.0	$331.05	$2,522.40	$465.00	6.21
Cafeteria	1	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	63	1,764	Relamp	No	1	LED - Linear Tubes: (4) 2' Lamps	Wall Switch	34	1,764	0.02	59	0.0	$7.27	$76.53	$20.00	7.78
Cafeteria	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,764	0.04	134	0.0	$16.54	$117.00	$20.00	5.87
Kitchen	22	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	22	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.90	2,792	0.0	$344.80	$2,734.40	$470.00	6.57
Storage	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,764	None	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,764	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 058	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,764	0.04	134	0.0	$16.54	$117.00	$20.00	5.87
Kitchen Hood	8	Incandescent: (1) 60W Incandescent Lamp Screw-In	Wall Switch	60	1,764	Relamp	Yes	8	LED Screw-In Lamps: (1) 9W LED Lamp Screw-In	Occupancy Sensor	9	1,235	0.28	871	0.0	$107.64	$970.02	$110.00	7.99
Kitchen Restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.11	242	0.0	$29.85	$504.00	$40.00	15.54
Kitchen Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	1,260	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	1,260	0.01	23	0.0	$2.86	$48.20	$10.00	13.34

	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
Dishwasher Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.16	363	0.0	$44.78	$621.00	$95.00	11.75
Walk-in Unit	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.08	181	0.0	$22.39	$445.50	$65.00	16.99
Kitchen	6	Incandescent: (1) 250W Incandescent Flood light	Wall Switch	250	1,260	Relamp	Yes	6	LED Screw-In Lamps: (1) 38W LED Lamp Screw-In	Occupancy Sensor	38	882	0.88	1,945	0.0	$240.27	$592.52	$65.00	2.20
Custodian Office	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.16	363	0.0	$44.78	$621.00	$95.00	11.75
Custodian Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,260	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	1,260	0.04	81	0.0	$10.02	$95.13	$20.00	7.50
Restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.05	121	0.0	$14.93	$387.00	$20.00	24.59
Kitchen Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,260	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	1,260	0.07	162	0.0	$20.05	$190.27	$40.00	7.50
Room 058C	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.22	483	0.0	$59.71	$1,008.00	$150.00	14.37
Dressing Room	13	U-Bend Fluorescent - T8: U T8 (32W) - 3L	Occupancy Sensor	92	1,764	Relamp	No	13	LED - Linear Tubes: (3) U-Lamp	Occupancy Sensor	50	1,764	0.36	1,121	0.0	$138.44	$1,038.70	$0.00	7.50
Dressing Room	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,764	Relamp	No	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,764	0.26	803	0.0	$99.22	$601.60	$120.00	4.85
Restroom	2	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Occupancy Sensor	53	1,764	Relamp	No	2	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	1,764	0.04	112	0.0	$13.78	$123.40	$30.00	6.78
Dressing Room	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Dressing Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.11	338	0.0	$41.79	$504.00	$75.00	10.26
Audit Stage	17	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	No	17	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	756	0.37	488	0.0	$60.24	$994.50	$170.00	13.69
Audit Stage	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	756	Relamp	No	10	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	756	0.37	487	0.0	$60.14	$951.33	$200.00	12.49
Audit Stage	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium	72	LED Screw-In Lamps: (1) 28W LED Lamp Screw-In	Wall Switch	28	756	None	No	72	LED Screw-In Lamps: (1) 28W LED Lamp Screw-In	Wall Switch	28	756	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Auditorium	10	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	No	10	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	756	0.11	152	0.0	$18.79	$359.00	$50.00	16.44
Control Room	7	LED Screw-In Lamps: (1) 11W LED Lamp Screw-In	Wall Switch	11	756	None	Yes	7	LED Screw-In Lamps: (1) 11W LED Lamp Screw-In	Occupancy Sensor	11	529	0.02	20	0.0	$2.48	$270.00	$35.00	94.74
Control Room	4	Compact Fluorescent: (1) 13W CFL Lamp 4-Pin	Wall Switch	13	756	Relamp	Yes	4	LED Screw-In Lamps: (1) 9W LED Lamp 4-Pin	Occupancy Sensor	9	529	0.02	23	0.0	$2.85	$543.81	$35.00	178.67
Custodian Storage	14	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	Yes	14	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	529	0.20	266	0.0	$32.85	$1,312.60	$175.00	34.63
Boiler Room	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.25	761	0.0	$94.04	$1,066.50	$160.00	9.64
Boiler Room	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
File Room	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.22	677	0.0	$83.59	$1,008.00	$150.00	10.26

	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
File Room	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boys Restroom	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,764	None	No	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,764	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 053D	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	756	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	756	0.04	49	0.0	$6.01	$95.13	$20.00	12.49
Room 053A	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	756	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	756	0.04	49	0.0	$6.01	$95.13	$20.00	12.49
Girls Restroom	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,764	None	No	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,764	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 020-1 (Guidance Office)	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.41	906	0.0	$111.95	$1,292.00	$220.00	9.58
Room 041	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.03	72	0.0	$8.86	$75.20	$15.00	6.80
Room 040	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 038	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 034	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.16	363	0.0	$44.78	$570.80	$95.00	10.63
Room 037	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 035	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 035B	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 033	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 032	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.03	72	0.0	$8.86	$75.20	$15.00	6.80
Room 031	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 020	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 029	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 028	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 025B	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,260	0.02	48	0.0	$5.91	$58.50	$10.00	8.21
Room 025A	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,260	0.02	48	0.0	$5.91	$58.50	$10.00	8.21
Room 025	2	Linear Fluorescent - T8: 2' T8 (17W) - 3L	Wall Switch	53	1,260	Relamp	No	2	LED - Linear Tubes: (3) 2' Lamps	Wall Switch	26	1,260	0.04	80	0.0	$9.84	$123.40	$30.00	9.49
CST Room	9	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	9	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	882	0.23	507	0.0	$62.66	$1,108.80	$70.00	16.58
CST Room	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 042	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.12	272	0.0	$33.58	$495.60	$80.00	12.37

