



# Local Government Energy Audit Report

1969 Plainfield High School

January 13, 2023

*Prepared for:*

Plainfield Board of Education  
950 Park Avenue  
Plainfield, New Jersey 07060

*Prepared by:*

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# Disclaimer

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The goal of this audit report is to identify potential energy efficiency opportunities and help prioritize specific measures for implementation. Most energy conservation measures have received preliminary analysis of feasibility that identifies expected ranges of savings and costs. This level of analysis is usually considered sufficient to establish a basis for further discussion and to help prioritize energy measures.

TRC reviewed the energy conservation measures and estimates of energy savings for technical accuracy. Actual, achieved energy savings depend on behavioral factors and other uncontrollable variables and, therefore, estimates of final energy savings are not guaranteed. TRC and the New Jersey Board of Public Utilities (NJBPU) shall in no event be liable should the actual energy savings vary.

TRC bases estimated material and labor costs primarily on RS Means cost manuals as well as on our experience at similar facilities. This approach is based on standard cost estimating manuals and is vendor neutral. Cost estimates include material and labor pricing associated with one for one equipment replacements. Cost estimates do not include demolition or removal of hazardous waste. The actual implementation costs for energy savings projects are anticipated to be significantly higher based on the specific conditions at your site(s). We strongly recommend that you work with your design engineer or contractor to develop actual project costs for your specific scope of work for the installation of high efficiency equipment. We encourage you to obtain multiple estimates when considering measure installations. Actual installation costs can vary widely based on selected products and installers. TRC and NJBPU do not guarantee cost estimates and shall in no event be held liable should actual installed costs vary from these material and labor estimates.

Incentive values provided in this report are estimated based of previously run state efficiency programs. Incentive levels are not guaranteed. The NJBPU reserves the right to extend, modify, or terminate programs without prior notice. Please review all available utility program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

The customer and their respective contractor(s) are responsible to implement energy conservation measures in complete conformance with all applicable local, state, and federal requirements.

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## ENERGY EFFICIENCY INCENTIVE & REBATE TRANSITION

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For the purposes of your LGEA, estimated incentives and rebates are included as placeholders for planning purposes. New Jersey utilities are rolling out their own energy efficiency programs, which your project may be eligible for depending on individual measures, quantities, and size of the building.

In 2018, Governor Murphy signed into law the landmark legislation known as the [Clean Energy Act](#). The law called for a significant overhaul of New Jersey's clean energy systems by building sustainable infrastructure in order to fight climate change and reduce carbon emissions, which will in turn create well-paying local jobs, grow the state's economy, and improve public health while ensuring a cleaner environment for current and future residents.

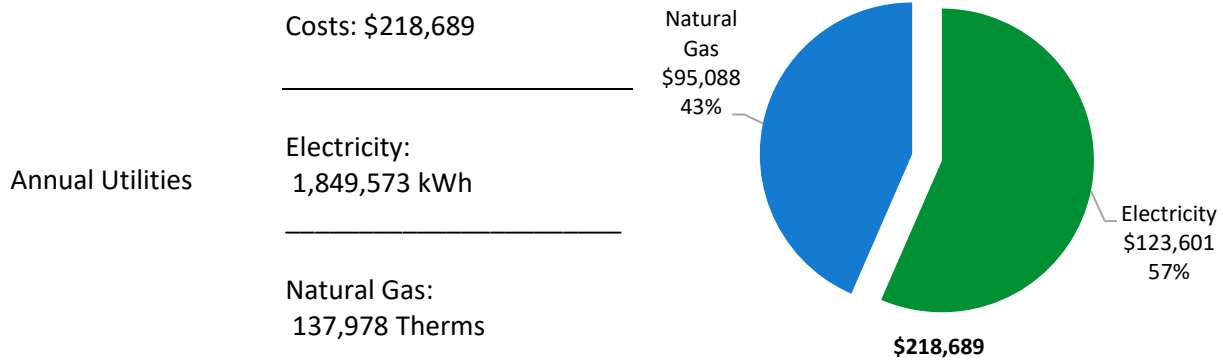
These next generation energy efficiency programs feature new ways of managing and delivering programs historically administered by New Jersey's Clean Energy Program™ (NJCEP). All of the investor-owned gas and electric utility companies will now also offer complementary energy efficiency programs and incentives directly to customers like you. NJCEP will still offer programs for new construction, renewable energy, the Energy Savings Improvement Program (ESIP), and large energy users.

New utility programs are under development. Keep up to date with developments by visiting the [NJCEP website](#).

# 1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBP) has sponsored this Local Government Energy Audit (LGEA) report for 1969 Plainfield High School. This report provides you with information about your facility's energy use, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help make changes in your facility. TRC conducted this study as part of a comprehensive effort to assist New Jersey school districts and local governments in controlling their energy costs and to help protect our environment by reducing statewide energy consumption.

## BUILDING PERFORMANCE REPORT



ENERGY STAR® Benchmarking Score 68  
*(1-100 scale)*

Congratulations, your building performs better than the national average. This report has suggestions about how to keep your building running efficiently, further improve performance, and lower your energy bills even more.

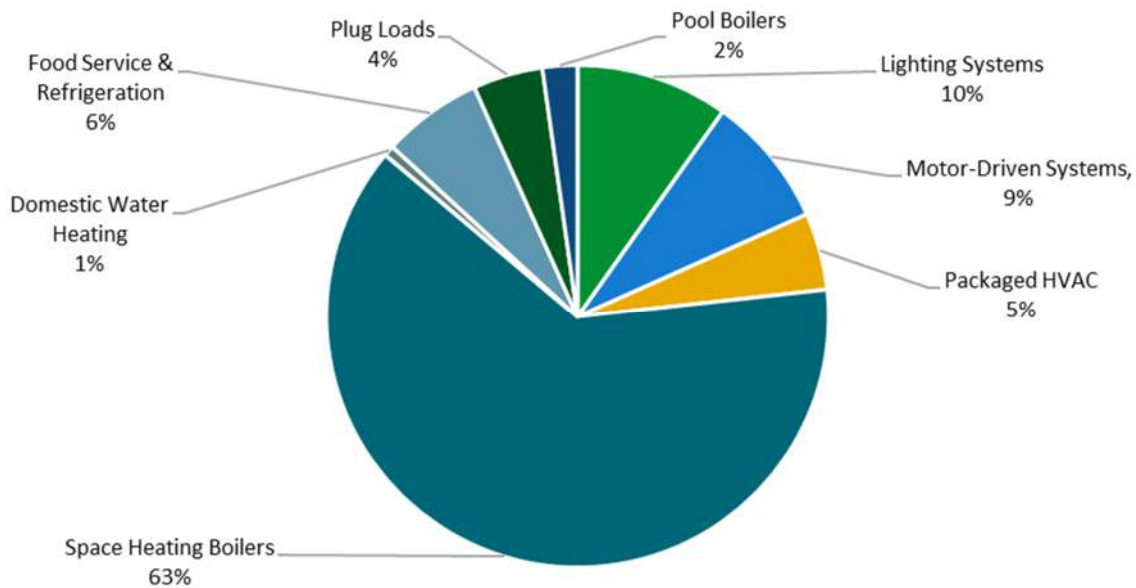


Figure 1 - Energy Use by System

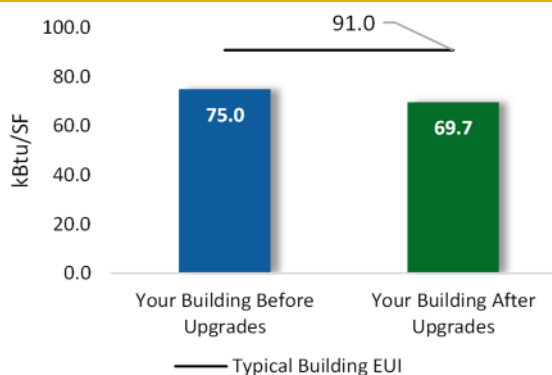
## POTENTIAL IMPROVEMENTS



This energy audit considered a range of potential energy improvements in your building. Costs and savings will vary between improvements. Presented below are two potential scopes of work for your consideration.

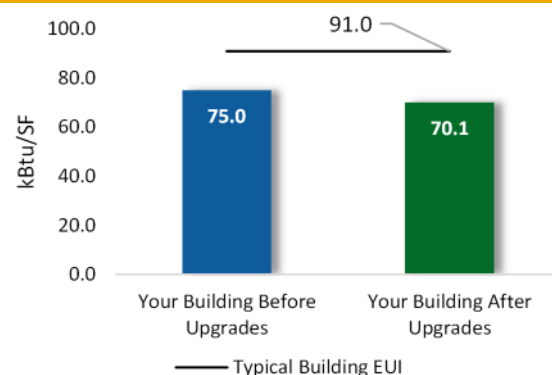
### Scenario 1: Full Package (All Evaluated Measures)

Installation Cost	\$183,874
Potential Rebates & Incentives <sup>1</sup>	\$39,134
Annual Cost Savings	\$27,745
Annual Energy Savings	Electricity: 416,705 kWh Natural Gas: -148 Therms
Greenhouse Gas Emission Savings	209 Tons
Simple Payback	5.2 Years
Site Energy Savings (All Utilities)	7%



### Scenario 2: Cost Effective Package<sup>2</sup>

Installation Cost	\$147,464
Potential Rebates & Incentives	\$34,019
Annual Cost Savings	\$25,633
Annual Energy Savings	Electricity: 385,096 kWh Natural Gas: -148 Therms
Greenhouse Gas Emission Savings	193 Tons
Simple Payback	4.4 Years
Site Energy Savings (all utilities)	6%



### On-site Generation Potential

Photovoltaic	Medium
Combined Heat and Power	None

<sup>1</sup> Incentives are based on previously run state rebate programs. Contact your utility provider for current program incentives that may apply.

<sup>2</sup> A cost-effective measure is defined as one where the simple payback does not exceed two-thirds of the expected proposed equipment useful life. Simple payback is based on the net measure cost after potential incentives.

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>307,158</b>	<b>53.8</b>	<b>-64</b>	<b>\$20,088</b>	<b>\$85,445</b>	<b>\$22,740</b>	<b>\$62,705</b>	<b>3.1</b>	<b>301,862</b>
ECM 1	Install LED Fixtures	Yes	1,927	0.0	0	\$129	\$891	\$200	\$691	5.4	1,941
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	606	0.2	0	\$40	\$444	\$55	\$389	9.8	595
ECM 3	Retrofit Fixtures with LED Lamps	Yes	304,624	53.6	-63	\$19,920	\$84,110	\$22,485	\$61,625	3.1	299,326
<b>Lighting Control Measures</b>			<b>71,330</b>	<b>11.3</b>	<b>-15</b>	<b>\$4,664</b>	<b>\$58,953</b>	<b>\$10,770</b>	<b>\$48,183</b>	<b>10.3</b>	<b>70,083</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	64,528	10.3	-13	\$4,219	\$49,728	\$5,940	\$43,788	10.4	63,399
ECM 5	Install High/Low Lighting Controls	Yes	6,802	1.0	-1	\$445	\$9,225	\$4,830	\$4,395	9.9	6,683
<b>Motor Upgrades</b>			<b>837</b>	<b>0.2</b>	<b>0</b>	<b>\$56</b>	<b>\$3,043</b>	<b>\$0</b>	<b>\$3,043</b>	<b>54.4</b>	<b>843</b>
ECM 6	Premium Efficiency Motors	No	837	0.2	0	\$56	\$3,043	\$0	\$3,043	54.4	843
<b>Unitary HVAC Measures</b>			<b>30,772</b>	<b>12.5</b>	<b>0</b>	<b>\$2,056</b>	<b>\$33,367</b>	<b>\$5,115</b>	<b>\$28,252</b>	<b>13.7</b>	<b>30,987</b>
ECM 7	Install High Efficiency Air Conditioning Units	No	30,772	12.5	0	\$2,056	\$33,367	\$5,115	\$28,252	13.7	30,987
<b>HVAC System Improvements</b>			<b>0</b>	<b>0.0</b>	<b>60</b>	<b>\$414</b>	<b>\$1,044</b>	<b>\$290</b>	<b>\$754</b>	<b>1.8</b>	<b>7,032</b>
ECM 8	Install Pipe Insulation	Yes	0	0.0	60	\$414	\$1,044	\$290	\$754	1.8	7,032
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>4</b>	<b>\$25</b>	<b>\$182</b>	<b>\$19</b>	<b>\$163</b>	<b>6.5</b>	<b>426</b>
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	4	\$25	\$182	\$19	\$163	6.5	426
<b>Food Service &amp; Refrigeration Measures</b>			<b>6,609</b>	<b>0.8</b>	<b>0</b>	<b>\$442</b>	<b>\$1,840</b>	<b>\$200</b>	<b>\$1,640</b>	<b>3.7</b>	<b>6,655</b>
ECM 10	Vending Machine Control	Yes	6,609	0.8	0	\$442	\$1,840	\$200	\$1,640	3.7	6,655
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>385,096</b>	<b>65.9</b>	<b>-15</b>	<b>\$25,633</b>	<b>\$147,464</b>	<b>\$34,019</b>	<b>\$113,445</b>	<b>4.4</b>	<b>386,057</b>
<b>TOTALS (ALL MEASURES)</b>			<b>416,705</b>	<b>78.5</b>	<b>-15</b>	<b>\$27,745</b>	<b>\$183,874</b>	<b>\$39,134</b>	<b>\$144,740</b>	<b>5.2</b>	<b>417,887</b>

\* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

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

Figure 2 – Evaluated Energy Improvements

For more detail on each evaluated energy improvement and a break out of cost-effective improvements, see **Section 4: Energy Conservation Measures**.



## 1.1 Planning Your Project

Careful planning makes for a successful energy project. When considering this scope of work, you will have some decisions to make, such as:

- ◆ How will the project be funded and/or financed?
- ◆ Is it best to pursue individual ECMs, groups of ECMs, or use a comprehensive approach where all ECMs are installed together?
- ◆ Are there other facility improvements that should happen at the same time?

### Pick Your Installation Approach

Utility-run energy efficiency programs, such as New Jersey's Clean Energy Programs, give you the flexibility to do a little or a lot. Rebates, incentives, and financing are available to help reduce both your installation costs and your energy bills. If you are planning to take advantage of these programs, make sure to review incentive program guidelines before proceeding. This is important because in most cases you will need to submit applications for the incentives *before* purchasing materials or starting installation.

For details on these programs please visit [New Jersey's Clean Energy Program website](#) or contact your utility provider.



## **Options from Around the State**

### *Financing and Planning Support with the Energy Savings Improvement Program (ESIP)*

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the 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. You have already taken the first step as an LGEA customer, because this report is required to participate in ESIP.

### *Resiliency with Return on Investment through Combined Heat and Power (CHP)*

The CHP program provides incentives for combined heat and power (i.e., cogeneration) and waste heat to power projects. Combined heat and power systems generate power on-site and recover heat from the generation system to meet on-site thermal loads. Waste heat to power systems use waste heat to generate power. You will work with a qualified developer who will design a system that meets your building's heating and cooling needs.

### *Successor Solar Incentive Program (SuSI)*

New Jersey is committed to supporting solar energy. Solar projects help the state reach the renewable goals outlined in the state's Energy Master Plan. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available, but certified solar projects are able to earn one SREC II (Solar Renewable Energy Certificates II) for each megawatt-hour of solar electricity produced from a qualifying solar facility.

### *Ongoing Electric Savings with Demand Response*

The Demand Response Energy Aggregator program reduces 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. By enabling commercial facilities to reduce electric demand 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 demand response (DR) programs. Program participation is voluntary, and facilities receive payments regardless of whether they are called upon to curtail their load during times of peak demand.

### *Large Energy User Program (LEUP)*

LEUP designed to promote self-investment in energy efficiency and combined heat and power or fuel cell projects. It incentivizes owners/users of buildings to upgrade or install energy conserving measures in existing buildings to help offset the capital costs associated with the project. The efficiency upgrades are customized to meet the requirements of the customers' existing facilities, while advancing the State's energy efficiency, conservation, and greenhouse gas reduction goals.

## 2 EXISTING CONDITIONS

The New Jersey Board of Public Utilities (NJBP) has sponsored this Local Government Energy Audit (LGEA) Report for 1969 Plainfield High School. This report provides information on how your facility uses energy, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help you implement the ECMs.

TRC conducted this study as part of a comprehensive effort to assist New Jersey educational and local government facilities in controlling energy costs and protecting our environment by offering a wide range of energy management options and advice.

### 2.1 Site Overview

On July 29, 2022, TRC performed an energy audit at 1969 Plainfield High School located in Plainfield, New Jersey. TRC met with facility staff to review the facility operations and help focus our investigation on specific energy-using systems.

1969 Plainfield High School is a two-story, 268,185 square foot building built in 1969. Spaces include classrooms, gymnasium, auditorium, offices, cafeteria, corridors, stairwells, commercial kitchen, and mechanical space. There is a heated pool with a dedicated boiler.

### 2.2 Building Occupancy

The facility is occupied year-round. Typical weekday occupancy is 229 staff and 1326 students.

Summer occupancy includes a summer school and continuing maintenance activities.

Building Name	Weekday/Weekend	Operating Schedule
1969 High School	Weekday	6:30 AM - 11:30 PM
	Weekend	Varied

Figure 3 - Building Occupancy Schedule

### 2.3 Building Envelope

Building walls are concrete block over structural steel with a stone facade. The roof is flat and covered with black membrane, and it is in good condition. A few older roof sections have not been replaced and are in poor condition.



Flat Roof



Interior Structure



Building Exterior

Most of the windows are double glazed and have aluminum frames with a thermal break. The glass-to-frame seals are in fair condition. The operable window weather seals are in fair condition, showing little evidence of excessive wear. Exterior doors have aluminum frames and are in fair condition with undamaged door seals. Degraded window and door seals increase drafts and outside air infiltration.



*Windows*



*Windows and Exterior Doors*



*Exterior Doors*

## 2.4 Lighting Systems

The primary interior lighting system uses 32-Watt linear fluorescent T8 lamps. There are also several 34-Watt T12 fixtures. Typically, T8 fluorescent lamps use electronic ballasts and T12 fluorescent lamps use magnetic ballasts. Additionally, there are compact fluorescent lamps and LED lamps and fixtures.

Fixture types include 2-lamp, 3-lamp, or 4-lamp, 2-foot or 4-foot-long recessed troffer, pendant mount, and surface mount fixtures and 2-foot fixtures with linear T-12 lamps.

Most fixtures are in fair condition. Gymnasium fixtures have manually controlled high bay, high HO linear fluorescent lamps. Auditorium fixtures have LED lamps and are manually controlled. All exit signs are LED. Interior lighting levels were generally sufficient. Most interior lighting fixtures are controlled by occupancy sensors and the remainder manually controlled.



