Local Government Energy Audit Report

Casimer Dallago Early Childhood Center & Gloria M. Sabater Elementary School

January 3, 2020

Prepared for:

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Disclaimer

The goal of this audit report is to identify potential energy efficiency opportunities, help prioritize specific measures for implementation, and provide information about financial incentives that may be available. 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 were reviewed 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 installation costs on our experience at similar facilities, pricing from local contractors and vendors, and/or cost estimates from RS Means. Cost estimates include material and labor pricing associated with installation of primary recommended equipment only. Cost estimates do not include demolition or removal of hazardous waste. We encourage the owner of the facility to independently confirm these cost estimates and to obtain multiple estimates when considering measure installations. Actual installation costs can vary widely based on individual measures and conditions. TRC and NJBPU do not guarantee installed cost estimates and shall in no event be held liable should actual installed costs vary from estimates.

New Jersey's Clean Energy Program (NJCEP) incentive values provided in this report are estimates based on program information available at the time of the report. Incentive levels are not guaranteed. The NJBPU reserves the right to extend, modify, or terminate programs without prior notice. Please review all available 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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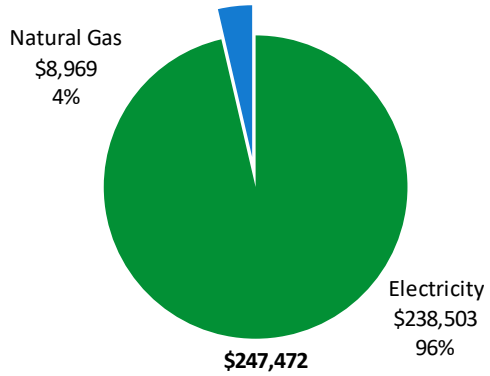
1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) report for Casimer Dallago Early Childhood Center / Gloria M. Sabater Elementary 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

Annual Utilities	Costs: $247,472 Electricity: 1,537,189 kWh Natural Gas: 6,615 Therms	
ENERGY STAR® Benchmarking Score	N/A *(1-100 scale)*	A standard energy use benchmark is not available for this facility type. This report contains suggestions about how to improve building performance and reduce energy costs.

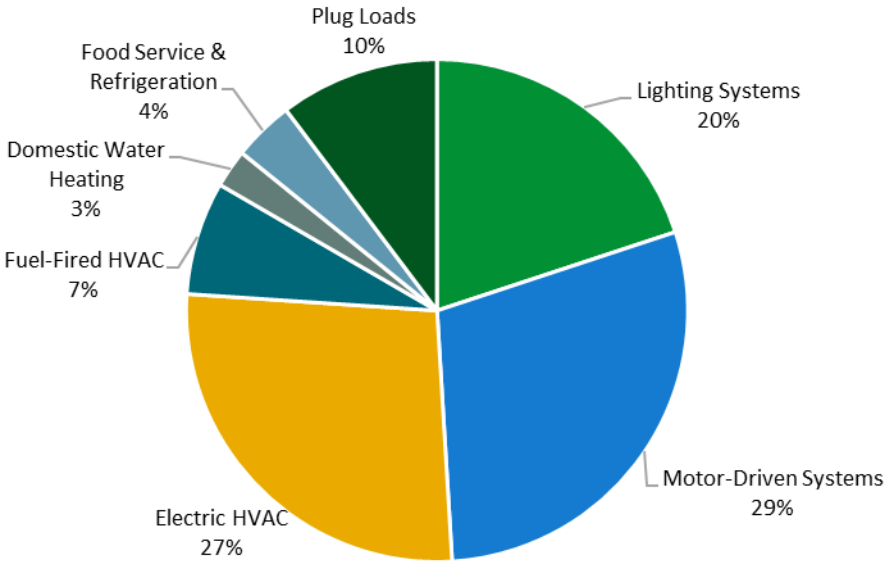


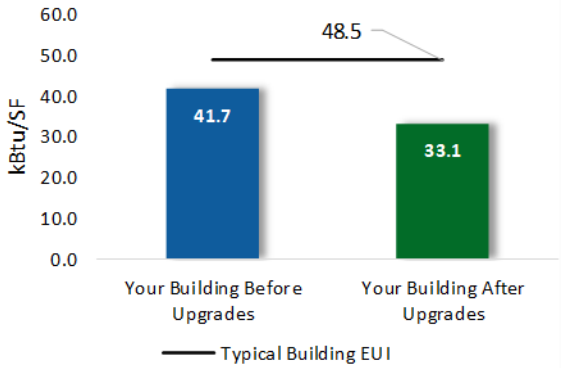
Figure 1 - Energy Use by System

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.