	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
Conference Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.12	272	0.0	$33.58	$495.60	$80.00	12.37
Room 049	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Room 046	4	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	4	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	882	0.10	225	0.0	$27.85	$522.80	$35.00	17.52
Room 048	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.12	272	0.0	$33.58	$495.60	$80.00	12.37
Faculty Lounge	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	15	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.62	1,360	0.0	$167.92	$1,938.00	$330.00	9.58
Faculty Lounge	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,260	0.04	96	0.0	$11.81	$117.00	$20.00	8.21
Restrooms	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,260	Relamp	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	882	0.05	106	0.0	$13.14	$365.13	$20.00	26.27
Restrooms	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.05	121	0.0	$14.93	$387.00	$20.00	24.59
Room 226	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.41	906	0.0	$111.95	$1,687.50	$255.00	12.80
Room 220	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.27	604	0.0	$74.63	$1,125.00	$170.00	12.80
Room 221	25	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	25	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.68	1,511	0.0	$186.58	$2,812.50	$425.00	12.80
Room 223	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.21	453	0.0	$55.97	$646.00	$110.00	9.58
Room 222	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.21	453	0.0	$55.97	$646.00	$110.00	9.58
Room 224	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	27	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.74	1,631	0.0	$201.51	$2,929.50	$445.00	12.33
Room 225	27	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	27	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.74	1,631	0.0	$201.51	$2,929.50	$445.00	12.33
Stairwell	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,260	0.06	143	0.0	$17.72	$150.40	$30.00	6.80
Stairwell	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,260	0.04	96	0.0	$11.81	$117.00	$20.00	8.21
Room 216	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.11	242	0.0	$29.85	$504.00	$75.00	14.37
Room 214	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	1,260	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,260	0.02	51	0.0	$6.26	$71.80	$10.00	9.87
Room 212	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	756	0.02	30	0.0	$3.76	$71.80	$10.00	16.44
Room 210	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.11	242	0.0	$29.85	$504.00	$75.00	14.37
Room 202	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.41	906	0.0	$111.95	$1,687.50	$255.00	12.80
Room 201	17	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	17	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.70	1,541	0.0	$190.31	$2,358.40	$395.00	10.32
Room 201	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,260	0.04	96	0.0	$11.81	$117.00	$20.00	8.21
Room 204	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.41	906	0.0	$111.95	$1,687.50	$255.00	12.80

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room 206	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.41	906	0.0	$111.95	$1,687.50	$255.00	12.80
Room 208	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.41	906	0.0	$111.95	$1,687.50	$255.00	12.80
Room 207	20	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	20	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.82	1,813	0.0	$223.90	$2,584.00	$440.00	9.58
Room 207A	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.12	272	0.0	$33.58	$495.60	$80.00	12.37
Room 205	15	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	15	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.62	1,360	0.0	$167.92	$1,938.00	$330.00	9.58
Room 205A	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.16	363	0.0	$44.78	$621.00	$95.00	11.75
Room 203A	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.16	363	0.0	$44.78	$570.80	$95.00	10.63
Room 203A	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	18	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.74	1,631	0.0	$201.51	$2,163.60	$375.00	8.88
Stairwell	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.08	254	0.0	$31.35	$375.50	$30.00	11.02
Boys Restroom	3	Compact Fluorescent: (2) 26W CFL Lamps 4-Pin	Occupancy Sensor	52	1,764	Relamp	Yes	3	LED Screw-In Lamps: (2) 18W LED Lamp 4-Pin	Occupancy Sensor	36	1,235	0.05	161	0.0	$19.93	$680.72	$0.00	34.15
Stairwell	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	1,235	0.37	1,142	0.0	$141.05	$1,076.80	$135.00	6.68
Stairwell	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Utility Closet	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	756	0.02	29	0.0	$3.54	$58.50	$10.00	13.69
Girls Restroom	2	Compact Fluorescent: (2) 26W CFL Lamps 4-Pin	Occupancy Sensor	52	1,764	Relamp	Yes	2	LED Screw-In Lamps: (2) 18W LED Lamp 4-Pin	Occupancy Sensor	36	1,235	0.03	108	0.0	$13.29	$543.81	$0.00	40.92
Room 401	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,520	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,764	0.49	2,175	0.0	$268.68	$1,863.00	$285.00	5.87
Room 402	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,520	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,764	0.66	2,900	0.0	$358.23	$2,484.00	$380.00	5.87
Room 403	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,520	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,764	0.66	2,900	0.0	$358.23	$2,484.00	$380.00	5.87
Room 409	40	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	40	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	1.09	2,417	0.0	$298.53	$4,230.00	$645.00	12.01
Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.16	363	0.0	$44.78	$570.80	$95.00	10.63
Room 408	36	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	36	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.98	2,175	0.0	$268.68	$3,726.00	$570.00	11.75
Room 408B	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	756	0.02	30	0.0	$3.76	$71.80	$10.00	16.44
Room 406	36	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	36	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.98	2,175	0.0	$268.68	$3,726.00	$570.00	11.75
Room 405	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.22	483	0.0	$59.71	$1,008.00	$150.00	14.37
Room 407	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.49	1,088	0.0	$134.34	$1,863.00	$285.00	11.75
Room 407A	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,260	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	882	0.16	363	0.0	$44.78	$570.80	$95.00	10.63

