



# Local Government Energy Audit Report

Monmouth Regional High School

May 18, 2023

*Prepared for:*

Monmouth Regional High School District  
1 Norman J. Field Way  
Tinton Falls, New Jersey 07724

*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 on 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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# 1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBP) has sponsored this Local Government Energy Audit (LGEA) report for Monmouth Regional 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



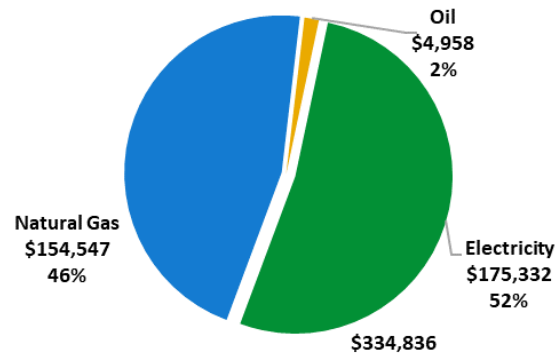
Costs: \$334,836

Electricity:  
1,978,034 kWh

Annual Utilities

Natural Gas:  
102,354 Therms

No. 2 Fuel Oil:  
1,216 Gallons



ENERGY STAR®  
Benchmarking Score

62  
(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.

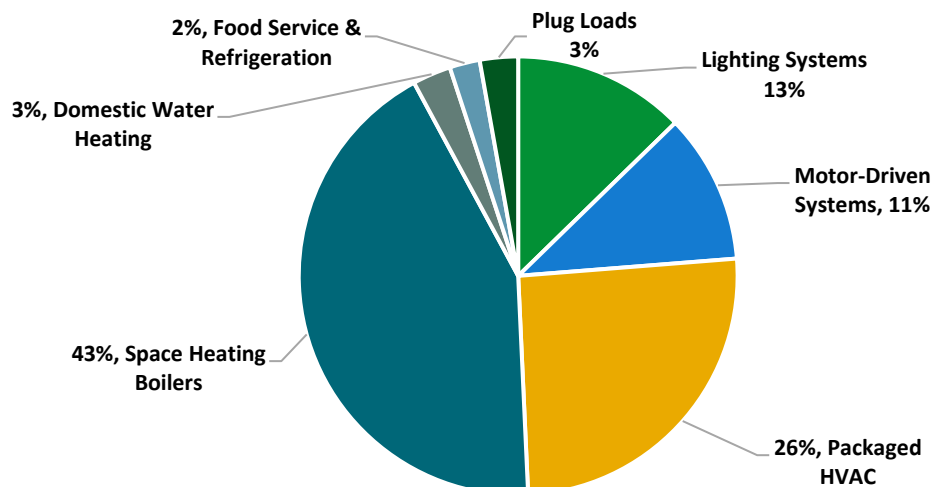


Figure 1 - Energy Use by System

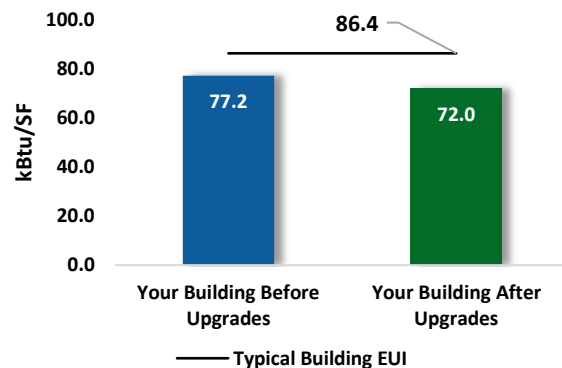
## POTENTIAL IMPROVEMENTS



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.

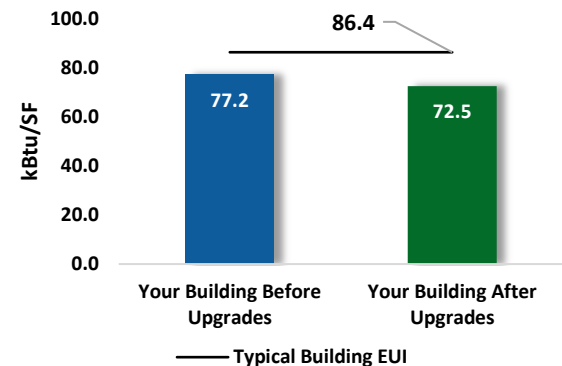
### Scenario 1: Full Package (All Evaluated Measures)

Installation Cost	\$328,153
Potential Rebates & Incentives <sup>1</sup>	\$47,282
Annual Cost Savings	\$44,775
Annual Energy Savings	Electricity: 353,094 kWh Natural Gas: -369 Therms No. 2 Fuel Oil: 2 Gallons
Greenhouse Gas Emission Savings	176 Tons
Simple Payback	6.3 Years
Site Energy Savings (All Utilities)	7%



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

Installation Cost	\$183,613
Potential Rebates & Incentives	\$39,833
Annual Cost Savings	\$40,209
Annual Energy Savings	Electricity: 317,602 kWh Natural Gas: -369 Therms
Greenhouse Gas Emission Savings	158 Tons
Simple Payback	3.6 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>173,899</b>	<b>31.0</b>	<b>-28</b>	<b>\$21,899</b>	<b>\$75,814</b>	<b>\$15,363</b>	<b>\$60,451</b>	<b>2.8</b>	<b>171,840</b>
ECM 1	Install LED Fixtures	Yes	40,058	0.1	0	\$5,141	\$18,837	\$2,900	\$15,937	3.1	40,329
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	11,388	2.7	-2	\$1,426	\$4,412	\$618	\$3,794	2.7	11,189
ECM 3	Retrofit Fixtures with LED Lamps	Yes	122,453	28.3	-26	\$15,332	\$52,565	\$11,845	\$40,720	2.7	120,322
<b>Lighting Control Measures</b>			<b>94,034</b>	<b>18.7</b>	<b>-20</b>	<b>\$11,773</b>	<b>\$75,109</b>	<b>\$19,620</b>	<b>\$55,489</b>	<b>4.7</b>	<b>92,390</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	79,896	16.5	-17	\$10,003	\$60,034	\$7,755	\$52,279	5.2	78,499
ECM 5	Install High/Low Lighting Controls	Yes	14,138	2.2	-3	\$1,770	\$15,075	\$11,865	\$3,210	1.8	13,891
<b>Variable Frequency Drive (VFD) Measures</b>			<b>43,249</b>	<b>13.0</b>	<b>0</b>	<b>\$5,551</b>	<b>\$29,267</b>	<b>\$4,500</b>	<b>\$24,767</b>	<b>4.5</b>	<b>43,551</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	43,249	13.0	0	\$5,551	\$29,267	\$4,500	\$24,767	4.5	43,551
<b>Unitary HVAC Measures</b>			<b>33,646</b>	<b>22.7</b>	<b>0</b>	<b>\$4,329</b>	<b>\$140,400</b>	<b>\$7,449</b>	<b>\$132,951</b>	<b>30.7</b>	<b>33,937</b>
ECM 7	Install High Efficiency Air Conditioning Units	No	33,332	22.2	0	\$4,288	\$137,762	\$7,449	\$130,313	30.4	33,621
ECM 8	Install High Efficiency Heat Pumps	No	313	0.4	0	\$40	\$2,638	\$0	\$2,638	65.6	315
<b>HVAC System Improvements</b>			<b>308</b>	<b>0.0</b>	<b>0</b>	<b>\$40</b>	<b>\$95</b>	<b>\$16</b>	<b>\$79</b>	<b>2.0</b>	<b>310</b>
ECM 9	Install Pipe Insulation	Yes	308	0.0	0	\$40	\$95	\$16	\$79	2.0	310
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>11</b>	<b>\$162</b>	<b>\$275</b>	<b>\$74</b>	<b>\$201</b>	<b>1.2</b>	<b>1,253</b>
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	11	\$162	\$275	\$74	\$201	1.2	1,253
<b>Food Service &amp; Refrigeration Measures</b>			<b>6,113</b>	<b>0.6</b>	<b>0</b>	<b>\$785</b>	<b>\$3,053</b>	<b>\$260</b>	<b>\$2,793</b>	<b>3.6</b>	<b>6,156</b>
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,640	0.1	0	\$211	\$1,213	\$160	\$1,053	5.0	1,652
ECM 12	Vending Machine Control	Yes	4,473	0.5	0	\$574	\$1,840	\$100	\$1,740	3.0	4,504
<b>Custom Measures</b>			<b>1,846</b>	<b>0.0</b>	<b>0</b>	<b>\$237</b>	<b>\$4,140</b>	<b>\$0</b>	<b>\$4,140</b>	<b>17.5</b>	<b>1,859</b>
ECM 13	Replace Electric Water Heater with Heat Pump Water Heater	No	1,846	0.0	0	\$237	\$4,140	\$0	\$4,140	17.5	1,859
<b>TOTALS (COST EFFECTIVE MEASURES)</b>			<b>317,602</b>	<b>63.3</b>	<b>-37</b>	<b>\$40,209</b>	<b>\$183,613</b>	<b>\$39,833</b>	<b>\$143,781</b>	<b>3.6</b>	<b>315,500</b>
<b>TOTALS (ALL MEASURES)</b>			<b>353,094</b>	<b>86.0</b>	<b>-37</b>	<b>\$44,775</b>	<b>\$328,153</b>	<b>\$47,282</b>	<b>\$280,871</b>	<b>6.3</b>	<b>351,295</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 and 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.

### Options from Your Utility Company

#### *Prescriptive and Custom Rebates*

For facilities wishing to pursue only selected individual measures (or planning to phase implementation of selected measures over multiple years), incentives are available through the Prescriptive and Custom Rebates program. To participate, you can use internal resources or an outside firm or contractor to perform the final design of the ECM(s) and install the equipment. Program pre-approval may be required for some incentives. Contact your utility company for more details prior to project installation.

#### *Direct Install*

The Direct Install program provides turnkey installation of multiple measures through an authorized contractor. This program can provide incentives up to 70% or 80% of the cost of selected measures. A Direct Install contractor will assess and verify individual measure eligibility and perform the installation work. The Direct Install program is available to sites with an average peak demand of less than 200 kW.

#### *Engineered Solutions*

The Engineered Solutions program provides tailored energy-efficiency assistance and turnkey engineering services to municipalities, universities, schools, hospitals, and healthcare facilities (MUSH), non-profit entities, and multifamily buildings. The program provides all professional services from audit, design, construction administration, to commissioning and measurement and verification for custom whole-building energy-efficiency projects. Engineered Solutions allows you to install as many measures as possible under a single project as well as address measures that may not qualify for other programs.

For more details on these programs please contact your utility provider.

## **Options from New Jersey's Clean Energy Program**

### *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 is designed to promote self-investment in energy efficiency. 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.

For more details on these programs please visit [New Jersey's Clean Energy Program website](#) .



## 2 EXISTING CONDITIONS

The New Jersey Board of Public Utilities (NJBP) has sponsored this Local Government Energy Audit (LGEA) report for Monmouth Regional 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 February 24, 2023, TRC performed an energy audit at Monmouth Regional High School located in Tinton Falls, New Jersey. TRC met with facility staff to review the facility operations and help focus our investigation on specific energy-using systems.

Monmouth Regional High School is a multi-story, 222,130 square foot building built in 1960. Spaces include classrooms, gymnasium, auditorium, offices, cafeteria, corridors, stairwells, a commercial kitchen, and mechanical space. In addition to the main building the campus has a concession stand, transportation facility, and woodshop storage unit.

### 2.2 Building Occupancy

The school is fully occupied from September through June. Typical weekday occupancy is 187 staff and 916 students. Summer occupancy includes a summer day camp and continuing maintenance activities.

Building Name	Weekday/Weekend	Operating Schedule
Monmouth Regional High School General	Weekday	6:00 AM - 10:00 PM
	Weekend	Varied
Monmouth Regional High School Classes	Weekday	7:30 AM - 2:00 PM
	Weekend	Saturday Activities 7:00 AM - 3:00 PM
Monmouth Regional High School After School	Weekday	3:00 PM - 5:00 PM
	Weekend	NA
Monmouth Regional High School Summer School	Weekday	8:00 AM - 12:00 PM
	Weekend	NA

*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 fair condition. The structure is composed of steel trusses and a metal deck and finished with an insulated layer.

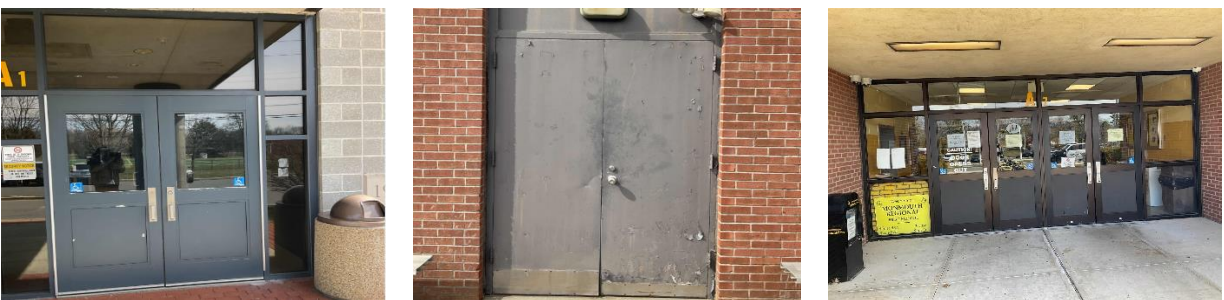


*Interior Structural Steel, Exterior Building Façade, and Flat Roof*

Most of the windows are double glazed and have aluminum frames with thermal breaks. 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*



*Exterior doors*



## 2.4 Lighting Systems

The primary interior lighting system uses 32-Watt linear fluorescent T8 lamps. There are also several 40-Watt T12 fixtures. Fixture types include 2- 3- or 4-lamp, 4-foot-long recessed troffers, and surface mounted fixtures as well as 2-foot fixtures with U-bend tube lamps. Typically, T8 fluorescent lamps use electronic ballasts and T12 fluorescent lamps use magnetic ballasts. The facility has several 25-Watt linear fluorescent T5 lamps and 54-Watt linear fluorescent T5HO lamps. Many fixtures have been changed out to 2x2 recessed LED fixtures.

Additionally, there are some compact fluorescent lamps (CFL) plug-in and LED lamps. Gymnasium fixtures have occupancy sensors controlling high bay LED fixtures. Auditorium fixtures have LED lamps and are manually controlled. All exit signs are LED. Most fixtures are in fair condition. Interior lighting levels were generally sufficient.



*LED Fixture, Recessed Troffer, and LED Gymnasium High Bay*

Most lighting fixtures are controlled manually and a few controlled by occupancy sensors.



*Wall Switches and Ceiling Mounted Occupancy Sensor*

Exterior fixtures include wall packs with metal halide or high-pressure sodium lamps or LED fixtures. Canopy lights have LED and linear fluorescent lamps.

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



*Re-lamped LED Wall Packs and Canopy Fixtures*

The site has pole-mounted shoe box metal halide fixtures illuminating roadways and parking lots throughout the complex. The site lighting is fed from the main campus electric meter. These fixtures have yellowed lenses and should be replaced. Fixtures are controlled by a timeclock; however, several were observed to be operating during the day.



*Shoe Box Pole Top Fixtures*

## 2.5 Air Handling Systems

### Unit Ventilators

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



*Unit Ventilators*

### Unitary Electric HVAC Equipment

Offices and classrooms are conditioned by ductless mini split air conditioning (AC) units and heat pumps. These vary in capacity between 3/4 and 3.75 – tons. The units are in mostly fair condition. They range in efficiency between 12 to 16 EER. Some of the units are ENERGY STAR labeled.



*Outdoor Condensing unit, Indoor Evaporator unit, and Thermostat*

Grounds Pole Barn is heated by suspended oil fired furnaces. Each has a capacity of 300 Mbh. The units are in poor condition.



*Oil Fired Furnace*

### **Packaged HVAC Units**

Classrooms, corridors, and other areas are served by packaged roof top units (RTUs). There are 21 gas-fired burner units ranging in size from 60 to 405 MBh. These units are equipped with economizers that are in fair condition.

Refer to Appendix A for detailed information about each unit.



*Gas-Fired Packaged RTUs and Electric Only Packaged RTUs*

### **Air Handling Units (AHUs)**

The facility has several rooftop AHUs and several indoor AHUs. The systems vary by location but mainly have hot water coils for heating and DX lines for cooling. They are controlled by the BMS system. Most of the larger units have supply and return motors, some with VFDs. The smaller indoor classroom units have DX built in for cooling and a hot water coil for heating. Refer to Appendix A for detailed information about each unit.

Certain AHUs are outfitted with air-to-air enthalpy wheels for energy recovery in the ventilation system.



*Rooftop AHU, Indoor Classroom AHU, and Indoor AHU*

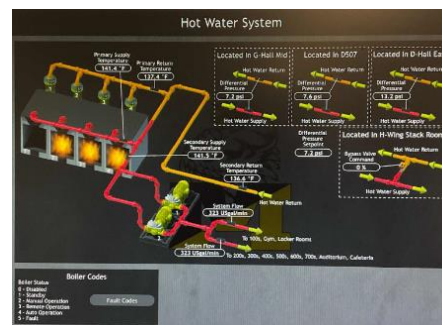


## 2.6 Heating Hot Water Systems

Four Aerco 3,000 MBh hot water boilers serve the building heating load. The burners are fully modulating with a nominal efficiency of 93 percent. The boilers are configured in an automated control scheme. Multiple are required under high load conditions. Installed in 2019, they are in good condition.

The hydronic distribution system is a 2- pipe primary/secondary loop heating only system.

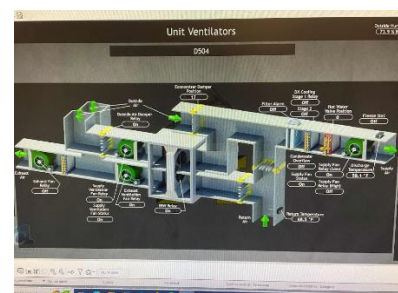
The boilers are configured with a constant flow primary circulation loop with two 30 hp VFD controlled hot water pumps serving the secondary distribution loop and operating with an automated control scheme. The boilers provide hot water to fin tube radiators, unit ventilators, makeup air units, and AHU fan coil throughout the building.



*Boilers, Heating Hot Water Pumps, and BMS Hot Water System Diagram*

## 2.7 Building Automation System (BAS)

A Schneider Electric BAS controls the HVAC equipment, boilers, air handlers, and package units. The BAS provides equipment scheduling control and monitors and controls space temperatures, supply air temperatures, humidity, and heating water loop temperatures.



*BAS Floorplan Diagram, AHU Diagram, and RTU Diagram*

## 2.8 Domestic Hot Water

Hot water is produced by three 130 gallon 500 MBh, 96% efficient gas-fired storage water. An 80 gallon 72.5 MBh gas-fired storage water heater supplies hot water to the kitchen. Two 40-gallon 4.5 kW electric resistance hot water storage water heaters supply hot water to the concession stand and transportation buildings.

Three fractional hp circulation pumps circulate water in a continuous loop to end uses. The circulation pumps operate continuously. Eight feet of pipe insulation is missing in the Transportation building and should be added.



*Primary Storage Tank Water Heaters, and DHW Circulation Pump and Tempering Valve, and Kitchen Storage Tank Water Heater*

## 2.9 Food Service Equipment

The kitchen has a mix of gas and electric equipment that is used to prepare meals for students. Most cooking is done using a gas-fired oven. Bulk prepared foods are held in several electric holding cabinets. Equipment is not high efficiency and is in fair condition.