*Classroom*



*Gymnasium*



*Dining Light Fixtures*

Exterior fixtures include wall packs, canopy lights, and LED pole top and wall pack fixtures. A few fixtures incorporate less efficient compact fluorescent, incandescent, or high-pressure sodium lamps.

Exterior light fixtures are controlled by a time clock, switch, or photocell, depending on the fixture.



*Canopy*



*Wall Pack*



*Pole Top Light Fixtures*

## 2.5 Air Handling Systems

### Unit Ventilators

Unit ventilators are equipped with supply fan motors and pneumatically controlled outside air dampers and fan coil valves connected to the distribution system. They provide heating and ventilation to classrooms. This system is original to the building and appears to be in fair operating condition.



*Unit ventilator interior components*

### Unitary Electric HVAC Equipment

Classrooms and offices are cooled by window or portable air conditioning (AC) units. These vary in capacity between 0.5 tons and 3-tons. The units are in fair condition. They range in efficiency between 9 EER to 12 EER. A few of them are ENERGY STAR® labeled. A couple of offices are cooled with a 1.5-ton ductless mini split system. They are mainly in poor condition.



*Window AC Unit*



*Ductless Mini-split Condensing Units*



*Ductless Mini-split Condensing Unit*

### Unitary Heating Equipment

Storage areas are heated by electric resistance heaters. These vary in capacity between 750-Watt and 1000-Watt. The units are in fair condition. Equipment is controlled by a manual dial thermostat.



*Electric Resistance Heater*



*Electric Resistance Heater*

### Air Handling Units (AHUs)

Large spaces, including the gym, library, kitchen, cafeteria, and auditorium, are conditioned by air-handling units which are equipped with a supply fan and hot water coil. While most of the units are used for heating and ventilation, a few, including the auditorium and cafeteria, are configured as split systems with DX coils for cooling. The units have supply fans ranging in size from 0.5 hp to 25 hp. The units are equipped with different types of controls. Most are controlled by pneumatics while a few are controlled digitally.



*Air Handling Units (AHUs)*

## 2.6 Heating Hot Water Systems

Six Aerco 3,000 MBh hot water boilers serve the building's heating load with a nominal efficiency of 87%. The boilers are configured in an automated control scheme. Multiple boilers are required under high load conditions. Installed in 2012, they are in fair condition. The hydronic distribution system is a two-pipe heating-only system.

The boilers are configured with primary-secondary distribution loops under an automated control scheme. Primary flow is provided by two, 25 hp constant speed controlled hot water pumps while two, 20 hp variable pumps circulate hot water between the boilers and the primary loop. The boilers provide hot water to fin tube radiators, unit ventilators, fan coil units, and AHUs throughout the building.

There is 80 feet of 1-inch supply and/or return pipe with no insulation that should be added.

The site is equipped with two gas-fired pool boilers and miscellaneous pool circulation, filtration, and treatment equipment.



*Boilers*



*Heating Hot Water Pumps*



*Expansion Tanks*

## 2.7 Domestic Hot Water

Hot water is produced by three Aerco 1,104 MBh condensing hot water boilers. The boilers operate in tandem, serving the same loop. However, each is set at different temperature.

Two, 1/6 hp circulation pumps distribute water to end uses. The circulation pumps operate continuously.

The domestic hot water pipes are insulated.



*Hot Water Boilers*



*DHW Circulation Pumps*

## 2.8 Food Service Equipment

The kitchen has a mix of gas and electric equipment that is used to prepare meals, for students and staff throughout the district. Most cooking is done using a gas-fired ovens. Bulk prepared foods are held in several electric holding cabinets. Most equipment is not high efficiency and is in fair condition. The dishwasher is an ENERGY STAR® high temperature, rack type unit.

Visit [https://www.energystar.gov/products/commercial\\_food\\_service\\_equipment](https://www.energystar.gov/products/commercial_food_service_equipment) for the latest information on high efficiency food service equipment.



*Oven*



*Oven*



*Dishwasher*

## 2.9 Refrigeration

The kitchen has several stand-up refrigerators with either solid or glass doors. There is a freezer chest as well as many refrigerator chests. The equipment is a mix of standard and high efficiency, and mostly in fair condition.

The walk-in refrigerators have an estimated 0.16-ton compressor located outside, and a two-fan evaporator. The walk-in medium temperature and low temperature freezer both have 0.2-ton compressors located outside, and a two-fan evaporator.

Visit [https://www.energystar.gov/products/commercial\\_food\\_service\\_equipment](https://www.energystar.gov/products/commercial_food_service_equipment) for the latest information on high efficiency food service equipment.



*Stand up Refrigerators*



*Walk-in Refrigerators/freezer*



*Walk-in Refrigerators/freezer*

## 2.10 Plug Load and Vending Machines

You may wish to consider paying particular attention to minimizing your plug load usage. This report makes suggestions for ECMs in this area as well as energy efficient best practices.

There are 224 computer workstations throughout the facility. Plug loads throughout the building include general cafe and office equipment. There are classroom typical loads such as smartboards, projectors, and fans.



There are several residential-style refrigerators throughout the building. These vary in condition and efficiency. There are four refrigerated beverage vending machines and four non-refrigerated vending machines. Vending machines are not equipped with occupancy-based controls.



*Printer*



*Laptop Charging Station*



*Kiln*

## 2.11 Water-Using Systems

There are 29 restrooms with toilets and sinks. Faucet flow rates are at 0.5 gallons per minute (gpm) or higher. Girl's and boy's locker rooms are frequently used. The showerheads are rated at 1.5 gallons per minute (gpm).



*Restroom Sink*



*Utility Sink*



*Water Fountain*

## 2.12 On-Site Generation

1969 Plainfield High School has an 883-kW photovoltaic (PV) array with approximately 3,800 panels. This system provides approximately 33% of the electricity used.

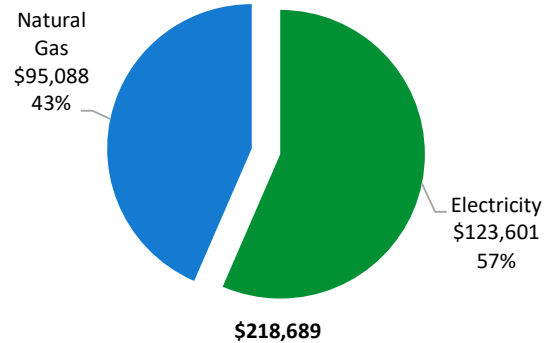


*Solar arrays*

### 3 ENERGY USE AND COSTS

Twelve months of utility billing data are used to develop annual energy consumption and cost data. This information creates a profile of the annual energy consumption and energy costs.

Utility Summary		
Fuel	Usage	Cost
Electricity	1,849,573 kWh	\$123,601
Natural Gas	137,978 Therms	\$95,088
<b>Total</b>		<b>\$218,689</b>



An energy balance identifies and quantifies energy use in your various building systems. This can highlight areas with the most potential for improvement. This energy balance was developed using calculated energy use for each of the end uses noted in the figure.

The energy auditor collects information regarding equipment operating hours, capacity, efficiency, and other operational parameters from facility staff, drawings, and on-site observations. This information is used as the inputs to calculate the existing conditions energy use for the site. The calculated energy use is then compared to the historical energy use and the initial inputs are revised, as necessary, to balance the calculated energy use to the historical energy use.

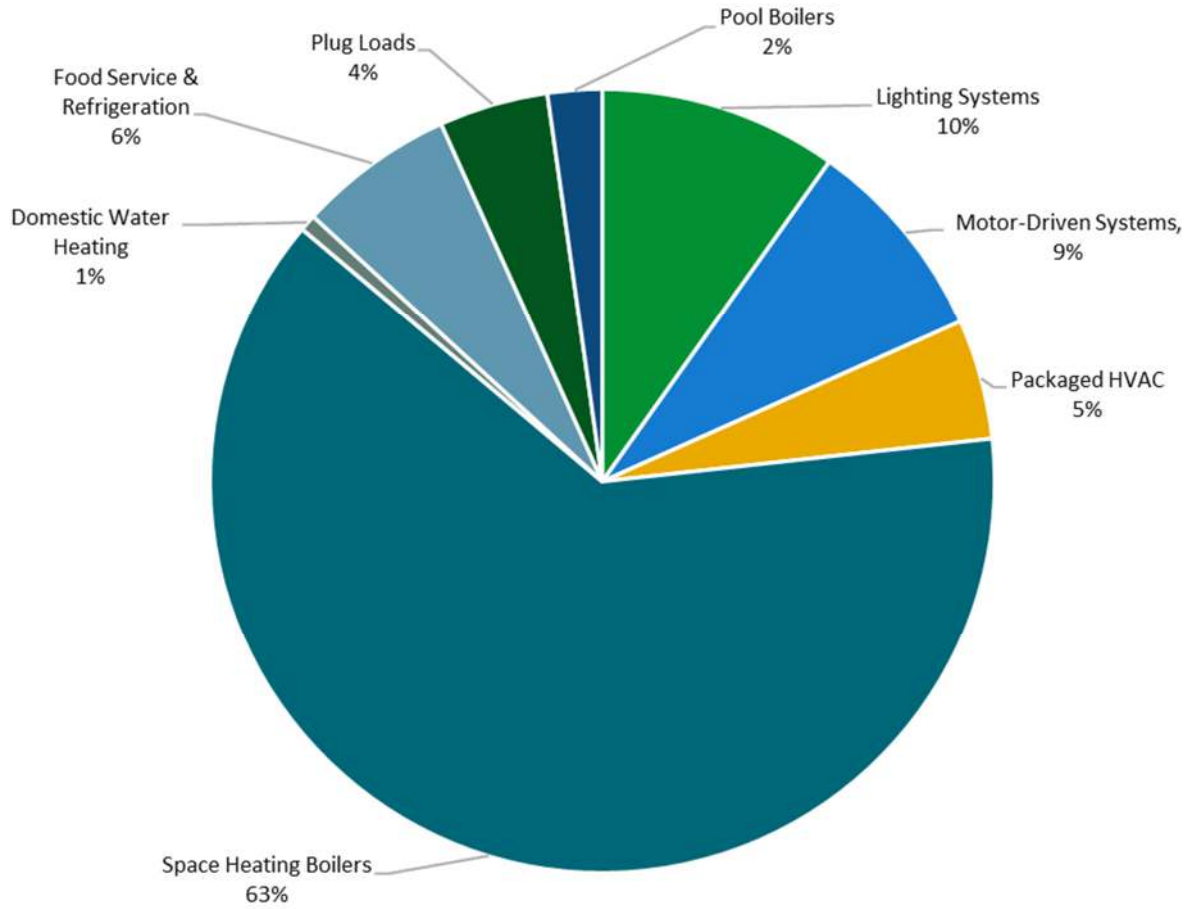
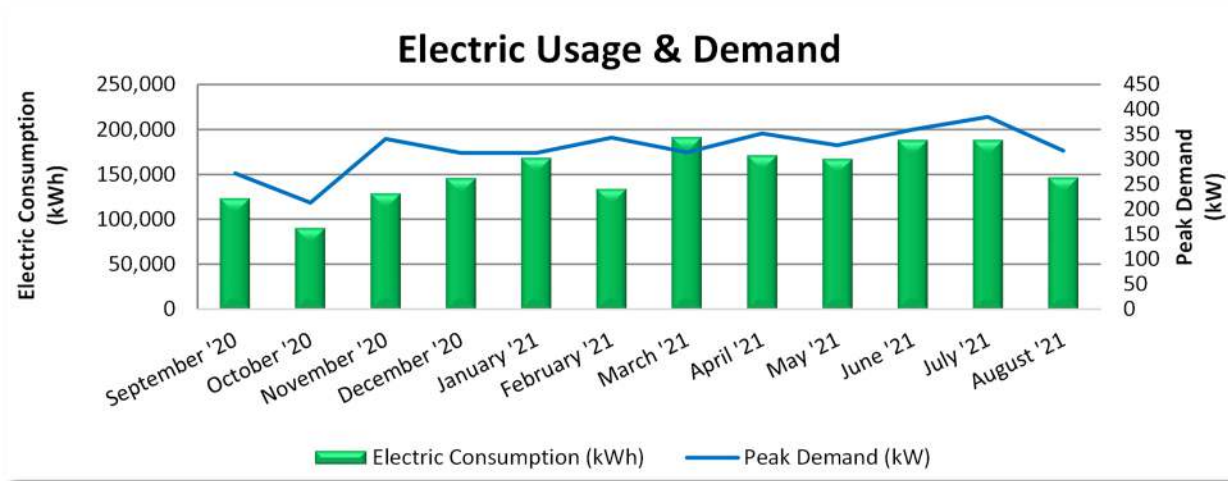


Figure 4 - Energy Balance

### 3.1 Electricity

PSE&G delivers electricity under rate class Large Power & Lighting Secondary, with electric production provided by Constellation Energy, a third-party supplier.



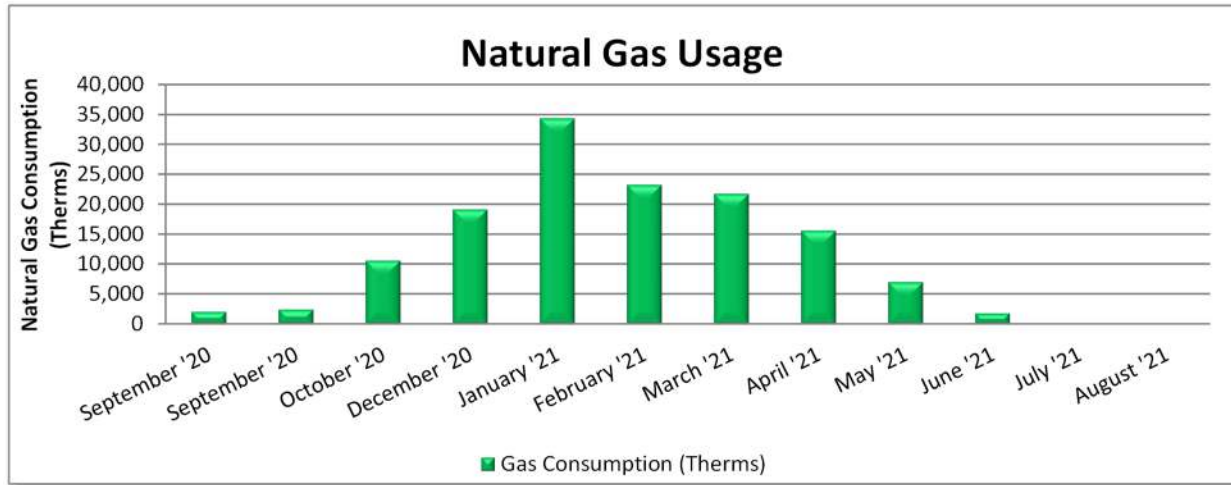
Electric Billing Data					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
9/30/20	30	123,568	272	3,457	9,329
10/31/20	31	90,727	213	802	5,342
11/30/20	30	128,980	341	1,283	8,348
12/31/20	31	146,016	313	1,176	9,769
1/31/21	31	168,407	313	1,176	10,644
2/28/21	28	133,821	343	1,292	9,724
3/31/21	31	191,325	314	1,181	11,079
4/30/21	30	170,999	352	1,323	9,891
5/31/21	31	167,203	328	1,239	9,295
6/30/21	30	188,336	360	4,598	13,987
7/31/21	31	188,322	385	4,927	14,286
8/30/21	30	146,802	318	4,061	11,569
<b>Totals</b>	<b>364</b>	<b>1,844,506</b>	<b>385</b>	<b>\$26,515</b>	<b>\$123,262</b>
<b>Annual</b>	<b>365</b>	<b>1,849,573</b>	<b>385</b>	<b>\$26,587</b>	<b>\$123,601</b>

Notes:

- Note: kW (demand) readings were not available for the PV generated power, therefore, the peak and average demand readings provided are based solely on utility readings for grid power.
- Peak demand of 385 kW occurred in July 2021.
- Average demand over the past 12 months was 321 kW.
- The average electric cost over the past 12 months was \$0.067/kWh, which is the blended rate that includes energy supply, distribution, demand, and other charges. This report uses this blended rate to estimate energy cost savings.
- On-site generation is through a PPA, and the site purchases the generated electricity from Advanced Solar. All the electricity generated on-site is used on-site.

### 3.2 Natural Gas

PSE&G delivers natural gas under rate class Large Volume Gas, with natural gas supply provided by UGI Energy, a third-party supplier.



Gas Billing Data			
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost
9/16/20	31	2,057	1,203
10/15/20	29	2,445	1,460
11/13/20	29	10,619	9,832
12/16/20	33	19,135	15,002
1/19/21	34	34,358	23,407
2/17/21	29	23,270	15,267
3/18/21	29	21,779	14,292
4/19/21	32	15,609	9,130
5/18/21	29	7,059	4,192
6/17/21	30	1,788	1,070
7/19/21	32	155	260
8/17/21	29	81	235
<b>Totals</b>	<b>366</b>	<b>138,356</b>	<b>\$95,348</b>
<b>Annual</b>	<b>365</b>	<b>137,978</b>	<b>\$95,088</b>

Notes:

- The average gas cost for the past 12 months is \$0.689/therm, which is the blended rate used throughout the analysis.

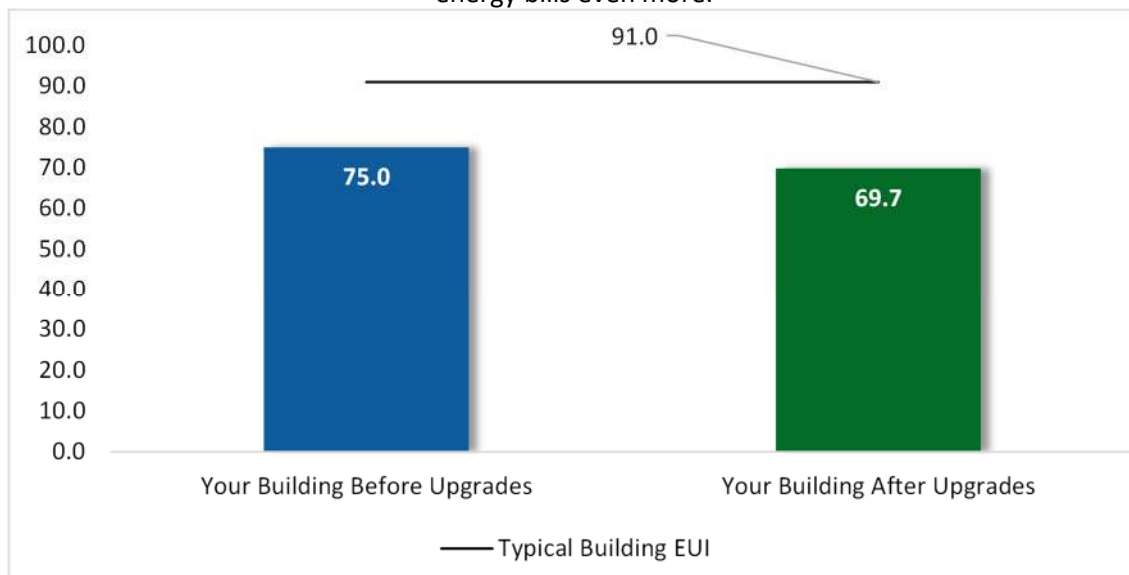
### 3.3 Benchmarking

Your building was benchmarked using the United States Environmental Protection Agency's (EPA) *Portfolio Manager*® software. Benchmarking compares your building's energy use to that of similar buildings across the country, while neutralizing variations due to location, occupancy, and operating hours. Some building types can be scored with a 1-100 ranking of a building's energy performance relative to the national building market. A score of 50 represents the national average and a score of 100 is best.