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room 406W	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,764	0.02	67	0.0	$8.27	$58.50	$10.00	5.87
Room 406W	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	1,764	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	1,764	0.01	32	0.0	$4.01	$48.20	$10.00	9.53
Room 406B	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	756	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	756	0.04	49	0.0	$6.01	$95.13	$20.00	12.49
Room 406M	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	33	1,764	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	1,764	0.01	32	0.0	$4.01	$48.20	$10.00	9.53
Room 406M	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,764	0.04	134	0.0	$16.54	$117.00	$20.00	5.87
Room 406A	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	None	62	8,760	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	6,132	0.14	2,100	0.0	$259.44	$562.50	$85.00	1.84
Room 600	24	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,764	Relamp	Yes	24	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,235	1.15	3,574	0.0	$441.39	$3,363.20	$620.00	6.21
Room 803	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.66	2,030	0.0	$250.76	$2,484.00	$380.00	8.39
Room 601	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.22	677	0.0	$83.59	$1,008.00	$150.00	10.26
Room 603	6	Compact Fluorescent: (2) 26W CFL Lamps 4-Pin	Occupancy Sensor	52	1,235	Relamp	Yes	6	LED Screw-In Lamps: (2) 18W LED Lamp 4-Pin	Occupancy Sensor	36	864	0.10	226	0.0	$27.91	$1,091.44	$35.00	37.85
Room 602	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,235	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	864	0.08	178	0.0	$21.94	$445.50	$65.00	17.34
Room 604	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.66	2,030	0.0	$250.76	$2,484.00	$380.00	8.39
Room 606	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 608	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 610	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 612	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 617	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.41	1,269	0.0	$156.73	$1,687.50	$255.00	9.14
Room 615	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.57	1,776	0.0	$219.42	$2,308.50	$350.00	8.93
Room 613	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 619	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.16	508	0.0	$62.69	$570.80	$95.00	7.59
Room 611	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 609	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.57	1,776	0.0	$219.42	$2,308.50	$350.00	8.93
Room 612	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.33	1,015	0.0	$125.38	$1,141.60	$190.00	7.59
Room 607	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 605	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,260	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	882	0.19	425	0.0	$52.55	$650.53	$115.00	10.19

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room 802	15	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,260	Relamp	Yes	15	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	882	0.72	1,595	0.0	$197.05	$2,237.00	$405.00	9.30
Room 802A	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.16	218	0.0	$26.87	$621.00	$95.00	19.58
Boys Restroom	4	Compact Fluorescent: (2) 26W CFL Lamps 4-Pin	Occupancy Sensor	52	1,764	Relamp	Yes	4	LED Screw-In Lamps: (2) 18W LED Lamp 4-Pin	Occupancy Sensor	36	1,235	0.07	215	0.0	$26.58	$817.62	$0.00	30.76
Mens Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,764	Relamp	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,235	0.05	149	0.0	$18.39	$365.13	$20.00	18.77
Womens Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,764	Relamp	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,235	0.05	149	0.0	$18.39	$365.13	$20.00	18.77
Girls Restroom	5	Compact Fluorescent: (2) 26W CFL Lamps 4-Pin	Occupancy Sensor	52	1,764	Relamp	Yes	5	LED Screw-In Lamps: (2) 18W LED Lamp 4-Pin	Occupancy Sensor	36	1,235	0.09	269	0.0	$33.22	$954.53	$0.00	28.73
Room 804	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.49	1,523	0.0	$188.07	$1,442.40	$250.00	6.34
Room 806	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.33	1,015	0.0	$125.38	$1,242.00	$190.00	8.39
Room 806A (Green House)	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	529	0.25	326	0.0	$40.30	$721.20	$125.00	14.79
Room 808	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	Yes	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	529	0.57	761	0.0	$94.04	$1,862.80	$315.00	16.46
Room 806A (Green House)	4	Linear Fluorescent - T8: 8' T8 (59W) - 2L	Wall Switch	110	756	Relamp	Yes	4	LED - Linear Tubes: (2) 8' Lamps	Occupancy Sensor	72	529	0.16	207	0.0	$25.60	$710.00	$35.00	26.37
Room 810	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 812	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 814	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 816	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 807	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	16	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.66	2,030	0.0	$250.76	$2,013.20	$345.00	6.65
Room 805A	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.33	1,015	0.0	$125.38	$1,141.60	$190.00	7.59
Room 805	24	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	1,764	Relamp	No	24	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,764	0.78	2,410	0.0	$297.67	$1,804.80	$360.00	4.85
Room 805	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 809	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	756	0.06	86	0.0	$10.63	$150.40	$30.00	11.33
Fire Stairwell	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.14	423	0.0	$52.24	$492.50	$50.00	8.47
Room 512	30	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	30	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.82	2,538	0.0	$313.46	$3,105.00	$475.00	8.39
Room 510	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.08	254	0.0	$31.35	$445.50	$65.00	12.14
Room 508	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.19	592	0.0	$73.14	$949.50	$140.00	11.07
Room 506	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.66	2,030	0.0	$250.76	$2,484.00	$380.00	8.39

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room 506	14	LED Screw-In Lamps: (1) 9W LED Lamp	Wall Switch	9	1,764	None	Yes	14	LED Screw-In Lamps: (1) 9W LED Lamp	Occupancy Sensor	9	1,235	0.02	77	0.0	$9.47	$810.00	$105.00	74.44
Room 506	7	LED - Fixtures: Architectural Flood/Spot Luminaire	Wall Switch	11	1,764	None	No	7	LED - Fixtures: Architectural Flood/Spot Luminaire	Wall Switch	11	1,764	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 517	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 519	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.16	508	0.0	$62.69	$570.80	$95.00	7.59
Room 515	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 513	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 511	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 509	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.57	1,776	0.0	$219.42	$2,308.50	$350.00	8.93
Room 507	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 521	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.25	761	0.0	$94.04	$721.20	$125.00	6.34
Room 504	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 505	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	756	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	756	0.04	49	0.0	$6.01	$95.13	$20.00	12.49
Room 502	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,764	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,235	0.14	447	0.0	$55.17	$555.40	$95.00	8.34
Stairwell	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.11	338	0.0	$41.79	$434.00	$40.00	9.43
Stairwell	1	Exit Signs: Incandescent	None	40	8,760	Fixture Replacement	No	1	LED Exit Signs: 2 W Lamp	None	6	8,760	0.02	343	0.0	$42.31	$107.56	$0.00	2.54
Room 503	6	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	Yes	6	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	529	0.09	114	0.0	$14.08	$485.40	$65.00	29.86
Elevator Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	756	0.02	29	0.0	$3.54	$58.50	$10.00	13.69
Room 501 (Office)	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,260	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	882	0.33	725	0.0	$89.56	$1,242.00	$190.00	11.75
Room 500	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.66	2,030	0.0	$250.76	$2,484.00	$380.00	8.39
Security Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,764	0.04	134	0.0	$16.54	$117.00	$20.00	5.87
Stairwell	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,235	0.08	254	0.0	$31.35	$375.50	$30.00	11.02
Stairwell	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Storage Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	756	0.02	30	0.0	$3.76	$71.80	$10.00	16.44
Room 705A	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.08	109	0.0	$13.43	$445.50	$65.00	28.32
Room 701A	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	756	0.02	30	0.0	$3.76	$71.80	$10.00	16.44