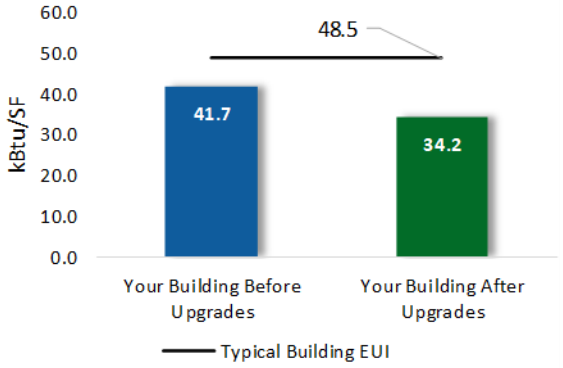
Scenario 1: Full Package (all evaluated measures)

Installation Cost	$547,743
Potential Rebates & Incentives[1]	$100,382
Annual Cost Savings	$54,783
Annual Energy Savings	Electricity: 350,439 kWh
Greenhouse Gas Emission Savings	178 Tons
Simple Payback	8.2 Years
Site Energy Savings (all utilities)	21%



Scenario 2: Cost Effective Package[2]

Installation Cost	$219,652
Potential Rebates & Incentives	$84,246
Annual Cost Savings	$49,732
Annual Energy Savings	Electricity: 323,497 kWh
Greenhouse Gas Emission Savings	161 Tons
Simple Payback	2.7 Years
Site Energy Savings (all utilities)	18%



On-site Generation Potential

Photovoltaic	High
Combined Heat and Power	None

[1] Incentives are based on current SmartStart Prescriptive incentives. Other program incentives may apply.

[2] 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 ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**197,046**	**50.9**	**-31**	**$30,152**	**$143,830**	**$0**	**$143,830**	**4.8**	**194,794**
ECM 1	Install LED Fixtures	Yes	61,383	6.5	-5	$9,455	$68,190	$0	$68,190	7.2	61,217
ECM 2	Retrofit Fixtures with LED Lamps	Yes	135,663	44.4	-26	$20,697	$75,640	$0	$75,640	3.7	133,577
Lighting Control Measures			**14,144**	**3.7**	**-3**	**$2,154**	**$18,012**	**$0**	**$18,012**	**8.4**	**13,897**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	14,144	3.7	-3	$2,154	$18,012	$0	$18,012	8.4	13,897
Motor Upgrades			**3,020**	**0.8**	**0**	**$469**	**$4,772**	**$0**	**$4,772**	**10.2**	**3,041**
ECM 4	Premium Efficiency Motors	Yes	3,020	0.8	0	$469	$4,772	$0	$4,772	10.2	3,041
Variable Frequency Drive (VFD) Measures			**106,063**	**29.1**	**0**	**$16,456**	**$52,577**	**$0**	**$52,577**	**3.2**	**106,805**
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	106,063	29.1	0	$16,456	$52,577	$0	$52,577	3.2	106,805
Electric Unitary HVAC Measures			**26,942**	**13.5**	**0**	**$4,180**	**$272,037**	**$0**	**$272,037**	**65.1**	**27,131**
ECM 6	Install High Efficiency Air Conditioning Units	No	26,942	13.5	0	$4,180	$272,037	$0	$272,037	65.1	27,131
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**64**	**$871**	**$56,054**	**$6,400**	**$49,654**	**57.0**	**7,521**
ECM 7	Install High Efficiency Furnaces	No	0	0.0	64	$871	$56,054	$6,400	$49,654	57.0	7,521
Food Service & Refrigeration Measures			**3,224**	**0.4**	**0**	**$500**	**$460**	**$0**	**$460**	**0.9**	**3,246**
ECM 8	Vending Machine Control	Yes	3,224	0.4	0	$500	$460	$0	$460	0.9	3,246
TOTALS (COST EFFECTIVE MEASURES)			**323,497**	**84.8**	**-34**	**$49,732**	**$219,652**	**$0**	**$219,652**	**4.4**	**321,782**
TOTALS (ALL MEASURES)			**350,439**	**98.3**	**30**	**$54,783**	**$547,743**	**$6,400**	**$541,343**	**9.9**	**356,434**

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

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

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

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.