This ENERGY STAR® benchmarking score provides a comprehensive snapshot of your building's energy performance. It assesses the building's physical assets, operations, and occupant behavior, which is compiled into a quick and easy-to-understand score.

<b>Benchmarking Score</b>	<b>68</b>
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Congratulations, your building performs better than the national average. This report has suggestions about how to keep your building running efficiently, further improve performance, and lower your energy bills even more.



*Figure 5 - Energy Use Intensity Comparison<sup>3</sup>*

Energy use intensity (EUI) measures energy consumption per square foot and is the standard metric for comparing buildings' energy performance. A lower EUI means better performance and less energy consumed. Several factors can cause a building to vary from typical energy usage. Local weather conditions, building age and insulation levels, equipment efficiency, daily occupancy hours, changes in occupancy throughout the year, equipment operating hours, and occupant behavior all contribute to a building's energy use and the benchmarking score.

<sup>3</sup> Based on all evaluated ECMs

### **Tracking Your Energy Performance**

Keeping track of your energy use on a monthly basis is one of the best ways to keep energy costs in check. Update your utility information in Portfolio Manager® regularly, so that you can keep track of your building's performance.

**We have created a Portfolio Manager® account for your facility, and we have already entered the monthly utility data shown above for you. Account login information for your account will be sent via email.**

Free online training is available to help you use ENERGY STAR® Portfolio Manager® to track your building's performance at: <https://www.energystar.gov/buildings/training>.

For more information on ENERGY STAR® and Portfolio Manager®, visit their [website](#).

## 4 ENERGY CONSERVATION MEASURES

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The goal of this audit report is to identify and evaluate potential energy efficiency improvements and provide information about the cost effectiveness of those improvements. Most energy conservation measures have received preliminary analysis of feasibility, which identifies expected ranges of savings. This level of analysis is typically sufficient to demonstrate project cost-effectiveness and help prioritize energy measures.

Calculations of energy use and savings are based on the current version of the *New Jersey's Clean Energy Program Protocols to Measure Resource Savings*, which is approved by the NJBPU. Further analysis or investigation may be required to calculate more precise savings based on specific circumstances.

Operation and maintenance costs for the proposed new equipment will generally be lower than the current costs for the existing equipment—especially if the existing equipment is at or past its normal useful life. We have conservatively assumed there to be no impact on overall maintenance costs over the life of the equipment.

Financial incentives are based on previously run state rebate programs. New utility programs are expected to start rolling out in the spring and summer of 2021. Keep up to date with developments by visiting the [NJCEP website](#). Some measures and proposed upgrades may be eligible for higher incentives than those shown below.

For a detailed list of the locations and recommended energy conservation measures for all inventoried equipment, see Appendix A: Equipment Inventory & Recommendations.



#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>			<b>307,158</b>	<b>53.8</b>	<b>-64</b>	<b>\$20,088</b>	<b>\$85,445</b>	<b>\$22,740</b>	<b>\$62,705</b>	<b>3.1</b>	<b>301,862</b>
ECM 1	Install LED Fixtures	Yes	1,927	0.0	0	\$129	\$891	\$200	\$691	5.4	1,941
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	606	0.2	0	\$40	\$444	\$55	\$389	9.8	595
ECM 3	Retrofit Fixtures with LED Lamps	Yes	304,624	53.6	-63	\$19,920	\$84,110	\$22,485	\$61,625	3.1	299,326
<b>Lighting Control Measures</b>			<b>71,330</b>	<b>11.3</b>	<b>-15</b>	<b>\$4,664</b>	<b>\$58,953</b>	<b>\$10,770</b>	<b>\$48,183</b>	<b>10.3</b>	<b>70,083</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	64,528	10.3	-13	\$4,219	\$49,728	\$5,940	\$43,788	10.4	63,399
ECM 5	Install High/Low Lighting Controls	Yes	6,802	1.0	-1	\$445	\$9,225	\$4,830	\$4,395	9.9	6,683
<b>Motor Upgrades</b>			<b>837</b>	<b>0.2</b>	<b>0</b>	<b>\$56</b>	<b>\$3,043</b>	<b>\$0</b>	<b>\$3,043</b>	<b>54.4</b>	<b>843</b>
ECM 6	Premium Efficiency Motors	No	837	0.2	0	\$56	\$3,043	\$0	\$3,043	54.4	843
<b>Unitary HVAC Measures</b>			<b>30,772</b>	<b>12.5</b>	<b>0</b>	<b>\$2,056</b>	<b>\$33,367</b>	<b>\$5,115</b>	<b>\$28,252</b>	<b>13.7</b>	<b>30,987</b>
ECM 7	Install High Efficiency Air Conditioning Units	No	30,772	12.5	0	\$2,056	\$33,367	\$5,115	\$28,252	13.7	30,987
<b>HVAC System Improvements</b>			<b>0</b>	<b>0.0</b>	<b>60</b>	<b>\$414</b>	<b>\$1,044</b>	<b>\$290</b>	<b>\$754</b>	<b>1.8</b>	<b>7,032</b>
ECM 8	Install Pipe Insulation	Yes	0	0.0	60	\$414	\$1,044	\$290	\$754	1.8	7,032
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>4</b>	<b>\$25</b>	<b>\$182</b>	<b>\$19</b>	<b>\$163</b>	<b>6.5</b>	<b>426</b>
ECM 9	Install Low-Flow DHW Devices	Yes	0	0.0	4	\$25	\$182	\$19	\$163	6.5	426
<b>Food Service &amp; Refrigeration Measures</b>			<b>6,609</b>	<b>0.8</b>	<b>0</b>	<b>\$442</b>	<b>\$1,840</b>	<b>\$200</b>	<b>\$1,640</b>	<b>3.7</b>	<b>6,655</b>
ECM 10	Vending Machine Control	Yes	6,609	0.8	0	\$442	\$1,840	\$200	\$1,640	3.7	6,655
<b>TOTALS</b>			<b>416,705</b>	<b>78.5</b>	<b>-15</b>	<b>\$27,745</b>	<b>\$183,874</b>	<b>\$39,134</b>	<b>\$144,740</b>	<b>5.2</b>	<b>417,887</b>

\* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

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

Figure 6 – All Evaluated ECMs

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>		<b>307,158</b>	<b>53.8</b>	<b>-64</b>	<b>\$20,088</b>	<b>\$85,445</b>	<b>\$22,740</b>	<b>\$62,705</b>	<b>3.1</b>	<b>301,862</b>
ECM 1	Install LED Fixtures	1,927	0.0	0	\$129	\$891	\$200	\$691	5.4	1,941
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	606	0.2	0	\$40	\$444	\$55	\$389	9.8	595
ECM 3	Retrofit Fixtures with LED Lamps	304,624	53.6	-63	\$19,920	\$84,110	\$22,485	\$61,625	3.1	299,326
<b>Lighting Control Measures</b>		<b>71,330</b>	<b>11.3</b>	<b>-15</b>	<b>\$4,664</b>	<b>\$58,953</b>	<b>\$10,770</b>	<b>\$48,183</b>	<b>10.3</b>	<b>70,083</b>
ECM 4	Install Occupancy Sensor Lighting Controls	64,528	10.3	-13	\$4,219	\$49,728	\$5,940	\$43,788	10.4	63,399
ECM 5	Install High/Low Lighting Controls	6,802	1.0	-1	\$445	\$9,225	\$4,830	\$4,395	9.9	6,683
<b>HVAC System Improvements</b>		<b>0</b>	<b>0.0</b>	<b>60</b>	<b>\$414</b>	<b>\$1,044</b>	<b>\$290</b>	<b>\$754</b>	<b>1.8</b>	<b>7,032</b>
ECM 8	Install Pipe Insulation	0	0.0	60	\$414	\$1,044	\$290	\$754	1.8	7,032
<b>Domestic Water Heating Upgrade</b>		<b>0</b>	<b>0.0</b>	<b>4</b>	<b>\$25</b>	<b>\$182</b>	<b>\$19</b>	<b>\$163</b>	<b>6.5</b>	<b>426</b>
ECM 9	Install Low-Flow DHW Devices	0	0.0	4	\$25	\$182	\$19	\$163	6.5	426
<b>Food Service &amp; Refrigeration Measures</b>		<b>6,609</b>	<b>0.8</b>	<b>0</b>	<b>\$442</b>	<b>\$1,840</b>	<b>\$200</b>	<b>\$1,640</b>	<b>3.7</b>	<b>6,655</b>
ECM 10	Vending Machine Control	6,609	0.8	0	\$442	\$1,840	\$200	\$1,640	3.7	6,655
<b>TOTALS</b>		<b>385,096</b>	<b>65.9</b>	<b>-15</b>	<b>\$25,633</b>	<b>\$147,464</b>	<b>\$34,019</b>	<b>\$113,445</b>	<b>4.4</b>	<b>386,057</b>

\* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

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

Figure 7 – Cost Effective ECMs

## 4.1 Lighting

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Upgrades</b>		<b>307,158</b>	<b>53.8</b>	<b>-64</b>	<b>\$20,088</b>	<b>\$85,445</b>	<b>\$22,740</b>	<b>\$62,705</b>	<b>3.1</b>	<b>301,862</b>
ECM 1	Install LED Fixtures	1,927	0.0	0	\$129	\$891	\$200	\$691	5.4	1,941
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	606	0.2	0	\$40	\$444	\$55	\$389	9.8	595
ECM 3	Retrofit Fixtures with LED Lamps	304,624	53.6	-63	\$19,920	\$84,110	\$22,485	\$61,625	3.1	299,326

When considering lighting upgrades, we suggest using a comprehensive design approach that simultaneously upgrades lighting fixtures and controls to maximize energy savings and improve occupant lighting. Comprehensive design will also consider appropriate lighting levels for different space types to make sure that the right amount of light is delivered where needed. If conversion to LED light sources is proposed, we suggest converting all of a specific lighting type (e.g., linear fluorescent) to LED lamps to minimize the number of lamp types in use at the facility, which should help reduce future maintenance costs.

### **ECM 1: Install LED Fixtures**

Replace existing fixtures containing HID lamps with new LED light fixtures. This measure saves energy by installing LEDs, which use less power than other technologies with a comparable light output.

In some cases, HID fixtures can be retrofit with screw-based LED lamps. Replacing an existing HID fixture with a new LED fixture will generally provide better overall lighting optics; however, replacing the HID lamp with a LED screw-in lamp is typically a less expensive retrofit. We recommend you work with your lighting contractor to determine which retrofit solution is best suited to your needs and will be compatible with the existing fixtures.

Maintenance savings may also be achieved since LED lamps last longer than other light sources and therefore do not need to be replaced as often.

**Affected Building Areas:** exterior fixtures.

### **ECM 2: Retrofit Fluorescent Fixtures with LED Lamps and Drivers**

Retrofit fluorescent fixtures by removing the fluorescent tubes and ballasts and replacing them with LED tubes and LED drivers (if necessary), which are designed to be used in retrofitted fluorescent fixtures.

The measure uses the existing fixture housing but replaces the electric components with more efficient lighting technology, which use less power than other lighting technologies but provides equivalent lighting output. Maintenance savings may also be achieved since LED tubes last longer than fluorescent tubes and, therefore, do not need to be replaced as often.

**Affected Building Areas:** all areas with fluorescent fixtures with T12 tubes.

### **ECM 3: Retrofit Fixtures with LED Lamps**

Replace fluorescent, HID, or incandescent lamps with LED lamps. Many LED tubes are direct replacements for existing fluorescent tubes and can be installed while leaving the fluorescent fixture ballast in place. LED lamps can be used in existing fixtures as a direct replacement for most other lighting technologies. Be sure to specify replacement lamps that are compatible with existing dimming controls, where applicable. In some circumstances, you may need to upgrade your dimming system for optimum performance.

This measure saves energy by installing LEDs, which use less power than other lighting technologies yet provide equivalent lighting output for the space. Maintenance savings may also be available, as longer-lasting LEDs lamps will not need to be replaced as often as the existing lamps.

**Affected Building Areas:** all areas with fluorescent fixtures with T8 tubes and CFLs.

## 4.2 Lighting Controls

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Lighting Control Measures</b>		<b>71,330</b>	<b>11.3</b>	<b>-15</b>	<b>\$4,664</b>	<b>\$58,953</b>	<b>\$10,770</b>	<b>\$48,183</b>	<b>10.3</b>	<b>70,083</b>
ECM 4	Install Occupancy Sensor Lighting Controls	64,528	10.3	-13	\$4,219	\$49,728	\$5,940	\$43,788	10.4	63,399
ECM 5	Install High/Low Lighting Controls	6,802	1.0	-1	\$445	\$9,225	\$4,830	\$4,395	9.9	6,683

Lighting controls reduce energy use by turning off or lowering lighting fixture power levels when not in use. A comprehensive approach to lighting design should upgrade the lighting fixtures and the controls together for maximum energy savings and improved lighting for occupants.

### **ECM 4: Install Occupancy Sensor Lighting Controls**

Install occupancy sensors to control lighting fixtures in areas that are frequently unoccupied, even for short periods. For most spaces, we recommend that lighting controls use dual technology sensors, which reduce the possibility of lights turning off unexpectedly.

Occupancy sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Most occupancy sensor lighting controls allow users to manually turn fixtures on/off, as needed. Some controls can also provide dimming options.

Occupancy sensors can be mounted on the wall at existing switch locations, mounted on the ceiling, or in remote locations. In general, wall switch replacement sensors are best suited to single occupant offices and other small rooms. Ceiling-mounted or remote mounted sensors are used in large spaces, locations without local switching, and where wall switches are not in the line-of-sight of the main work area.

This measure provides energy savings by reducing the lighting operating hours.

**Affected Building Areas:** offices, conference rooms, classrooms, gymnasium, library, restrooms, and storage rooms.

### **ECM 5: Install High/Low Lighting Controls**

Install 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.

Lighting fixtures with these controls operate at default low levels when the area is unoccupied to provide minimal lighting to meet security or safety code requirements for egress. Sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Fixtures automatically switch back to low level after a predefined period of vacancy. In parking lots and parking garages with significant ambient lighting, this control can sometimes be combined with photocell controls to turn the lights off when there is sufficient daylight.

The controller lowers the light level by dimming the fixture output. Therefore, the controlled fixtures need to have a dimmable ballast or driver. This will need to be considered when selecting retrofit lamps and bulbs for the areas proposed for high/low control.

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

This measure provides energy savings by reducing the light fixture power draw when reduced light output is appropriate.

**Affected Building Areas:** hallways and stairwells.

## 4.3 Motors

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Motor Upgrades</b>		<b>837</b>	<b>0.2</b>	<b>0</b>	<b>\$56</b>	<b>\$3,043</b>	<b>\$0</b>	<b>\$3,043</b>	<b>54.4</b>	<b>843</b>
ECM 6	Premium Efficiency Motors	837	0.2	0	\$56	\$3,043	\$0	\$3,043	54.4	843

### **ECM 6: Premium Efficiency Motors**

We evaluated replacing standard efficiency motors with IHP 2014 efficiency motors. This evaluation assumes that existing motors will be replaced with motors of equivalent size and type. In some cases, additional savings may be possible by downsizing motors to better meet the motor's current load requirements.

**Affected Motors:**

Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Additional Motor Description
Mechanical Auditorium	Mechanical Auditorium	1	Exhaust Fan	1.5	EF7A
Mechanical Gym	Gymnasium	1	Exhaust Fan	2.0	EFD7
Mechanical Gym	Gymnasium	1	Supply Fan	3.0	
Mechanical Gym	Gymnasium	1	Supply Fan	3.0	

Savings are based on the difference between baseline and proposed efficiencies and the assumed annual operating hours. The base case motor energy consumption is estimated using the efficiencies found on

nameplates or estimated based on the age of the motor and our best estimates of motor run hours. Efficiencies of proposed motor upgrades are obtained from the current *New Jersey's Clean Energy Program Protocols to Measure Resource Savings*.

#### 4.4 Unitary HVAC

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Unitary HVAC Measures</b>		<b>30,772</b>	<b>12.5</b>	<b>0</b>	<b>\$2,056</b>	<b>\$33,367</b>	<b>\$5,115</b>	<b>\$28,252</b>	<b>13.7</b>	<b>30,987</b>
ECM 7	Install High Efficiency Air Conditioning Units	30,772	12.5	0	\$2,056	\$33,367	\$5,115	\$28,252	13.7	30,987

Replacing the unitary HVAC units has a long payback period and may not be justifiable based simply on energy considerations. However, most of the units are nearing or have reached the end of their normal useful life. Typically, the marginal cost of purchasing a high efficiency unit can be justified by the marginal savings from the improved efficiency. When the split system units are eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

#### **ECM 7: Install High Efficiency Air Conditioning Units**

We evaluated replacing standard efficiency packaged air conditioning units with high efficiency packaged air conditioning units. 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 and heating load, and the estimated annual operating hours.

**Affected Units:** server room and offices.

#### 4.5 HVAC Improvements

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>HVAC System Improvements</b>		<b>0</b>	<b>0.0</b>	<b>60</b>	<b>\$414</b>	<b>\$1,044</b>	<b>\$290</b>	<b>\$754</b>	<b>1.8</b>	<b>7,032</b>
ECM 8	Install Pipe Insulation	0	0.0	60	\$414	\$1,044	\$290	\$754	1.8	7,032

#### **ECM 8: Install Pipe Insulation**

Install insulation on heating water system piping. Distribution system losses are dependent on system fluid temperature, the size of the distribution system, and the level of insulation of the piping. Significant energy savings can be achieved when insulation has not been well maintained. When the insulation is exposed to water, when the insulation has been removed from some areas of the pipe, or when valves have not been properly insulated system efficiency can be significantly reduced. This measure saves energy by reducing heat transfer in the distribution system.