The dishwasher is a non-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.



*Double Rack Oven, Fryer, Holding Cabinet, and Double Rack Oven*

## 2.10 Refrigeration

The kitchen has several stand-up refrigerators and freezers with solid doors. There are also energy efficient stand-up solid door refrigerators. There are freezer chests as well as a refrigerator chest.

The walk-in cooler has an estimated .4-ton compressor located on the roof and a two-fan evaporator.

The walk-in medium temperature freezer has a .5-ton compressor located on the roof 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.



*Walk-in and Stand-up Refrigerators*

## 2.11 Plug Load and Vending Machines

The location is doing a great job managing the electrical plug loads. This report makes additional suggestions for ECMs in this area as well as energy efficient best practices.

There are approximately 52 computer workstations throughout the facility and up to 1,200 laptops. Plug loads include general cafe and office equipment. There are classroom typical loads such as smart boards, projectors, and fans.

There are several mini refrigerators throughout the facility. These vary in condition and efficiency.

There are 4 refrigerated beverage vending machines and 6 non-refrigerated vending machines. Vending machines are not equipped with occupancy-based controls.



*Copier, Washer and Dryer, and Kiln*



## 2.12 Water-Using Systems

There are 15 restrooms with toilets and sinks. Faucet flow rates are at 0.5 gallons per minute (gpm) or higher.

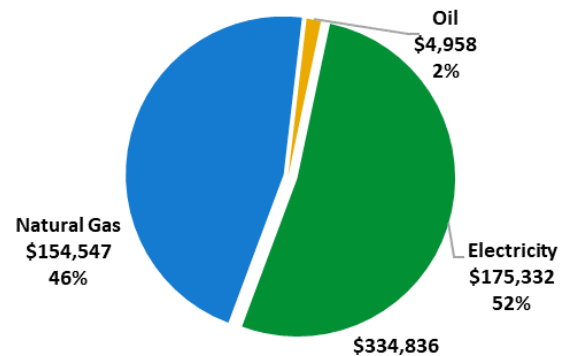


*Lavatory Sinks*

### 3 ENERGY USE AND COSTS

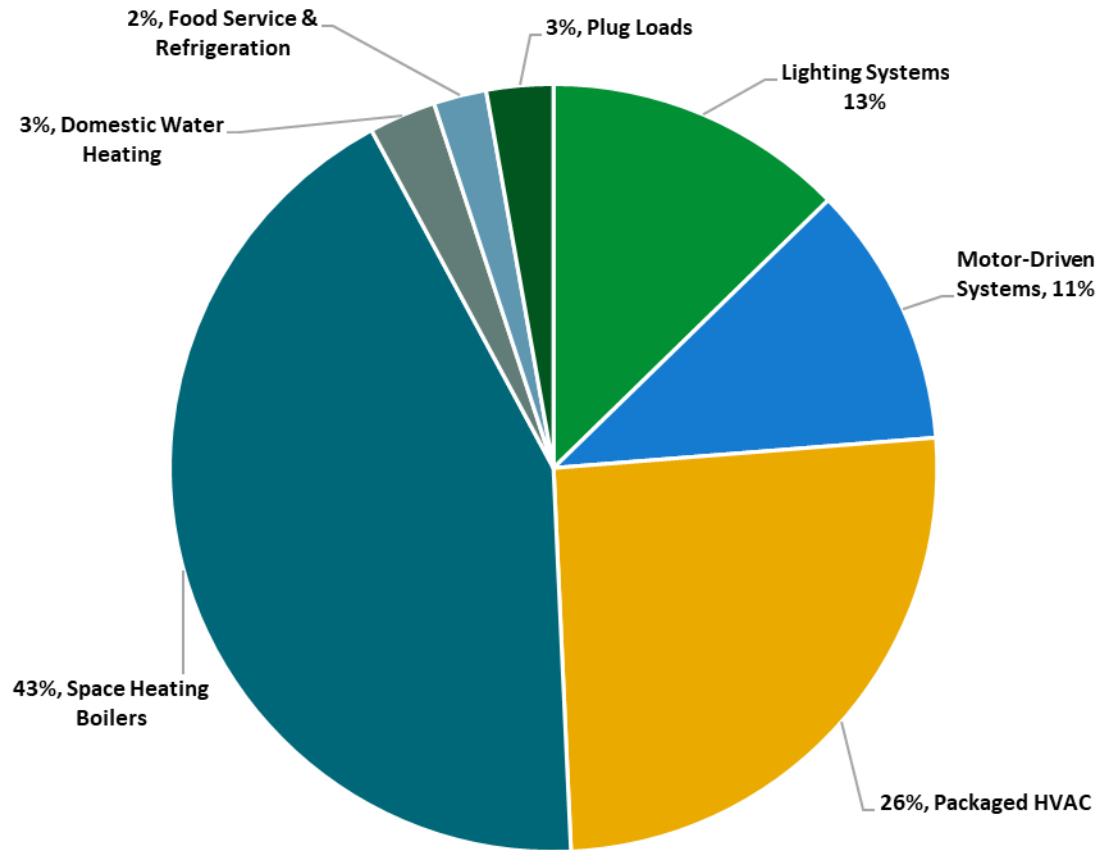
Twelve months of utility billing data are used to develop annual energy consumption and cost data. This information creates a profile of the annual energy consumption and energy costs.

Utility Summary		
Fuel	Usage	Cost
Electricity	1,978,034 kWh	\$175,332
Natural Gas	102,354 Therms	\$154,547
No. 2 Fuel Oil	1,216 Gallons	\$4,958
<b>Total</b>		<b>\$334,836</b>



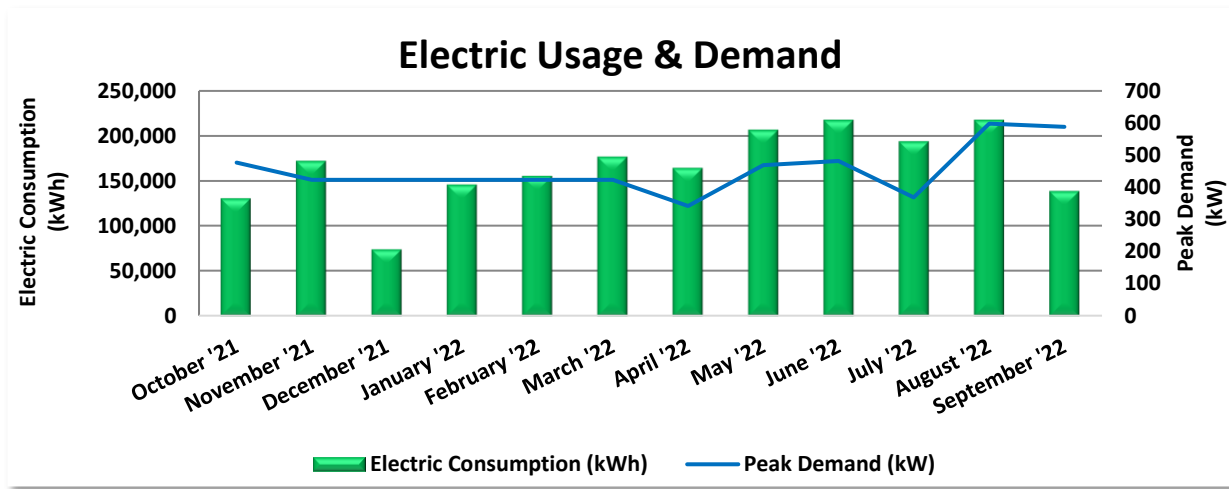
An energy balance identifies and quantifies energy use in your various building systems. This can highlight areas with the most potential for improvement. This energy balance was developed using calculated energy use for each of the end uses noted in the figure.

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*

JCP&L delivers electricity under rate class.



Electric Billing Data					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
11/5/21	29	130,714	477	\$2,978	\$12,571
12/6/21	31	172,101	423	\$3,050	\$18,498
1/6/22	31	74,087	423	\$3,049	\$8,198
2/7/22	32	145,975	423	\$3,049	\$14,772
3/8/22	29	155,566	423	\$3,049	\$13,375
4/7/22	30	176,900	423	\$3,049	\$14,198
5/10/22	33	164,554	342	\$2,450	\$11,929
6/8/22	29	206,529	469	\$3,634	\$16,935
7/11/22	33	217,582	482	\$3,735	\$17,285
8/9/22	29	193,723	368	\$2,835	\$14,442
9/9/22	31	217,810	598	\$4,660	\$20,361
10/10/22	31	138,751	588	\$4,266	\$14,208
<b>Totals</b>	<b>368</b>	<b>1,994,292</b>	<b>598</b>	<b>\$39,805</b>	<b>\$176,773</b>
<b>Annual</b>	<b>365</b>	<b>1,978,034</b>	<b>598</b>	<b>\$39,481</b>	<b>\$175,332</b>

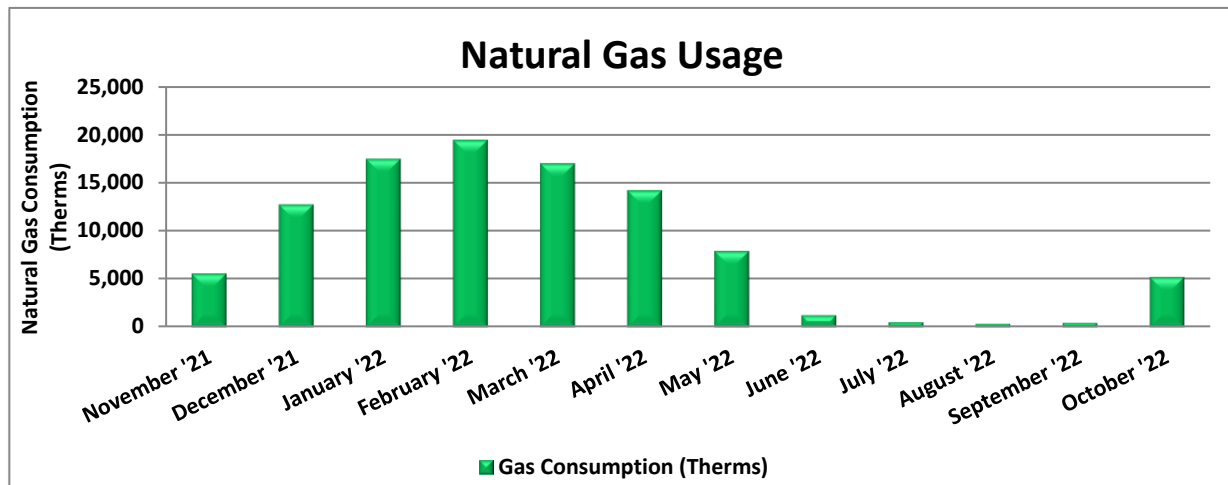
Notes:

- Peak demand of 598 kW occurred in August '22.
- Average demand over the past 12 months was 453 kW.
- The average electric cost over the past 12 months was \$0.128/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.



## 3.2 Natural Gas

NJ Natural Gas delivers natural gas under rate class.



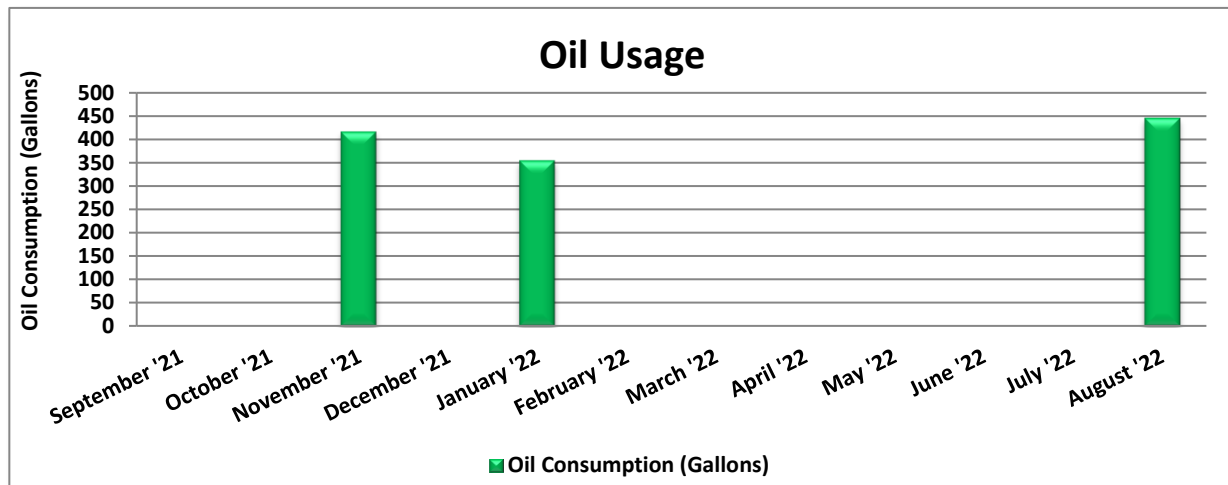
Gas Billing Data			
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost
11/12/21	29	5,597	\$6,552
12/15/21	33	12,777	\$13,856
1/20/22	36	17,487	\$25,496
2/16/22	27	19,447	\$27,748
3/18/22	30	17,034	\$24,532
4/19/22	32	14,220	\$20,932
5/17/22	28	7,925	\$13,427
6/16/22	30	1,260	\$3,958
7/18/22	32	529	\$2,784
8/15/22	28	360	\$2,527
9/14/22	30	477	\$2,757
10/14/22	30	5,241	\$9,979
<b>Totals</b>	<b>365</b>	<b>102,354</b>	<b>\$154,547</b>
<b>Annual</b>	<b>365</b>	<b>102,354</b>	<b>\$154,547</b>

Notes:

- The average gas cost for the past 12 months is \$1.510/therm, which is the blended rate used throughout the analysis.

### 3.3 No. 2 Fuel Oil

0 delivers no. 2 fuel oil to the project site.



No. 2 Fuel Oil Billing Data			
Period Ending	Days in Period	Oil Usage (Gallons)	Fuel Cost
10/1/21	31	0	\$0
11/1/21	31	0	\$0
12/1/21	30	417	\$1,364
1/1/22	31	0	\$0
2/1/22	31	356	\$1,382
3/1/22	28	0	\$0
4/1/22	31	0	\$0
5/1/22	30	0	\$0
6/1/22	31	0	\$0
7/1/22	30	0	\$0
8/1/22	31	0	\$0
9/1/22	31	447	\$2,225
<b>Totals</b>	<b>366</b>	<b>1,219</b>	<b>\$4,971</b>
<b>Annual</b>	<b>365</b>	<b>1,216</b>	<b>\$4,958</b>

Notes:

- The average no. 2 fuel oil cost for the past 12 months is \$4.077/Gallon, which is the blended rate used throughout the analysis.
- Fuel deliveries do not necessarily correspond to periods of use.

## 3.4 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.

### Benchmarking Score

62

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.

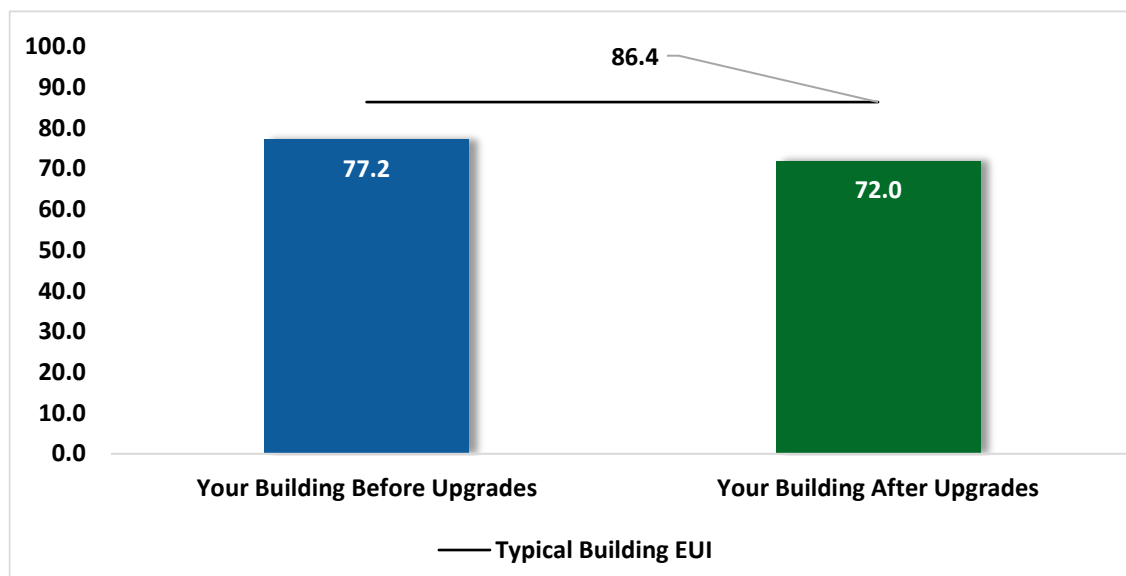


Figure 5 - Energy Use Intensity Comparison<sup>3</sup>

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 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 in this report are based on the previously run state rebate program SmartStart, which has been retired. Now, all investor-owned gas and electric utility companies are offering complementary energy efficiency programs directly to their customers. Some measures and proposed upgrades may be eligible for higher incentives than those shown below. The incentives in the summary tables should be used for high-level planning purposes. To verify incentives, reach out to your utility provider or visit the [NJCEP website](#) for more information.