	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
Boys Restroom	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,764	None	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.02	71	0.0	$8.72	$270.00	$0.00	30.96
Room 703	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.66	2,030	0.0	$250.76	$2,484.00	$380.00	8.39
Girls Restroom	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,764	None	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.03	88	0.0	$10.90	$270.00	$0.00	24.77
Room 702	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.57	1,776	0.0	$219.42	$2,308.50	$350.00	8.93
Room 702A	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.16	218	0.0	$26.87	$621.00	$95.00	19.58
Room 705	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.49	1,523	0.0	$188.07	$1,442.40	$250.00	6.34
Room 704A	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	529	0.16	218	0.0	$26.87	$621.00	$95.00	19.58
Room 704	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.57	1,776	0.0	$219.42	$2,308.50	$350.00	8.93
Room 706	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.57	1,776	0.0	$219.42	$2,308.50	$350.00	8.93
Room 708	20	Compact Fluorescent: (2) 26W CFL Lamps 4-Pin	Occupancy Sensor	52	1,764	Relamp	Yes	20	LED Screw-In Lamps: (2) 18W LED Lamp 4-Pin	Occupancy Sensor	36	1,235	0.35	1,076	0.0	$132.90	$3,818.12	$140.00	27.68
Room 710	20	Compact Fluorescent: (2) 26W CFL Lamps 4-Pin	Occupancy Sensor	52	1,764	Relamp	Yes	20	LED Screw-In Lamps: (2) 18W LED Lamp 4-Pin	Occupancy Sensor	36	1,235	0.35	1,076	0.0	$132.90	$3,818.12	$140.00	27.68
Room 712	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 714	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.55	1,692	0.0	$208.97	$2,250.00	$340.00	9.14
Room 711	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.21	634	0.0	$78.36	$646.00	$110.00	6.84
Room 709	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	1,764	0.02	59	0.0	$7.27	$63.20	$0.00	8.70
Room 709	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	16	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.66	2,030	0.0	$250.76	$2,013.20	$345.00	6.65
Room 709A	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	756	0.03	43	0.0	$5.32	$75.20	$15.00	11.33
Room 707	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	1,764	0.02	59	0.0	$7.27	$63.20	$0.00	8.70
Room 707	16	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	16	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.66	2,030	0.0	$250.76	$2,013.20	$345.00	6.65
Room 707A	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	756	0.03	43	0.0	$5.32	$75.20	$15.00	11.33
Room 715	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	529	0.21	272	0.0	$33.58	$646.00	$110.00	15.96
Room 309	5	Linear Fluorescent - T8: 8' T8 (59W) - 2L	Wall Switch	110	756	Relamp	Yes	5	LED - Linear Tubes: (2) 8' Lamps	Occupancy Sensor	72	529	0.20	259	0.0	$32.00	$820.00	$35.00	24.53
Mens Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.03	85	0.0	$10.45	$328.50	$10.00	30.48
Mens Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	1,764	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	1,235	0.01	43	0.0	$5.29	$318.20	$10.00	58.30
Closet	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	756	0.04	57	0.0	$7.09	$117.00	$20.00	13.69