**Affected Systems:** hot water piping.

## 4.6 Domestic Water Heating

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Domestic Water Heating Upgrade</b>		<b>0</b>	<b>0.0</b>	<b>4</b>	<b>\$25</b>	<b>\$182</b>	<b>\$19</b>	<b>\$163</b>	<b>6.5</b>	<b>426</b>
ECM 9	Install Low-Flow DHW Devices	0	0.0	4	\$25	\$182	\$19	\$163	6.5	426

### **ECM 9: Install Low-Flow DHW Devices**

Install low-flow devices to reduce overall hot water demand. The following low-flow devices are recommended to reduce hot water usage:

Device	Flow Rate
Faucet aerators (lavatory)	0.5 gpm
Faucet aerator (kitchen)	1.5 gpm
Showerhead	2.0 gpm
Pre-rinse spray valve (kitchen)	1.28 gpm

Low-flow devices reduce the overall water flow from the fixture, while still providing adequate pressure for washing. Additional cost savings may result from reduced water usage.

## 4.7 Food Service & Refrigeration Measures

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated M&L Cost (\$)	Estimated Incentive (\$)*	Estimated Net M&L Cost (\$)	Simple Payback Period (yrs)**	CO <sub>2</sub> e Emissions Reduction (lbs)
<b>Food Service &amp; Refrigeration Measures</b>		<b>6,609</b>	<b>0.8</b>	<b>0</b>	<b>\$442</b>	<b>\$1,840</b>	<b>\$200</b>	<b>\$1,640</b>	<b>3.7</b>	<b>6,655</b>
ECM 10	Vending Machine Control	6,609	0.8	0	\$442	\$1,840	\$200	\$1,640	3.7	6,655

### **ECM 10: Vending Machine Control**

Vending machines operate continuously, even during unoccupied hours. Install occupancy sensor controls to reduce energy use. These controls power down vending machines when the vending machine area has been vacant for some time, and they power up the machines at necessary regular intervals or when the surrounding area is occupied. Energy savings are dependent on the vending machine and activity level in the area surrounding the machines.

## 5 ENERGY EFFICIENT BEST PRACTICES

A whole building maintenance plan will extend equipment life; improve occupant comfort, health, and safety; and reduce energy and maintenance costs.

Operation and maintenance (O&M) plans enhance the operational efficiency of HVAC and other energy intensive systems and could save 5%–20% of the energy usage in your building without substantial capital investment. A successful plan includes your records of energy usage trends and costs, building equipment lists, current maintenance practices, and planned capital upgrades, and it incorporates your ideas for improved building operation. Your plan will address goals for energy-efficient operation, provide detail on how to reach the goals, and outline procedures for measuring and reporting whether goals have been achieved.

You may already be doing some of these things—see our list below for potential additions to your maintenance plan. Be sure to consult with qualified equipment specialists for details on proper maintenance and system operation.

### **Energy Tracking with ENERGY STAR® Portfolio Manager®**



You've heard it before—you cannot manage what you do not measure. ENERGY STAR® Portfolio Manager® is an online tool that you can use to measure and track energy and water consumption, as well as greenhouse gas emissions<sup>4</sup>. Your account has already been established. Now you can continue to keep tabs on your energy performance every month.

### **Lighting Maintenance**



- Clean lamps, reflectors and lenses of dirt, dust, oil, and smoke buildup every six to twelve months. Light levels decrease over time due to lamp aging, lamp and ballast failure, and buildup of dirt and dust. Together, this can reduce total light output by up to 60% while still drawing full power.
- In addition to routine cleaning, developing a maintenance schedule can ensure that maintenance is performed regularly, and it can reduce the overall cost of fixture re-lamping and re-ballasting. Group re-lamping and re-ballasting maintains lighting levels and minimizes the number of site visits by a lighting technician or contractor, decreasing the overall cost of maintenance.

### **Lighting Controls**

As part of a lighting maintenance schedule, test lighting controls to ensure proper functioning. For occupancy sensors, this requires triggering the sensor and verifying that the sensor's timer settings are correct. For daylight and photocell sensors, maintenance involves cleaning sensor lenses and confirming that setpoints and sensitivity are configured properly. Adjust exterior lighting time clock controls seasonally as needed to match your lighting requirements.

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<sup>4</sup> <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager>.



## **Motor Maintenance**

Motors have many moving parts. As these parts degrade over time, the efficiency of the motor is reduced. Routine maintenance prevents damage to motor components. Routine maintenance should include 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.

## **AC System Evaporator/Condenser Coil Cleaning**

Dirty evaporator and condenser coils restrict air flow and restrict heat transfer. This increases the loads on the evaporator and condenser fan and decreases overall cooling system performance. Keeping the coils clean allows the fans and cooling system to operate more efficiently.

## **HVAC Filter Cleaning and Replacement**

Air filters should be checked regularly (often monthly) and cleaned or replaced when appropriate. Air filters reduce indoor air pollution, increase occupant comfort, and help keep equipment operating efficiently. If the building has a building management system, consider installing a differential pressure switch across filters to send an alarm about premature fouling or overdue filter replacement. Over time, filters become less and less effective as particulate buildup increases. Dirty filters also restrict air flow through the air conditioning or heat pump system, which increases the load on the distribution fans.

## **Ductwork Maintenance**

Duct maintenance has two primary goals: keep the ducts clean to avoid air quality problems and seal leaks to save energy. Check for cleanliness, obstructions that block airflow, water damage, and leaks. Ducts should be inspected at least every two years.

The biggest symptoms of clogged air ducts are differing temperatures throughout the building and areas with limited airflow from supply registers. If a particular air duct is clogged, then air flow will only be cut off to some rooms in the building—not all of them. The reduced airflow will make it more difficult for those areas to reach the temperature setpoint, which will cause the HVAC system to run longer to cool or heat that area properly. If you suspect clogged air ducts, ensure that all areas in front of supply registers are clear of items that may block or restrict air flow, and you should check for fire dampers or balancing dampers that have failed closed.

Duct leakage in commercial buildings can account for 5%–25% of the supply airflow. In the case of rooftop air handlers, duct leakage can occur to the outside of the building wasting conditioned air. Check ductwork for leakage. Eliminating duct leaks can improve ventilation system performance and reduce heating and cooling system operation.

Distribution system losses are dependent on-air system temperature, the size of the distribution system, and the level of insulation of the ductwork. Significant energy savings can be achieved when insulation has not been well maintained. When the insulation is missing or worn, the system efficiency can be significantly reduced. This measure saves energy by reducing heat transfer in the distribution system.

## **Boiler Maintenance**

Many boiler problems develop slowly over time, so regular inspection and maintenance is essential to keeping the heating system running efficiently and preventing expensive repairs. Annual tune-ups should include a combustion analysis to analyze the exhaust from the boilers and to ensure the boiler is operating safely and efficiently. Boilers should be cleaned according to the manufacturer's instructions to remove soot and scale from the boiler tubes to improve heat transfer.

## **Optimize HVAC Equipment Schedules**

Energy management systems (EMS) typically provide advanced controls for building HVAC systems, including chillers, boilers, air handling units, rooftop units and exhaust fans. The EMS monitors and reports operational status, schedules equipment start and stop times, locks out equipment operation based on outside air or space temperature, and often optimizes damper and valve operation based on complex algorithms. These EMS features, when in proper adjustment, can improve comfort for building occupants and save substantial energy.

Know your EMS scheduling capabilities. Regularly monitor HVAC equipment operating schedules and match them to building operating hours in order to eliminate unnecessary equipment operation and save energy. Monitoring should be performed often at sites with frequently changing usage patterns – daily in some cases. We recommend using the *optimal start* feature of the EMS (if available) to optimize the building warmup sequence. Most EMS scheduling programs provide for holiday schedules, which can be used during reduced use or shutdown periods. Finally, many systems are equipped with a one-time override function, which can be used to provide additional space conditioning due to a one-time, special event. When available this override feature should be used rather than changing the base operating schedule.

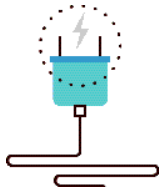
## **Refrigeration Equipment Maintenance**

Preventative maintenance keeps commercial refrigeration equipment running reliably and efficiently. Commercial refrigerators and freezers are mission-critical equipment that can cost a fortune when they go down. Even when they appear to be working properly, refrigeration units can be consuming too much energy. Have walk-in refrigeration and freezer and other commercial systems serviced at least annually. This practice will allow systems to perform to their highest capabilities and will help identify system issues if they exist.

Maintaining your commercial refrigeration equipment can save between 5% and 10% on energy costs. When condenser coils are dirty, your commercial refrigerators and freezers work harder to maintain the temperature inside. Worn gaskets, hinges, door handles or faulty seals cause cold air to leak from the unit, forcing the unit to run longer and use more electricity.

Regular cleaning and maintenance also help your commercial refrigeration equipment to last longer.

## **Plug Load Controls**



Reducing plug loads is a common way to decrease your electrical use. Limiting the energy use of plug loads can include increasing occupant awareness, removing under-used equipment, installing hardware controls, and using software controls. Consider enabling the most aggressive power settings on existing devices or install load sensing or occupancy sensing (advanced) power strips<sup>5</sup>. Your local utility may offer incentives or rebates for this equipment.

## **Water Conservation**



Installing dual flush or low-flow toilets and low-flow/waterless urinals are ways to reduce water use. The EPA WaterSense™ ratings for urinals is 0.5 gallons per flush (gpf) and for flush valve toilets is 1.28 gpf (this is lower than the current 1.6 gpf federal standard).

For more information regarding water conservation go to the EPA's WaterSense™ website<sup>6</sup> or download a copy of EPA's "WaterSense™ at Work: Best Management Practices for Commercial and Institutional Facilities"<sup>7</sup> to get ideas for creating a water management plan and best practices for a wide range of water using systems.

Water conservation devices that do not reduce hot water consumption will not provide energy savings at the site level, but they may significantly affect your water and sewer usage costs. 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.

If the facility has detached buildings with a master water meter for the entire campus, check for unnatural wet areas in the lawn or water seeping in the foundation at water pipe penetrations through the foundation. Periodically check overnight meter readings when the facility is unoccupied, and there is no other scheduled water usage.

Manage irrigation systems to use water more effectively outside the building. Adjust spray patterns so that water lands on intended lawns and plantings and not on pavement and walls. Consider installing an evapotranspiration irrigation controller that will prevent over-watering.

## **Procurement Strategies**

Purchasing efficient products reduces energy costs without compromising quality. Consider modifying your procurement policies and language to require ENERGY STAR® or WaterSense™ products where available.

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<sup>5</sup> For additional information refer to "Assessing and Reducing Plug and Process Loads in Office Buildings" <http://www.nrel.gov/docs/fy13osti/54175.pdf>, or "Plug Load Best Practices Guide" <http://www.advancedbuildings.net/plug-load-best-practices-guide-offices>.

<sup>6</sup> <https://www.epa.gov/watersense>.

<sup>7</sup> <https://www.epa.gov/watersense/watersense-work-0>.

## 6 ON-SITE GENERATION

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You don't have to look far in New Jersey to see one of the thousands of solar electric systems providing clean power to homes, businesses, schools, and government buildings. On-site generation includes both renewable (e.g., solar, wind) and non-renewable (e.g., fuel cells) technologies that generate power to meet all or a portion of the facility's electric energy needs. Also referred to as distributed generation, these systems contribute to greenhouse gas (GHG) emission reductions, demand reductions, and reduced customer electricity purchases, which results in improved electric grid reliability through better use of transmission and distribution systems.

Preliminary screenings were performed to determine if an on-site generation measure could be a cost-effective solution for your facility. Before deciding to install an on-site generation system, we recommend conducting a feasibility study to analyze 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.

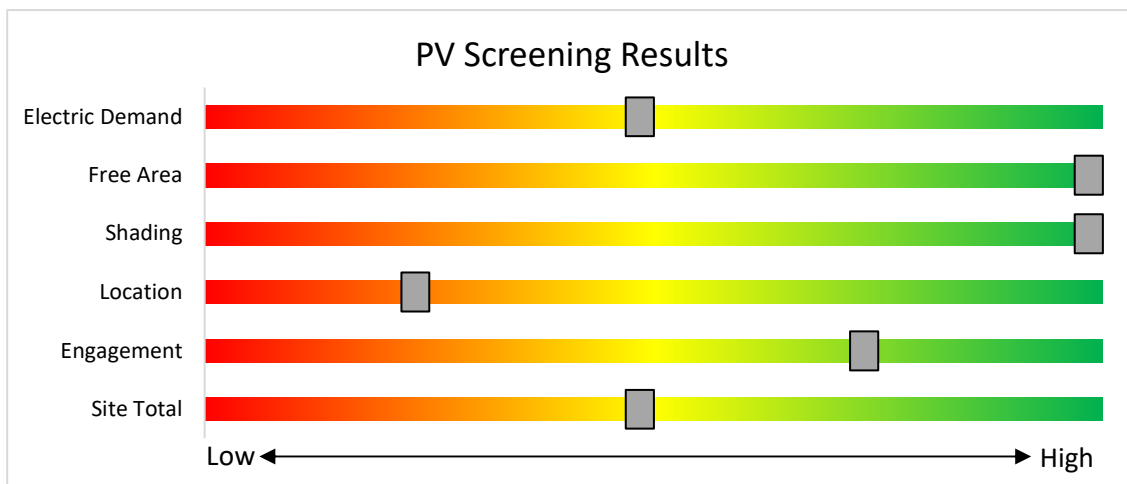
## 6.1 Solar Photovoltaic

Photovoltaic (PV) panels convert sunlight into electricity. Individual panels are combined into an array that produces direct current (DC) electricity. The DC current is converted to alternating current (AC) through an inverter. The inverter is then connected to the building's electrical distribution system.

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

The amount of free area, ease of installation (location), and the lack of shading elements contribute to the medium potential. A PV array located in the parking lot be feasible. If you are interested in pursuing the installation of PV, we recommend conducting a full feasibility study.

The graphic below displays the results of the PV potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.



Potential	Medium	
<b>System Potential</b>	321	kW DC STC
<b>Electric Generation</b>	382,430	kWh/yr
<b>Displaced Cost</b>	\$25,560	/yr
<b>Installed Cost</b>	\$1,085,000	

Figure 8 - Photovoltaic Screening

### **Successor Solar Incentive Program (SuSI)**

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects. Solar projects may qualify to earn SREC- IIs (Solar Renewable Energy Certificates-II), however, the project owners *must* register their solar projects prior to the start of construction to establish the project's eligibility.

Get more information about solar power in New Jersey or find a qualified solar installer who can help you decide if solar is right for your building:

**Successor Solar Incentive Program (SuSI):** <https://www.njcleanenergy.com/renewable-energy/programs/susi-program>

- **Basic Info on Solar PV in NJ:** [www.njcleanenergy.com/whysolar](http://www.njcleanenergy.com/whysolar)
- **NJ Solar Market FAQs:** [www.njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-transition/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:** [www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved\\_vendorsearch/?id=60&start=1](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) generates electricity at the facility and puts waste heat energy to good use. Common types of CHP systems are reciprocating engines, microturbines, fuel cells, backpressure steam turbines, and (at large facilities) gas turbines.

CHP systems typically produce a portion of the electric power used on-site, with the balance of electric power needs supplied by the local utility company. The heat is used to supplement (or replace) existing boilers and provide space heating and/or domestic hot water heating. Waste heat can also be routed through absorption chillers for space cooling.

The key criteria used for screening is the amount of time that the CHP system would operate at full load and the facility's ability to use the recovered heat. Facilities with a continuous need 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 no potential for installing a cost-effective CHP system.

Based on a preliminary analysis, the facility does not appear to meet the minimum requirements for a cost-effective CHP installation. The lack of gas service, low or infrequent thermal load, and lack of space for siting the equipment are the most significant factors contributing to the lack of CHP potential.

The graphic below displays the results of the CHP potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

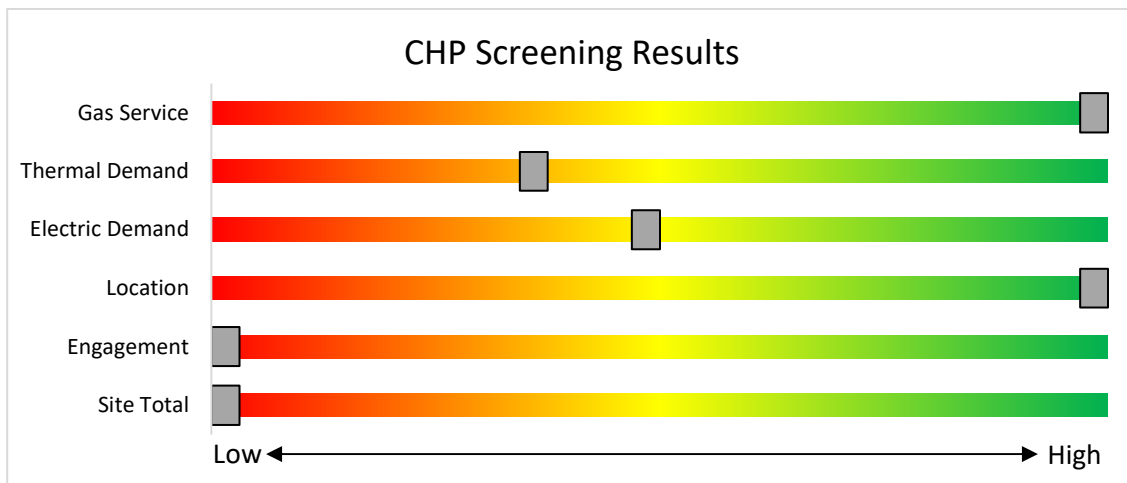


Figure 9 - Combined Heat and Power Screening

Find a qualified firm that specializes in commercial CHP cost assessment and installation: [http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved\\_vendorsearch/](http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/).

## 7 PROJECT FUNDING AND INCENTIVES

Ready to improve your building’s performance? Your utility provider may be able to help.

### 7.1 Utility Energy Efficiency Programs

The Clean Energy Act, signed into law by Governor Murphy in 2018, requires New Jersey’s investor-owned gas and electric utilities to reduce their customers’ use by set percentages over time. To help reach these targets the New Jersey Board of Public Utilities approved a comprehensive suite of energy efficiency programs to be run by the utility companies.

The infographic features logos for Atlantic City Electric, Jersey Central Power & Light, PSEG, Rockland Electric Company, Elizabethtown Gas, South Jersey Gas, and New Jersey Natural Gas. Below the logos, the text reads: "Program areas to be served by the Utilities:" followed by a list of areas: Existing Buildings (residential, commercial, industrial, government) and Efficient Products (HVAC, Appliance Rebates, Appliance Recycling). A separate box lists "Proposed New Programs & Features:" including a Dedicated multi-family program, More financing options, and Quick home energy check-ups.

These new utility programs are rolling out in the spring and summer of 2021. Keep up to date with developments by visiting:

<https://www.njcleanenergy.com/transition>



## 8 NEW JERSEY'S CLEAN ENERGY PROGRAMS

New Jersey's Clean Energy Program will continue to offer some energy efficiency programs.



### 8.1 Large Energy Users

The Large Energy Users Program (LEUP) is designed to foster self-directed investment in energy projects. This program is offered to New Jersey's largest energy customers that annually contribute at least \$200,000 to the NJCEP aggregate of all buildings/sites. This equates to roughly \$5 million in energy costs in the prior fiscal year.