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>173,899</b>	<b>31.0</b>	<b>-28</b>	<b>\$21,899</b>	<b>\$75,814</b>	<b>\$15,363</b>	<b>\$60,451</b>	<b>2.8</b>	<b>171,840</b>
ECM 1	Install LED Fixtures	Yes	40,058	0.1	0	\$5,141	\$18,837	\$2,900	\$15,937	3.1	40,329
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	11,388	2.7	-2	\$1,426	\$4,412	\$618	\$3,794	2.7	11,189
ECM 3	Retrofit Fixtures with LED Lamps	Yes	122,453	28.3	-26	\$15,332	\$52,565	\$11,845	\$40,720	2.7	120,322
<b>Lighting Control Measures</b>			<b>94,034</b>	<b>18.7</b>	<b>-20</b>	<b>\$11,773</b>	<b>\$75,109</b>	<b>\$19,620</b>	<b>\$55,489</b>	<b>4.7</b>	<b>92,390</b>
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	79,896	16.5	-17	\$10,003	\$60,034	\$7,755	\$52,279	5.2	78,499
ECM 5	Install High/Low Lighting Controls	Yes	14,138	2.2	-3	\$1,770	\$15,075	\$11,865	\$3,210	1.8	13,891
<b>Variable Frequency Drive (VFD) Measures</b>			<b>43,249</b>	<b>13.0</b>	<b>0</b>	<b>\$5,551</b>	<b>\$29,267</b>	<b>\$4,500</b>	<b>\$24,767</b>	<b>4.5</b>	<b>43,551</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	Yes	43,249	13.0	0	\$5,551	\$29,267	\$4,500	\$24,767	4.5	43,551
<b>Unitary HVAC Measures</b>			<b>33,646</b>	<b>22.7</b>	<b>0</b>	<b>\$4,329</b>	<b>\$140,400</b>	<b>\$7,449</b>	<b>\$132,951</b>	<b>30.7</b>	<b>33,937</b>
ECM 7	Install High Efficiency Air Conditioning Units	No	33,332	22.2	0	\$4,288	\$137,762	\$7,449	\$130,313	30.4	33,621
ECM 8	Install High Efficiency Heat Pumps	No	313	0.4	0	\$40	\$2,638	\$0	\$2,638	65.6	315
<b>HVAC System Improvements</b>			<b>308</b>	<b>0.0</b>	<b>0</b>	<b>\$40</b>	<b>\$95</b>	<b>\$16</b>	<b>\$79</b>	<b>2.0</b>	<b>310</b>
ECM 9	Install Pipe Insulation	Yes	308	0.0	0	\$40	\$95	\$16	\$79	2.0	310
<b>Domestic Water Heating Upgrade</b>			<b>0</b>	<b>0.0</b>	<b>11</b>	<b>\$162</b>	<b>\$275</b>	<b>\$74</b>	<b>\$201</b>	<b>1.2</b>	<b>1,253</b>
ECM 10	Install Low-Flow DHW Devices	Yes	0	0.0	11	\$162	\$275	\$74	\$201	1.2	1,253
<b>Food Service &amp; Refrigeration Measures</b>			<b>6,113</b>	<b>0.6</b>	<b>0</b>	<b>\$785</b>	<b>\$3,053</b>	<b>\$260</b>	<b>\$2,793</b>	<b>3.6</b>	<b>6,156</b>
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	Yes	1,640	0.1	0	\$211	\$1,213	\$160	\$1,053	5.0	1,652
ECM 12	Vending Machine Control	Yes	4,473	0.5	0	\$574	\$1,840	\$100	\$1,740	3.0	4,504
<b>Custom Measures</b>			<b>1,846</b>	<b>0.0</b>	<b>0</b>	<b>\$237</b>	<b>\$4,140</b>	<b>\$0</b>	<b>\$4,140</b>	<b>17.5</b>	<b>1,859</b>
ECM 13	Replace Electric Water Heater with Heat Pump Water Heater	No	1,846	0.0	0	\$237	\$4,140	\$0	\$4,140	17.5	1,859
<b>TOTALS</b>			<b>353,094</b>	<b>86.0</b>	<b>-37</b>	<b>\$44,775</b>	<b>\$328,153</b>	<b>\$47,282</b>	<b>\$280,871</b>	<b>6.3</b>	<b>351,295</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>173,899</b>	<b>31.0</b>	<b>-28</b>	<b>\$21,899</b>	<b>\$75,814</b>	<b>\$15,363</b>	<b>\$60,451</b>	<b>2.8</b>	<b>171,840</b>
ECM 1	Install LED Fixtures	40,058	0.1	0	\$5,141	\$18,837	\$2,900	\$15,937	3.1	40,329
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	11,388	2.7	-2	\$1,426	\$4,412	\$618	\$3,794	2.7	11,189
ECM 3	Retrofit Fixtures with LED Lamps	122,453	28.3	-26	\$15,332	\$52,565	\$11,845	\$40,720	2.7	120,322
<b>Lighting Control Measures</b>		<b>94,034</b>	<b>18.7</b>	<b>-20</b>	<b>\$11,773</b>	<b>\$75,109</b>	<b>\$19,620</b>	<b>\$55,489</b>	<b>4.7</b>	<b>92,390</b>
ECM 4	Install Occupancy Sensor Lighting Controls	79,896	16.5	-17	\$10,003	\$60,034	\$7,755	\$52,279	5.2	78,499
ECM 5	Install High/Low Lighting Controls	14,138	2.2	-3	\$1,770	\$15,075	\$11,865	\$3,210	1.8	13,891
<b>Variable Frequency Drive (VFD) Measures</b>		<b>43,249</b>	<b>13.0</b>	<b>0</b>	<b>\$5,551</b>	<b>\$29,267</b>	<b>\$4,500</b>	<b>\$24,767</b>	<b>4.5</b>	<b>43,551</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	43,249	13.0	0	\$5,551	\$29,267	\$4,500	\$24,767	4.5	43,551
<b>HVAC System Improvements</b>		<b>308</b>	<b>0.0</b>	<b>0</b>	<b>\$40</b>	<b>\$95</b>	<b>\$16</b>	<b>\$79</b>	<b>2.0</b>	<b>310</b>
ECM 9	Install Pipe Insulation	308	0.0	0	\$40	\$95	\$16	\$79	2.0	310
<b>Domestic Water Heating Upgrade</b>		<b>0</b>	<b>0.0</b>	<b>11</b>	<b>\$162</b>	<b>\$275</b>	<b>\$74</b>	<b>\$201</b>	<b>1.2</b>	<b>1,253</b>
ECM 10	Install Low-Flow DHW Devices	0	0.0	11	\$162	\$275	\$74	\$201	1.2	1,253
<b>Food Service &amp; Refrigeration Measures</b>		<b>6,113</b>	<b>0.6</b>	<b>0</b>	<b>\$785</b>	<b>\$3,053</b>	<b>\$260</b>	<b>\$2,793</b>	<b>3.6</b>	<b>6,156</b>
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	1,640	0.1	0	\$211	\$1,213	\$160	\$1,053	5.0	1,652
ECM 12	Vending Machine Control	4,473	0.5	0	\$574	\$1,840	\$100	\$1,740	3.0	4,504
<b>TOTALS</b>		<b>317,602</b>	<b>63.3</b>	<b>-37</b>	<b>\$40,209</b>	<b>\$183,613</b>	<b>\$39,833</b>	<b>\$143,781</b>	<b>3.6</b>	<b>315,500</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>173,899</b>	<b>31.0</b>	<b>-28</b>	<b>\$21,899</b>	<b>\$75,814</b>	<b>\$15,363</b>	<b>\$60,451</b>	<b>2.8</b>	<b>171,840</b>
ECM 1	Install LED Fixtures	40,058	0.1	0	\$5,141	\$18,837	\$2,900	\$15,937	3.1	40,329
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	11,388	2.7	-2	\$1,426	\$4,412	\$618	\$3,794	2.7	11,189
ECM 3	Retrofit Fixtures with LED Lamps	122,453	28.3	-26	\$15,332	\$52,565	\$11,845	\$40,720	2.7	120,322

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 fixture(s).

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, CFL, 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, CFLs, or incandescent lamps

## **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>94,034</b>	<b>18.7</b>	<b>-20</b>	<b>\$11,773</b>	<b>\$75,109</b>	<b>\$19,620</b>	<b>\$55,489</b>	<b>4.7</b>	<b>92,390</b>
ECM 4	Install Occupancy Sensor Lighting Controls	79,896	16.5	-17	\$10,003	\$60,034	\$7,755	\$52,279	5.2	78,499
ECM 5	Install High/Low Lighting Controls	14,138	2.2	-3	\$1,770	\$15,075	\$11,865	\$3,210	1.8	13,891

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 Variable Frequency Drives (VFD)**

#	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>Variable Frequency Drive (VFD) Measures</b>		<b>43,249</b>	<b>13.0</b>	<b>0</b>	<b>\$5,551</b>	<b>\$29,267</b>	<b>\$4,500</b>	<b>\$24,767</b>	<b>4.5</b>	<b>43,551</b>
ECM 6	Install VFDs on Constant Volume (CV) Fans	43,249	13.0	0	\$5,551	\$29,267	\$4,500	\$24,767	4.5	43,551

Variable frequency drives control motors for fans, pumps, and process equipment based on the actual output required of the driven equipment. Energy savings result from more efficient control of motor energy usage when equipment operates at partial load. The magnitude of energy savings depends on the estimated amount of time that the motor would operate at partial load. For equipment with proposed VFDs, we have included replacing the controlled motor with a new inverter duty rated motor to conservatively account for the cost of an inverter duty rated motor.

## **ECM 6: Install VFDs on Constant Volume (CV) Fans**

Install VFDs to control constant volume fan motor speeds. This converts a constant-volume, single-zone air handling system into a variable-air-volume (VAV) system. A separate VFD is usually required to control the return fan motor or dedicated exhaust fan motor if the air handler has one.

Zone thermostats signal the VFD to adjust fan speed to maintain the appropriate temperature in the zone, while maintaining a constant supply air temperature.

VAV system controls should not raise the supply air temperature at the expense of the fan power. A common mistake is to reset the supply air temperature to achieve chiller energy savings, which can lead to additional air flow requirements. Supply air temperature should be kept low (e.g., 55°F) until the

minimum fan speed (typically about 50%) is met. At this point, it is efficient to raise the supply air temperature as the load decreases, but not such that additional air flow and thus fan energy is required.

For air handlers with direct expansion (DX) cooling systems, the minimum air flow across the cooling coil required to prevent the coil from freezing must be determined during the final project design. The control system programming should maintain the minimum air flow whenever the compressor is operating. Prior to implementation, verify minimum fan speed in cooling mode with the manufacturer. Note that savings will vary depending on the operating characteristics of each AHU.

Energy savings result from reducing the fan speed (and power) when conditions allow for reduced air flow.

**Affected Air Handlers:** Performing Arts Center AHU, AHU3, and RTU07B

## 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>33,646</b>	<b>22.7</b>	<b>0</b>	<b>\$4,329</b>	<b>\$140,400</b>	<b>\$7,449</b>	<b>\$132,951</b>	<b>30.7</b>	<b>33,937</b>
ECM 7	Install High Efficiency Air Conditioning Units	33,332	22.2	0	\$4,288	\$137,762	\$7,449	\$130,313	30.4	33,621
ECM 8	Install High Efficiency Heat Pumps	313	0.4	0	\$40	\$2,638	\$0	\$2,638	65.6	315

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 heat pump and split systems are eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

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

Replace 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:** Classrooms split system, Child Study Team RTU, and window AC units

### ECM 8: Install High Efficiency Heat Pumps

Replace standard efficiency heat pumps with high efficiency heat pumps. A higher EER or SEER rating indicates a more efficient cooling system, and a higher HSPF rating indicates more efficient heating mode. 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 heating and cooling loads, and the estimated annual operating hours.

**Affected Units:** AD office

## 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>308</b>	<b>0.0</b>	<b>0</b>	<b>\$40</b>	<b>\$95</b>	<b>\$16</b>	<b>\$79</b>	<b>2.0</b>	<b>310</b>
ECM 9	Install Pipe Insulation	308	0.0	0	\$40	\$95	\$16	\$79	2.0	310

### ECM 9: Install Pipe Insulation

Install insulation on domestic hot 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:** domestic 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>11</b>	<b>\$162</b>	<b>\$275</b>	<b>\$74</b>	<b>\$201</b>	<b>1.2</b>	<b>1,253</b>
ECM 10	Install Low-Flow DHW Devices	0	0.0	11	\$162	\$275	\$74	\$201	1.2	1,253

### ECM 10: 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>6,113</b>	<b>0.6</b>	<b>0</b>	<b>\$785</b>	<b>\$3,053</b>	<b>\$260</b>	<b>\$2,793</b>	<b>3.6</b>	<b>6,156</b>
ECM 11	Refrigerator/Freezer Case Electrically Commutated Motors	1,640	0.1	0	\$211	\$1,213	\$160	\$1,053	5.0	1,652
ECM 12	Vending Machine Control	4,473	0.5	0	\$574	\$1,840	\$100	\$1,740	3.0	4,504

### **ECM 11: Refrigerator/Freezer Case Electrically Commutated Motors**

Replace shaded pole or permanent split capacitor (PSC) motors with electronically commutated (EC) motors in walk-ins. Fractional horsepower EC motors are significantly more efficient than mechanically commutated, brushed motors, particularly at low speeds or partial load. By using variable-speed technology, EC motors can optimize fan usage. Because these motors are brushless and use DC power, losses due to friction and phase shifting are eliminated.

Savings for this measure consider both the increased efficiency of the motor as well as the reduction in refrigeration load due to motor heat loss.

### **ECM 12: 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.

## 4.8 Custom 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>Custom Measures</b>		<b>1,846</b>	<b>0.0</b>	<b>0</b>	<b>\$237</b>	<b>\$4,140</b>	<b>\$0</b>	<b>\$4,140</b>	<b>17.5</b>	<b>1,859</b>
ECM 13	Replace Electric Water Heater with Heat Pump Water Heater	1,846	0.0	0	\$237	\$4,140	\$0	\$4,140	17.5	1,859

### **CM 13: Replace Electric Water Heater with Heat Pump Water Heater**

We evaluated replacing the electric water heaters in the Concession Stand and Transportation Facility with Heat Pump Water Heaters. A typical electric water heater uses electric resistance coils to heat water at a coefficient of performance (COP) of 1. Air source heat pump water heaters (HPWH) use a refrigeration cycle to transfer heat from the surrounding air to the domestic water. The typical average COP for a HPWH is about 2.5, so they require significantly less electricity to produce the same amount of hot water as a traditional electric water heater. There are two types of HPWH, those integrated with the heat pump and storage tank in the same unit, and those that are split into two sections (with the storage tank separate from the heat pump). The following addresses integrated HPWH.

HPWH reject cold air. As such, they need to be installed in an unconditioned space of about 750 cubic feet with good ventilation. Ideal locations are garages, large enclosed, unconditioned storage areas, or areas with excess heat such as a furnace or boiler room.<sup>4</sup> The HPWH will also produce condensate so accommodations for draining the condensate need to be provided.

Most HPWH operate effectively down to an air temperature of 40 °F. Below that temperature, an electric resistance booster heater is typically required to achieve full heating capacity. It is critical that the HPWH controls are set up so that the electric resistance heat only engages when the air temperature is too cold for the HPWH to extract heat from it. HPWHs have a slow recovery. During periods of high demand, the electric resistance heating element, if enabled, may be energized to maintain set point, thus reducing the overall efficiency of the unit. It is recommended that a careful analysis of the hot water demand be conducted to determine if the application makes economic sense, and the HPWH heating capacity and storage are properly sized.

HPWH operate most effectively when the temperature difference between the incoming and outgoing water is high. Generally, this means that cold make-up water should be piped to the bottom of the tank and return water should be piped to the top of the tank in order to maintain stratification within the storage tank. Water should be drawn from the bottom of the tank to be heated. If there is a DHW recirculation pump, it should only be operated during high hot water demand periods.

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<sup>4</sup><https://basc.pnnl.gov/code-compliance/heat-pump-water-heaters-code-compliance-brief#:~:text=HPWH%20must%20have%20unrestricted%20airflow,depending%20on%20size%20of%20system>



## 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>5</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>5</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.

## **Economizer Maintenance**

Economizers can significantly reduce cooling system load. A malfunctioning economizer can increase the amount of heating and mechanical cooling required by introducing excess amounts of cold or hot outside air. Common economizer malfunctions include broken outdoor thermostat or enthalpy control or dampers that are stuck or improperly adjusted.

Periodic inspection and maintenance will keep economizers working in sync with the heating and cooling system. This maintenance should be part of annual system maintenance, and it should include proper setting of the outdoor thermostat/enthalpy control, inspection of control and damper operation, lubrication of damper connections, and adjustment of minimum damper position.

## **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 heat exchanger to improve heat transfer.

### **Furnace Maintenance**

Preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. Following the manufacturer's instructions, a yearly tune-up should check for gas / carbon monoxide leaks; change the air and fuel filters; check components for cracks, corrosion, dirt, or debris build-up; ensure the ignition system is working properly; test and adjust operation and safety controls; inspect electrical connections; and lubricate motors and bearings.

### **Optimize HVAC Equipment Schedules**

Energy management systems (BAS) typically provide advanced controls for building HVAC systems, including chillers, boilers, air handling units, rooftop units and exhaust fans. The BAS 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 BAS features, when in proper adjustment, can improve comfort for building occupants and save substantial energy.

Know your BAS 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 BAS (if available) to optimize the building warmup sequence. Most BAS 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.

### **Water Heater Maintenance**

The lower the supply water temperature that is used for hand washing sinks, the less energy is needed to heat the water. Reducing the temperature results in energy savings and the change is often unnoticeable to users. Be sure to review the domestic water temperature requirements for sterilizers and dishwashers as you investigate reducing the supply water temperature.

Also, preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. At least once a year, follow manufacturer instructions to drain a few gallons out of the

water heater using the drain valve. If there is a lot of sediment or debris, then a full flush is recommended. Turn the temperature down and then completely drain the tank. Annual checks should include checks for:

- Leaks or heavy corrosion on the pipes and valves.
- Corrosion or wear on the gas line and on the piping. If you noticed any black residue, soot, or charred metal, this is a sign you may be having combustion issues and you should have the unit serviced by a professional.
- For electric water heaters, look for signs of leaking such as rust streaks or residue around the upper and lower panels covering the electrical components on the tank.
- For water heaters more than three years old, have a technician inspect the sacrificial anode annually.

### **Compressed Air System Maintenance**

Compressed air systems require periodic maintenance to operate at peak efficiency. A maintenance plan for compressed air systems should include:

- Inspection, cleaning, and replacement of inlet filter cartridges.
- Cleaning of drain traps.
- Daily inspection of lubricant levels to reduce unwanted friction.
- Inspection of belt condition and tension.
- Check for leaks and adjust loose connections.
- Overall system cleaning.
- Reduce pressure setting to minimum needed for air operated equipment.
- Turn off compressor if not routinely needed.
- Use low pressure blower air rather than high pressure compressed air.

Contact a qualified technician for help with setting up periodic maintenance 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 five and ten percent 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.

## **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>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.

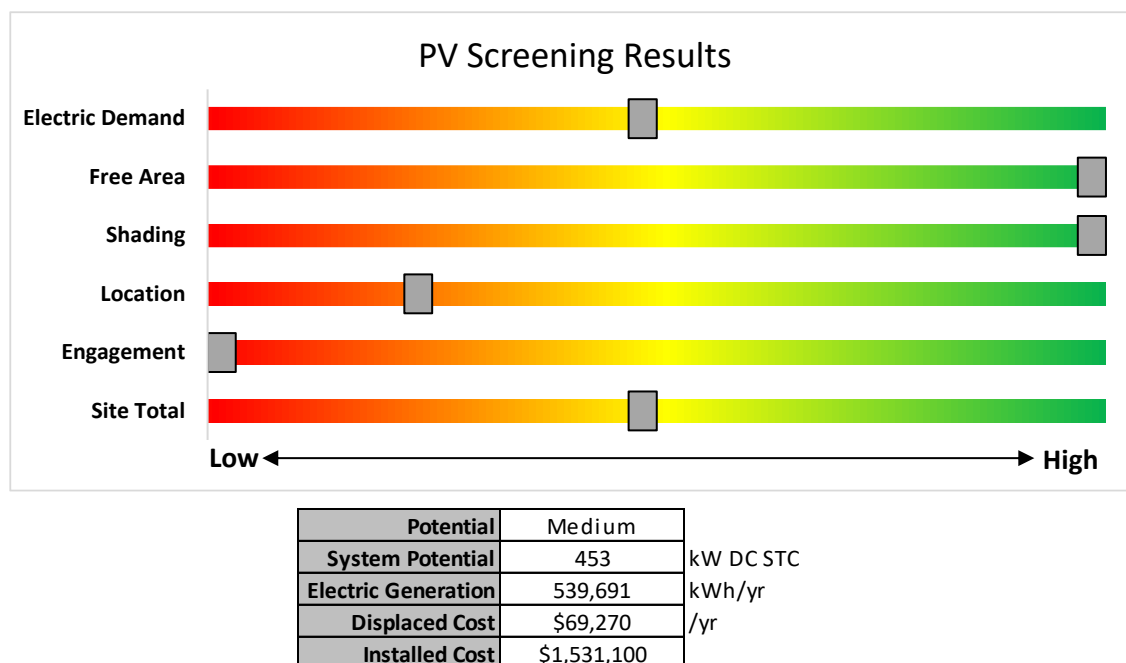
## 6.1 Solar Photovoltaic

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 a 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.