The potential ECMs identified for this building likely qualify for multiple incentive and funding programs. Based on current program rules and requirements, your measures are likely to qualify for the following programs:

Energy Conservation Measure		SmartStart	Direct Install	Pay For Performance
ECM 1	Install LED Fixtures			
ECM 2	Retrofit Fixtures with LED Lamps			
ECM 3	Install Occupancy Sensor Lighting Controls			
ECM 4	Premium Efficiency Motors			
ECM 5	Install VFDs on Constant Volume (CV) Fans			
ECM 6	Install High Efficiency Air Conditioning Units			
ECM 7	Install High Efficiency Furnaces	x		x
ECM 8	Vending Machine Control			

Figure 3 – Funding Options

New Jersey's Clean Energy Programs At-A-Glance

	SmartStart Flexibility to install at your own pace	**Direct Install** Turnkey installation	**Pay for Performance** Whole building upgrades
Who should use it?	Buildings installing individual measures or small group of measures.	Small to mid-size facilities that can bundle multiple measures together. Average peak demand should be below 200 kW. Not suitable for significant building shell issues.	Mid to large size facilities looking to implement as many measures as possible at one time. Peak demand should be over 200 kW.
How does it work?	Use in-house staff or your preferred contractor.	Pre-approved contractors pass savings along to you via reduced material and labor costs.	Whole-building approach to energy upgrades designed to reduce energy use by at least 15%. The more you save, the higher the incentives.
What are the Incentives?	Fixed incentives for specific energy efficiency measures.	Incentives pay up to 70% of eligible costs, up to $125,000 per project. You pay the remaining 30% directly to the contractor.	Up to 25% of installation cost, calculated based on level of energy savings per square foot.
How do I participate?	Submit an application for the specific equipment to be installed.	Contact a participating contractor in your region.	Contact a pre-qualified Partner to develop your Energy Reduction Plan and set your energy savings targets.

Take the next step by visiting **www.njcleanenergy.com** for program details, applications, and to contact a qualified contractor.

Individual Measures with SmartStart

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 SmartStart 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 is required for some SmartStart incentives, so only after receiving pre-approval should you proceed with ECM installation.

Turnkey Installation with Direct Install

The Direct Install program provides turnkey installation of multiple measures through an authorized network of participating contractors. This program can provide substantially higher incentives than SmartStart, up to 70% of the cost of selected measures. Direct Install contractors will assess and verify individual measure eligibility and, in most cases, they perform the installation work. The Direct Install program is available to sites with an average peak demand of less than 200 kW.

Whole Building Approach with Pay for Performance

Pay for Performance can be a good option for medium to large sized facilities to achieve deep energy savings. Pay for Performance 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. Many facilities pursuing an Energy Savings Improvement Program (ESIP) loan also use this program. Pay for Performance works for larger customers with a peak demand over 200 kW. The minimum installed scope of work must include at least two unique measures resulting in at least 15% energy savings, where lighting cannot make up the majority of the savings.

More Options from Around the State

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

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the ESIP. Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as, attractive financing for implementing ECMs. You have already taken the first step as an LGEA customer, because this report is required to participate in ESIP.

Resiliency with Return on Investment through Combined Heat & Power (CHP)

The CHP program provides incentives for combined heat and power (aka 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.

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.

2 EXISTING CONDITIONS

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) Report for Casimer Dallago Early Childhood Center / Gloria M. Sabater Elementary 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. This report also contains valuable information on financial incentives from New Jersey's Clean Energy Program (NJCEP) for implementing 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 September 5, 2019, TRC performed an energy audit at Casimer Dallago Early Childhood Center/Gloria M. Sabater Elementary School located in Vineland, New Jersey. TRC met with Noel Feliciano Plumer to review the facility operations and help focus our investigation on specific energy-using systems.

Casimer Dallago Early Childhood Center and Gloria M. Sabater Elementary School is a combined 2-story facility with a total area of 141,585 square foot building built in 2007. Spaces include: classrooms, gymnasium, offices, cafeteria, corridors, stairwells, a commercial kitchen, and mechanical space.