#### Incentives

Incentives are based on the specifications below. The maximum incentive per entity is the lesser of:

- \$4 million
- 75% of the total project(s) cost
- 90% of total NJCEP fund contribution in previous year
- \$0.33 per projected kWh saved; \$3.75 per projected Therm saved annually

#### How to Participate

To participate in LEUP, you will first need submit an enrollment application. This program requires all qualified and approved applicants to submit an energy plan that outlines the proposed energy efficiency work for review and approval. Applicants may submit a Draft Energy Efficiency Plan (DEEP), or a Final Energy Efficiency Plan (FEEP). Once the FEEP is approved, the proposed work can begin.

Detailed program descriptions, instructions for applying, and applications can be found at [www.njcleanenergy.com/LEUP](http://www.njcleanenergy.com/LEUP).

## 8.2 Combined Heat and Power

The Combined Heat & Power (CHP) program provides incentives for eligible CHP or waste heat to power (WHP) projects. Eligible CHP or WHP projects must achieve an annual system efficiency of at least 65% (lower heating value, or LHV), based on total energy input and total utilized energy output. Mechanical energy may be included in the efficiency evaluation.

### Incentives

Eligible Technologies	Size (Installed Rated Capacity) <sup>1</sup>	Incentive (\$/kW)	% of Total Cost Cap per Project <sup>3</sup>	\$ Cap per Project <sup>3</sup>
Powered by non-renewable or renewable fuel source <sup>4</sup>	≤500 kW	\$2,000	30-40% <sup>2</sup>	\$2 million
	Gas Internal Combustion Engine	>500 kW - 1 MW		
Gas Combustion Turbine	> 1 MW - 3 MW	\$550	30%	\$3 million
Microturbine	>3 MW	\$350		
Fuel Cells with Heat Recovery				
Waste Heat to Power*	<1 MW	\$1,000	30%	\$2 million
	> 1MW	\$500		\$3 million

\*Waste Heat to Power: Powered by non-renewable fuel source, heat recovery or other mechanical recovery from existing equipment utilizing new electric generation equipment (e.g. steam turbine).

Check the NJCEP website for details on program availability, current incentive levels, and requirements.

### How to Participate

You will work with a qualified developer or consulting firm to complete the CHP application. Once the application is approved the project can be installed. Information about the CHP program can be found at [www.njcleanenergy.com/CHP](http://www.njcleanenergy.com/CHP).

### 8.3 Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects, but owners of solar projects *must* register their projects prior to the start of construction to establish the project’s eligibility to earn SREC-IIs (Solar Renewable Energy Certificates-II). SuSI consists of two sub-programs. The Administratively Determined Incentive (ADI) Program and the Competitive Solar Incentive (CSI) Program.

#### Administratively Determined Incentive (ADI) Program

The ADI Program provides administratively set incentives for net metered residential projects, net metered non-residential projects 5 MW or less, and all community solar projects.

After the registration is accepted, construction is complete, and a complete final as-built packet has been submitted, the project is issued a New Jersey certification number, which enables it to generate New Jersey SREC- IIs.

Market Segments	Size MW dc	Incentive Value (\$/SREC II)	Public Entities Incentive Value - \$20 Adder (\$/SRECII)
Net Metered Residential	All types and sizes	\$90	N/A
Small Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects smaller than 1 MW	\$100	\$120
Large Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects 1 MW to 5 MW	\$90	\$110
Small Net Metered Non-Residential Ground Mount	Projects smaller than 1 MW	\$85	\$105
Large Net Metered Non-Residential Ground Mount	Projects 1 MW to 5 MW	\$80	\$100
LMI Community Solar	Up to 5 MW	\$90	N/A
Non-LMI Community Solar	Up to 5 MW	\$70	N/A
Interim Subsection (t)	All types and sizes	\$100	N/A

Eligible projects may generate SREC-IIs for 15 years following the commencement of commercial operations which is defined as permission to operate (PTO) from the Electric Distribution Company. After 15 years, projects may be eligible for a NJ Class I REC.

SREC-IIs will be purchased monthly by the SREC-II Program Administrator who will allocate the SREC-IIs to the Load Serving Entities (BGS Providers and Third-Party Suppliers) annually based on their market share of retail electricity sold during the relevant Energy Year.

The ADI Program online portal is now open to new registrations effective August 28, 2021.

#### Competitive Solar Incentive Program

The Competitive Solar Incentive (CSI) Program will provide competitively set incentives for grid supply projects and net metered non-residential projects greater than 5MW. The program is currently under development with the goal of holding the first solicitation by early-to-mid 2022. For updates, please continue to check the [Solar Proceedings](#) page on the New Jersey’s Clean Energy Program website.

Solar projects help the State of New Jersey reach renewable energy goals outlined in the state’s Energy Master Plan.

If you are considering installing solar photovoltaics on your building, visit the following link for more information: <https://nccleanenergy.com/renewable-energy/programs/susi-program>.

## 8.4 Energy Savings Improvement Program

The Energy Savings Improvement Program (ESIP) serves New Jersey's government agencies by financing energy projects. An ESIP is a type of performance contract, whereby school districts, counties, municipalities, housing authorities, and other public and state entities enter into contracts to help finance building energy upgrades. Annual payments are lower than the savings projected from the energy conservation measures (ECMs), ensuring that ESIP projects are cash flow positive for the life of the contract.

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 described above can also be used to help further reduce the total project cost of eligible measures.

### How to Participate

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 used 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 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. Carefully consider all alternatives to develop an approach that best meets your needs. A detailed program descriptions and application can be found at [www.njcleanenergy.com/ESIP](http://www.njcleanenergy.com/ESIP).

*ESIP is a program delivered directly by the NJBPU and is not an NJCEP incentive program. As mentioned above, you can use NJCEP incentive programs to help further reduce costs when developing the energy savings plan. Refer to the ESIP guidelines at the link above for further information and guidance on next steps.*

## 9 PROJECT DEVELOPMENT

Energy conservation measures (ECMs) have been identified for your site, and their energy and economic analyses are provided within this LGEA report. Note that some of the identified projects may be mutually exclusive, such as replacing equipment versus upgrading motors or controls. The next steps with project development are to set goals and create a comprehensive project plan. The graphic below provides an overview of the process flow for a typical energy efficiency or renewable energy project. We recommend implementing as many ECMs as possible prior to undertaking a feasibility study for a renewable project. The cyclical nature of this process flow demonstrates the ongoing work required to continually improve building energy efficiency over time. If your building(s) scope of work is relatively simple to implement or small in scope, the measurement and verification (M&V) step may not be required. It should be noted through a typical project cycle, there will be changes in costs based on specific scopes of work, contractor selections, design considerations, construction, etc. The estimated costs provided throughout this LGEA report demonstrate the unburdened turn-key material and labor cost only. There will be contingencies and additional costs at the time of implementation. We recommend comprehensive project planning that includes the review of multiple bids for project work, incorporates potential operations and maintenance (O&M) cost savings, and maximizes your incentive potential.

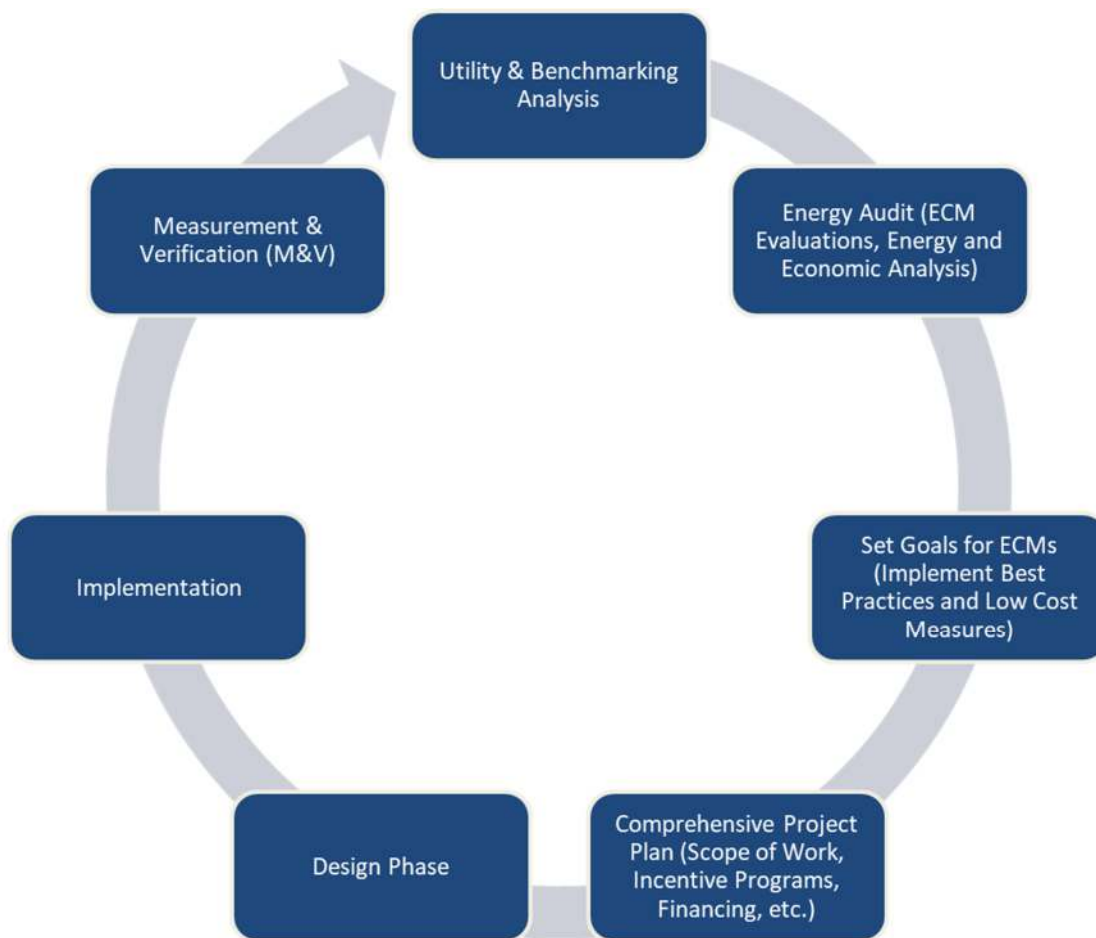


Figure 10 – Project Development Cycle

## 10 ENERGY PURCHASING AND PROCUREMENT STRATEGIES

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### 10.1 Retail Electric Supply Options

Energy deregulation in New Jersey has increased energy buyers' options by separating the function of electricity distribution from that of electricity supply. 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 already buys electricity from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party electric suppliers is available at the NJBPU website<sup>8</sup>.

### 10.2 Retail Natural Gas Supply Options

The natural gas market in New Jersey is also deregulated. Most customers that remain with the utility for natural gas service pay rates that are market based and fluctuate monthly. The utility provides basic gas supply service 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 typically depends on whether a customer prefers 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 does not already purchase natural gas from a third-party supplier, consider shopping for a reduced rate from third-party natural gas suppliers. If your facility already purchases natural gas from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party natural gas suppliers is available at the NJBPU website<sup>9</sup>.

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<sup>8</sup> [www.state.nj.us/bpu/commercial/shopping.html](http://www.state.nj.us/bpu/commercial/shopping.html).

<sup>9</sup> [www.state.nj.us/bpu/commercial/shopping.html](http://www.state.nj.us/bpu/commercial/shopping.html).

# APPENDIX A: EQUIPMENT INVENTORY & RECOMMENDATIONS

## Lighting Inventory & Recommendations

Location	Existing Conditions						Proposed Conditions						Energy Impact & Financial Analysis								
	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Auditorium	2	Compact Fluorescent: (1) 65W Spiral Plug-In Lamp	Wall Switch	S	65	4,400	3, 4	Relamp	Yes	2	LED Lamps: LED Lamps	Occupancy Sensor	46	3,036	0.0	325	0	\$21	\$150	\$22	6.0
Auditorium	9	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	9	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Auditorium	1	LED Lamps: (1) 6W A19 Screw-In Lamp	None	S	6	4,400		None	No	1	LED Lamps: (1) 6W A19 Screw-In Lamp	None	6	4,400	0.0	0	0	\$0	\$0	\$0	0.0
Auditorium	2	LED Lamps: (1) 65W Corn Bulb Screw-In Lamp	Wall Switch	S	65	4,400	4	None	Yes	2	LED Lamps: (1) 65W Corn Bulb Screw-In Lamp	Occupancy Sensor	65	3,036	0.0	195	0	\$13	\$116	\$20	7.5
Auditorium	3	LED - Fixtures: Downlight Recessed	Wall Switch	S	15	4,400	4	None	Yes	3	LED - Fixtures: Downlight Recessed	Occupancy Sensor	15	3,036	0.0	68	0	\$4	\$270	\$35	53.2
Auditorium	58	LED - Fixtures: Downlight Recessed	Wall Switch	S	15	4,400	4	None	Yes	58	LED - Fixtures: Downlight Recessed	Occupancy Sensor	15	3,036	0.2	1,305	0	\$85	\$1,080	\$140	11.0
Classroom 100	23	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	23	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.7	4,674	-1	\$306	\$1,380	\$300	3.5
Classroom 102	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6
Classroom 104	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	610	0	\$40	\$380	\$65	7.9
Classroom 104B	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 104C	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 104D	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 104E	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 104F	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 104G	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 106	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Classroom 112	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.5	3,048	-1	\$199	\$818	\$185	3.2
Classroom 114	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.5	3,048	-1	\$199	\$818	\$185	3.2
Classroom 116	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Classroom 118	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 120	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 122	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.5	2,204	0	\$144	\$730	\$200	3.7
Classroom 124	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.5	3,048	-1	\$199	\$818	\$185	3.2
Classroom 136	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.6	4,065	-1	\$266	\$1,270	\$270	3.8
Classroom 136	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	551	0	\$36	\$183	\$50	3.7

Existing Conditions							Proposed Conditions							Energy Impact & Financial Analysis							
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Classroom 136	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 137	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 137	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	551	0	\$36	\$183	\$50	3.7
Classroom 138	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,102	0	\$72	\$365	\$100	3.7
Classroom 138	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 139	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 139	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	882	0	\$58	\$292	\$80	3.7
Classroom 140	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 140	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 141	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 141	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 142	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 142	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 144	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 144	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 146	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,102	0	\$72	\$365	\$100	3.7
Classroom 146	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 147	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.3	1,829	0	\$120	\$599	\$125	4.0
Classroom 148	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 148	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	220	0	\$14	\$73	\$20	3.7
Classroom 149	23	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	3,036	3	Relamp	No	23	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.8	3,802	-1	\$249	\$1,260	\$345	3.7
Classroom 150A	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	7	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	771	0	\$50	\$256	\$70	3.7
Classroom 150A	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Classroom 150B	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	551	0	\$36	\$183	\$50	3.7
Classroom 150B	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7



Location	Existing Conditions						Proposed Conditions							Energy Impact & Financial Analysis							
	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Classroom 158	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 158	35	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	35	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	1.1	7,113	-1	\$465	\$2,088	\$455	3.5
Classroom 161	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	551	0	\$36	\$183	\$50	3.7
Classroom 161	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 163	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.3	1,322	0	\$86	\$438	\$120	3.7
Classroom 163	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	661	0	\$43	\$219	\$60	3.7
Classroom 164	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.3	1,322	0	\$86	\$438	\$120	3.7
Classroom 164	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	551	0	\$36	\$183	\$50	3.7
Classroom 165	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	551	0	\$36	\$183	\$50	3.7
Classroom 165	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 180	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.5	3,658	-1	\$239	\$927	\$215	3.0
Classroom 181	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 181	38	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	38	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	1.1	7,723	-2	\$505	\$2,198	\$485	3.4
Classroom 182	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 183	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 183	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	331	0	\$22	\$110	\$30	3.7
Classroom 183	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.1	716	0	\$47	\$262	\$60	4.3
Classroom 185	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 185	26	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	26	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	1.4	9,310	-2	\$609	\$2,439	\$590	3.0
Classroom 187	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,432	0	\$94	\$562	\$115	4.8
Classroom Auto Body	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,400	3, 4	Relamp	Yes	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	106	0	\$7	\$18	\$5	1.9
Classroom Auto Body	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	203	0	\$13	\$37	\$10	2.0
Classroom Auto Body	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,074	0	\$70	\$489	\$95	5.6
Classroom Auto Body	29	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	29	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	1.5	10,384	-2	\$679	\$2,658	\$650	3.0
Computer Lab 156	25	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	25	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.8	5,081	-1	\$332	\$1,453	\$320	3.4

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Conference 135D	17	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	17	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.8	5,182	-1	\$339	\$1,471	\$325	3.4
Conference 137D	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,074	0	\$70	\$489	\$95	5.6
Corridor 104A	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Corridor 2 Gym	7	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	7	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Corridor 2 Gym	7	Linear Fluorescent - T8: 4' T8 (32W) - 2L	None	S	62	4,400	3, 5	Relamp	Yes	7	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.2	1,423	0	\$93	\$706	\$315	4.2
Corridor 2 Gym	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	610	0	\$40	\$335	\$135	5.0
Corridor 2 Gym	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 5	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	3,036	0.1	915	0	\$60	\$389	\$150	4.0
Corridor 4	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Corridor 4	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.3	1,829	0	\$120	\$779	\$405	3.1
Corridor 4	14	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 5	Relamp	Yes	14	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,036	0.7	5,013	-1	\$328	\$1,697	\$770	2.8
Corridor 5	5	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	5	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Corridor 5	6	LED Lamps: (1) 12W BR30 Screw-In Lamp	Wall Switch	S	12	4,400	5	None	Yes	6	LED Lamps: (1) 12W BR30 Screw-In Lamp	High/Low Control	12	3,036	0.0	108	0	\$7	\$225	\$210	2.1
Corridor 5	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	813	0	\$53	\$371	\$180	3.6
Corridor 5	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.2	1,219	0	\$80	\$444	\$270	2.2
Corridor 5	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 5	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	High/Low Control	58	3,036	0.4	2,865	-1	\$187	\$1,034	\$440	3.2
Corridor 6	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Corridor 6	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Dining Area Teachers 178	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	4,400	4	None	Yes	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	3,036	0.0	15	0	\$1	\$0	\$0	0.0
Dining Area Teachers 178	8	LED - Fixtures: Ambient 2x4 Fixture	Wall Switch	S	35	4,400	4	None	Yes	8	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	35	3,036	0.1	420	0	\$27	\$270	\$35	8.6
Dining Area	8	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	8	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Dining Area	28	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	4,400	4	None	Yes	28	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	3,036	0.1	420	0	\$27	\$540	\$70	17.1
Dining Area	84	LED - Fixtures: Ambient 2x4 Fixture	Wall Switch	S	35	4,400	4	None	Yes	84	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	35	3,036	0.7	4,411	-1	\$288	\$1,620	\$210	4.9
Electrical Room 1	10	Linear Fluorescent - T8: 3' T8 (25W) - 1L	Wall Switch	S	27	1,000	3, 4	Relamp	Yes	10	LED - Linear Tubes: (1) 3' Lamp	Occupancy Sensor	11	690	0.1	217	0	\$14	\$453	\$85	25.9
Exterior 4	5	Compact Fluorescent: (1) 23W Spiral Screw-In Lamp	Timeclock		23	4,380	3	Relamp	No	5	LED Lamps: LED Lamps	Timeclock	16	4,380	0.0	151	0	\$10	\$86	\$5	8.0
Exterior 4	2	Compact Fluorescent: (1) 55W Spiral Screw-In Lamp	Wall Switch		55	4,400	3	Relamp	No	2	LED Lamps: LED Lamps	Wall Switch	39	4,400	0.0	145	0	\$10	\$34	\$2	3.3