*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.

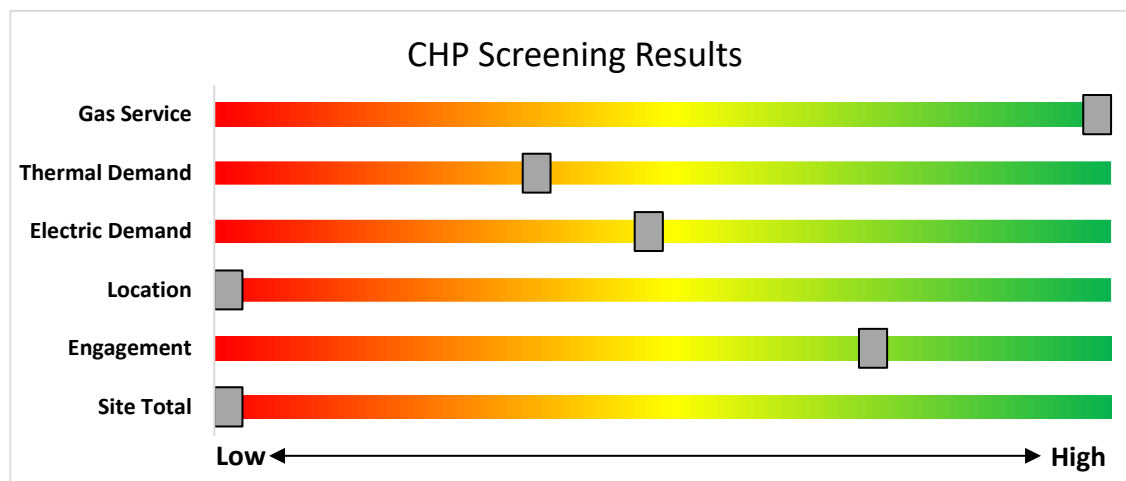
CHP systems typically produce a portion of the electric power used on-site, with the balance of electric power needs supplied by the local utility company. The heat is used to supplement (or replace) existing boilers and provide space heating and/or domestic hot water heating. Waste heat can also be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

All electric vehicles (EVs) have an electric motor instead of an internal combustion engine. EVs function by plugging into a charge point, taking electricity from the grid, and then storing it in rechargeable batteries. Although electricity production may contribute to air pollution, the U.S. EPA categorizes all-electric vehicles as zero-emission vehicles because they produce no direct exhaust or tailpipe emissions.

EVs are typically more expensive than similar conventional and hybrid vehicles, although some cost can be recovered through fuel savings, federal tax credit, or state incentives.

### 7.1 Electric Vehicle Charging

EV charging stations provide a means for electric vehicle operators to recharge their batteries at a facility. While many EV drivers charge at home, others do not have access to regular home charging, and the ability to charge at work or in public locations is critical to making EVs practical for more drivers. Charging can also be used for electric fleet vehicles, which can reduce fuel and maintenance costs for fleets that replace gas or diesel vehicles with EVs.

EV charging comes in three main types. For this assessment, the screening considers addition of Level 2 charging, which is most common at workplaces and other public locations. Depending on the site type and usage, other levels of charging power may be more appropriate.

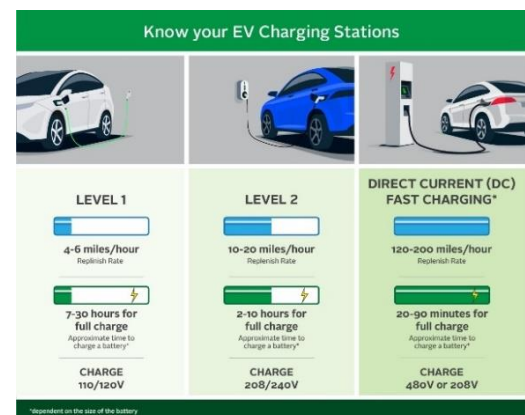
The preliminary assessment of EV charging at the facility shows that there is medium potential for adding EV chargers to the facility's parking, based on potential costs of installation and other site factors.

The primary costs associated with installing EV charging are the charger hardware and the cost to extend power from the facility to parking spaces. This may include upgrades to electric panels to serve increased loads.

The type and size of the parking area impact the costs and feasibility of adding EV charging. Parking structure installations can be less costly than surface lot installations as power may be readily available, and equipment and wiring can be surface mounted. Parking lot installations often require trenching through concrete or asphalt surface. Large parking areas provide greater flexibility in charger siting than smaller lots.

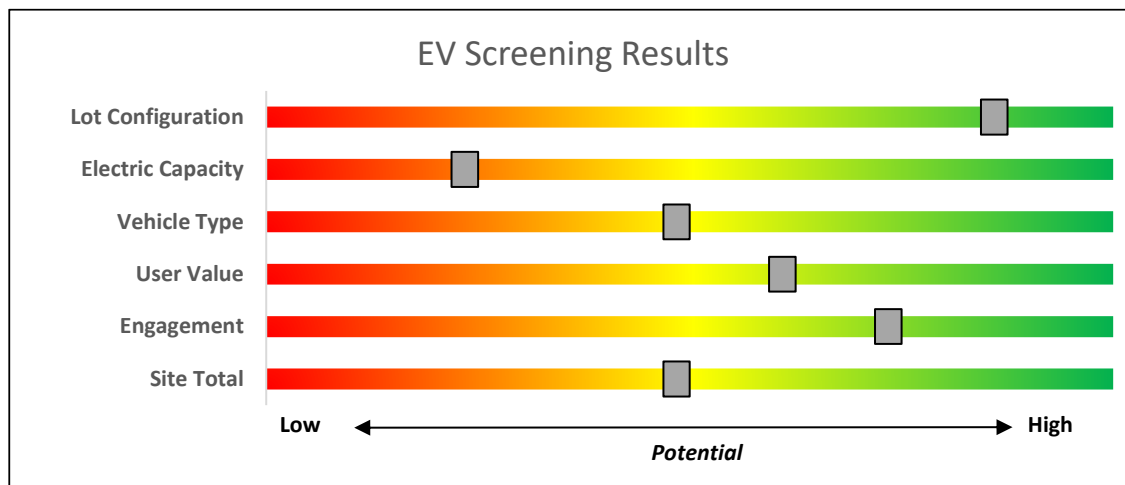
The location and capacity of facility electric panels also impact charger installation costs. A Level 2 charger generally requires a dedicated 208-240V, 40 Amp circuit. The electric panel nearest the planned installation may not have available capacity and may need to be upgraded to serve new EV charging loads. Alternatively, chargers could be powered from a more distant panel. The distance from the panel to the location of charging stations ties directly to costs, as conduits, cables, and potential trenching costs all increase on a per-foot basis. The more charging stations planned, the more likely it is that additional electrical capacity will be needed.

Other factors to consider when planning for EV charging at a facility include who the intended users are, how long they park vehicles at the site, and whether they will need to pay for the electricity they use.





The graphic below displays the results of the EV charging assessment conducted as part of this audit. The position of each slider indicates the impact each factor has on the feasibility of installing EV charging at the site.



*Figure 10 – EV Charger Screening*

### Electric Vehicle Programs Available

New Jersey is leading the way on electric vehicle (EV) adoption on the East Coast. There are several programs designed to encourage EV adoption in New Jersey, which is crucial to reaching a 100% clean energy future.

NJCEP offers a variety of EV programs for vehicles, charging stations, and fleets. Certain EV charging stations that receive electric utility service from Atlantic City Electric Company (ACE) or Public Service Electric & Gas Company (PSE&G), may be eligible for additional electric vehicle charging incentives directly from the utility. Projects may be eligible for both the incentives offered by this BPU program and incentives offered by ACE or PSE&G, up to 90% of the combined charger purchase and installation costs. Please check ACE or PSE&G program eligibility requirements before purchasing EV charging equipment, as additional conditions on types of eligible chargers may apply for utility incentives.

Both Jersey Central Power & Light (JCP&L) and Rockland Electric (RECO) have filed proposals for EV charging programs. BPU staff is currently reviewing those proposals.

For more information and to keep up to date on all EV programs please visit <https://www.njcleanenergy.com/commercial-industrial/programs/electric-vehicle-programs>

## 8 PROJECT FUNDING AND INCENTIVES

Ready to improve your building's performance? New Jersey's Clean Energy Programs and Utility Energy Efficiency Programs can help. Pick the program that works best for you. This section provides an overview of currently available incentive programs in.



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**Program areas to be served by the Utilities:**

- Existing Buildings (residential, commercial, industrial, government)
- Efficient Products
  - HVAC
  - Appliance Rebates
  - Appliance Recycling

**Proposed New Programs & Features:**

- Dedicated multi-family program
- More financing options
- Quick home energy check-ups



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**Program areas staying with NJCEP:**

- New Construction (residential, commercial, industrial, government)
- Large Energy Users
- Combined Heat & Power & Fuel Cells
- State Facilities
- Local Government Energy Audits
- Energy Savings Improvement Program
- Solar & Community Solar

## 8.1 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.

### **Prescriptive and Custom**

The Prescriptive and Custom rebate program through your utility provider offers incentives for installing prescriptive and custom energy efficiency measures at your facility. This program provides an effective mechanism for securing incentives for energy efficiency measures installed individually or as part of a package of energy upgrades. This program serves most common equipment types and sizes.

#### **Equipment Examples**

*Lighting*

*Lighting Controls*

*HVAC Equipment*

*Refrigeration*

*Gas Heating*

*Gas Cooling*

*Commercial Kitchen Equipment*

*Food Service Equipment*

*Variable Frequency Drives*

*Electronically Commutate Motors*

*Variable Frequency Drives*

*Plug Loads Controls*

*Washers and Dryers*

*Agricultural*

*Water Heating*

The Prescriptive program provides fixed incentives for specific energy efficiency measures. Prescriptive incentives vary by equipment type. The Custom program provides incentives for more unique or specialized technologies or systems that are not addressed through prescriptive incentives.

### **Direct Install**

Direct Install is a turnkey program available to existing small to medium-sized facilities with an average peak electric demand that does not exceed 200 kW or less over the recent 12-month period. You work directly with a pre-approved contractor who will perform a free energy assessment at your facility, identify specific eligible measures, and provide a clear scope of work for installation of selected measures. Energy efficiency measures may include lighting and lighting controls, refrigeration, HVAC, motors, variable speed drives, and controls

#### **Incentives**

The program pays up to 70% of the total installed cost of eligible measures.

#### **How to Participate**

To participate in Direct Install, you will work with a participating contractor. The contractor will be paid the measure incentives directly by the program, which will pass on to you in the form of reduced material and implementation costs. This means up to 70% of eligible costs are covered by the Direct Install program, subject to program rules and eligibility, while the remaining percent of the cost is paid to the contractor by the customer.

## **Engineered Solutions**

The Engineered Solutions Program provides tailored energy-efficiency assistance and services to municipalities, universities, schools, hospitals and healthcare facilities (MUSH), non-profit entities, and multifamily buildings. Customers receive expert guided services, including investment-grade energy auditing, engineering design, installation assistance, construction administration, commissioning, and measurement and verification (M&V) services to support the implementation of cost-effective and comprehensive efficiency projects. Engineered Solutions is generally a good option for medium to large sized facilities with a peak demand over 200 kW looking to implement as many measures as possible under a single project to achieve deep energy savings. Engineered Solutions has an added benefit of addressing measures that may not qualify for other programs. Many facilities pursuing an Energy Savings Improvement Program loan also use this program. Incentives for this program are based on project scope and energy savings achieved.

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For more information on any of these programs, contact your local utility provider or visit <https://www.njcleanenergy.com/transition>.

## 8.2 New Jersey's Clean Energy Programs

Save money while saving the planet! New Jersey's Clean Energy Program is a statewide program that offers incentives, programs, and services that benefit New Jersey residents, businesses, educational, non-profit, and government entities to help them save energy, money, and the environment.

### **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).



## 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	\$1,000				
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).

## 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.

### **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 (dc). The program is currently under development. 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://njcleanenergy.com/renewable-energy/programs/susi-program>.

## **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.

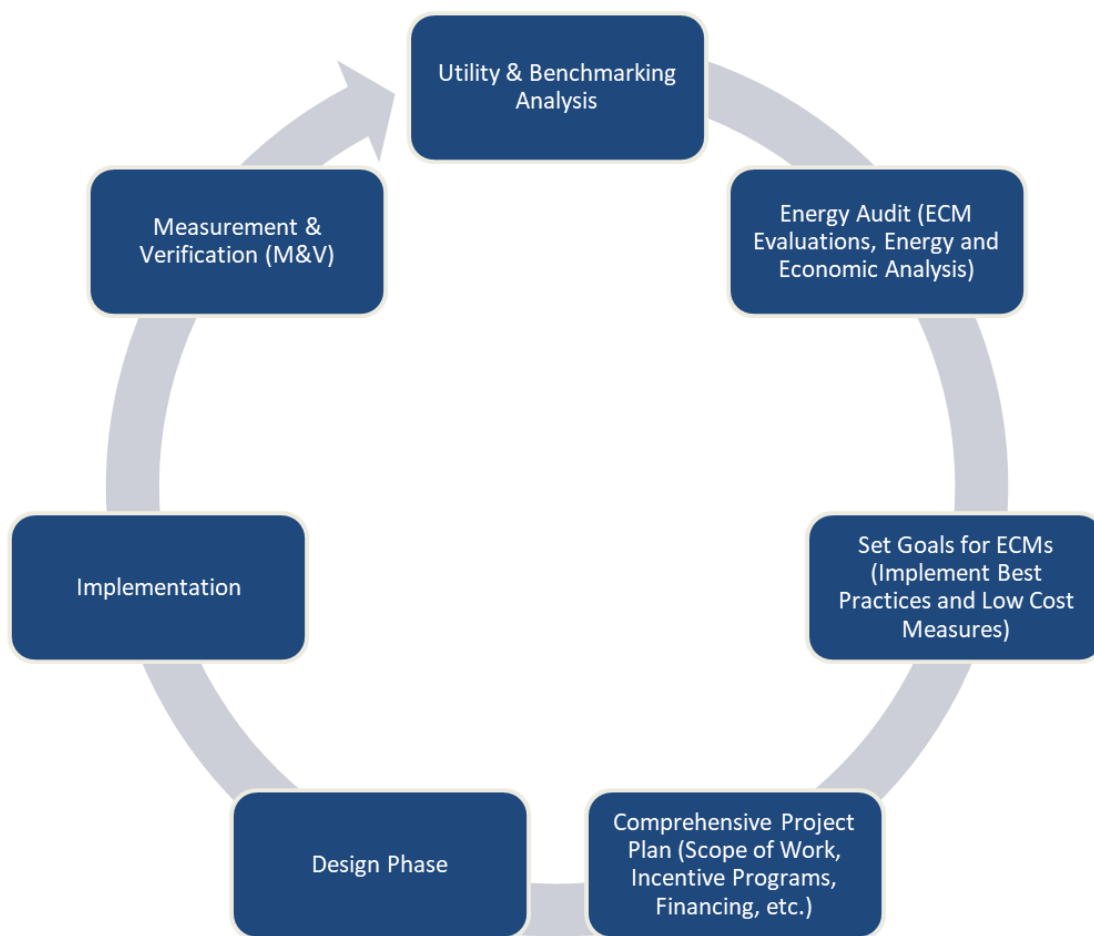
After adopting a resolution with a chosen implementation approach, the development of the energy savings plan can begin. The ESP demonstrates that the total project costs of the ECMs are offset by the energy savings over the financing term, not to exceed 15 years. The verified savings will then be used 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 11 – 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
600 Lounge	9	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	9	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.1	324	0	\$41	\$270	\$35	5.8
A1 Foyer	2	Compact Fluorescent: (2) 32W Biaxial Plug-In Lamps	Wall Switch	S	64	3,520	3, 4	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	45	2,429	0.0	255	0	\$32	\$166	\$24	4.4
A1 Foyer	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
Athletic Storage in Small Gym	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,214	3	Relamp	No	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,214	0.4	793	0	\$99	\$657	\$180	4.8
Auxiliary Gym 801B	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Auxiliary Gym 801B	15	LED - Fixtures: High-Bay	Daylight Dimming	S	1,050	2,112		None	No	15	LED - Fixtures: High-Bay	Daylight Dimming	1,050	2,112	0.0	0	0	\$0	\$0	\$0	0.0
Auxiliary Gym 801B	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	S	114	2,429	3	Relamp	No	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,429	0.1	449	0	\$56	\$219	\$60	2.8
B110 Office	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,520	0.0	128	0	\$16	\$37	\$10	1.7
B112 Office	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
B112 Office	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	144	0	\$18	\$270	\$35	13.0
Back Coaches Office Bathroom 126	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	S	10	2,429		None	No	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Back Coaches Office Bathroom 126	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	2,429	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.0	88	0	\$11	\$37	\$10	2.4
Back Coaches Office Locker Room 2	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	2,429	3	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	353	0	\$44	\$146	\$40	2.4
Band Storage	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
Band Storage	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3, 4	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.4	976	0	\$122	\$708	\$155	4.5
Basement Part Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	650	0	\$81	\$416	\$75	4.2
Bath in PE Office 105	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	3,520	0.0	0	0	\$0	\$0	\$0	0.0
Bathroom 2 in Fitness Center	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	2,429	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.0	88	0	\$11	\$37	\$10	2.4
Bathroom 400 Wing	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,520	0.0	128	0	\$16	\$37	\$10	1.7
Bathroom in 600 Lounge	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Bathroom in Fitness Center	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	2,429	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.0	88	0	\$11	\$37	\$10	2.4
Bathroom in Nurses Office	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	3,520	0.0	0	0	\$0	\$0	\$0	0.0
Billing Main Office	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Billing Main Office	7	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	7	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	252	0	\$32	\$270	\$35	7.4
Boiler Room	2	LED - Fixtures: Linear Strip	Wall Switch	S	80	500	4	None	Yes	2	LED - Fixtures: Linear Strip	Occupancy Sensor	80	345	0.0	27	0	\$3	\$116	\$20	28.1