Casimer Dallago is a pre-K school and Gloria M Sabater is an elementary school. The building is connected to the city main indoor pool. Casimir Dallago pre-K school has a small indoor pool that is adjacent to the city pool. There are separate electric and gas meter for the pools.

The sites are combined and share their electric and gas meters. The building HVAC systems are likewise integrated.

Pre-K School Playground

2.2 Building Occupancy

The facilities are is occupied for ten months out of the year with a typical weekday occupancy of 241 and 787 including staff and students respectively.

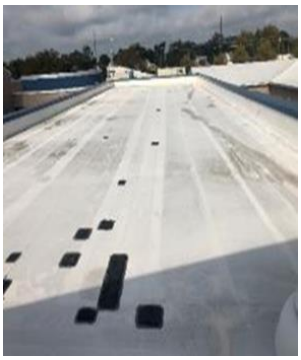
Building Name	Weekday/Weekend	Operating Schedule
Casimer Dallago Early Childhood Center	Weekday	6:00 AM - 4:00 PM
	Weekend	No Operation
Gloria M. Sabater Elementary School	Weekday	6:00 AM - 4:00 PM
	Weekend	No Operation

Figure 4 - Building Occupancy Schedule

2.3 Building Envelope

Building walls are concrete block over structural steel with a brick facade. The roofs have pitched and flat portions. The pitched portions are made of metal cladding and the flat portions are covered with white TPO material.

Most of the windows are double glazed with aluminum frames and a thermal break. The glass-to-frame seals are in good condition. The operable window weather seals are also in good condition, showing no evidence of wear. Exterior doors have aluminum frames and are in good condition.



Flat Roof

Metal Cladding Pitched Roof

Typical Window

Building Wall

Exterior Aluminum Frames Doors

Exit Doors

2.4 Lighting Systems

The primary interior lighting system uses 32-Watt linear fluorescent T8 lamps. There are also several 30-watt T5 fixtures in the library of the Gloria M. Sabater school. Additionally, there are some 26-watt, 4 pin compact fluorescent lamps (CFL) and low wattage LED general purpose lamps. Typically, T8 fluorescent lamps use electronic ballasts.

T8 fixture types include 2- 3- or 4-lamp, 2- or 4-foot long troffer or surface mounted fixtures and 2-foot fixtures with U-bend tube lamps. T5 fixture types include 3-lamp 4-foot long troffers. Interior lighting system is controlled with both occupancy sensors and wall switches. The lighting systems in the hallways are on timer. Exit signs throughout the facility are LED fixtures.

Most fixtures are in good condition but since they are inefficient, they are being evaluated for LED replacements.

The gymnasium and the pool areas are lit using 400-watt and 250-watt metal halide fixtures. Interior lighting levels were generally sufficient.

Exterior lighting consists of metal halide fixtures ranging from 50 to 250 watts, halogen incandescent lamp fixtures (70-watt or 250-watt), 26W CFL fixtures, and a mix of LED lamps and fixtures. All exterior lighting is controlled using photocells.