	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
Womens Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.03	85	0.0	$10.45	$328.50	$10.00	30.48
Womens Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	33	1,764	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	1,235	0.01	43	0.0	$5.29	$318.20	$10.00	58.30
Room 311	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.11	338	0.0	$41.79	$504.00	$75.00	10.26
Room 306	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Utility Closet	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	756	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	756	0.04	57	0.0	$7.09	$117.00	$20.00	13.69
Room 305	24	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.66	2,030	0.0	$250.76	$2,484.00	$380.00	8.39
Room 304	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 303	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 302	14	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	14	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.57	1,776	0.0	$219.42	$1,862.80	$315.00	7.05
Room 301	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 307	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.25	761	0.0	$94.04	$721.20	$125.00	6.34
Girls Restroom	2	Compact Fluorescent: (2) 26W CFL Lamps 4-Pin	Occupancy Sensor	52	1,764	Relamp	Yes	2	LED Screw-In Lamps: (2) 18W LED Lamp 4-Pin	Occupancy Sensor	36	1,235	0.03	108	0.0	$13.29	$543.81	$0.00	40.92
Room 312A	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,764	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	1,764	0.04	114	0.0	$14.03	$95.13	$20.00	5.35
Boys Restroom	3	Compact Fluorescent: (2) 26W CFL Lamps 4-Pin	Occupancy Sensor	52	1,764	Relamp	Yes	3	LED Screw-In Lamps: (2) 18W LED Lamp 4-Pin	Occupancy Sensor	36	1,235	0.05	161	0.0	$19.93	$680.72	$0.00	34.15
Room 121	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	7	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.29	888	0.0	$109.71	$1,066.40	$175.00	8.13
Room 123	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.33	1,015	0.0	$125.38	$1,141.60	$190.00	7.59
Room 120	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,764	0.06	201	0.0	$24.81	$150.40	$30.00	4.85
Room 120E	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	529	0.16	218	0.0	$26.87	$570.80	$95.00	17.71
Room 122	8	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.33	1,015	0.0	$125.38	$1,141.60	$190.00	7.59
Room 122	3	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	Yes	3	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Occupancy Sensor	16	1,235	0.02	71	0.0	$8.82	$431.26	$15.00	47.21
Room 124	37	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	37	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	1.52	4,695	0.0	$579.89	$4,672.40	$800.00	6.68
Room 122A	4	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	Yes	4	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Occupancy Sensor	16	1,235	0.03	95	0.0	$11.76	$485.01	$20.00	39.55
Room 125	39	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	39	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	1.60	4,949	0.0	$611.24	$4,822.80	$830.00	6.53
Room 125	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 124	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room 125A	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.12	381	0.0	$47.02	$495.60	$80.00	8.84
Utility Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	2,520	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,764	0.11	483	0.0	$59.71	$504.00	$75.00	7.19
Room 116	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	756	0.01	15	0.0	$1.88	$35.90	$5.00	16.44
Room 115	2	LED Screw-In Lamps: (1) 9W LED Lamp	Wall Switch	9	756	None	No	2	LED Screw-In Lamps: (1) 9W LED Lamp	Wall Switch	9	756	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 114	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	756	0.01	15	0.0	$1.88	$35.90	$5.00	16.44
Room 113	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	529	0.12	163	0.0	$20.15	$495.60	$80.00	20.62
Room 102	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.41	1,269	0.0	$156.73	$1,687.50	$255.00	9.14
Room 101	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.37	1,142	0.0	$141.05	$1,216.80	$205.00	7.17
Room 104	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.41	1,269	0.0	$156.73	$1,687.50	$255.00	9.14
Room 106	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.41	1,269	0.0	$156.73	$1,687.50	$255.00	9.14
Room 108	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.41	1,269	0.0	$156.73	$1,687.50	$255.00	9.14
Room 111	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.37	1,142	0.0	$141.05	$1,216.80	$205.00	7.17
Room 109	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,235	0.49	1,523	0.0	$188.07	$1,863.00	$285.00	8.39
Room 105	22	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	22	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.90	2,792	0.0	$344.80	$2,734.40	$470.00	6.57
Room 105	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	62	1,764	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	1,764	0.02	59	0.0	$7.27	$63.20	$0.00	8.70
Room 105	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 103	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,235	0.49	1,523	0.0	$188.07	$1,442.40	$250.00	6.34
Room 110	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	756	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	529	0.25	326	0.0	$40.30	$721.20	$125.00	14.79
Room 112	8	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	32	756	Relamp	Yes	8	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	529	0.11	152	0.0	$18.77	$827.20	$110.00	38.21
BOE Reception	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,764	0.06	201	0.0	$24.81	$150.40	$30.00	4.85
BOE Reception	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
BOE Entrance	4	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	Yes	4	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Occupancy Sensor	16	1,235	0.03	95	0.0	$11.76	$485.01	$20.00	39.55
BOE Entrance	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,764	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,764	0.03	100	0.0	$12.40	$75.20	$15.00	4.85
BOE Reception	4	Compact Fluorescent: (1) 23W CFL Lamp Screw-In	Wall Switch	23	1,764	Relamp	Yes	4	LED Screw-In Lamps: (1) 16W LED Lamp Screw-In	Occupancy Sensor	16	1,235	0.03	95	0.0	$11.76	$485.01	$20.00	39.55

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
Roof	Fume hoods & Exhaust Fans Throughout Building	29	Exhaust Fan	0.3	78.0%	No	1,922	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Restroom and Hallway Exhaust Fans Throughout Building	19	Exhaust Fan	0.3	78.0%	No	1,922	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Custodian Restroom (EF3)	1	Exhaust Fan	0.5	78.0%	No	1,922	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Kitchen (EF 2 & EF 1)	2	Kitchen Hood Exhaust Fan	2.0	84.0%	No	5,250	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	200 Wing Hallway (EF 17)	1	Exhaust Fan	0.8	78.0%	No	1,922	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	500-600 Wing Hallway (EF 56 & 57)	2	Exhaust Fan	1.5	84.0%	No	1,922	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	500-600 Wing Hallway (EF 54 & 55)	2	Exhaust Fan	1.5	84.0%	No	1,922	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	500-600 Restrooms (EF 46 & 47)	2	Exhaust Fan	0.5	78.0%	No	1,922	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	500-600 Restrooms (EF 43 & 44)	2	Exhaust Fan	0.5	78.0%	No	1,922	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	800 Wing Hallway	1	Exhaust Fan	0.8	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 804 (EF 49)	1	Exhaust Fan	0.8	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Storage Room	1	Exhaust Fan	0.8	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 808 & 804 (Fume Hoods)	2	Exhaust Fan	0.8	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	250 Wing Hallway (EF 26)	1	Exhaust Fan	0.5	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Restroom (EF 4)	1	Exhaust Fan	0.8	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	400 Wing Hallways (EF 5 & 6)	2	Exhaust Fan	0.5	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Media Center Restrooms (EF 8 & 19)	2	Exhaust Fan	0.5	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Girls Locker Room and Gym Office (EF 36 & 37)	2	Exhaust Fan	1.5	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Fitness Room (EF 40)	1	Exhaust Fan	1.5	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Upper Gym (EF 10, 11, 12 & no nameplate)	4	Exhaust Fan	1.5	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00