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
Boiler Room	10	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	500	3, 4	Relamp	Yes	10	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	345	0.3	231	0	\$29	\$635	\$135	17.3
Boys Bath 500 Wing	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.2	813	0	\$102	\$453	\$85	3.6
Boys Bathroom 400 Wing	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Cafeteria	48	Compact Fluorescent: (1) 42W Biaxial Plug-In Lamp	Wall Switch	S	42	3,520	3, 4	Relamp	Yes	48	LED Lamps: PL-L (Biax) Lamps	Occupancy Sensor	30	2,429	0.7	3,959	-1	\$496	\$1,728	\$188	3.1
Cafeteria	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
Cafeteria	53	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	53	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.4	1,909	0	\$239	\$1,080	\$140	3.9
Classroom 101B	15	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	15	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.3	1,224	0	\$153	\$270	\$35	1.5
Classroom 102B	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,990	3, 4	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,063	0.6	2,920	-1	\$366	\$1,146	\$275	2.4
Classroom 103B	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom 104B	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,990	3, 4	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,063	0.6	2,920	-1	\$366	\$1,146	\$275	2.4
Classroom 105B	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,990	3, 4	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,063	0.6	2,920	-1	\$366	\$1,146	\$275	2.4
Classroom 106B	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,990	3, 4	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,063	0.6	2,920	-1	\$366	\$1,146	\$275	2.4
Classroom 107B	16	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,990	3, 4	Relamp	Yes	16	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,063	0.9	3,893	-1	\$487	\$1,708	\$390	2.7
Classroom 108B	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,990	3, 4	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,063	0.6	2,920	-1	\$366	\$1,146	\$275	2.4
Classroom 109	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 109	16	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,990	3, 4	Relamp	Yes	16	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,063	0.9	3,893	-1	\$487	\$1,708	\$390	2.7
Classroom 109A	12	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,990	3, 4	Relamp	Yes	12	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,063	0.6	2,920	-1	\$366	\$1,146	\$275	2.4
Classroom 209	6	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	184	0	\$23	\$270	\$35	10.2
Classroom 402	6	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	184	0	\$23	\$270	\$35	10.2
Classroom 404	3	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	2,990	4	None	Yes	3	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,063	0.0	31	0	\$4	\$0	\$0	0.0
Classroom 404	6	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	184	0	\$23	\$270	\$35	10.2
Classroom 406	3	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	2,990	4	None	Yes	3	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,063	0.0	31	0	\$4	\$0	\$0	0.0
Classroom 406	6	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	184	0	\$23	\$270	\$35	10.2
Classroom 408	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 408	3	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	3	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	92	0	\$11	\$270	\$35	20.5

	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	
Classroom 408	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,990	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,063	0.0	129	0	\$16	\$72	\$10	3.9	
Classroom 410	18	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,990	3, 4	Relamp	Yes	18	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,063	1.0	4,380	-1	\$548	\$1,855	\$430	2.6	
Classroom 504	9	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	9	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.1	275	0	\$34	\$270	\$35	6.8	
Classroom 505	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 506	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 507	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 508	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 509	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 510	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 511	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 512	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 513	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	122	0	\$15	\$270	\$35	15.3	
Classroom 514	3	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	3	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.1	245	0	\$31	\$270	\$35	7.7	
Classroom 515	9	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	9	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.1	275	0	\$34	\$270	\$35	6.8	
Classroom 516	3	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	3	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.1	245	0	\$31	\$270	\$35	7.7	
Classroom 517	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 517	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 518	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 519	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 519	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 520	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 521	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 522	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 523	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	
Classroom 525	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6	

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
Classroom 527	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom 529	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom 601	9	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	9	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.1	275	0	\$34	\$270	\$35	6.8
Classroom 602	3	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	3	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	92	0	\$11	\$270	\$35	20.5
Classroom 610	12	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	12	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	979	0	\$123	\$270	\$35	1.9
Classroom 704	15	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,060	3	Relamp	No	15	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,060	0.5	1,530	0	\$191	\$1,220	\$225	5.2
Classroom 704	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,990	3, 4	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,063	0.0	217	0	\$27	\$171	\$35	5.0
Classroom 706	15	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,060	3	Relamp	No	15	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,060	0.5	1,530	0	\$191	\$1,220	\$225	5.2
Classroom 706	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,990	3, 4	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,063	0.0	217	0	\$27	\$171	\$35	5.0
Classroom 707	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	122	0	\$15	\$270	\$35	15.3
Classroom 708	15	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,060	3	Relamp	No	15	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,060	0.5	1,530	0	\$191	\$1,220	\$225	5.2
Classroom 708	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,990	3, 4	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,063	0.0	217	0	\$27	\$171	\$35	5.0
Classroom 710	1	Linear Fluorescent - T5: 2' T5 (14W) - 3L	Occupancy Sensor	S	51	2,060	3	Relamp	No	1	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,060	0.0	58	0	\$7	\$49	\$9	5.5
Classroom 710	12	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,060	3	Relamp	No	12	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,060	0.4	1,224	0	\$153	\$976	\$180	5.2
Classroom 710	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,990	3, 4	Relamp	Yes	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,063	0.0	217	0	\$27	\$171	\$35	5.0
Classroom 718	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 718	28	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,060	3	Relamp	No	28	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,060	0.9	2,855	-1	\$357	\$2,277	\$420	5.2
Classroom 813	6	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	184	0	\$23	\$270	\$35	10.2
Classroom A603	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom A604	12	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	12	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	979	0	\$123	\$270	\$35	1.9
Classroom A605	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom A607	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom A608	12	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	12	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	979	0	\$123	\$270	\$35	1.9
Classroom A611	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom A612	6	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	6	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.1	489	0	\$61	\$270	\$35	3.8

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
Classroom A613	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom A614 AA Office	6	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	184	0	\$23	\$270	\$35	10.2
Classroom A615	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom D501	3	Compact Fluorescent: (1) 26W Biaxial Plug-In Lamp	Wall Switch	S	26	2,990	3, 4	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	19	2,063	0.0	127	0	\$16	\$38	\$3	2.2
Classroom D501	6	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	184	0	\$23	\$270	\$35	10.2
Classroom D501	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,990	3, 4	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,063	0.3	1,243	0	\$156	\$599	\$125	3.0
Classroom D524	9	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	9	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.1	275	0	\$34	\$270	\$35	6.8
Classroom D526	7	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	7	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	214	0	\$27	\$270	\$35	8.8
Classroom E201	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom E202	8	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	8	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.1	245	0	\$31	\$270	\$35	7.7
Classroom E203	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom E204	9	LED - Fixtures: Ambient 2x4 Fixture	Wall Switch	S	76	2,990	4	None	Yes	9	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	76	2,063	0.2	697	0	\$87	\$270	\$35	2.7
Classroom E205	1	Linear Fluorescent - T5: 2' T5 (14W) - 3L	Wall Switch	S	51	2,990	3	Relamp	No	1	LED - Linear Tubes: (3) 2' Lamps	Wall Switch	26	2,990	0.0	84	0	\$11	\$49	\$9	3.8
Classroom E205	19	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,060	3	Relamp	No	19	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,060	0.6	1,937	0	\$243	\$1,545	\$285	5.2
Classroom E206	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom E207	1	Linear Fluorescent - T5: 2' T5 (14W) - 3L	Wall Switch	S	51	2,990	3, 4	Relamp	Yes	1	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,063	0.0	110	0	\$14	\$49	\$9	2.9
Classroom E207	19	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Wall Switch	S	90	2,990	3, 4	Relamp	Yes	19	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,063	0.8	3,684	-1	\$461	\$2,085	\$355	3.8
Classroom E207	3	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Occupancy Sensor	S	32	2,060	3	Relamp	No	3	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,060	0.0	119	0	\$15	\$55	\$15	2.7
Classroom E208	12	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Wall Switch	S	90	2,990	3, 4	Relamp	Yes	12	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,063	0.5	2,327	0	\$291	\$1,246	\$215	3.5
Classroom E210	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom E211	3	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	3	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.1	245	0	\$31	\$270	\$35	7.7
Classroom E213	3	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	3	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.1	245	0	\$31	\$270	\$35	7.7
Classroom F-709	8	Linear Fluorescent - T5: 2' T5 (14W) - 3L	Wall Switch	S	51	2,990	3, 4	Relamp	Yes	8	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,063	0.2	879	0	\$110	\$660	\$107	5.0
Classroom F-709	8	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,060	3	Relamp	No	8	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,060	0.3	816	0	\$102	\$651	\$120	5.2
Classroom F-711	4	Linear Fluorescent - T5: 2' T5 (14W) - 3L	Wall Switch	S	51	2,990	3, 4	Relamp	Yes	4	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,063	0.1	439	0	\$55	\$465	\$71	7.2



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
Classroom F-711	12	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,060	3	Relamp	No	12	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,060	0.4	1,224	0	\$153	\$976	\$180	5.2
Classroom F 721	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 F 721	40	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,990	3, 4	Relamp	Yes	40	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,063	1.2	5,524	-1	\$692	\$2,271	\$505	2.6
Classroom F702	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom F713	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Classroom F713	21	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,990	3, 4	Relamp	Yes	21	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,063	0.3	1,519	0	\$190	\$923	\$175	3.9
Classroom F715	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 F715	21	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,990	3, 4	Relamp	Yes	21	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	2,063	0.3	1,519	0	\$190	\$923	\$175	3.9
Classroom F716	24	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	24	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.2	734	0	\$92	\$540	\$70	5.1
Classroom F717	20	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	20	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.1	612	0	\$77	\$540	\$70	6.1
Classroom F719	3	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	3	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	92	0	\$11	\$270	\$35	20.5
Classroom G307	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom G309	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom G316	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom G318	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Classroom G320	9	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990	4	None	Yes	9	LED - Fixtures: Linear Strip	Occupancy Sensor	80	2,063	0.2	734	0	\$92	\$270	\$35	2.6
Closet in D501	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	1,760	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	1,214	0.0	36	0	\$5	\$116	\$20	21.3
Closet in Mens Bath 600 Corridor	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,760	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,760	0.0	114	0	\$14	\$69	\$10	4.1
Confrence Room 205A	4	Linear Fluorescent - T5: 2' T5 (14W) - 3L	Occupancy Sensor	S	51	2,429	3	Relamp	No	4	LED - Linear Tubes: (3) 2' Lamps	Occupancy Sensor	26	2,429	0.1	273	0	\$34	\$195	\$36	4.7
Confrence Room 205A	4	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,429	3	Relamp	No	4	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,429	0.1	481	0	\$60	\$325	\$60	4.4
Copy Room In 109	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	325	0	\$41	\$189	\$40	3.7
Copy Room In Main Office	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	3,520	0.0	0	0	\$0	\$0	\$0	0.0
Corridor 100 Hall Girls Bath	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,380	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	3,022	0.0	90	0	\$11	\$270	\$35	20.9
Corridor 100 Hall Girls Bath	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	4,380	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	3,022	0.0	189	0	\$24	\$72	\$10	2.6
Corridor 100 Wing	6	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	6	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0

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
Corridor 100 Wing	21	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,380	5	None	Yes	21	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	3,022	0.1	941	0	\$118	\$900	\$735	1.4
Corridor 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
Corridor 200	19	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,380	5	None	Yes	19	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	3,022	0.1	851	0	\$107	\$900	\$665	2.2
Corridor 300 Wing	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Corridor 300 Wing	23	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,380	5	None	Yes	23	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	3,022	0.2	1,031	0	\$129	\$900	\$805	0.7
Corridor 400 Wing	3	Compact Fluorescent: (1) 26W Biaxial Plug-In Lamp	Wall Switch	S	26	4,380	3, 5	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	19	3,022	0.0	186	0	\$23	\$263	\$108	6.6
Corridor 400 Wing	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Corridor 400 Wing	38	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,380	5	None	Yes	38	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	3,022	0.3	1,703	0	\$213	\$1,575	\$1,330	1.1
Corridor 400 Wing	4	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	S	22	4,380	3, 5	Relamp	Yes	4	LED - Linear Tubes: (1) 2' Lamp	High/Low Control	9	3,022	0.0	311	0	\$39	\$290	\$152	3.5
Corridor 500	10	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	10	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Corridor 500	50	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,380	5	None	Yes	50	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	3,022	0.3	2,240	0	\$280	\$2,025	\$1,750	1.0
Corridor 600	4	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Corridor 600	32	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,380	5	None	Yes	32	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	3,022	0.2	1,434	0	\$180	\$1,350	\$1,120	1.3
Corridor 600	2	Linear Fluorescent - T5: 3' T5 (21W) - 1L	Wall Switch	S	27	4,380	3, 5	Relamp	Yes	2	LED - Linear Tubes: (1) 3' Lamp	High/Low Control	11	3,022	0.0	190	0	\$24	\$262	\$80	7.6
Corridor 700	42	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,380	5	None	Yes	42	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	3,022	0.3	1,882	0	\$236	\$1,575	\$1,470	0.4
Corridor 800 Wing	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 800 Wing	27	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	4,380	5	None	Yes	27	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	3,022	0.2	1,210	0	\$151	\$1,125	\$945	1.2
Corridor 800 Wing	8	Linear Fluorescent - T12: 2' T12 (20W) - 2L	Wall Switch	S	50	4,380	2, 5	Relamp & Reballast	Yes	8	LED - Linear Tubes: (2) 2' Lamps	High/Low Control	17	3,022	0.2	1,475	0	\$185	\$968	\$328	3.5
Corridor 800 Wing	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	4,380	2, 5	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,022	0.2	1,310	0	\$164	\$500	\$180	2.0
Custodial Closet 100 Wing	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,760	0.0	64	0	\$8	\$37	\$10	3.3
Custodial closet 400 Wing	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,214	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.0	44	0	\$6	\$37	\$10	4.8
Custodial Closet 600 Corridor	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,760	0.0	64	0	\$8	\$37	\$10	3.3
Custodial Office	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.4	2,276	0	\$285	\$781	\$175	2.1
Custodial Office Bath	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	3,520	0.0	0	0	\$0	\$0	\$0	0.0
Custodial Office Tool Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	500	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	345	0.1	46	0	\$6	\$189	\$40	25.8



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
Custodial Room 400 Wing	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	3,520	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,520	0.0	228	0	\$29	\$69	\$10	2.1
D503	3	Compact Fluorescent: (1) 26W Biaxial Plug-In Lamp	Wall Switch	S	26	3,520	3, 4	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	19	2,429	0.0	150	0	\$19	\$38	\$3	1.8
D503	6	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	216	0	\$27	\$270	\$35	8.7
Electric Room in PAC Bath	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	500	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	500	0.0	18	0	\$2	\$37	\$10	11.7
English Book	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	3,520	2, 4	Relamp & Reballast	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	790	0	\$99	\$476	\$65	4.2
English Book 1 Storage	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,760	2, 4	Relamp & Reballast	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	395	0	\$49	\$322	\$30	5.9
English Storage	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,760	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	263	0	\$33	\$254	\$40	6.5
Entrance to PAC Attic	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	4,380	3, 5	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	3,022	0.1	405	0	\$51	\$298	\$90	4.1
Exterior Breezeway	3	LED Lamps: (1) 10W A19 Screw-In Lamp	Timeclock		10	4,380		None	No	3	LED Lamps: (1) 10W A19 Screw-In Lamp	Timeclock	10	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Breezeway	3	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch		10	3,520		None	No	3	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	10	3,520	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Breezeway	2	LED Lamps: (1) 50W Corn Bulb Screw-In Lamp	Photocell		50	4,380		None	No	2	LED Lamps: (1) 50W Corn Bulb Screw-In Lamp	Photocell	50	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Child Study Court Yard	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
Exterior Flag Pole Area	8	LED Lamps: (3) 17W PAR20 Screw-In Lamps	Timeclock		51	4,380		None	No	8	LED Lamps: (3) 17W PAR20 Screw-In Lamps	Timeclock	51	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Poles	6	Metal Halide: (1) 250W Lamp	Timeclock		295	4,380	1	Fixture Replacement	No	6	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Timeclock	75	4,380	0.0	5,782	0	\$742	\$2,672	\$600	2.8
Exterior Soffit	22	LED Lamps: (1) 10W A19 Screw-In Lamp	Timeclock		10	4,380		None	No	22	LED Lamps: (1) 10W A19 Screw-In Lamp	Timeclock	10	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Soffit	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Timeclock		62	4,380	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Timeclock	29	4,380	0.0	289	0	\$37	\$73	\$20	1.4
Exterior Wall Packs	3	Compact Fluorescent: (1) 32W A-Series Screw-In Lamp	Photocell		32	4,380	3	Relamp	No	3	LED Lamps: A19 Lamps	Photocell	23	4,380	0.0	118	0	\$15	\$52	\$3	3.2
Exterior Wall Packs	1	Compact Fluorescent: (1) 32W A-Series Screw-In Lamp	Timeclock		32	4,380	3	Relamp	No	1	LED Lamps: A19 Lamps	Timeclock	23	4,380	0.0	39	0	\$5	\$17	\$1	3.2
Exterior Wall Packs	4	LED Lamps: (1) 10W A19 Screw-In Lamp	Photocell		10	4,380		None	No	4	LED Lamps: (1) 10W A19 Screw-In Lamp	Photocell	10	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Wall Packs	6	LED Lamps: (1) 100W Corn Bulb Screw-In Lamp	Photocell		100	4,380		None	No	6	LED Lamps: (1) 100W Corn Bulb Screw-In Lamp	Photocell	100	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Wall Packs	5	LED Lamps: (1) 50W Corn Bulb Screw-In Lamp	Photocell		50	4,380		None	No	5	LED Lamps: (1) 50W Corn Bulb Screw-In Lamp	Photocell	50	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Wall Packs	5	LED - Fixtures: Wall Pack	Photocell		12	4,380		None	No	5	LED - Fixtures: Wall Pack	Photocell	12	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Wall Packs	5	LED - Fixtures: Wall Pack	Timeclock		52	4,380		None	No	5	LED - Fixtures: Wall Pack	Timeclock	52	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Wall Packs	9	LED - Fixtures: Wall Pack	Photocell		78	4,380		None	No	9	LED - Fixtures: Wall Pack	Photocell	78	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Wall Packs	10	High-Pressure Sodium: (1) 150W Lamp	Timeclock		188	4,380	1	Fixture Replacement	No	10	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	45	4,380	0.0	6,263	0	\$804	\$3,458	\$500	3.7

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 Wall Packs	6	High-Pressure Sodium: (1) 150W Lamp	Timeclock		188	4,380	1	Fixture Replacement	No	6	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	45	4,380	0.0	3,758	0	\$482	\$2,075	\$300	3.7
Exterior Wall Packs	6	Metal Halide: (1) 150W Lamp	PhotoCell		190	4,380	1	Fixture Replacement	No	6	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	PhotoCell	45	4,380	0.0	3,811	0	\$489	\$2,075	\$300	3.6
Exterior Wall Packs	6	Metal Halide: (1) 175W Lamp	Timeclock		215	8,760	1	Fixture Replacement	No	6	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	53	8,760	0.0	8,515	0	\$1,093	\$2,307	\$300	1.8
Exterior Wall Packs	2	Metal Halide: (1) 70W Lamp	PhotoCell		95	4,380	1	Fixture Replacement	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	PhotoCell	21	4,380	0.0	648	0	\$83	\$412	\$100	3.8
Faculty Mens Bath 500 Wing	4	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	3,520	2, 4	Relamp & Reballast	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	53	2,429	0.1	797	0	\$100	\$545	\$75	4.7
Faculty Womens Bath 500 Wing	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	3,520	2, 4	Relamp & Reballast	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	23	2,429	0.2	838	0	\$105	\$476	\$65	3.9
Fitness Center	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Fitness Center	18	Linear Fluorescent - T5HO: 4' T5HO (54W) - 4L	Occupancy Sensor	S	234	2,429	3	Relamp	No	18	LED - Linear Tubes: (4) 4' T5 (14.5W) Lamps	Occupancy Sensor	60	2,429	2.3	8,368	-2	\$1,048	\$1,901	\$360	1.5
Fitness Center	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,520	0.0	128	0	\$16	\$37	\$10	1.7
Front Coaches Office	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Front Coaches Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	2,429	3	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	353	0	\$44	\$146	\$40	2.4
Front Coaches Office 129	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Occupancy Sensor	S	33	2,429	3	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,429	0.0	43	0	\$5	\$33	\$6	5.0
Front Coaches Office 129	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	2,429	3	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	264	0	\$33	\$110	\$30	2.4
Front Coaches Office Bathroom	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	S	10	2,429		None	No	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Front Coaches Office Bathroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	2,429	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.0	88	0	\$11	\$37	\$10	2.4
Front Coaches Office Bathroom 129	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	S	10	2,429		None	No	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Front Coaches Office Bathroom 129	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	2,429	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.0	88	0	\$11	\$37	\$10	2.4
G302	8	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	8	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.1	288	0	\$36	\$270	\$35	6.5
G303	9	Linear Fluorescent - T5: 4' T5 (28W) - 2L	Wall Switch	S	60	3,520	3, 4	Relamp	Yes	9	LED - Linear Tubes: (2) 4' T5 (14.5W) Lamps	Occupancy Sensor	30	2,429	0.3	1,370	0	\$171	\$784	\$125	3.8
G304	8	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	8	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.1	288	0	\$36	\$270	\$35	6.5
G305	6	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	216	0	\$27	\$270	\$35	8.7
G306	10	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	10	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.1	360	0	\$45	\$270	\$35	5.2
G308	6	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	3,520	4	None	Yes	6	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,429	0.0	72	0	\$9	\$270	\$35	26.1
G308	3	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	3	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	108	0	\$14	\$270	\$35	17.4
G310 Foyer	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	3,520	0.0	0	0	\$0	\$0	\$0	0.0