Existing Conditions							Proposed Conditions							Energy Impact & Financial Analysis							
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Exterior 4	2	High-Pressure Sodium: (1) 250W Lamp	Timeclock		295	4,380	1	Fixture Replacement	No	2	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Timeclock	75	4,380	0.0	1,927	0	\$129	\$891	\$200	5.4
Exterior 4	4	Incandescent: (1) 60W A19 Screw-In Lamp	Timeclock		60	4,380	3	Relamp	No	4	LED Lamps: A19 Lamps	Timeclock	9	4,380	0.0	894	0	\$60	\$69	\$4	1.1
Exterior 4	8	LED Lamps: (1) 10W A19 Screw-In Lamp	Timeclock		10	4,380		None	No	8	LED Lamps: (1) 10W A19 Screw-In Lamp	Timeclock	10	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior 4	9	LED Lamps: (1) 100W Corn Bulb Screw-In Lamp	Timeclock		100	4,380		None	No	9	LED Lamps: (1) 100W Corn Bulb Screw-In Lamp	Timeclock	100	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior 4	6	LED - Fixtures: Flood Fixture	Photocell		75	4,380		None	No	6	LED - Fixtures: Flood Fixture	Photocell	75	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior 4	12	LED Lamps: (1) 12W PAR30 Screw-In Lamp	Timeclock		12	4,380		None	No	12	LED Lamps: (1) 12W PAR30 Screw-In Lamp	Timeclock	12	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior 4	19	LED - Fixtures: Wall Pack	Timeclock		85	4,380		None	No	19	LED - Fixtures: Wall Pack	Timeclock	85	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Gymnasium 1	7	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	7	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Gymnasium 1	16	Linear Fluorescent - T5HO: 4' T5HO (54W) - 4L	Wall Switch	S	234	4,400	3, 4	Relamp	Yes	16	LED - Linear Tubes: (4) 4' T5HO (25W) Lamps	Occupancy Sensor	102	3,036	1.9	12,671	-3	\$828	\$2,229	\$390	2.2
Gymnasium 1	16	Linear Fluorescent - T5HO: 4' T5HO (54W) - 4L	Wall Switch	S	234	4,400	3, 4	Relamp	Yes	16	LED - Linear Tubes: (4) 4' T5HO (25W) Lamps	Occupancy Sensor	102	3,036	1.9	12,671	-3	\$828	\$2,229	\$390	2.2
Janitorial 173JC	1	LED Lamps: (11) 10W A19 Screw-In Lamps	Occupancy Sensor	S	110	345		None	No	1	LED Lamps: (11) 10W A19 Screw-In Lamps	Occupancy Sensor	110	345	0.0	0	0	\$0	\$0	\$0	0.0
Janitorial 4	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	500	3	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	500	0.0	10	0	\$1	\$18	\$5	21.1
Kitchen 1	6	Compact Fluorescent: (1) 23W Spiral Screw-In Lamp	Wall Switch	S	23	4,400	3, 4	Relamp	Yes	6	LED Lamps: LED Lamps	Occupancy Sensor	16	3,036	0.1	345	0	\$23	\$373	\$41	14.7
Kitchen 1	6	LED Lamps: (1) 22W Corn Bulb Screw-In Lamp	Wall Switch	S	22	4,400	4	None	Yes	6	LED Lamps: (1) 22W Corn Bulb Screw-In Lamp	Occupancy Sensor	22	3,036	0.0	198	0	\$13	\$270	\$35	18.1
Kitchen 1	32	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	32	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	1.0	6,503	-1	\$425	\$1,978	\$425	3.7
Kitchen 2 Serving Line	23	LED - Fixtures: Ambient 2x4 Fixture	Wall Switch	S	40	4,400	4	None	Yes	23	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	40	3,036	0.2	1,380	0	\$90	\$540	\$70	5.2
Lobby 1 Kitchen	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Lobby 1 Kitchen	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	813	0	\$53	\$371	\$180	3.6
Locker Room 171	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Locker Room 171	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	610	0	\$40	\$380	\$65	7.9
Locker Room 171	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Locker Room 174	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Locker Room 174	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	813	0	\$53	\$416	\$75	6.4
Locker Room 174	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.1	915	0	\$60	\$434	\$80	5.9
Locker Room 177MT- Kitchen	2	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	4,400	4	None	Yes	2	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	3,036	0.0	30	0	\$2	\$116	\$20	48.9

Location	Existing Conditions						Proposed Conditions						Energy Impact & Financial Analysis								
	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Locker Room 177MT- Kitchen	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Locker Room JC110	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.1	716	0	\$47	\$262	\$60	4.3
Mechanical BR152	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,000	0.0	36	0	\$2	\$37	\$10	11.2
Mechanical BR152	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,000	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	690	0.2	244	0	\$16	\$489	\$95	24.7
Mechanical ME105	5	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	S	32	690	3	Relamp	No	5	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	690	0.1	66	0	\$4	\$91	\$25	15.3
Mechanical Pool	3	LED Lamps: (1) 50W Corn Bulb Screw-In Lamp	Wall Switch	S	50	1,000	4	None	Yes	3	LED Lamps: (1) 50W Corn Bulb Screw-In Lamp	Occupancy Sensor	50	690	0.0	51	0	\$3	\$270	\$35	70.3
Office - Enclosed 101A	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	220	0	\$14	\$73	\$20	3.7
Office - Enclosed 106A	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	813	0	\$53	\$416	\$75	6.4
Office - Enclosed 11 Kitchen	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6
Office - Enclosed 12 Kitchen	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6
Office - Enclosed 126	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Office - Enclosed 128	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	661	0	\$43	\$219	\$60	3.7
Office - Enclosed 130	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.5	2,204	0	\$144	\$730	\$200	3.7
Office - Enclosed 132	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Office - Enclosed 134	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Office - Enclosed 135	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.6	4,065	-1	\$266	\$1,270	\$270	3.8
Office - Enclosed 135	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.1	915	0	\$60	\$434	\$80	5.9
Office - Enclosed 135C	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,626	0	\$106	\$562	\$115	4.2
Office - Enclosed 135D	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,626	0	\$106	\$562	\$115	4.2
Office - Enclosed 135F	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,626	0	\$106	\$562	\$115	4.2
Office - Enclosed 135G	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	813	0	\$53	\$416	\$75	6.4
Office - Enclosed 135H	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6
Office - Enclosed 136A	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Office - Enclosed 137	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Office - Enclosed 137A	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6

Location	Existing Conditions						Proposed Conditions						Energy Impact & Financial Analysis								
	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Office - Enclosed 137B	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6
Office - Enclosed 137C	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6
Office - Enclosed 137G	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6
Office - Enclosed 137H	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6
Office - Enclosed 137I	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.1	716	0	\$47	\$262	\$60	4.3
Office - Enclosed 137J	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.1	716	0	\$47	\$262	\$60	4.3
Office - Enclosed 137K	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.1	716	0	\$47	\$262	\$60	4.3
Office - Enclosed 137L	2	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	S	63	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 2' Lamps	Occupancy Sensor	34	3,036	0.1	383	0	\$25	\$246	\$44	8.1
Office - Enclosed 137M	2	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	S	63	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 2' Lamps	Occupancy Sensor	34	3,036	0.1	383	0	\$25	\$246	\$44	8.1
Office - Enclosed 137N	2	Linear Fluorescent - T8: 2' T8 (17W) - 4L	Wall Switch	S	63	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 2' Lamps	Occupancy Sensor	34	3,036	0.1	383	0	\$25	\$246	\$44	8.1
Office - Enclosed 137O	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	813	0	\$53	\$416	\$75	6.4
Office - Enclosed 140	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Office - Enclosed 15 Trainer	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Office - Enclosed 151	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.4	2,865	-1	\$187	\$854	\$195	3.5
Office - Enclosed 152A	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Office - Enclosed 167	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.3	2,032	0	\$133	\$635	\$135	3.8
Office - Enclosed 168 Nurse Office	10	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	10	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.5	3,048	-1	\$199	\$818	\$185	3.2
Office - Enclosed 171A	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	4,400	0.0	240	0	\$16	\$55	\$15	2.5
Office - Enclosed 171GS	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3	Relamp	No	1	LED - Linear Tubes: (4) 4' Lamps	Wall Switch	58	4,400	0.0	271	0	\$18	\$73	\$20	3.0
Office - Enclosed 173A	1	Compact Fluorescent: (1) 23W Spiral Screw-In Lamp	Wall Switch	S	23	4,400	3, 4	Relamp	Yes	1	LED Lamps: LED Lamps	Occupancy Sensor	16	3,036	0.0	58	0	\$4	\$287	\$36	66.8
Office - Enclosed 173A	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	4,400	4	None	Yes	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	3,036	0.0	15	0	\$1	\$0	\$0	0.0
Office - Enclosed 173A	1	Linear Fluorescent - T12: 2' T12 (20W) - 2L	Wall Switch	S	50	4,400	2, 4	Relamp & Reballast	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	3,036	0.0	185	0	\$12	\$65	\$6	4.9
Office - Enclosed 173A	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.0	110	0	\$7	\$37	\$10	3.7
Office - Enclosed 174A	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6
Office - Enclosed 174B	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	406	0	\$27	\$189	\$40	5.6

Existing Conditions							Proposed Conditions							Energy Impact & Financial Analysis							
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Office - Open Plan 137	17	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	17	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.5	3,455	-1	\$226	\$1,161	\$240	4.1
Pool 1	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Pool 1	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.1	426	0	\$28	\$343	\$55	10.3
Pool 1	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,626	0	\$106	\$562	\$115	4.2
Pool 1	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	813	0	\$53	\$416	\$75	6.4
Restroom - Female 072GT	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Restroom - Female 104GT	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Restroom - Female BT101	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.2	1,524	0	\$100	\$544	\$110	4.4
Restroom - Female GT101	5	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	5	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.2	1,524	0	\$100	\$544	\$110	4.4
Restroom - Female GT145	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,432	0	\$94	\$562	\$115	4.8
Restroom - Female GT174	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,432	0	\$94	\$562	\$115	4.8
Restroom - Female GT154	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,074	0	\$70	\$489	\$95	5.6
Restroom - Male BT072	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Restroom - Male BT104	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Restroom - Male BT145	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,432	0	\$94	\$562	\$115	4.8
Restroom - male BT154	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,074	0	\$70	\$489	\$95	5.6
Restroom - Male BT174	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,432	0	\$94	\$562	\$115	4.8
Restroom - Unisex CT157	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,400		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	4,400	0.0	0	0	\$0	\$0	\$0	0.0
Restroom - Unisex GT168	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	4,400	4	None	Yes	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	3,036	0.0	15	0	\$1	\$270	\$35	239.5
Restroom - Unisex GT168	1	Linear Fluorescent - T12: 2' T12 (20W) - 2L	Wall Switch	S	50	4,400	2, 4	Relamp & Reballast	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	3,036	0.0	185	0	\$12	\$65	\$6	4.9
Restroom - Unisex WT171	1	Compact Fluorescent: (1) 23W Spiral Screw-In Lamp	Wall Switch	S	23	4,400	3, 4	Relamp	Yes	1	LED Lamps: LED Lamps	Occupancy Sensor	16	3,036	0.0	58	0	\$4	\$287	\$36	66.8
Restroom - Unisex WT171	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.1	358	0	\$23	\$73	\$20	2.3
Restroom - Unisex CT181	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,400	3	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	4,400	0.0	85	0	\$6	\$18	\$5	2.4
Restroom - Unisex JC101	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,400		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	4,400	0.0	0	0	\$0	\$0	\$0	0.0
Storage SC072	5	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,000	3, 4	Relamp	Yes	5	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	690	0.1	121	0	\$8	\$361	\$25	42.5

Existing Conditions							Proposed Conditions							Energy Impact & Financial Analysis							
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Storage 100A	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,000	3	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,000	0.1	145	0	\$9	\$146	\$40	11.2
Storage 100SC	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,000	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,000	0.0	36	0	\$2	\$37	\$10	11.2
Storage 102A	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,000	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,000	0.0	73	0	\$5	\$73	\$20	11.2
Storage 102SC	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,000	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,000	0.0	36	0	\$2	\$37	\$10	11.2
Storage 104GS	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.1	185	0	\$12	\$416	\$40	31.1
Storage 108GS	33	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,000	3, 4	Relamp	Yes	33	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	690	0.5	798	0	\$52	\$1,412	\$165	23.9
Storage 137GS	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,000	3	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,000	0.0	19	0	\$1	\$18	\$5	10.5
Storage 17 Outside	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,000	2, 4	Relamp & Reballast	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	75	0	\$5	\$185	\$10	35.7
Storage 17 Outside	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	46	0	\$3	\$37	\$10	8.8
Storage 173GS	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	690	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	25	0	\$2	\$37	\$10	16.2
Storage 174D	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	46	0	\$3	\$307	\$10	98.2
Storage 174D	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	46	0	\$3	\$37	\$10	8.8
Storage 174D	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	46	0	\$3	\$37	\$10	8.8
Storage 174D	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	46	0	\$3	\$37	\$10	8.8
Storage 174D	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.1	92	0	\$6	\$189	\$20	28.0
Storage 176B	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.1	92	0	\$6	\$189	\$20	28.0
Storage 176B	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,000	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	690	0.1	163	0	\$11	\$146	\$40	10.0
Storage 177JC	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,000	0.0	36	0	\$2	\$37	\$10	11.2
Storage WT177	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	1,000	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	690	0.0	23	0	\$2	\$149	\$6	93.2
Storage WT177	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	46	0	\$3	\$37	\$10	8.8
Storage 181GS	1	Linear Fluorescent - EST12: 4' T12 (34W) - 2L	Wall Switch	S	72	1,000	2, 4	Relamp & Reballast	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	57	0	\$4	\$185	\$10	46.7
Storage 181GS	1	Linear Fluorescent - T12: 8' T12 (75W) - 2L	Wall Switch	S	158	1,000	2, 4	Relamp & Reballast	Yes	1	LED - Linear Tubes: (2) 8' Lamps	Occupancy Sensor	72	690	0.1	119	0	\$8	\$129	\$20	14.0
Storage 183B	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,000	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	690	0.1	163	0	\$11	\$262	\$40	20.9
Storage 185GS	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,000	0.0	36	0	\$2	\$37	\$10	11.2
Storage 185GS	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,000	3, 4	Relamp	Yes	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	690	0.1	163	0	\$11	\$262	\$40	20.9

Location	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Storage 23	10	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,000	3, 4	Relamp	Yes	10	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	690	0.2	242	0	\$16	\$453	\$50	25.4
Storage 258	12	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	690		None	No	12	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	690	0.0	0	0	\$0	\$0	\$0	0.0
Storage DR152	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.1	92	0	\$6	\$189	\$20	28.0
Storage GS119	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	S	29	1,000		None	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,000	0.0	0	0	\$0	\$0	\$0	0.0
Storage Gym	6	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	8,760	3, 4	Relamp	Yes	6	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	6,044	0.1	1,272	0	\$83	\$380	\$30	4.2
Storage JC107	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,000	3, 4	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	690	0.0	73	0	\$5	\$325	\$15	65.3
Auditorium	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Auditorium	5	LED - Fixtures: Downlight Recessed	Wall Switch	S	15	4,400	4	None	Yes	5	LED - Fixtures: Downlight Recessed	Occupancy Sensor	15	3,036	0.0	113	0	\$7	\$270	\$35	31.9
Classroom 200	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 200	24	Linear Fluorescent - RWT8: 4' RWT8 (28W) - 2L	Wall Switch	S	49	4,400	3, 4	Relamp	Yes	24	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.5	3,367	-1	\$220	\$1,416	\$310	5.0
Classroom 200	6	Linear Fluorescent - RWT8: 4' RWT8 (28W) - 2L	Wall Switch	S	49	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	842	0	\$55	\$489	\$95	7.2
Classroom 200B	1	Linear Fluorescent - RWT8: 4' RWT8 (28W) - 2L	Wall Switch	S	49	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	97	0	\$6	\$37	\$10	4.2
Classroom 202	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 202	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 204	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 204	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 206	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 206	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 208	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 208	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 210	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 210	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 213	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 213	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 212	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9



Location	Existing Conditions						Proposed Conditions						Energy Impact & Financial Analysis								
	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Classroom 212	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 214	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 214	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 216	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 216	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 218	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 218	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 220	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 220	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 221	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 221	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 222	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 222	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 223	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 223	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 224	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 224	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 225	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 225	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 226	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 226	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 228	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 228	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 230	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	661	0	\$43	\$219	\$60	3.7
Classroom 230	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7

Location	Existing Conditions						Proposed Conditions							Energy Impact & Financial Analysis							
	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Classroom 232	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	661	0	\$43	\$219	\$60	3.7
Classroom 232	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 233	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 233	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	661	0	\$43	\$219	\$60	3.7
Classroom 234	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 234	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	661	0	\$43	\$219	\$60	3.7
Classroom 235	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,400	3, 4	Relamp	Yes	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	213	0	\$14	\$153	\$30	8.8
Classroom 235	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	319	0	\$21	\$55	\$15	1.9
Classroom 235	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.2	1,219	0	\$80	\$219	\$60	2.0
Classroom 235	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 236	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	661	0	\$43	\$219	\$60	3.7
Classroom 236	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 238	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	661	0	\$43	\$219	\$60	3.7
Classroom 238	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 240	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 240	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	661	0	\$43	\$219	\$60	3.7
Classroom 241	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,102	0	\$72	\$365	\$100	3.7
Classroom 241	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 242	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 242	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.1	661	0	\$43	\$219	\$60	3.7
Classroom 243	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Classroom 243	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,653	0	\$108	\$548	\$150	3.7
Classroom 244	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,102	0	\$72	\$365	\$100	3.7
Classroom 244	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 250	24	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	3,036		None	No	24	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0