		Existing Conditions						Proposed Conditions				Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Annual Operating Hours	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical Room	Upper Gym Air Handler (AHU 1)	1	Supply Fan	20.0	91.0%	No	2,035	No	91.0%	Yes	1	0.00	8,073	0.0	$997.14	$6,334.30	$1,600.00	4.75
Mechanical Room	Upper Gym Air Handler (AHU 1)	3	Exhaust Fan	2.0	86.0%	No	1,647	No	86.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Mechanical Room	Girls Locker Room	1	Supply Fan	3.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Mechanical Room	Boys Locker Room	1	Supply Fan	3.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Mechanical Room	Team Room	1	Supply Fan	5.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Cafeteria	Cafeteria	1	Heating Hot Water Pump	0.8	75.5%	No	2,745	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Cafeteria	Cafeteria (AHU-1C)	1	Supply Fan	10.0	91.7%	No	2,035	No	91.7%	Yes	1	0.00	4,728	0.0	$583.94	$3,807.95	$800.00	5.15
Dishwasher Room	Cafeteria	1	Other	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	Heating Hot Water Loop	4	Heating Hot Water Pump	25.0	93.6%	Yes	4,067	No	93.6%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	Boiler Room	2	Other	1.0	82.5%	No	2,745	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Boiler Room	Air Compressor	2	Air Compressor	2.0	84.0%	No	4,957	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Elevator Room	Elevator	1	Other	20.0	93.0%	No	3,391	No	93.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 905	Wood Shop	1	Exhaust Fan	2.0	84.0%	No	1,647	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 905	Wood Shop	2	Other	1.5	84.0%	No	2,745	No	84.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 904	Wood Shop	1	Air Compressor	5.0	89.5%	No	2,479	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Throughout School	Univents	38	Supply Fan	0.1	78.0%	No	1,647	No	78.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Music Room (RTU)	1	Supply Fan	3.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Music Room (AHU)	1	Exhaust Fan	1.5	86.5%	No	1,647	No	86.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Fitness Room (RTU)	1	Supply Fan	5.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Fitness Room (AHU)	1	Exhaust Fan	5.0	89.5%	No	1,647	No	89.5%	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	Gym (RTU)	1	Supply Fan	5.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Gym (AHU)	1	Exhaust Fan	5.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	300-400 Hallways	1	Supply Fan	5.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Rooms (RTU-1)	2	Supply Fan	5.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Rooms (RTU-1)	2	Exhaust Fan	2.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Library (RTU)	1	Supply Fan	15.0	93.0%	No	2,035	No	93.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Library (RTU)	2	Other	1.0	85.5%	No	1,647	No	85.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	BOE Office (RTU- AC-1)	2	Supply Fan	5.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	BOE Office (RTU- AC-1)	1	Exhaust Fan	1.0	82.5%	No	1,647	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	BOE Office (RTU- AC-1)	4	Other	0.8	75.5%	No	1,647	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	1	Supply Fan	5.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	1	Exhaust Fan	2.0	82.5%	No	1,647	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms	3	Other	0.8	75.5%	No	1,647	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Guidance (RTU-1)	1	Supply Fan	3.6	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Guidance (RTU-1)	1	Other	0.8	75.5%	No	1,647	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Rooms (RTU-1)	2	Supply Fan	5.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Rooms (RTU-1)	2	Exhaust Fan	2.0	82.5%	No	1,647	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Rooms (RTU-1)	2	Other	2.0	82.5%	No	1,647	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	100 Wing Art Room (RTU-2)	1	Supply Fan	10.0	91.7%	No	2,035	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	100 Wing Art Room (RTU-2)	1	Exhaust Fan	2.0	82.5%	No	1,647	No	82.5%	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	100 Wing Art Room (RTU-2)	3	Other	0.8	75.5%	No	1,647	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	200 Wing Classrooms (RTU-04)	1	Supply Fan	5.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	200 Wing Classrooms (RTU-04)	1	Exhaust Fan	3.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	200 Wing Classrooms (RTU-04)	3	Other	0.8	75.5%	No	1,647	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	200 Wing Classrooms (RTU-05)	1	Supply Fan	3.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	200 Wing Classrooms (RTU-05)	1	Exhaust Fan	3.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	200 Wing Classrooms (RTU-05)	2	Other	0.8	75.5%	No	1,647	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 403 (AC-3)	1	Supply Fan	2.0	82.5%	No	1,647	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 403 (AC-3)	1	Other	0.8	75.5%	No	1,647	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 816 (RTU-10)	1	Supply Fan	3.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 816 (RTU-10)	1	Exhaust Fan	2.0	82.5%	No	1,647	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 816 (RTU-10)	2	Other	0.8	75.5%	No	1,647	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room (RTU-09)	1	Supply Fan	7.5	91.7%	No	2,035	No	91.7%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room (RTU-09)	1	Other	0.8	75.5%	No	1,647	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms 800 Wing (RTU-08)	1	Supply Fan	3.0	89.5%	No	1,647	No	89.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms 800 Wing (RTU-08)	1	Exhaust Fan	2.0	82.5%	No	1,647	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classrooms 800 Wing (RTU-08)	2	Other	0.8	75.5%	No	1,647	No	75.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Library RTU	1	Supply Fan	15.0	93.0%	No	2,035	No	93.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Library RTU	2	Other	1.0	82.5%	No	1,647	No	82.5%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Auditorium CU	8	Other	1.0	82.5%	No	1,647	No	82.5%	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	BOE Office (RTU- AC-1)	1	Packaged AC	30.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classroomsd	1	Packaged AC	25.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof (Old unit)	Server Room	1	Split-System AC	2.00		Yes	1	Split-System AC	2.00		14.00		No	0.09	145	0.0	$17.92	$2,992.44	$184.00	156.75