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
G310 Nurses Office	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	144	0	\$18	\$270	\$35	13.0
G310 Nurses Office Back Room 1	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	144	0	\$18	\$270	\$35	13.0
G312	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	144	0	\$18	\$270	\$35	13.0
G314	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	144	0	\$18	\$270	\$35	13.0
G314 Rear Office	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	144	0	\$18	\$270	\$35	13.0
G322	6	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	216	0	\$27	\$270	\$35	8.7
Generator Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,760	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	8,760	0.0	636	0	\$80	\$73	\$20	0.7
Girls Bath 500 Wing	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.2	813	0	\$102	\$453	\$85	3.6
Girls Bathroom 400 Wing	3	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	3	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	108	0	\$14	\$270	\$35	17.4
Girls Bathroom 400 Wing	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.0	163	0	\$20	\$37	\$10	1.3
Girls Locker Room C809	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
Girls Locker Room C809	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	20	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.6	3,252	-1	\$407	\$1,540	\$305	3.0
Girls Locker Room C809 Bathroom	10	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	8,760	4	None	Yes	10	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	6,044	0.0	299	0	\$37	\$270	\$35	6.3
Girls Locker Room C809 Bathroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	488	0	\$61	\$650	\$100	9.0
Girls Locker Room C809 Foyer	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,520	0.0	128	0	\$16	\$37	\$10	1.7
Girls Team Locker Coaches Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	650	0	\$81	\$416	\$75	4.2
Girls Team Locker Room	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Girls Team Locker Room	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.5	2,439	-1	\$305	\$818	\$185	2.1
Handicap Bathroom 400 Wing	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,760	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	8,760	0.0	318	0	\$40	\$37	\$10	0.7
History Closet	3	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,760	2, 4	Relamp & Reballast	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	395	0	\$49	\$322	\$50	5.5
I47 Foyer	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Kiln Room in Class101B	1	LED - Fixtures: Linear Strip	Wall Switch	S	80	2,990		None	No	1	LED - Fixtures: Linear Strip	Wall Switch	80	2,990	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	6	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	3,520	4	None	Yes	6	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,429	0.0	72	0	\$9	\$0	\$0	0.0
Kitchen	24	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	3,520	3, 4	Relamp	Yes	24	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	2,429	1.3	6,875	-1	\$861	\$2,563	\$585	2.3

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
Kitchen	3	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,429	0.1	456	0	\$57	\$487	\$65	7.4
Kitchen in 601	3	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	3	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	108	0	\$14	\$270	\$35	17.4
Kitchen Bathroom Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,760	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	8,760	0.0	318	0	\$40	\$37	\$10	0.7
Kitchen Cooler Box	1	LED - Fixtures: Linear Strip	Wall Switch	S	40	3,520		None	No	1	LED - Fixtures: Linear Strip	Wall Switch	40	3,520	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen Cooler Box	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	3,520	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,520	0.0	228	0	\$29	\$69	\$10	2.1
Kitchen Dishwashing Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,429	0.1	732	0	\$92	\$434	\$80	3.9
Kitchen Foyer	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
Kitchen Foyer	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,429	0.1	488	0	\$61	\$226	\$50	2.9
Kitchen in D501	3	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,429	0.1	456	0	\$57	\$487	\$65	7.4
Kitchen Locker Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,520	0.0	128	0	\$16	\$37	\$10	1.7
Kitchen Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,429	0.1	488	0	\$61	\$226	\$50	2.9
Kitchen Pantry	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	488	0	\$61	\$380	\$65	5.2
Ladies Bath 800 Wing Corridor	2	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	S	10	2,429		None	No	2	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Ladies Bath 800 Wing Corridor	2	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	S	17	8,760		None	No	2	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Ladies Bath 700 Wing	9	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	9	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,429	0.3	1,367	0	\$171	\$922	\$125	4.7
Ladies Bathroom 300 Wing	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,429	0.1	304	0	\$38	\$261	\$40	5.8
Ladies Bathroom in 600 Lounge	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Library Bottom Floor	4	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Library Bottom Floor	8	LED - Fixtures: Ambient 1x4 Fixture	Occupancy Sensor	S	34	8,760		None	No	8	LED - Fixtures: Ambient 1x4 Fixture	Occupancy Sensor	34	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Library Bottom Floor	6	LED - Fixtures: Decorative: Other	Occupancy Sensor	S	100	2,429		None	No	6	LED - Fixtures: Decorative: Other	Occupancy Sensor	100	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Library Bottom Floor	4	LED - Fixtures: Decorative: Other	Occupancy Sensor	S	50	2,429		None	No	4	LED - Fixtures: Decorative: Other	Occupancy Sensor	50	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Library Bottom Floor	13	LED Lamps: (1) 12W R20 Screw-In Lamp	Occupancy Sensor	S	12	2,429		None	No	13	LED Lamps: (1) 12W R20 Screw-In Lamp	Occupancy Sensor	12	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Library Bottom level	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
Library Bottom level	4	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	S	39	2,429		None	No	4	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	39	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Library Confrence	10	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	S	20	2,429		None	No	10	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	20	2,429	0.0	0	0	\$0	\$0	\$0	0.0



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
Library IT office 1	5	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	S	20	2,429		None	No	5	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	20	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Library IT Office 2	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	S	20	2,429		None	No	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	20	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Library IT Office 3	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	S	20	2,429		None	No	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	20	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Library IT Room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.0	163	0	\$20	\$37	\$10	1.3
Library IT Room	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,429	0.1	732	0	\$92	\$434	\$80	3.9
Library Upper Level	8	LED - Fixtures: Ambient 1x4 Fixture	Occupancy Sensor	S	50	2,429		None	No	8	LED - Fixtures: Ambient 1x4 Fixture	Occupancy Sensor	50	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Library Upper Level	3	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	S	20	2,429		None	No	3	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	20	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Library Upper Level	21	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	S	39	8,760		None	No	21	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	39	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Library Upper Level	5	LED Lamps: (1) 12W R20 Screw-In Lamp	Occupancy Sensor	S	12	2,429		None	No	5	LED Lamps: (1) 12W R20 Screw-In Lamp	Occupancy Sensor	12	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Library Upper Level Office	3	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	S	39	2,429		None	No	3	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	39	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Main Entrance Foyer	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	144	0	\$18	\$270	\$35	13.0
Main Gymnasium	4	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Main Gymnasium	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	S	30	2,429		None	No	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Main Gymnasium	36	LED - Fixtures: High-Bay	Occupancy Sensor	S	225	2,429		None	No	36	LED - Fixtures: High-Bay	Occupancy Sensor	225	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Mechanical in Library	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	488	0	\$61	\$380	\$65	5.2
Mens Bath 100 Wing	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	488	0	\$61	\$920	\$135	12.8
Mens Bath 100 Wing	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	3,520	0.0	112	0	\$14	\$72	\$10	4.4
Mens Bath 2 in 600 Corridor	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	3,520	0.0	0	0	\$0	\$0	\$0	0.0
Mens Bath 700 Wing	9	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	9	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,429	0.3	1,367	0	\$171	\$922	\$125	4.7
Mens Bath 800 Wing Corridor	2	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	S	10	8,760		None	No	2	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Mens Bath 800 Wing Corridor	2	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	S	17	2,429		None	No	2	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Mens Bathroom 300 Wing	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	8,760	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	6,044	0.0	179	0	\$22	\$116	\$20	4.3
Mens Bathroom 600 Corridor	10	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	10	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,429	0.3	1,519	0	\$190	\$995	\$135	4.5
Mens Locker Room	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Mens Locker Room	19	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	19	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.6	3,089	-1	\$387	\$964	\$225	1.9

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
Mens Locker Room 2	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Mens Locker Room 2	19	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	19	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.6	3,089	-1	\$387	\$1,234	\$260	2.5
Mens Locker Room Shower	5	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	3,520	4	None	Yes	5	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,429	0.0	60	0	\$8	\$270	\$35	31.3
Mens Locker Room Shower	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,429	0.1	732	0	\$92	\$704	\$115	6.4
Mens Locker Room Shower 2	5	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	3,520	4	None	Yes	5	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,429	0.0	60	0	\$8	\$270	\$35	31.3
Mens Locker Room Shower 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,429	0.1	488	0	\$61	\$226	\$50	2.9
Office 1 in 601	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 110A	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 110B	3	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	3	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	108	0	\$14	\$270	\$35	17.4
Office 110C	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 112A	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	144	0	\$18	\$270	\$35	13.0
Office 112B	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 112C	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 112D	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 112E	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 112E	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 112F	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 112G	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 2 in 601	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 2 In G305	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 2 in Nurses Office	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	3,520	0.0	0	0	\$0	\$0	\$0	0.0
Office 3 in 601	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 4 in 601	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
Office 5 in 601	3	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	3	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	108	0	\$14	\$270	\$35	17.4
Office 6 in 601	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6



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 609	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	S	25	2,429		None	No	6	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	25	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Office 609	2	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	S	45	2,429		None	No	2	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	45	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Office in 101 B	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	3,520		None	No	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	10	3,520	0.0	0	0	\$0	\$0	\$0	0.0
Office in 101 B	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	3,520	0.0	0	0	\$0	\$0	\$0	0.0
Office In G305	4	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	8,760	4	None	Yes	4	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	6,044	0.0	358	0	\$45	\$270	\$35	5.2
PAC Attic	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.2	976	0	\$122	\$489	\$95	3.2
PAC Attic Foyer	3	Compact Fluorescent: (1) 32W Biaxial Plug-In Lamp	Wall Switch	S	32	8,760	3, 4	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	23	6,044	0.0	466	0	\$58	\$308	\$38	4.6
PAC Attic Foyer	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	325	0	\$41	\$189	\$40	3.7
PAC Center	4	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
PAC Center	63	LED Lamps: (1) 16W PAR30 Screw-In Lamp	Wall Switch	S	16	3,520	4	None	Yes	63	LED Lamps: (1) 16W PAR30 Screw-In Lamp	Occupancy Sensor	16	2,429	0.2	1,210	0	\$151	\$270	\$35	1.6
PAC Center Stage	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
PAC Center Stage	37	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	S	29	8,760	4	None	Yes	37	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	6,044	0.2	3,205	-1	\$401	\$1,350	\$175	2.9
PAC Foyer	4	Compact Fluorescent: (1) 26W Biaxial Plug-In Lamp	Wall Switch	S	26	3,520	3, 4	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	19	2,429	0.0	200	0	\$25	\$320	\$39	11.2
PAC Hallway	36	Compact Fluorescent: (1) 32W Biaxial Plug-In Lamp	Wall Switch	S	32	3,520	3, 5	Relamp	Yes	36	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	23	2,429	0.4	2,248	0	\$281	\$1,800	\$1,296	1.8
PAC Hallway	6	Compact Fluorescent: (2) 32W Biaxial Plug-In Lamps	Wall Switch	S	64	3,520	3, 5	Relamp	Yes	6	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	19	2,429	0.2	1,182	0	\$148	\$300	\$216	0.6
PAC Hallway	3	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
PAC Hallway	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,429	0.0	72	0	\$9	\$116	\$20	10.6
PAC Hallway	14	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 5	Relamp	Yes	14	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	2,429	0.4	2,127	0	\$266	\$1,689	\$630	4.0
PAC Ladies Hall Bath	3	LED Lamps: (1) 12W R30 Screw-In Lamp	Wall Switch	S	12	3,520	4	None	Yes	3	LED Lamps: (1) 12W R30 Screw-In Lamp	Occupancy Sensor	12	2,429	0.0	43	0	\$5	\$0	\$0	0.0
PAC Ladies Hall Bath	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	488	0	\$61	\$380	\$65	5.2
PAC Mens Hall Bath	3	LED Lamps: (1) 12W R30 Screw-In Lamp	Wall Switch	S	12	3,520	4	None	Yes	3	LED Lamps: (1) 12W R30 Screw-In Lamp	Occupancy Sensor	12	2,429	0.0	43	0	\$5	\$0	\$0	0.0
PAC Mens Hall Bath	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	488	0	\$61	\$380	\$65	5.2
PAC Room Storage	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,760	0.0	64	0	\$8	\$37	\$10	3.3
PAC Sound Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	325	0	\$41	\$189	\$40	3.7
PAC Sound Room	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,429	0.0	152	0	\$19	\$72	\$10	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
Paint Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	325	0	\$41	\$189	\$40	3.7
PE Office 105	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	650	0	\$81	\$416	\$75	4.2
PE Office Girls Locker Room C809	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.2	976	0	\$122	\$489	\$95	3.2
Prep 708A	3	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,429	3	Relamp	No	3	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,429	0.1	361	0	\$45	\$244	\$45	4.4
Prep Room between 704-706	3	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,429	3	Relamp	No	3	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,429	0.1	361	0	\$45	\$244	\$45	4.4
Prep Room between 709-711	2	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,429	3	Relamp	No	2	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,429	0.1	240	0	\$30	\$163	\$30	4.4
Prep Room Between 713-715	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,429	0.1	732	0	\$92	\$434	\$80	3.9
Prep Room Between 713-715	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	3,520	0.0	112	0	\$14	\$72	\$10	4.4
Prep Room in Classroom E207	4	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	2,060	3	Relamp	No	4	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	2,060	0.1	408	0	\$51	\$325	\$60	5.2
Press Box Stadium	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,760	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	6,044	0.1	1,618	0	\$203	\$416	\$75	1.7
Rear Office 2 Classroom 408	5	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	5	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	153	0	\$19	\$270	\$35	12.3
Rear Office Classroom 408	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	2,990	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	2,063	0.0	61	0	\$8	\$116	\$20	12.5
Security Office 609	3	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	S	45	2,429		None	No	3	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	45	2,429	0.0	0	0	\$0	\$0	\$0	0.0
Small Gymnasium	4	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	4	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Small Gymnasium	32	LED - Fixtures: High-Bay	Daylight Dimming	S	225	8,760		None	No	32	LED - Fixtures: High-Bay	Daylight Dimming	225	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Stairs 2	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
Stairs 2	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch		30	3,520	5	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	2,429	0.0	72	0	\$9	\$225	\$70	17.2
Stairs 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	8,760	3, 5	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	6,044	0.0	405	0	\$51	\$37	\$10	0.5
Stairs 3	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
Stairs 3	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch		30	3,520	5	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	2,429	0.0	72	0	\$9	\$225	\$70	17.2
Stairs 3	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	8,760	3, 5	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	6,044	0.0	405	0	\$51	\$37	\$10	0.5
Stairs 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
Stairs 4	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch		30	3,520	5	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	2,429	0.0	72	0	\$9	\$225	\$70	17.2
Stairs 4	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	3,520	3, 5	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,429	0.0	163	0	\$20	\$37	\$10	1.3
Stairs D40	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

	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	
Stairs D40	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	3,520	5	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	High/Low Control	30	2,429	0.0	72	0	\$9	\$225	\$70	17.2	
Stairs D40	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 5	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	2,429	0.0	163	0	\$20	\$37	\$10	1.3	
STO Office	2	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	S	45	8,760		None	No	2	LED - Fixtures: Ambient 2x4 Fixture	Occupancy Sensor	45	8,760	0.0	0	0	\$0	\$0	\$0	0.0	
Storage 2 in 101B	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	1,760		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	1,760	0.0	0	0	\$0	\$0	\$0	0.0	
Storage 3 in 101B	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	1,760		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	1,760	0.0	0	0	\$0	\$0	\$0	0.0	
Storage 135	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,214	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.0	44	0	\$6	\$37	\$10	4.8	
Storage 135 Hallway	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0	
Storage 135 Hallway	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,214	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.0	88	0	\$11	\$73	\$20	4.8	
Storage 2 500 Wing	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,760	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	263	0	\$33	\$254	\$20	7.1	
Storage 412	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	1,760	3	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	1,760	0.0	56	0	\$7	\$72	\$10	8.9	
Storage 414	1	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	1,760	3	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	1,760	0.0	56	0	\$7	\$72	\$10	8.9	
Storage 500 Wing	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,760	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	263	0	\$33	\$254	\$20	7.1	
Storage 723	15	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	1,760	2, 4	Relamp & Reballast	Yes	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.7	1,974	0	\$247	\$1,302	\$150	4.7	
Storage Cafeteria	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	244	0	\$31	\$226	\$30	6.4	
Storage F714	2	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	1,760	4	None	Yes	2	LED - Fixtures: Ambient 2x2 Fixture	Occupancy Sensor	30	1,214	0.0	36	0	\$5	\$116	\$0	25.7	
Storage Hall Mens Locker Room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,214	3	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.0	88	0	\$11	\$73	\$20	4.8	
Storage in 101B	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	S	30	1,760		None	No	1	LED - Fixtures: Ambient 2x2 Fixture	Wall Switch	30	1,760	0.0	0	0	\$0	\$0	\$0	0.0	
Storage in 107B	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	163	0	\$20	\$189	\$20	8.3	
Storage in 600 Corridor	1	LED - Fixtures: Linear Strip	Wall Switch	S	80	1,760		None	No	1	LED - Fixtures: Linear Strip	Wall Switch	80	1,760	0.0	0	0	\$0	\$0	\$0	0.0	
Storage in Corridor 700	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	1,760	3, 4	Relamp	Yes	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,214	0.3	859	0	\$108	\$708	\$120	5.5	
Storage in Fitness	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,214	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.0	44	0	\$6	\$37	\$10	4.8	
Storage in Prep Room in Classroom E207	2	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Occupancy Sensor	S	90	1,214	3	Relamp	No	2	LED - Linear Tubes: (3) 4' T5 (14.5W) Lamps	Occupancy Sensor	45	1,214	0.1	120	0	\$15	\$163	\$30	8.8	
Storage in Small Gym	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,214	3	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,214	0.1	132	0	\$17	\$110	\$30	4.8	
Storage Next to S115	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,760	0.0	64	0	\$8	\$37	\$10	3.3	
Storage Science	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	163	0	\$20	\$189	\$20	8.3	