Location	Existing Conditions						Proposed Conditions							Energy Impact & Financial Analysis							
	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Classroom 251	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	3,036		None	No	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 252	24	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	3,036		None	No	24	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 253	24	LED - Fixtures: Ambient - 4' - Direct Fixture	Occupancy Sensor	S	15	3,036		None	No	24	LED - Fixtures: Ambient - 4' - Direct Fixture	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 256A	20	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	3,036		None	No	20	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 256B	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	3,036		None	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 258	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	3,036		None	No	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 260	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	3,036		None	No	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 262	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	3,036		None	No	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 264	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	3,036		None	No	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 266	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	3,036		None	No	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 269	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 269	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 271	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Classroom 271	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.4	1,984	0	\$130	\$657	\$180	3.7
Classroom 273	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 273	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	4,400	0.0	160	0	\$10	\$37	\$10	2.5
Classroom 275	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	3,036	3	Relamp	No	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	992	0	\$65	\$329	\$90	3.7
Classroom 275	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,219	0	\$80	\$489	\$95	4.9
Computer Lab Library 219C	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.5	3,223	-1	\$211	\$927	\$215	3.4
Corridor 1	13	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	13	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Corridor 1	13	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	13	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.4	2,642	-1	\$173	\$1,150	\$585	3.3
Corridor 1	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.2	1,626	0	\$106	\$742	\$360	3.6
Corridor 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Corridor 1	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 5	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	610	0	\$40	\$335	\$135	5.0
Janitorial JC229	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	S	32	3,036	3	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.0	58	0	\$4	\$18	\$5	3.5

Location	Existing Conditions						Proposed Conditions						Energy Impact & Financial Analysis								
	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Janitorial JC254	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,400	3	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	4,400	0.0	85	0	\$6	\$18	\$5	2.4
Library 1	40	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,400	3, 4	Relamp	Yes	40	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.6	4,258	-1	\$278	\$1,540	\$305	4.4
Library 3	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Library 3	30	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,400	3, 4	Relamp	Yes	30	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.5	3,194	-1	\$209	\$1,088	\$220	4.2
Library 3	114	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,400	3, 4	Relamp	Yes	114	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	1.8	12,136	-3	\$794	\$4,241	\$850	4.3
Library 3	35	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	4,400	3, 4	Relamp	Yes	35	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	3,036	0.6	3,726	-1	\$244	\$1,449	\$280	4.8
Mechanical Auditorium	5	Compact Fluorescent: (1) 65W Spiral Screw-In Lamp	Wall Switch	S	65	4,400	3, 4	Relamp	Yes	5	LED Lamps: LED Lamps	Occupancy Sensor	46	3,036	0.1	813	0	\$53	\$356	\$40	5.9
Mechanical Auditorium	2	LED Lamps: (1) 50W Corn Bulb Screw-In Lamp	Wall Switch	S	50	4,400	4	None	Yes	2	LED Lamps: (1) 50W Corn Bulb Screw-In Lamp	Occupancy Sensor	50	3,036	0.0	150	0	\$10	\$116	\$20	9.8
Mechanical Gym	11	LED Lamps: (1) 15W Corn Bulb Screw-In Lamp	Wall Switch	S	15	4,400	4	None	Yes	11	LED Lamps: (1) 15W Corn Bulb Screw-In Lamp	Occupancy Sensor	15	3,036	0.0	248	0	\$16	\$270	\$35	14.5
Mechanical Kitchen	5	LED Lamps: (1) 50W Corn Bulb Screw-In Lamp	Wall Switch	S	50	4,400	4	None	Yes	5	LED Lamps: (1) 50W Corn Bulb Screw-In Lamp	Occupancy Sensor	50	3,036	0.1	375	0	\$25	\$270	\$35	9.6
Office - Enclosed 219E	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,432	0	\$94	\$562	\$115	4.8
Office - Enclosed 219E	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,432	0	\$94	\$562	\$115	4.8
Office - Enclosed 220E	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,432	0	\$94	\$562	\$115	4.8
Office - Enclosed 248	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	S	114	3,036	3	Relamp	No	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	748	0	\$49	\$292	\$80	4.3
Office - Enclosed 268	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,400	3, 4	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	3,036	0.2	1,626	0	\$106	\$562	\$115	4.2
Office - Enclosed Teachers Lounge	8	LED Lamps: (1) 12W A19 Screw-In Lamp	Wall Switch	S	12	4,400	4	None	Yes	8	LED Lamps: (1) 12W A19 Screw-In Lamp	Occupancy Sensor	12	3,036	0.0	144	0	\$9	\$270	\$35	25.0
Restroom - Female GT201	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,074	0	\$70	\$489	\$95	5.6
Restroom - Female GT229	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,074	0	\$70	\$489	\$95	5.6
Restroom - Female GT254	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,074	0	\$70	\$489	\$95	5.6
Restroom - Female WT254	2	LED Lamps: (10) 10W A19 Screw-In Lamps	Wall Switch	S	100	4,400	4	None	Yes	2	LED Lamps: (10) 10W A19 Screw-In Lamps	Occupancy Sensor	100	3,036	0.0	300	0	\$20	\$270	\$35	12.0
Restroom - Female WT254	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	4,400	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	3,036	0.0	103	0	\$7	\$33	\$6	3.9
Restroom - Male BT229	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,074	0	\$70	\$489	\$95	5.6
Restroom - Male BT254	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,074	0	\$70	\$489	\$95	5.6
Restroom - Male MT254	2	LED Lamps: (10) 10W A19 Screw-In Lamps	Wall Switch	S	100	4,400	4	None	Yes	2	LED Lamps: (10) 10W A19 Screw-In Lamps	Occupancy Sensor	100	3,036	0.0	300	0	\$20	\$270	\$35	12.0
Restroom - Male MT254	1	Linear Fluorescent - T12: 2' T12 (20W) - 1L	Wall Switch	S	25	4,400	2, 4	Relamp & Reballast	Yes	1	LED - Linear Tubes: (1) 2' Lamp	Occupancy Sensor	9	3,036	0.0	93	0	\$6	\$49	\$3	7.5

Existing Conditions							Proposed Conditions							Energy Impact & Financial Analysis							
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Restroom - Male 201	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	4,400	3, 4	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	3,036	0.2	1,074	0	\$70	\$489	\$95	5.6
Server Room 315DR	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Server Room 315DR	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,000	3, 4	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.5	831	0	\$54	\$1,197	\$250	17.4
Storage 200SC	2	Linear Fluorescent - RWT8: 4' RWT8 (28W) - 2L	Wall Switch	S	49	1,000	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	64	0	\$4	\$189	\$20	40.5
Storage 219A	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,000	3, 4	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	690	0.3	488	0	\$32	\$708	\$120	18.4
Storage 219B	10	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,000	3, 4	Relamp	Yes	10	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	690	0.5	814	0	\$53	\$1,000	\$200	15.0
Storage 251A	9	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	S	15	1,000	4	None	Yes	9	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	690	0.0	45	0	\$3	\$270	\$0	92.8
Storage 252A	6	LED - Fixtures: Ambient - 4' - Direct Fixture	Wall Switch	S	15	1,000	4	None	Yes	6	LED - Fixtures: Ambient - 4' - Direct Fixture	Occupancy Sensor	15	690	0.0	31	0	\$2	\$270	\$0	134.6
Storage 260A	4	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	S	15	1,000	4	None	Yes	4	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	690	0.0	20	0	\$1	\$270	\$0	208.8
Storage Darkroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	690	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.0	50	0	\$3	\$73	\$20	16.2
Storage GS217	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	S	32	690	3	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	690	0.0	27	0	\$2	\$37	\$10	15.3
Storage GS246	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,000	3	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,000	0.0	19	0	\$1	\$18	\$5	10.5
Storage GS251	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,000	3	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,000	0.0	19	0	\$1	\$18	\$5	10.5
Storage GS252	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	690	3	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	690	0.1	100	0	\$7	\$146	\$40	16.2
Storage GS253	2	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	S	33	690	3	Relamp	No	2	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	690	0.0	24	0	\$2	\$65	\$12	33.4
Storage Science	10	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	S	15	690		None	No	10	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	690	0.0	0	0	\$0	\$0	\$0	0.0
Mechanical BR152	2	Compact Fluorescent: (1) 32W Spiral Screw-In Lamp	Wall Switch	S	32	1,000	3, 5	Relamp	Yes	2	LED Lamps: LED Lamps	High/Low Control	22	690	0.0	36	0	\$2	\$259	\$72	78.8
Mechanical BR152	1	Compact Fluorescent: (1) 55W Spiral Screw-In Lamp	Wall Switch	S	55	1,000	3	Relamp	No	1	LED Lamps: LED Lamps	Wall Switch	39	1,000	0.0	18	0	\$1	\$17	\$1	13.7
Mechanical BR152	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Mechanical BR152	7	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,000	3, 4	Relamp	Yes	7	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	690	0.4	570	0	\$37	\$781	\$175	16.3
Mechanical BR152	3	Linear Fluorescent - T8: 8' T8 (59W) - 2L	Wall Switch	S	110	10,000	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 8' Lamps	Occupancy Sensor	72	6,900	0.1	1,991	0	\$130	\$536	\$35	3.8
Mechanical Library/Server 315ME	10	Compact Fluorescent: (1) 55W Spiral Screw-In Lamp	Wall Switch	S	55	1,000	3, 4	Relamp	Yes	10	LED Lamps: LED Lamps	Occupancy Sensor	39	690	0.2	313	0	\$20	\$442	\$45	19.4
Stairs EX1	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	813	0	\$53	\$371	\$180	3.6
Stairs EX1	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Stairs EX10	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	813	0	\$53	\$371	\$180	3.6

Location	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Stairs EX10	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Stairs EX17	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	813	0	\$53	\$371	\$180	3.6
Stairs EX17	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Stairs EX18	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Stairs EX18	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Stairs EX19	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	610	0	\$40	\$335	\$135	5.0
Stairs EX19	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Stairs EX5	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	610	0	\$40	\$335	\$135	5.0
Stairs EX5	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Stairs EX6	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	610	0	\$40	\$335	\$135	5.0
Stairs EX6	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8
Stairs EX7	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	610	0	\$40	\$335	\$135	5.0
Stairs EX7	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	4,400	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,036	0.1	406	0	\$27	\$298	\$90	7.8

**Motor Inventory & Recommendations**

Location	Area(s)/System(s) Served	Existing Conditions									Proposed Conditions					Energy Impact & Financial Analysis						
		Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Manufacturer	Model	Remaining Useful Life	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical BR152	1969 High School	2	Air Compressor	5.0	89.5%	No	Weg	005180T3E184T-S	W	500		No	89.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 High School	4	Exhaust Fan	0.2	65.0%	No	Unknown	Unknown	W	3,600		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Kitchen 1	Kitchen 1	2	Exhaust Fan	0.3	65.0%	No	Unknown	Unknown	W	3,600		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Auditorium	Mechanical Auditorium	1	Exhaust Fan	10.0	91.7%	Yes	Baldor	Unknown	W	3,600		No	91.7%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Auditorium	Mechanical Auditorium	1	Exhaust Fan	1.0	82.5%	No	Dayton	3N488C	W	3,600		No	82.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Auditorium	Mechanical Auditorium	1	Exhaust Fan	1.5	82.5%	No	Unknown	Unknown	B	3,600	6	Yes	86.5%	No		0.0	169	0	\$11	\$758	\$0	67.0
Mechanical Gym	Gymnasium	1	Exhaust Fan	3.0	87.5%	No	Century	Unknown	W	3,960		No	87.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Exhaust Fan	2.0	84.0%	No	Reliance	Unknown	B	3,960	6	Yes	86.5%	No		0.0	152	0	\$10	\$532	\$0	52.2
Mechanical Gym	Gymnasium	1	Exhaust Fan	3.0	87.5%	No	Unknown	Unknown	W	3,960		No	87.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Exhaust Fan	2.0	84.0%	No	Unknown	Unknown	W	3,960		No	84.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Exhaust Fan	0.5	70.0%	No	Dayton	3N027N	W	3,960		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Exhaust Fan	3.0	87.5%	No	Century	Unknown	W	3,960		No	87.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Exhaust Fan	0.5	70.0%	No	Dayton	2N103BA	W	3,960		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Exhaust Fan	0.5	70.0%	No	Dayton	3N027N	W	3,960		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Kitchen	Kitchen 1	1	Kitchen Hood Exhaust Fan	3.0	87.5%	No	Century	Unknown	W	2,000		No	87.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Kitchen	Kitchen 1	1	Exhaust Fan	0.5	70.0%	No	Dayton	2N103BA	W	3,600		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior 2	1969 High School	4	Exhaust Fan	0.5	70.0%	No	Dayton	3GY696	W	3,600		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior 2	1969 High School	2	Exhaust Fan	0.2	65.0%	No	Dayton	Unknown	W	3,600		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical library/server 315me	Library	1	Exhaust Fan	0.5	70.0%	No	Unknown	Unknown	W	3,600		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical library/server 315me	Library	3	Exhaust Fan	0.5	70.0%	No	Dayton	3GY696	W	3,600		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0

		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?	Manufacturer	Model	Remaining Useful Life	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical library/server 315me	Library	1	Exhaust Fan	2.0	84.0%	No	Westinghouse	313P105	W	3,600		No	84.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical library/server 315me	Library	1	Exhaust Fan	1.5	84.0%	No	Dayton	3KW266	W	3,600		No	84.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical library/server 315me	Library	1	Exhaust Fan	2.0	84.0%	No	Westinghouse	313P105	W	3,600		No	84.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical library/server 315me	Library	1	Exhaust Fan	0.3	65.0%	No	Reliance	Unknown	W	3,600		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical library/server 315ME	Library	1	Exhaust Fan	0.1	65.0%	No	Dayton	3N655A	W	3,600		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical library/server 315ME	Library	3	Exhaust Fan	0.8	70.0%	No	Dayton	3N042K	W	3,600		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical BR152	1969 High School	1	Heating Hot Water Pump	25.0	91.7%	No	Weg	025180T3E284T	W	2,920		No	91.7%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical BR152	1969 High School	1	Heating Hot Water Pump	25.0	93.0%	No	US Electric	T625	W	2,920		No	93.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical BR152	1969 High School	2	DHW Circulation Pump	0.1	65.0%	No	Taco	004-SF1	W	8,760		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical BR152	1969 High School	1	Heating Hot Water Pump	0.1	65.0%	No	Bell & Gossett	NRF-22 103251	W	5,840		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical BR152	1969 High School	2	Heating Hot Water Pump	20.0	93.0%	Yes	Weg	256TC	W	2,920		No	93.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Gymnasium	Gymnasium	20	Other	0.2	65.0%	No	Unknown	Unknown	W	100		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Pool	Pool	2	Pool Filtration Pump	3.0	87.5%	No	Unknown	Unknown	W	200		No	87.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Pool	Pool	2	Other	0.1	65.0%	No	Unknown	Unknown	W	1,000		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Storage 108GS	Elevator	1	Other	25.0	75.5%	No	US Motors	EZ25S1BZ	W	500		No	75.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical BR152	1969 High School	2	Process Pump	1.0	83.5%	No	Baldor	VEM31116	W	360		No	83.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 High School	87	Supply Fan	0.2	65.0%	No	Unknown	Unknown	W	3,600		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 High School	10	Fan Coil Unit	0.2	65.0%	No	Unknown	Unknown	W	2,745		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Classroom 187	Classroom 187	1	Supply Fan	0.5	70.0%	No	Unknown	Unknown	W	3,600		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical ME105	Auditorium	1	Supply Fan	1.5	86.5%	No	Unknown	Unknown	W	3,600		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0



		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?	Manufacturer	Model	Remaining Useful Life	Annual Operating Hours	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Storage 181GS	Classroom 181	1	Supply Fan	0.5	70.0%	No	Unknown	Unknown	W	3,600		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Storage 185GS	Classroom 185	1	Supply Fan	0.5	70.0%	No	Unknown	Unknown	W	3,600		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Classroom 235	Classroom 235	1	Supply Fan	0.5	70.0%	No	Unknown	Unknown	W	3,600		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Auditorium	Auditorium	1	Supply Fan	25.0	93.6%	Yes	Baldor	EHM2531T	W	3,600		No	93.6%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Supply Fan	2.0	86.5%	No	Dayton	3N693D	W	3,960		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Supply Fan	3.0	87.5%	No	Dayton	3KX01G	W	3,960		No	87.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Supply Fan	3.0	86.5%	No	Unknown	Unknown	B	3,960	6	Yes	89.5%	No		0.0	258	0	\$17	\$876	\$0	50.9
Mechanical Gym	Gymnasium	1	Supply Fan	7.5	91.0%	No	Marathon	213TTDB6026	W	3,960		No	91.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Supply Fan	3.0	86.5%	No	Century	H887L	W	3,960		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Supply Fan	3.0	86.5%	No	Century	H887L	W	3,960		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Gym	Gymnasium	1	Supply Fan	3.0	86.5%	No	Unknown	Unknown	B	3,960	6	Yes	89.5%	No		0.0	258	0	\$17	\$876	\$0	50.9
Mechanical Kitchen	Kitchen	1	Supply Fan	10.0	91.7%	No	Unknown	Unknown	W	3,600		No	91.7%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Kitchen	Kitchen	1	Supply Fan	2.0	86.5%	No	Unknown	Unknown	W	3,600		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Kitchen	Kitchen	1	Supply Fan	2.0	86.5%	No	Unknown	Unknown	W	3,600		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical library/server 315ME	Library	1	Supply Fan	3.0	87.5%	No	Dayton	3KX01G	W	3,600		No	87.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical library/server 315ME	Library	1	Supply Fan	3.0	87.5%	No	Dayton	3KX01G	W	3,600		No	87.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Server Room 315DR	Server Room	4	Supply Fan	1.5	86.5%	No	Unknown	Unknown	W	8,760		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Storage 072SC	1969 High School	2	Process Pump	1.0	85.5%	No	Unknown	Unknown	W	500		No	85.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior 2	1969 High School	1	Other	3.0	88.5%	No	Unknown	Unknown	W	500		No	88.5%	No		0.0	0	0	\$0	\$0	\$0	0.0