Roof	Guidance (RTU-1)	1	Packaged AC	10.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Special Services (RTU-6)	1	Packaged AC	7.50		Yes	1	Packaged AC	7.50		11.50		No	0.24	391	0.0	$48.33	$13,365.79	$547.50	265.21
Roof	Main Office (RTU-2)	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof (Old unit)	Security Office	1	Split-System AC	2.00		Yes	1	Split-System AC	2.00		14.00		No	0.09	145	0.0	$17.92	$2,992.44	$184.00	156.75
Roof	Nurse Office	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Conference Room	1	Packaged AC	5.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Faculty Lounge (RTU-3)	1	Packaged AC	7.67		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof (Old unit)	Server Room (100 Wing)	1	Split-System AC	2.00		Yes	1	Split-System AC	2.00		14.00		No	0.09	145	0.0	$17.92	$2,992.44	$184.00	156.75
Roof	Rooms (RTU-1)	1	Packaged AC	40.00		Yes	1	Packaged AC	40.00		9.50		No	0.00	0	0.0	$0.00	$88,638.87	$0.00	0.00
Roof	100 Wing Art Room (RTU-2)	1	Packaged AC	25.00		Yes	1	Packaged AC	25.00		10.50		No	2.02	3,308	0.0	$408.62	$42,184.98	$1,975.00	98.40
Roof	Room 103	1	Split-System AC	1.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof (Old unit)	Offices (RTU-03)	1	Packaged AC	6.00		Yes	1	Packaged AC	6.00		11.50		No	0.58	955	0.0	$117.91	$10,692.63	$438.00	86.97
Roof	200 Wing Classrooms (RTU-04)	1	Packaged AC	25.00		Yes	1	Packaged AC	25.00		10.50		No	2.02	3,308	0.0	$408.62	$42,184.98	$1,975.00	98.40
Roof	200 Wing Classrooms (RTU-05)	1	Packaged AC	20.00		Yes	1	Packaged AC	20.00		10.50		No	1.61	2,647	0.0	$326.90	$33,747.98	$1,580.00	98.40
Roof	Fashion Office	1	Split-System AC	1.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Offices (AHUCU-02)	1	Split-System AC	2.00		Yes	1	Split-System AC	2.00		14.00		No	0.09	145	0.0	$17.92	$2,992.44	$184.00	156.75
Roof	Room 403 (AC-3)	1	Packaged AC	8.00		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 (Old unit)	Offices (RTU-12)	1	Packaged AC	3.00		Yes	1	Packaged AC	3.00		14.00		No	0.69	1,131	0.0	$139.75	$6,806.88	$276.00	46.73
Roof (Old unit)	Little Theatre (AHUCU 01)	1	Split-System AC	2.50		Yes	1	Split-System AC	2.50		14.00		No	0.52	847	0.0	$104.59	$3,740.55	$230.00	33.57
Roof (Old unit)	Little Theatre (ACCU 03)	1	Split-System AC	5.00		Yes	1	Split-System AC	5.00		14.00		No	0.48	786	0.0	$97.05	$7,481.10	$460.00	72.35
Roof (Old unit)	Little Theatre (ACCU 02)	1	Split-System AC	5.00		Yes	1	Split-System AC	5.00		14.00		No	0.48	786	0.0	$97.05	$7,481.10	$460.00	72.35
Roof (Old unit)	Little Theatre (ACCU 01)	1	Split-System AC	5.00		Yes	1	Split-System AC	5.00		14.00		No	0.48	786	0.0	$97.05	$7,481.10	$460.00	72.35
Roof	Main Server Room	1	Split-System Air-Source HP	6.00	6.75	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Office	1	Split-System AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	IT Office	1	Packaged AC	6.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 816 (RTU-10)	1	Packaged AC	15.00		Yes	1	Packaged AC	15.00		11.50		No	2.21	3,625	0.0	$447.71	$20,907.75	$1,185.00	44.05
Roof	Room (RTU-09)	1	Packaged AC	10.00		Yes	1	Packaged AC	10.00		11.50		No	0.32	522	0.0	$64.44	$17,821.06	$730.00	265.21
Roof	Classrooms 800 Wing (RTU-08)	1	Packaged AC	15.00		Yes	1	Packaged AC	15.00		11.50		No	2.21	3,625	0.0	$447.71	$20,907.75	$1,185.00	44.05
Roof	Room 802	2	Split-System AC	3.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Athletics Secretary Offices	2	Split-System Air-Source HP	1.50	1.50	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Music Room	1	Split-System AC	1.50		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof (Old unit)	Library	1	Packaged AC	25.00		Yes	1	Packaged AC	25.00		10.50		No	2.02	3,308	0.0	$408.62	$42,184.98	$1,975.00	98.40
Room 401	Room 401	1	Window AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 402	Room 402	1	Window AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 403	Room 403	1	Window AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 803	Room 803	1	Window AC	1.26		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
Room 802	Room 802	1	Window AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 501	Room 501	1	Window AC	0.67		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 311	Room 311	1	Window AC	0.67		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Room 305	Room 305	1	Window AC	2.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Ground Floor	Room 006	1	Split-System Air-Source HP	3.00	3.00	No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Ground Floor	Auditorium	1	Split-System AC	80.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Ground Floor	Stage	1	Split-System AC	10.00		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
Roof	300-400 Hallways	1	Furnace	300.00	Yes	1	Furnace	300.00	95.00%	AFUE	0.00	0	45.0	$392.91	$6,797.20	$400.00	16.28
Boiler Room	Heating Hot Water Loop	6	Condensing Hot Water Boiler	399.99	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Greenhouse Room 806A	Greenhouse Room 806A	1	Furnace	100.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Greenhouse Room 806A	Greenhouse Room 806A	1	Furnace	80.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	BOE Office (RTU- AC-1)	1	Furnace	437.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Classroomsd	1	Furnace	389.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Guidance (RTU-1)	1	Furnace	160.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Main Office (RTU-2)	1	Furnace	64.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Nurse Office	1	Furnace	51.20	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Conference Room	1	Furnace	76.80	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Rooms (RTU-1)	1	Furnace	635.00	Yes	1	Furnace	635.00	95.00%	AFUE	0.00	0	84.8	$740.42	$14,387.41	$400.00	18.89
Roof	100 Wing Art Room (RTU-2)	1	Furnace	219.00	Yes	1	Furnace	219.00	95.00%	AFUE	0.00	0	30.0	$261.94	$4,961.96	$400.00	17.42
Roof	200 Wing Classrooms (RTU-04)	1	Furnace	389.00	Yes	1	Furnace	389.00	95.00%	AFUE	0.00	0	53.6	$468.00	$8,813.70	$400.00	17.98
Roof	200 Wing Classrooms (RTU-05)	1	Furnace	316.00	Yes	1	Furnace	316.00	95.00%	AFUE	0.00	0	43.6	$380.69	$7,159.72	$400.00	17.76
Roof	Room 403 (AC-3)	1	Furnace	146.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	IT Office	1	Furnace	76.80	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Roof	Room 816 (RTU-10)	1	Furnace	219.00	Yes	1	Furnace	219.00	95.00%	AFUE	0.00	0	30.0	$261.94	$4,961.96	$400.00	17.42
Roof	Classrooms 800 Wing (RTU-08)	1	Furnace	219.00	Yes	1	Furnace	219.00	95.00%	AFUE	0.00	0	30.0	$261.94	$4,961.96	$400.00	17.42
Roof	Library	1	Furnace	283.50	Yes	1	Furnace	283.50	95.00%	AFUE	0.00	0	39.2	$342.27	$6,423.35	$400.00	17.60