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
Trainer Room	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	\$0	\$0	\$0	0.0
Trainer Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	650	0	\$81	\$416	\$75	4.2
Trainer Room	2	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,429	0.1	304	0	\$38	\$261	\$40	5.8
Trainers Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	325	0	\$41	\$189	\$40	3.7
Training Room Foyer	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.2	813	0	\$102	\$453	\$85	3.6
Training Room Foyer Closet	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	1,760	3, 4	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,214	0.1	244	0	\$31	\$226	\$50	5.7
Training Room Foyer Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	163	0	\$20	\$189	\$40	7.3
Transformer Between 713-715	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	325	0	\$41	\$189	\$40	3.7
Water Storage 109	1	Compact Fluorescent: (1) 26W Biaxial Plug-In Lamp	Occupancy Sensor	S	26	1,214	3	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	19	1,214	0.0	9	0	\$1	\$13	\$1	9.8
Women's Bathroom 600 Corridor	11	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	11	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	2,429	0.3	1,671	0	\$209	\$1,067	\$145	4.4
Womens Bath in PE Office C809 Bathroom	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	3,520	4	None	Yes	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	2,429	0.0	12	0	\$2	\$0	\$0	0.0
Womens Bath in PE Office C809 Bathroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	325	0	\$41	\$189	\$40	3.7
Back Athletic Field	2	LED Lamps: (1) 17W PAR20 Screw-In Lamp	Timeclock		17	4,380		None	No	2	LED Lamps: (1) 17W PAR20 Screw-In Lamp	Timeclock	17	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Guard Booth	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	3,520	2, 4	Relamp & Reballast	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.0	263	0	\$33	\$69	\$10	1.8
Guard Booth	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.0	163	0	\$20	\$153	\$30	6.0
Guard Booth	2	Metal Halide: (1) 150W Lamp	Wall Switch		190	3,520	1	Fixture Replacement	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Wall Switch	53	3,520	0.0	964	0	\$124	\$769	\$100	5.4
Baseball Storage	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,214	3	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	176	0	\$22	\$146	\$40	4.8
Baseball Storage	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3, 4	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.1	244	0	\$31	\$226	\$30	6.4
Exterior Wallpacks	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock		52	4,380		None	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	52	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Wallpacks	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Photocell		52	4,380		None	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Photocell	52	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Oil Tank Storage	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	1,760		None	No	1	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	10	1,760	0.0	0	0	\$0	\$0	\$0	0.0
Oil Tank Storage	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3, 4	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	0.5	1,301	0	\$163	\$1,124	\$160	5.9
Bathroom Foyer in Transportation Area	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	3,520	3	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,520	0.0	192	0	\$24	\$55	\$15	1.7
Bathroom in Transportation Area	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	3,520	0.0	128	0	\$16	\$37	\$10	1.7
Cold Side Storage	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



	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
Cold Side Storage	38	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3, 4	Relamp	Yes	38	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,214	1.1	3,089	-1	\$387	\$2,198	\$485	4.4
Exterior Parking Pole Lights	1	LED Lamps: (1) 100W Corn Bulb Screw-In Lamp	Timeclock		100	4,380		None	No	1	LED Lamps: (1) 100W Corn Bulb Screw-In Lamp	Timeclock	100	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Parking Pole Lights	2	Metal Halide: (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	\$247	\$891	\$200	2.8
Exterior Wall Packs	8	Metal Halide: (1) 250W Lamp	Timeclock		295	4,380	1	Fixture Replacement	No	8	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	75	4,380	0.0	7,709	0	\$989	\$3,766	\$400	3.4
Grounds Pole Barn	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
Grounds Pole Barn	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	3,520	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	527	0	\$66	\$254	\$40	3.2
Grounds Pole Barn	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	3,520	3, 4	Relamp	Yes	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.5	2,927	-1	\$366	\$1,197	\$250	2.6
Office in Transportation	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	1,040	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	718	0.1	216	0	\$27	\$434	\$80	13.1
Storage for Transportation	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,760	3	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,760	0.0	64	0	\$8	\$37	\$10	3.3
Storage Shed	2	LED Lamps: (1) 10W A19 Screw-In Lamp	Wall Switch	S	10	1,760	4	None	Yes	2	LED Lamps: (1) 10W A19 Screw-In Lamp	Occupancy Sensor	10	1,214	0.0	12	0	\$2	\$116	\$0	77.2
Storage Shed	1	High-Pressure Sodium: (1) 70W Lamp	Timeclock	S	95	4,380	1	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	21	4,380	0.1	357	0	\$45	\$206	\$50	3.5
Transportation Entrance Foyer	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
Transportation Entrance Foyer	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	3,520	3	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	3,520	0.0	192	0	\$24	\$55	\$15	1.7
Transportation Kitchen	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	3,520	3, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	2,429	0.1	732	0	\$92	\$434	\$80	3.9
Consseesion	2	Linear Fluorescent - T12HO: 8' T12HO (110W) - 2L	Wall Switch	S	252	3,520	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 8' Lamps	Occupancy Sensor	72	2,429	0.3	1,567	0	\$196	\$527	\$75	2.3
Exterior Wallpacks	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Photocell		26	4,380		None	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Photocell	26	4,380	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Wallpacks	1	High-Pressure Sodium: (1) 70W Lamp	Photocell		95	4,380	1	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Photocell	21	4,380	0.0	324	0	\$42	\$206	\$50	3.8
Ladies Bath	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	3,520	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	527	0	\$66	\$254	\$40	3.2
Mens Bath	2	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	S	88	3,520	2, 4	Relamp & Reballast	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	2,429	0.1	527	0	\$66	\$254	\$40	3.2
Storage Closet	1	Compact Fluorescent: (1) 13W A-Series Screw-In Lamp	Wall Switch	S	13	1,760	3	Relamp	No	1	LED Lamps: A19 Lamps	Wall Switch	10	1,760	0.0	6	0	\$1	\$17	\$1	22.3
Track Storage	1	Linear Fluorescent - T12HO: 8' T12HO (110W) - 2L	Wall Switch	S	252	1,760	2	Relamp & Reballast	No	1	LED - Linear Tubes: (2) 8' Lamps	Wall Switch	72	1,760	0.1	348	0	\$44	\$129	\$20	2.5



Motor Inventory & Recommendations

		Existing Conditions									Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	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
Monmouth Regional High School	Monmouth Regional High School	20	Exhaust Fan	0.3	65.0%	No	Unknown	Unknown	W	3,000		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	Monmouth Regional High School	9	Exhaust Fan	0.5	65.0%	No	Unknown	Unknown	W	3,000		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	Monmouth Regional High School	5	Exhaust Fan	0.3	65.0%	No	Unknown	Unknown	W	3,000		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	Monmouth Regional High School	2	Kitchen Hood Exhaust Fan	0.8	70.0%	No	Penn Ventilation	Unknown	W	1,200		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	Monmouth Regional High School	6	Exhaust Fan	0.2	65.0%	No	Unknown	Unknown	W	3,000		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Boiler Room	Monmouth Regional High School	1	DHW Circulation Pump	0.2	65.0%	No	Taco	0013-SF3	W	8,760		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Boiler Room	Monmouth Regional High School	2	DHW Circulation Pump	0.3	65.0%	No	Bell & Gossett	Ecocirc XL N 55-45	W	8,760		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Boiler Room	Monmouth Regional High School	2	Heating Hot Water Pump	30.0	94.1%	Yes	Armstrong	4300440-069	W	4,067		No	94.1%	No		0.0	0	0	\$0	\$0	\$0	0.0
Boiler Room	Monmouth Regional High School	4	Heating Hot Water Pump	3.0	89.5%	No	Weg	00318OT3E182J M-S	W	2,745		No	89.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Library Mechanical	Elevator	1	Other	15.0	70.0%	No	Unknown	Unknown	W	50		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Classroom H408	Monmouth Regional High School	1	Supply Fan	2.3	86.5%	No	Unknown	Unknown	W	3,000		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical in Library	Monmouth Regional High School	1	Supply Fan	7.5	91.0%	Yes	Baldor	Unknown	W	3,500		No	91.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Mechanical in Library	Monmouth Regional High School	1	Return Fan	5.0	89.5%	Yes	Baldor	EHM3218T	W	3,000		No	89.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
PAC Attic	Monmouth Regional High School	1	Supply Fan	15.0	93.0%	No	Unknown	Unknown	W	3,500	6	No	93.0%	Yes	1	4.3	15,792	0	\$2,027	\$9,177	\$1,200	3.9
Exterior	Monmouth Regional High School	1	Supply Fan	2.0	86.5%	No	Megnetek	E102	W	3,000		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Monmouth Regional High School	1	Supply Fan	3.0	86.5%	No	Megnetek	E226	W	3,000		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Monmouth Regional High School	1	Supply Fan	5.0	87.5%	No	Megnetek	E227	W	3,000		No	87.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Monmouth Regional High School	1	Supply Fan	1.5	84.0%	No	Unknown	Unknown	W	3,000		No	84.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Monmouth Regional High School	1	Supply Fan	10.0	91.7%	No	Emerson	D10P2B	W	3,000	6	No	91.7%	Yes	1	2.9	9,152	0	\$1,175	\$6,697	\$1,100	4.8
Exterior	Monmouth Regional High School	1	Supply Fan	1.5	84.0%	No	Unknown	Unknown	W	3,000		No	84.0%	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
Exterior	Monmouth Regional High School	1	Exhaust Fan	1.5	84.0%	No	Unknown	Unknown	W	3,000		No	84.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Aux Gym	1	Supply Fan	3.0	89.5%	Yes	Unknown	Unknown	W	3,000		No	89.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Aux Gym	1	Return Fan	3.0	89.5%	Yes	Unknown	Unknown	W	3,000		No	89.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Monmouth Regional High School	1	Supply Fan	2.0	88.5%	No	Weg	Unknown	W	3,000		No	88.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Monmouth Regional High School	1	Exhaust Fan	1.5	86.5%	No	Weg	Unknown	W	3,000		No	86.5%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior	RTU07B	1	Return Fan	10.0	91.7%	No	Weg	01018OT3E2157-S	W	3,000	6	No	91.7%	Yes	1	3.0	9,152	0	\$1,175	\$6,697	\$1,100	4.8
Exterior	RTU07B	1	Supply Fan	10.0	91.7%	No	Unknown	Unknown	W	3,000	6	No	91.7%	Yes	1	2.9	9,152	0	\$1,175	\$6,697	\$1,100	4.8
Exterior	Main Boys Locker Room North	1	Supply Fan	1.5	84.0%	No	Unknown	Unknown	W	3,000		No	84.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Main Boys Locker Room North	1	Exhaust Fan	1.5	84.0%	No	Unknown	Unknown	W	3,000		No	84.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	Monmouth Regional High School	10	Supply Fan	0.3	65.0%	No	Unknown	Unknown	W	3,000		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	Monmouth Regional High School	10	Fan Coil Unit	0.3	65.0%	No	Unknown	Unknown	W	3,000		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	Monmouth Regional High School	6	Supply Fan	0.3	65.0%	No	Unknown	Unknown	W	3,000		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Front Soccer Field	Monmouth Regional High School	1	Water Supply Pump	0.3	65.0%	No	Unknown	Unknown	W	100		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Woodshop Storage Unit - Oil Tank Storage	Woodshop Storage Unit	1	Combustion Air Fan	0.5	65.0%	No	Unknown	Unknown	B	2,440		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Transportation Building	Transportation Building	1	Exhaust Fan	0.1	65.0%	No	Unknown	Unknown	W	3,000		No	65.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	Monmouth Regional High School	54	Supply Fan	0.8	70.0%	No	Unknown	Unknown	W	3,000		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Various	Various	45	Supply Fan	0.2	70.0%	No	Unknown	Unknown	W	3,000		No	70.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Various	Various	26	Supply Fan	0.5	78.0%	No	Unknown	Unknown	W	3,000		No	78.0%	No		0.0	0	0	\$0	\$0	\$0	0.0
Various	Various	13	Supply Fan	2.0	86.0%	No	Unknown	Unknown	W	3,000		No	86.0%	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
Guard Booth	Guard Booth	1	Window AC	1.00		10.00		Hampton Bay	Unknown	B	7	Yes	1	Window AC	1.00		12.00		0.1	150	0	\$19	\$942	\$0	48.9
Roof	Monmouth Regional High School	1	Package Unit		316.00		0.79 AFUE	Trane	GRCA40PFKB0L6CL302A0LNPQ	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Library	1	Split-System	20.00		9.00		Trane	TTA240E400AA	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Room 301	1	Split-System	4.00		9.00		Fraser - Johnston	HBMC F048SA	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Rooms H402 - H410	1	Split-System	9.00		12.00		Aaon	CFA-009-B-A-3-DC00K	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	AHU - 4	1	Split-System	10.00		9.00		Trane	TTA120B400BC	B	7	Yes	1	Split-System	10.00		14.00		2.4	3,571	0	\$458	\$15,894	\$790	32.9
Exterior	Classroom 713	2	Split-System	4.00		10.00		Trane	TTA048C400A0	B	7	Yes	2	Split-System	4.00		16.00		1.8	2,700	0	\$347	\$14,830	\$840	40.4
Exterior	Classroom 108	1	Split-System	4.00		10.00		Trane	Unknown	B	7	Yes	1	Split-System	4.00		16.00		0.9	1,350	0	\$173	\$7,415	\$420	40.4
Exterior	Cafeteria AHU-3	1	Split-System	50.00		11.00		Trane	RAUCC5048P13BD	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	AHU 2	1	Split-System	10.00		9.00		Trane	TTA120A400BC	B	7	Yes	1	Split-System	10.00		14.00		2.4	3,571	0	\$458	\$15,894	\$790	32.9
Exterior	UV5, Room 102	1	Split-System	4.00		8.00		Trane	Unknown	B	7	Yes	1	Split-System	4.00		16.00		1.5	2,250	0	\$289	\$7,415	\$420	24.2
Exterior	PAC	1	Split-System	60.00		11.20		Trane	RAUCC604BP13BD	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	HVAC-18, UV3, Room 107	1	Split-System	4.00		8.00		Trane	Unknown	B	7	Yes	1	Split-System	4.00		16.00		1.5	2,250	0	\$289	\$7,415	\$420	24.2
Exterior	Kitchen Office	1	Split-System	1.00		12.00		Mitsubishi	PU12EK	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	HVAC-17, UV4, Classroom 105	1	Split-System	4.00		8.00		Trane	Unknown	B	7	Yes	1	Split-System	4.00		16.00		1.5	2,250	0	\$289	\$7,415	\$420	24.2
Exterior	HVAC-22, UV6, Classroom 104	1	Split-System	4.00		8.00		Trane	Unknown	B	7	Yes	1	Split-System	4.00		16.00		1.5	2,250	0	\$289	\$7,415	\$420	24.2
Exterior	Classroom 715	2	Split-System	4.00		10.00		Trane	TTA048C400A0	B	7	Yes	2	Split-System	4.00		16.00		1.8	2,700	0	\$347	\$14,830	\$840	40.4
Exterior	HVAC-19, UV2 Classroom 109A	1	Split-System	4.00		8.00		Trane	Unknown	B	7	Yes	1	Split-System	4.00		16.00		1.5	2,250	0	\$289	\$7,415	\$420	24.2
Exterior	HVAC-23, UV 7 Classroom 106	1	Split-System	4.00		8.00		Trane	Unknown	B	7	Yes	1	Split-System	4.00		16.00		1.5	2,250	0	\$289	\$7,415	\$420	24.2
Exterior	HVAC-20, UV1 Classroom 109	1	Split-System	4.00		8.00		Trane	Unknown	B	7	Yes	1	Split-System	4.00		16.00		1.5	2,250	0	\$289	\$7,415	\$420	24.2