**Packaged 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 (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Manufacturer	Model	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Server Room 315DR	Server Room 315DR	4	Split-System	5.00		10.00		Liebert	DCSF083LZ/BU067A-AAEI	B	7	Yes	4	Split-System	5.00		16.00		4.5	18,000	0	\$1,203	\$26,083	\$2,100	19.9
Exterior 2	1969 Hgih School	1	Split-System	3.00		11.00		York	HBBD-F036SB	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior 2	1969 Hgih School	1	Ductless Mini-Split AC	1.50		10.00		Frigidaire	Unknown	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior 2	1969 Hgih School	1	Split-System	2.00		10.00		York	AC024X1021A	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior 2	Cafeteria	2	Split-System	20.00		10.50		McQuay	RCS020DYY	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior 2	1969 Hgih School	1	Split-System	10.00		9.50		York	HCHB-W120AA	B	7	Yes	1	Split-System	10.00		14.00		2.0	3,248	0	\$217	\$4,224	\$790	15.8
Exterior 2	1969 Hgih School	2	Split-System	12.50		9.00		York	HCHB-W150AC	B	7	Yes	2	Split-System	12.50		14.00		6.0	9,524	0	\$636	\$3,061	\$2,225	1.3
Exterior 2	1969 Hgih School	1	Split-System	0.75		12.00		McQuay	RSC07F090D	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior 2	Auditorium	2	Split-System	50.00		11.10		Trane	RAUJCS04BC13A0D00001	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	2	Electric Resistance Heat		3.42		1 COP	Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	2	Electric Resistance Heat		2.56		1 COP	Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	1	Window AC	0.50		11.00		Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	9	Window AC	0.83		10.00		Dayton	39EY95B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	12	Window AC	1.00		10.50		Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	4	Window AC	1.50		10.00		Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	3	Window AC	1.67		10.30		Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	1	Window AC	1.83		10.00		Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	8	Window AC	2.00		9.50		Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	1	Window AC	2.75		9.00		Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	1969 Hgih School	4	Window AC	2.92		9.10		Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0

		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 (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Manufacturer	Model	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
1969 High School	1969 Hgih School	6	Window AC	3.00		9.00		Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0

**Space Heating Boiler Inventory & Recommendations**

Location	Area(s)/System(s) Served	Existing Conditions						Proposed Conditions							Energy Impact & Financial Analysis					
		System Quantity	System Type	Output Capacity per Unit (MBh)	Manufacturer	Model	Remaining Useful Life	ECM #	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	Estimated M&L Cost (\$)	Total Incentives
Mechanical BR152	1969 High School	6	Condensing Hot Water Boiler	2,610	Aerco	Benchmade 3.0	W		No					0.0	0	0	\$0	\$0	\$0	0.0
Mechanical Pool	Pool	2	Non-Condensing Hot Water Boiler	320	Unknown	Unknown	W		No					0.0	0	0	\$0	\$0	\$0	0.0

**Pipe Insulation Recommendations**

Location	Area(s)/System(s) Affected	Recommendation Inputs			Energy Impact & Financial Analysis						
		ECM #	Length of Uninsulated Pipe (ft)	Pipe Diameter (in)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical BR152	1969 High School	8	50	1.00	0.0	0	23	\$157	\$360	\$100	1.7
Storage 108GS	1969 High School	8	30	1.00	0.0	0	14	\$94	\$216	\$60	1.7
Storage 108GS	1969 High School	8	65	0.75	0.0	0	24	\$163	\$468	\$130	2.1

**DHW Inventory & Recommendations**

Location	Area(s)/System(s) Served	Existing Conditions						Proposed Conditions							Energy Impact & Financial Analysis					
		System Quantity	System Type	Manufacturer	Model	Remaining Useful Life	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical BR152	1969 High School	3	Boiler	Aerco	INN1060	W		No					0.0	0	0	\$0	\$0	\$0	0.0	

**Low-Flow Device Recommendations**

Location	Recommendation Inputs					Energy Impact & Financial Analysis						
	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
1969 Plainfield High School	9	6	Faucet Aerator (Kitchen)	2.20	1.50	0.0	0	1	\$8	\$43	\$12	3.8
1969 Plainfield High School	9	2	Faucet Aerator (Lavatory)	2.50	0.50	0.0	0	1	\$8	\$14	\$7	0.9
Kitchen	9	1	Pre-Rinse Spray Valve	2.50	1.28	0.0	0	1	\$9	\$124	\$0	13.4

**Walk-In Cooler/Freezer Inventory & Recommendations**

Location	Existing Conditions				Proposed Conditions			Energy Impact & Financial Analysis							
	Cooler/Freezer Quantity	Case Type/Temperature	Manufacturer	Model	ECM #	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	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen 1	1	Cooler (35F to 55F)	Standex	MHHZ0071B		No	No	No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen 1	1	Cooler (35F to 55F)	Standex	MHHZ0071B		No	No	No	0.0	0	0	\$0	\$0	\$0	0.0
Exterior 4	1	Low Temp Freezer (-35F to -5F)	Standex	Unknown		No	No	No	0.0	0	0	\$0	\$0	\$0	0.0
Exterior 4	1	Medium Temp Freezer (0F to 30F)	Standex	Unknown		No	No	No	0.0	0	0	\$0	\$0	\$0	0.0

**Commercial Refrigerator/Freezer Inventory & Recommendations**

Location	Existing Conditions					Proposed Conditions		Energy Impact & Financial Analysis						
	Quantity	Refrigerator/ Freezer Type	Manufacturer	Model	ENERGY STAR Qualified?	ECM #	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Classroom 149	1	Stand-Up Refrigerator, Solid Door (31 - 50 cu. ft.)	Frigidaire	Unknown	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0
1969 High School	10	Refrigerator Chest	Unknown	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Storage 176B	1	Freezer Chest	Unknown	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen 2 Serving line	2	Refrigerator Chest	Unknown	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Storage 176B	1	Stand-Up Refrigerator, Glass Door (≤15 cu. ft.)	Unknown	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen 1	1	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	Everest	Unknown	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen 1	1	Stand-Up Refrigerator, Solid Door (31 - 50 cu. ft.)	Everest	Unknown	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0

**Commercial Ice Maker Inventory & Recommendations**

Location	Existing Conditions					Proposed Conditions		Energy Impact & Financial Analysis						
	Quantity	Ice Maker Type	Manufacturer	Model	ENERGY STAR Qualified?	ECM #	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen 1	1	Ice Making Head (≥450 lbs/day), Continuous	Manitowoc	IYT1500A-261	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0
Trainer	1	Ice Making Head (≥450 lbs/day), Batch	Agion	ICEU220HA3	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0

**Cooking Equipment Inventory & Recommendations**

Existing Conditions						Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Equipment Type	Manufacturer	Model	High Efficiency Equipment?	ECM #	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen 1	2	Gas Combination Oven/Steam Cooker (<15 Pans)	Vulcan	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen 1	1	Electric Fryer	Vulcan	3ER50AF-2	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen 1	3	Electric Griddle (3 Feet Width)	Vulcan	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen 2 Serving line	2	Insulated Food Holding Cabinet (Full Size)	Metro	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen 1	2	Gas Rack Oven (Double)	Vulcan	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen 1	1	Electric Steamer	Duke	DC-E304-25SS-SW	No		No	0.0	0	0	\$0	\$0	\$0	0.0

**Dishwasher Inventory & Recommendations**

Existing Conditions								Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Dishwasher Type	Manufacturer	Model	Water Heater Fuel Type	Booster Heater Fuel Type	ENERGY STAR Qualified?	ECM #	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost (\$)	Total Incentives	Payback w/ Incentives in Years
Kitchen 1	1	Single Tank Conveyor (High Temp)	Hobart	Unknown	Natural Gas	N/A	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 158	1	Under Counter (Low Temp)	GE	GDF520PGJ6BB	Natural Gas	N/A	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0

**Plug Load Inventory**

Existing Conditions						
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified ?	Manufacturer	Model
Kitchen 1	2	Mini Refrigerator	126	No	Unknown	Unknown
Kitchen 1	1	Braising Pan	11,500	No	Groen	BPM-30EC
Kitchen 1	1	Kettle	11,000	No	Groen	DEE/4T-40C
Kitchen 1	1	Pizza Oven	2,800	No	Vollrath	Unknown
Kitchen 2 Serving Line	1	3- Level Food Warmer	800	No	Hatco	Unknown
Kitchen 2 Serving Line	1	1- Level Food Warmer	300	No	Hatco	Unknown
1969 High School	4	Clothes Dryer	5,000	No	GE	Unknown
1969 High School	4	Clothes Washer	1,200	No	GE	Unknown
1969 High School	11	Coffee Machine	500	No	Varied	Varied
1969 High School	224	Desktop	270	No	Dell	Unknown
1969 High School	13	Electric Space Heater	1,500	No	Varied	Varied
1969 High School	3	Large Fan	1,000	No	Dayton	Unknown
1969 High School	47	Fan	200	No	Varied	Varied
Storage 100A	1	Kiln	7,000	No	Unknown	Unknown
Storage 100SC	1	Kiln	7,500	No	Unknown	Unknown
Storage 102A	1	Kiln	7,300	No	Amaco	AH10
Storage 183B	1	Kiln	11,000	No	Skutt	KM-1227
1969 High School	2,547	Laptop	75	No	Varied	Varied
1969 High School	23	Microwave	800	No	Varied	Varied
1969 High School	15	Paper Shredder	100	No	Varied	Varied
1969 High School	125	Printer	200	No	Varied	Varied
1969 High School	11	Copier	1,500	No	Varied	Varied
1969 High School	3	Projector	100	No	Varied	Varied
1969 High School	19	Mini Refrigerator	126	No	Varied	Varied
1969 High School	5	Refrigerator	383	No	Varied	Varied
1969 High School	90	Smartboard	100	No	Varied	Varied
1969 High School	4	Television	120	No	Varied	Varied
1969 High School	1	Toaster Oven	1,500	No	Unknown	Unknown
Office - Enclosed 173A	1	Water Cooler	100	No	Unknown	Unknown
1969 High School	14	Water Fountain	100	No	Elkay	Unknown
1969 High School	125	Apple TV/HP	100	Yes	Apple	Unknown
1969 High School	26	Hand Dryer	1,500	No	Varied	Varied
1969 High School	2	Plotter	800	No	Unknown	Unknown
Classroom 187	1	Misc Tools	3,500	No	Varied	Varied
1969 High School	5	Oven/Stove Top	1,500	No	Unknown	Unknown

Existing Conditions						
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified ?	Manufacturer	Model
Office - Enclosed 15 Trainer	1	Hydro Heat Pack	500	No	Unknown	Unknown
Pool 1	1	Lift	1,500	No	Kone	Unknown
Kitchen 1	1	Cookware	1,800	No	Star	Grill Express
Storage 176B	2	Food Warmers	700	No	Vollrath	Cayenne
1969 High School	2	E Glass	120	No	E Glass	TDX-2405000
Storage Science	1	Ventilation Booth	500	No	Sheldon	Unknown
Server Room 315 DR	1	Misc Computer Equipment	5,000	No	Varied	Varied

### Vending Machine Inventory & Recommendations

Location	Existing Conditions		Proposed Conditions		Energy Impact & Financial Analysis						
	Quantity	Vending Machine Type	ECM #	Install Controls?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost (\$)	Total Incentives	Simple Payback w/ Incentives in Years
Dining Area	3	Glass Fronted Refrigerated	10	Yes	0.4	3,627	0	\$242	\$690	\$150	2.2
Dining Area Teachers 178	1	Non-Refrigerated	10	Yes	0.0	343	0	\$23	\$230	\$0	10.0
Dining Area	3	Non-Refrigerated	10	Yes	0.1	1,028	0	\$69	\$690	\$0	10.0
Dining Area Teachers 178	1	Refrigerated	10	Yes	0.2	1,612	0	\$108	\$230	\$50	1.7

# APPENDIX B: ENERGY STAR® STATEMENT OF ENERGY PERFORMANCE

Energy use intensity (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.

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			
<b>Property Address</b>	<b>Property Owner</b>	<b>Primary Contact</b>	
1969 Plainfield High School 920 Park Avenue Plainfield, New Jersey 07060	PlainfieldBOE 920 Park Avenue Plainfield, NJ 07060 (908) 731-4356	Kenneth Welch, Jr. 920 Park Avenue Plainfield, NJ 07060 (908) 731-4356 kwelch@plainfield.k12.nj.us	
<b>Property ID:</b> 22016357			
Energy Consumption and Energy Use Intensity (EUI)			
<b>Site EUI</b>	<b>Annual Energy by Fuel</b>	<b>National Median Comparison</b>	
75.6 kBtu/ft <sup>2</sup>	Natural Gas (kBtu) 13,505,157 (89%)	National Median Site EUI (kBtu/ft <sup>2</sup> )	91
	Electric - Solar (kBtu) 2,097,278 (10%)	National Median Source EUI (kBtu/ft <sup>2</sup> )	126.2
	Electric - Grid (kBtu) 4,210,061 (21%)	% Diff from National Median Source EUI	-17%
<b>Source EUI</b>		<b>Annual Emissions</b>	
106.4 kBtu/ft <sup>2</sup>		Greenhouse Gas Emissions (Metric Tons CO2e/year)	1,291

### Signature & Stamp of Verifying Professional

I \_\_\_\_\_ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Licensed Professional

\_\_\_\_\_  
( ) - \_\_\_\_\_  
\_\_\_\_\_



Professional Engineer or Registered Architect Stamp (if applicable)



## APPENDIX C: GLOSSARY

TERM	DEFINITION
<b>Blended Rate</b>	Used to calculate fiscal savings associated with measures. The blended rate is calculated by dividing the amount of your bill by the total energy use. For example, if your bill is \$22,217.22, and you used 266,400 kilowatt-hours, your blended rate is 8.3 cents per kilowatt-hour.
<b>Btu</b>	<i>British thermal unit</i> : a unit of energy equal to the amount of heat required to increase the temperature of one pound of water by one-degree Fahrenheit.
<b>CHP</b>	<i>Combined heat and power</i> . Also referred to as cogeneration.
<b>COP</b>	<i>Coefficient of performance</i> : a measure of efficiency in terms of useful energy delivered divided by total energy input.
<b>Demand Response</b>	Demand response reduces or shifts electricity usage at or among participating buildings/sites during peak energy use periods in response to time-based rates or other forms of financial incentives.
<b>DCV</b>	<i>Demand control ventilation</i> : a control strategy to limit the amount of outside air introduced to the conditioned space based on actual occupancy need.
<b>US DOE</b>	<i>United States Department of Energy</i>
<b>EC Motor</b>	<i>Electronically commutated motor</i>
<b>ECM</b>	<i>Energy conservation measure</i>
<b>EER</b>	<i>Energy efficiency ratio</i> : a measure of efficiency in terms of cooling energy provided divided by electric input.
<b>EUI</b>	<i>Energy Use Intensity</i> : measures energy consumption per square foot and is a standard metric for comparing buildings' energy performance.
<b>Energy Efficiency</b>	Reducing the amount of energy necessary to provide comfort and service to a building/area. Achieved through the installation of new equipment and/or optimizing the operation of energy use systems. Unlike conservation, which involves some reduction of service, energy efficiency provides energy reductions without sacrifice of service.
<b>ENERGY STAR®</b>	ENERGY STAR® is the government-backed symbol for energy efficiency. The ENERGY® STAR program is managed by the EPA.
<b>EPA</b>	<i>United States Environmental Protection Agency</i>
<b>Generation</b>	The process of generating electric power from sources of primary energy (e.g., natural gas, the sun, oil).
<b>GHG</b>	<i>Greenhouse gas</i> gases that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.
<b>gpf</b>	<i>Gallons per flush</i>

<b>gpm</b>	<i>Gallon per minute</i>
<b>HID</b>	<i>High intensity discharge: high-output lighting lamps such as high-pressure sodium, metal halide, and mercury vapor.</i>
<b>hp</b>	<i>Horsepower</i>
<b>HPS</b>	<i>High-pressure sodium: a type of HID lamp.</i>
<b>HSPF</b>	<i>Heating seasonal performance factor: a measure of efficiency typically applied to heat pumps. Heating energy provided divided by seasonal energy input.</i>
<b>HVAC</b>	<i>Heating, ventilating, and air conditioning</i>
<b>IHP 2014</b>	<i>US DOE Integral Horsepower rule. The current ruling regarding required electric motor efficiency.</i>
<b>IPLV</b>	<i>Integrated part load value: a measure of the part load efficiency usually applied to chillers.</i>
<b>kBtu</b>	<i>One thousand British thermal units</i>
<b>kW</b>	<i>Kilowatt: equal to 1,000 Watts.</i>
<b>kWh</b>	<i>Kilowatt-hour: 1,000 Watts of power expended over one hour.</i>
<b>LED</b>	<i>Light emitting diode: a high-efficiency source of light with a long lamp life.</i>
<b>LGEA</b>	<i>Local Government Energy Audit</i>
<b>Load</b>	<i>The total power a building or system is using at any given time.</i>
<b>Measure</b>	<i>A single activity, or installation of a single type of equipment, that is implemented in a building system to reduce total energy consumption.</i>
<b>MH</b>	<i>Metal halide: a type of HID lamp.</i>
<b>MBh</b>	<i>Thousand Btu per hour</i>
<b>MBtu</b>	<i>One thousand British thermal units</i>
<b>MMBtu</b>	<i>One million British thermal units</i>
<b>MV</b>	<i>Mercury Vapor: a type of HID lamp.</i>
<b>NJBPU</b>	<i>New Jersey Board of Public Utilities</i>
<b>NJCEP</b>	<i>New Jersey's Clean Energy Program: NJCEP is a statewide program that offers financial incentives, programs and services for New Jersey residents, business owners and local governments to help them save energy, money, and the environment.</i>
<b>psig</b>	<i>Pounds per square inch gauge</i>
<b>Plug Load</b>	<i>Refers to the amount of power used in a space by products that are powered by means of an ordinary AC plug.</i>
<b>PV</b>	<i>Photovoltaic: refers to an electronic device capable of converting incident light directly into electricity (direct current).</i>

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<b>SEER</b>	<i>Seasonal energy efficiency ratio</i> : a measure of efficiency in terms of annual cooling energy provided divided by total electric input.
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<b>SEP</b>	<i>Statement of energy performance</i> : a summary document from the ENERGY STAR® Portfolio Manager®.
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<b>Simple Payback</b>	The amount of time needed to recoup the funds expended in an investment or to reach the break-even point between investment and savings.
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<b>SREC</b>	<i>Solar renewable energy credit</i> : a credit you can earn from the state for energy produced from a photovoltaic array.
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<b>TREC</b>	<i>Transition Incentive Renewable Energy Certificate</i> : a factorized renewable energy certificate you can earn from the state for energy produced from a photovoltaic array.
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<b>T5, T8, T12</b>	A reference to a linear lamp diameter. The number represents increments of 1/8 <sup>th</sup> of an inch.
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<b>Temperature Setpoint</b>	The temperature at which a temperature regulating device (thermostat, for example) has been set.
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<b>therm</b>	100,000 Btu. Typically used as a measure of natural gas consumption.
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<b>tons</b>	A unit of cooling capacity equal to 12,000 Btu/hr.
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<b>Turnkey</b>	Provision of a complete product or service that is ready for immediate use.
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<b>VAV</b>	<i>Variable air volume</i>
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<b>VFD</b>	<i>Variable frequency drive</i> : a controller used to vary the speed of an electric motor.
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<b>WaterSense™</b>	The symbol for water efficiency. The WaterSense™ program is managed by the EPA.
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<b>Watt (W)</b>	Unit of power commonly used to measure electricity use.
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