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	Throughout Building	3	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
Restrooms	10	Faucet Aerator (Lavatory)	2.20	1.00	0.00	0	15.7	$137.46	$71.70	$0.00	0.52
Restrooms	7	Faucet Aerator (Lavatory)	2.50	1.00	0.00	0	13.8	$120.28	$50.19	$0.00	0.42
Kitchen	4	Faucet Aerator (Kitchen)	3.00	2.20	0.00	0	4.2	$36.66	$28.68	$0.00	0.78

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	1	Medium Temp Freezer (0F to 30F)	No	Yes	No	0.00	684	0.0	$84.49	$518.60	$50.00	5.55
Kitchen	1	Medium Temp Freezer (0F to 30F)	No	Yes	No	0.00	684	0.0	$84.49	$518.60	$50.00	5.55
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
095-A	1	Stand-Up Refrigerator, Glass Door (31 - 50 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Cafeteria	1	Stand-Up Refrigerator, Glass Door (31 - 50 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Cafeteria	1	Stand-Up Refrigerator, Glass Door (16 - 30 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Cafeteria	2	Stand-Up Refrigerator, Glass Door (31 - 50 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Cafeteria	2	Stand-Up Refrigerator, Glass Door (31 - 50 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	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
Dishwasher Room	1	Stand-Up Refrigerator, Solid Door (31 - 50 cu. ft.)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

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
Room 081	1	Self-Contained Unit (≥175 lbs/day), Batch	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	1	Self-Contained Unit (≥175 lbs/day), Batch	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Cooking Equipment Inventory & Recommendations

	Existing Conditions			Proposed Conditions	Energy Impact & Financial Analysis						
Location	Quantity	Equipment Type	High Efficiency Equipement?	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	2	Insulated Food Holding Cabinet (Full 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	1	Electric Griddle (3 Feet Width)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	1	Electric Convection Oven (Half Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	1	Gas Convection Oven (Full Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	1	Gas Convection Oven (Full Size)	Yes	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Kitchen	3	Electric Steamer	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
Dishwasher Room	1	Single Tank Conveyor (High Temp)	Electric	N/A	No	No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Plug Load Inventory

	Existing Conditions			
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?
Throughout Building	21	Microwave	1,000.0	Yes
Throughout Building	76	Printer	200.0	Yes
Throughout Building	7	Wall TV	50.0	Yes
Throughout Building	17	Refrigerator	153.0	Yes
Throughout Building	2	Old TV	120.0	No
Throughout Building	1	Washing Machine	900.0	Yes
Throughout Building	2	Dryer Machine	5,000.0	Yes
Throughout Building	13	Coffee Machine	900.0	Yes
Throughout Building	12	Toaster	850.0	Yes
Throughout Building	7	Water Cooler	92.0	Yes
Throughout Building	9	Copy Machine	600.0	Yes
Throughout Building	60	Computers	150.0	Yes

Vending Machine Inventory & Recommendations

	Existing Conditions		Proposed Conditions	Energy Impact & Financial Analysis						
Location	Quantity	Vending Machine Type	Install Controls?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Cafeteria	1	Refrigerated	Yes	0.00	1,612	0.0	$199.09	$230.00	$0.00	1.16
Cafeteria	1	Non-Refrigerated	Yes	0.00	343	0.0	$42.31	$230.00	$0.00	5.44
Faculty Lounge	1	Refrigerated	Yes	0.00	1,612	0.0	$199.09	$230.00	$0.00	1.16

Appendix B: ENERGY STAR® Statement of Energy Performance

ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

51

ENERGY STAR® Score[1]

Indian Hills High School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 240,320
Built: 1964

For Year Ending: September 30, 2017
Date Generated: September 24, 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
Indian Hills High School 97 Yawpo Ave Oakland, New Jersey 07436	Ramapo Indian Hills Regional High School District 131 Yawpo Avenue Oakland, NJ 07436 (____)____-_____	Frank Ceurvels 131 Yawpo Avenue Oakland, NJ 07436 201-416-8100 fceurvels@rih.org

Property ID: 6452426

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
67.1 kBtu/ft²

Source EUI
123.1 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	7,218,023 (45%)
Natural Gas (kBtu)	8,915,390 (55%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	68.1
National Median Source EUI (kBtu/ft²)	124.7
% Diff from National Median Source EUI	-1%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,205

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)