		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 (kBtu/hr)	Cooling Mode Efficiency (SEER/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
Exterior	Ice Closet	1	Electric Resistance Heat		11.26		1 COP	TPI Corp	P3P5103CA1N	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Press Box	Press Box	1	Electric Resistance Heat		10.24		1 COP	Fasco	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Trainer Room	Trainer Room	1	Fan Coil		10.24		1 COP	Unknown	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Library IT	Library IT	1	Window AC	1.08		11.00		Idylis	625616	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	RTU04	1	Package Unit	4.00	49.00	14.00	0.82 AFUE	Aaon	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Fitness Corridor	1	Package Unit	4.00	49.00	14.00	0.816 AFUE	Aaon	RQ-004-3-V-EB09-31B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 101	1	Package Unit	6.00	81.00	14.00	0.81 AFUE	Aaon	RQ-006-3-H-EA09-33B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	CST Office, RTU3	1	Package Unit	8.50		9.00		Trane	TCD103C400AA	B	7	Yes	1	Package Unit	8.50		14.00		2.0	3,036	0	\$390	\$11,299	\$672	27.3
Exterior	Classroom 205	1	Package Unit	4.00		10.00		Trane	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 708	1	Package Unit	4.00		10.00		Trane	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Aux Gym	1	Package Unit	11.00	156.00	9.00	0.8 AFUE	Aaon	RN-011-3-0-EA09-3FB	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	PAC Corridor	1	Package Unit	6.00	72.90	14.00	0.81 AFUE	Aaon	RN-006-3-0-EB09-32B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Faculty Room, RTU2	1	Package Unit	8.00	120.00	14.00	0.8 AFUE	Aaon	RN-008-3-0-EA09-3KB	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 103	1	Package Unit	5.00	81.00	14.00	0.81 AFUE	Aaon	RQ-005-3-H-EA09-33B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 704	1	Package Unit	4.00		10.00		Trane	THC048E4R0A12H0B0A106B0000000C0000000000	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 612	1	Package Unit	6.00	81.00	14.00	0.81 AFUE	Aaon	RQ-006-3-H-EA09-33B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	RTU3	1	Package Unit	3.00	49.00	14.00	0.81 AFUE	Aaon	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	300 Wing Corridor	1	Package Unit	8.00	120.00	14.00	0.8 AFUE	Aaon	RN-008-3-0-EA09-3KB	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	RTU08B	1	Package Unit	11.00	156.00	14.90	0.8 AFUE	Aaon	RN-011-3-0-EA09-3FB	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 610	1	Package Unit	11.00	218.70	14.90	0.81 AFUE	Aaon	RNA-011-C-0-2-DAA0A-DB1L0	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 (kBtu/hr)	Cooling Mode Efficiency (SEER/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
Exterior	Fitness Center	1	Package Unit	16.00	218.70	13.70	0.81 AFUE	Aaon	RN-016-3-0-EA09-34B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	RTU08A	1	Package Unit	11.00	156.00	14.90	0.81 AFUE	Aaon	RN-011-3-0-EA09-3FB	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	600 Wing Corridor	1	Package Unit	8.00	120.00	14.00	0.8 AFUE	Aaon	RN-008-3-0-EA09-3KB	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 709	1	Package Unit	4.00		10.00		Trane	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Wing 200 Corridor	1	Package Unit	8.00	120.00	14.00	0.8 AFUE	Aaon	RN-008-3-0-EB09-3KB	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	English Corridor	1	Package Unit	6.00	72.90	14.00	0.81 AFUE	Aaon	RN-006-3-0-EB09-32B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 207	1	Package Unit	4.00		10.00		Trane	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	History Corridor	1	Package Unit	6.00	72.90	14.00	0.81 AFUE	Aaon	RN-006-3-0-EB09-32B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 719	1	Package Unit	4.00		10.00		Trane	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	RTU07B	1	Package Unit	20.00	328.10	13.70	0.81 AFUE	Aaon	RN-020-3-0-EA09-38B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 711	1	Package Unit	4.00		10.00		Trane	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	RTU 07A	1	Package Unit	20.00	328.10	13.70	0.81 AFUE	Aaon	RN-020-3-0-E09-38B	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Classroom 706	1	Package Unit	4.00		10.00		Trane	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	RTU 1 Conference Room	1	Package Unit	8.00	120.00	14.00	0.8 AFUE	Aaon	RN-008-3-0-EA09-3KB	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	AD Office	1	Ductless Mini-Split HP	1.00	12.00	12.00	7.7 HSPF	Sanyo	Unknown	B	8	Yes	1	Ductless Mini-Split HP	1.00	12.00	18.00	3.8 COP	0.4	313	0	\$40	\$2,638	\$0	65.6
Exterior	Monmouth Regional High School	1	Ductless Mini-Split HP	1.03	17.60	12.90	10.4 HSPF	LG	LUU127HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Monmouth Regional High School	1	Ductless Mini-Split HP	2.35	26.00	16.00	7.7 HSPF	York	DHR30CSB21S	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Room 714	1	Ductless Mini-Split HP	1.03	17.60	12.90	10.4 HSPF	LG	LUU127HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	700 South Corridor	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	700 Corridor	1	Ductless Mini-Split HP	1.03	17.60	12.90	10.4 HSPF	LG	LUU127HV	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 (kBtu/hr)	Cooling Mode Efficiency (SEER/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
Exterior	Room 721	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Room 301	1	Ductless Mini-Split HP	1.00	13.60	12.50	10 HSPF	Mitsubishi	SUZ-KA12NA	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Superintendent Secretary	1	Ductless Mini-Split AC	1.00		12.00		Sanyo	C1211	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Room G306	2	Ductless Mini-Split AC	1.00		12.00		Sanyo	C1211	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Room G308, 310, 312	1	Ductless Mini-Split HP	3.75	48.00	10.50	10.3 HSPF	Fujitsu	AOU45RLXFZ	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Room G302	1	Ductless Mini-Split HP	1.92	10.30	15.90	10.3 HSPF	Sanyo	C2122	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Offices	4	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Room G304	1	Ductless Mini-Split AC	1.00		16.00		Sanyo	C1271	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Fitness Room	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Front Coaches Office	1	Ductless Mini-Split HP	1.92	10.30	15.90	10.3 HSPF	Sanyo	Unknown	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Band Storage	2	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Foreign Language Office	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Back Coaches Office	1	Ductless Mini-Split AC	0.75		16.00		Sanyo	CL0971	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Boys Middle Locker Room Front Office	1	Ductless Mini-Split AC	0.75		16.00		Sanyo	CL0971	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Principals Office	1	Ductless Mini-Split HP	1.46	17.50	12.50	10 HSPF	LG	LUU189HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Principals Office/Secretary	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Child Development Room	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Foreign Language Office	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Training Office	1	Ductless Mini-Split AC	0.71		12.50		Panasonic	Unknown	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Science Class Office	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	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 (kBtu/hr)	Cooling Mode Efficiency (SEER/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
Exterior	Boys Middle Locker Room Back Office	1	Ductless Mini-Split AC	0.75		16.00		Sanyo	CL0971	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Home EC Office	1	Ductless Mini-Split HP	1.03	17.60	12.90	10.4 HSPF	LG	LUU127HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Math Office	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Maintenance Office	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	General Office	1	Ductless Mini-Split HP	3.00	36.00	18.00	9.7 HSPF	Carrier	38MGQF36---301--	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Girls Locker Room Front Office	1	Ductless Mini-Split AC	1.00		11.90		Panasonic	CU-S12NKU	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Special Ed Office	1	Ductless Mini-Split HP	3.00	40.00	13.00	11.5 HSPF	Carrier	RAV-SP360AT2-UL	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Guidance Conference Room	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Science Conference Room	1	Ductless Mini-Split AC	0.99		16.00		Panasonic	CU-KE12NK1	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Girls Locker Back Office	1	Ductless Mini-Split AC	1.00		12.50		Panasonic	CU-S12NKUP	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Math Office	1	Ductless Mini-Split HP	0.75	15.40	12.70	10.3 HSPF	LG	LUU097HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Exterior	Vice Principal Secretary Office	3	Ductless Mini-Split HP	1.03	17.60	12.90	10.4 HSPF	LG	LUU127HV	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	Monmouth Regional High School	41	Package Unit	3.00	36.00	11.00		Airedale	CMD36FAMEAS NNA91	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	Monmouth Regional High School	13	Package Unit	4.00	48.00	11.00		Airedale	CMD48FAMEAS NNA91	W		No							0.0	0	0	\$0	\$0	\$0	0.0
Woodshop Storage Unit - Oil Tank Storage	Woodshop Storage Unit	1	Unit Heater		138.00		0.81 AFUE	Reznor	OH140	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Transportation Facility	Training Office	1	Split-System	1.50	56.00	10.95	0.8 AFUE	Lennox	HS26-018-2P/C23-31FC-1	B	7	Yes	1	Split-System	1.50	56.00	16.00	0.82 AFUE	0.3	389	0	\$60	\$3,734	\$158	59.6
Grounds Pole Barn	Grounds Pole Barn	2	Unit Heater		240.00		0.8 AFUE	Reznor	Unknown	B		No							0.0	0	0	\$0	\$0	\$0	0.0
Transportation Facility	Transportation Office	1	Window AC	1.26		10.70		Electrolux	FAM157S1A	B	7	Yes	1	Window AC	1.26		12.00		0.1	115	0	\$15	\$1,021	\$0	69.3

Space Heating Boiler Inventory & Recommendations

		Existing Conditions						Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Output Capacity per Unit (MBh)	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	Simple Payback w/ Incentives in Years
Boiler Room	Monmouth Regional High School	4	Condensing Hot Water Boiler	2,790	Aerco	BMK 3000	W		No						0.0	0	0	\$0	\$0	\$0	0.0

### Pipe Insulation Recommendations

		Recommendation Inputs			Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Affected	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
Transportation	DHW	9	8	0.75	0.0	308	0	\$40	\$95	\$16	2.0

### DHW Inventory & Recommendations

		Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	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
Boiler Room	Monmouth Regional High School	3	Storage Tank Water Heater (> 50 Gal)	Conquest	50 L 130A-GCML	W		No						0.0	0	0	\$0	\$0	\$0	0.0
Kitchen Pantry	Monmouth Regional High School	1	Storage Tank Water Heater (> 50 Gal)	Bradford White	D80T7253NA	W		No						0.0	0	0	\$0	\$0	\$0	0.0
Paint Room	Concession Stand	1	Storage Tank Water Heater (≤ 50 Gal)	Whirlpool	E2F40RD045V	B		No						0.0	0	0	\$0	\$0	\$0	0.0
Transportation Facility - Storage	Transportation Facility	1	Storage Tank Water Heater (≤ 50 Gal)	AO Smith	EES 40 917	B		No						0.0	0	0	\$0	\$0	\$0	0.0

### Low-Flow Device Recommendations

		Recommendation Inputs				Energy Impact & Financial Analysis						
Location	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
Monmouth Regional High School	10	1	Faucet Aerator (Kitchen)	2.20	1.50	0.0	0	0	\$3	\$7	\$2	1.8
Monmouth Regional High School	10	20	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	9	\$143	\$143	\$72	0.5
Kitchen	10	1	Pre-Rinse Spray Valve	2.20	1.28	0.0	0	1	\$15	\$124	\$0	8.1

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

Walk-In Cooler/Freezer Inventory & Recommendations															
Existing Conditions					Proposed Conditions				Energy Impact & Financial Analysis						
Location	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	Cooler (35F to 55F)	Brown	UDS-4	11	Yes	No	No	0.1	820	0	\$105	\$607	\$80	5.0
Kitchen	1	Medium Temp Freezer (0F to 30F)	Unknown	Unknown	11	Yes	No	No	0.1	820	0	\$105	\$607	\$80	5.0

### 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
Cafeteria/Concession	2	Freezer Chest	Coldtech	43SLC-LH-DGM	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Cafeteria	1	Refrigerator Chest	Turbo Air	TOM-40LB-N	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 610/612	2	Stand-Up Freezer, Solid Door (≤15 cu. ft.)	Artic Air	AF23Z	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	2	Stand-Up Freezer, Solid Door (16 - 30 cu. ft.)	Traulsen/Wood's	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Cafeteria	2	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	QBD	CD26HB	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0
Cafeteria	1	Stand-Up Refrigerator, Solid Door (≤15 cu. ft.)	IDW	G-7-F334B-HC	No		No	0.0	0	0	\$0	\$0	\$0	0.0
D503	1	Stand-Up Refrigerator, Solid Door (≤15 cu. ft.)	Merchandising Solutions	SD-10	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 610	2	Stand-Up Refrigerator, Solid Door (≤15 cu. ft.)	Turbo/Delfield	TM-24/6025-S	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	3	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	Traulsen	G24318P	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	2	Stand-Up Refrigerator, Solid Door (≤15 cu. ft.)	Traulsen	Unknown	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0



### Commercial Ice Maker Inventory & Recommendations

Existing Conditions						Proposed Conditions		Energy Impact & Financial Analysis						
Location	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	Remote Condensing Unit (<1,000 lbs/day), Batch	Hoshizaki	KM-515MAJ	Yes		No	0.0	0	0	\$0	\$0	\$0	0.0
Exterior Ice Closet	1	Remote Condensing Unit (<1,000 lbs/day), Batch	Manitowoc	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Trainer Room	1	Self-Contained Unit (<175 lbs/day), Batch	Unknown	Unknown	No		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	Gas Rack Oven (Double)	Blodgett	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	1	Gas Rack Oven (Single)	Garland	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 610	2	Gas Convection Oven (Half Size)	Unknown	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Classroom A612	5	Electric Convection Oven (Half Size)	Maytag	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Classroom A612	2	Gas Convection Oven (Half Size)	Premier	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	2	Electric Fryer	Pitco Frialator	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 610	1	Electric Griddle (≤2 Feet Width)	Jade Range	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	1	Insulated Food Holding Cabinet (Full Size)	Metro 65	3 Series	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	1	Gas Steamer	Cleveland	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	1	Gas Steamer	Cleveland	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	2	Insulated Food Holding Cabinet (1/2 Size)	Hatco	Unknown	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Kitchen	1	Electric Combination Oven/Steam Cooker (15 - 28 Pans)	Cleveland	24CGA10.2	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	Multi-Tank Conveyor (High Temp)	Hobart	C64A	Natural Gas	N/A	No		No	0.0	0	0	\$0	\$0	\$0	0.0
Classroom 610/612	2	Under Counter (Low Temp)	KitchenAid	KDFE104DSS3	Electric	N/A	No		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
Guard Booth	1	Electric Space Heater	1,500	No	Intertek	EH-4603
Guard Booth	1	Toaster Oven	1,500	No	Unknown	Unknown
Monmouth Regional High School	1	Air Compressor	500	No	Dayton	Unknown
Monmouth Regional High School	21	Hand Dryer	2,300	No	World Dryer	DXA57
Monmouth Regional High School	1	Hand Dryer	1,440	No	Xlerator	XL-BW
Classroom A612	1	Freezer Chest	400	No	Frigidaire	FFC0522DW3
Classroom 610	4	Electric Oven	5,000	No	Maytag	Unknown
Classroom 610	1	Clothes Dryer	4,400	No	GE	HTX24EASK0WS
Classroom 610	1	Clothes Washer	1,200	No	Maytag	MVW4505MW0
Custodial Office	1	Clothes Washer	1,200	No	Roper	Unknown
Monmouth Regional High School	16	Coffee Machine	800	No	Varied	Varied
Monmouth Regional High School	9	Dehumidifier	500	No	Varied	Varied
Monmouth Regional High School	52	Desktop	270	No	Varied	Varied
Monmouth Regional High School	3	Ceiling Fan	200	No	Unknown	Unknown
Monmouth Regional High School	6	Large Fan	750	No	Varied	Varied
Classroom 101B	1	Kiln	9,984	No	Skutt	KM-1027-3
Monmouth Regional High School	41	Microwave	800	No	Varied	Varied
Classroom 103B	2	Laser Cutter	500	No	Glowforge	GXT-676-4
Classroom 109A	1	Plotter	200	No	HP	Z2100 Photo
Monmouth Regional High School	12	Sewing Machine	60	No	Janome	Unknown
Classroom 716	2	3D Printer	150	No	Robo	E 3
Monmouth Regional High School	4	Hand Dryer	2,400	No	Sky	SKY-2400PA
Monmouth Regional High School	6	Treadmill	1,440	No	TRUE	TP5900-4
Trainer Room	1	Hydrotherapy	805	No	Whitehall	JO-8024
Trainer Room	1	Hot Pack Heater	1,000	No	Hydrocollator	2102
Monmouth Regional High School	2	Paper Shredder	50	No	Fellows	Unknown
Monmouth Regional High School	69	Printer	150	Yes	Varied	Varied
Monmouth Regional High School	6	Copier	1,200	Yes	Savin	Varied
Monmouth Regional High School	24	Projector	200	No	Varied	Varied
Monmouth Regional High School	26	Mini Refrigerator	126	No	Varied	Varied
Monmouth Regional High School	15	Refrigerator	300	Yes	Varied	Varied
Monmouth Regional High School	62	Smart Board	200	Yes	Varied	Varied
Monmouth Regional High School	24	Television	150	No	Varied	Varied
Monmouth Regional High School	6	Toaster Oven	1,500	No	Varied	Varied
Monmouth Regional High School	12	Water Cooler	200	No	Varied	Varied

Existing Conditions						
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified ?	Manufacturer	Model
Monmouth Regional High School	5	Water Fountain	125	No	Elkay	Unknown
Classroom F716	1	Misc. Equipment	1,500	No	Varied	Varied
Classroom 107B	1	Trimming Equipment	3,328	No	Baumfolder	BC80A-P-3
Classroom E205	1	Hood	500	No	Mystaire	Unknown
Classroom 101B	1	Clay Machine	200	No	Shimpo	Unknown
Monmouth Regional High School	24	Tablets	75	Yes	Unknown	Unknown
Woodshop Storage Unit	1	Misc. Tools	1,500	No	Varied	Varied
Woodshop Storage Unit	1	Golf Cart Charger	1,140	No	Club Car	Power Drive 3
Transportation Building	1	Air Compressor	1,500	No	Ingersoll Rand	2340
Transportation Building	1	Coffee Machine	800	No	Unknown	Unknown
Transportation Building	2	Desktop	270	No	Unknown	Unknown
Transportation Building	1	Electric Space Heater	1,500	No	Kenwood	EW7307K
Transportation Building	1	Microwave	800	No	Unknown	Unknown
Transportation Building	2	Printer	150	Yes	Varied	Varied
Transportation Building	3	Mini Refrigerator	126	No	Black & Decker	Unknown
Transportation Building	1	Television	150	No	Unknown	Unknown
Transportation Building	1	Water Cooler	125	No	Unknown	Unknown
Concession	2	Refrigerator	400	No	Electrolux	FFTR1814TW0
Concession	1	Oven	2,500	No	GE	Unknown
Concession	1	Toaster Oven	1,200	No	Toastswell	FFW2
Concession	1	Freezer Chest	500	Yes	Electrolux	UAE20CVDDA
Concession	1	Refrigerator	600	No	TRUE	GDM-33
Concession	1	Refrigerator	600	No	Habco	Unknown
Monmouth Regional High School	1,200	Laptops	75	No	Unknown	Unknown



Vending Machine Inventory & Recommendations

Existing Conditions		Proposed Conditions		Energy Impact & Financial Analysis							
Location	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
Monmouth Regional High School	2	Refrigerated	N/A	No	0.0	0	0	\$0	\$0	\$0	0.0
Monmouth Regional High School	2	Glass Fronted Refrigerated	12	Yes	0.3	2,418	0	\$310	\$460	\$100	1.2
Monmouth Regional High School	6	Non-Refrigerated	12	Yes	0.2	2,055	0	\$264	\$1,380	\$0	5.2

Custom (High Level) Measure Analysis


Electric Tank Water Heater to HPWH

NOTE: HPWH calculation should not be used for existing water heaters with a storage capacity greater than 120 gal.

Existing Conditions						Proposed Conditions				Energy Impact & Financial Analysis										
Description	Area(s)/System(s) Served	SF of Area Served	Fuel Type	Input Capacity per Unit (kW)	Tank Capacity per Unit (Gal)	Description	COP	Tank Capacity per Unit (Gal)	Estimated Unit Cost	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost (\$)	Base Incentives	Enhanced Incentives	Total Incentives	Total Net Cost	Payback w/o Incentives in Years	Payback w/ Incentives in Years
Storage Tank Water Heater (≤50 Gal)	Paint Room	500	Electric	4.5	40	Heat Pump Water Heater	2.5	40	\$2,069.90	0.00	615	0	\$79	\$2,070	\$0	\$0	\$0	\$2,070	26.20	26.20
Storage Tank Water Heater (≤50 Gal)	Transportation Facility - Storage	1,000	Electric	4.5	40	Heat Pump Water Heater	2.5	40	\$2,069.90	0.00	1,231	0	\$158	\$2,070	\$0	\$0	\$0	\$2,070	13.10	13.10
			Electric																	

## 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.


ENERGY STAR® Statement of Energy Performance

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**Monmouth Regional High School (campus)**  
**Primary Property Type:** K-12 School  
**Gross Floor Area (ft²):** 222,130  
**Built:** 1960  
**For Year Ending:** September 30, 2022  
**Date Generated:** April 04, 2023

**ENERGY STAR®**  
Score<sup>1</sup>

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> Monmouth Regional High School (campus) 1 Norman Field Way Tinton Falls, New Jersey 07724	<b>Property Owner</b> Monmouth Regional High School District 1 Norman Field Way Tinton Falls, NJ 07724 (732) 542-1170	<b>Primary Contact</b> Maria Parry 1 Norman Field Way Tinton Falls, NJ 07724 (732) 542-1170 x 1106 mparry@monmouthregional.net	
Property ID: 5836496			

Energy Consumption and Energy Use Intensity (EUI)			
<b>Site EUI</b>	<b>Annual Energy by Fuel</b>	<b>National Median Comparison</b>	
76.6 kBtu/ft²	Electric - Grid (kBtu) 4,664,885 (27%)	National Median Site EUI (kBtu/ft²)	86.4
	Electric - Solar (kBtu) 2,105,518 (12%)	National Median Source EUI (kBtu/ft²)	131.5
	Natural Gas (kBtu) 10,077,942 (59%)	% Diff from National Median Source EUI	-11%
	Fuel Oil (No. 2) (kBtu) 168,277 (1%)		
<b>Source EUI</b>	<b>Annual Emissions</b>		
116.7 kBtu/ft²	Total (Location-Based) GHG Emissions (Metric Tons CO2e/year) 1,138		

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

<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.
<b>SEP</b>	<i>Statement of energy performance</i> : a summary document from the ENERGY STAR Portfolio Manager.
<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.
<b>SREC (II)</b>	<i>Solar renewable energy credit</i> : a credit you can earn from the state for energy produced from a photovoltaic array.
<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.
<b>Temperature Setpoint</b>	The temperature at which a temperature regulating device (thermostat, for example) has been set.
<b>therm</b>	100,000 Btu. Typically used as a measure of natural gas consumption.
<b>tons</b>	A unit of cooling capacity equal to 12,000 Btu/hr.
<b>Turnkey</b>	Provision of a complete product or service that is ready for immediate use.
<b>VAV</b>	<i>Variable air volume</i>
<b>VFD</b>	<i>Variable frequency drive</i> : a controller used to vary the speed of an electric motor.
<b>WaterSense®</b>	The symbol for water efficiency. The WaterSense® program is managed by the EPA.
<b>Watt (W)</b>	Unit of power commonly used to measure electricity use.