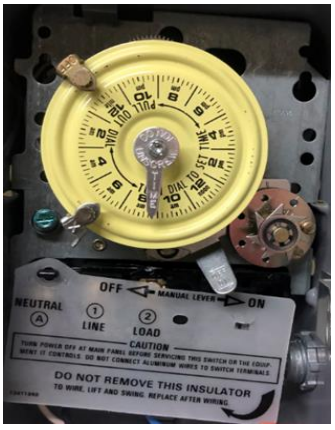
Linear T8 Troffer

T8 with U-Shape Tubes

Recessed CFL

Typical Classroom Lights

Wall Mounted Occupancy Sensor



Timer

Wall Mounted CFL

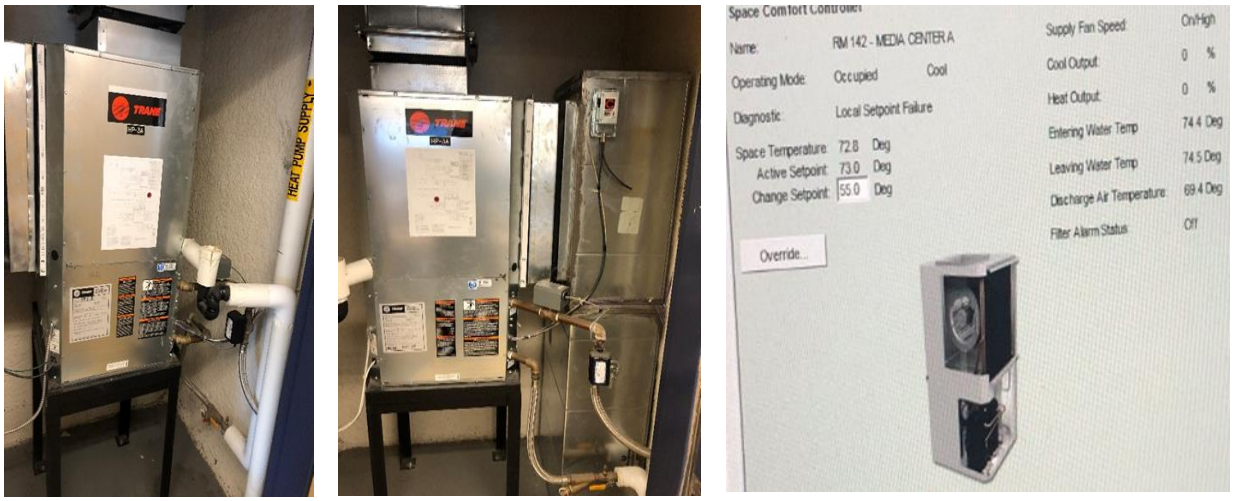
Wall Mounted LED

HID Pole Lights

2.5 Air Handling Systems

Water Source Heat Pumps

The space cooling and heating is provided by several vertical water source heat pumps, mostly Trane units, with capacities ranging from 2.5 to 4-tons. Geothermal energy systems take advantage of the fact that subsurface earth temperatures are constant year round, which makes the earth an ideal heat source and heat sink for heat pumps. The system utilizes energy-conserving, heat-recovery capabilities to transfer heat from one area to another to meet individual zone requirements. All the units are in good working condition. They are controlled using a Trane Tozour energy management system (EMS).



Water Source Heat Pumps & Trane EMS Control System

Direct Expansion Air Conditioning System (DX)

The direct expansion (DX) system for the facility consists of split systems and large rooftop packaged units (RTUs). Larger spaces such as the cafeteria and gymnasium are heated and cooled by a mix of DES CHAMPS and AAON packaged units with capacities that range from 6-to 40 tons. Most of the units incorporate a gas fired furnace. The heating capacity on these units range from 80 MBh to 430 MBH with an efficiency of 80%. The AAON RTUs are variable air volume units while DES CHAMPS units are constant air volume units. There are four Desert Air condensing units that provide cooling to various spaces including the data room.

The DX system units were installed in 2007 and have passed their useful life. They have been evaluated for replacement. The large RTUs are controlled by Trane Summit EMS while the split system air conditioners are controlled with programmable thermostats.

Refer to Appendix A for detailed information about each unit.

DES CHAMPS RTU

AAON RTU with Supply & Return Fans Variable Speed Drives

Desert Air Condensing Unit

2.6 Ground Heat Exchanger System.

The ground heat exchanger system consists of a series of pipes buried in the earth. The earth is used as an energy storage tank. The temperatures from the earth are more stable than air, allowing the water source heat pumps to operate at a lower discharge pressure and use fewer kilowatts. The constant earth temperature will heat or cool the fluid running through buried high-density polyethylene pipe to provide heating and cooling to a building. The ground water from the ground is circulated using two variable speed 40 hp pumps. The water is then circulated to the heat pumps using two variable speed 60 hp pumps.

Supplemental heating is spaces such as mechanical rooms is provided by electric resistance heaters that are controlled with thermostats.

Water Loop

Variable Speed Pumps

VFD

Electric Resistance Heater

2.7 Building Energy Management Systems (EMS)

A Tozour Trane EMS controls the HVAC equipment, heat pumps, and the package units. The EMS provides equipment scheduling control and monitors and controls space temperatures, supply air temperatures, humidity, heating water loop temperatures and chilled water loop temperatures.

Tozour Trane EMS

2.8 Domestic Hot Water

Hot water is produced using two condensing premium gas tankless water heaters. Each have an input capacity of 199 MBh and an efficiency of 95%. There is a separate tank storing and distributing hot water using two constant speed 7.5 hp supply pumps. The water heaters are good condition and the distribution pipes are well insulated.

Condensing Tankless Water Heaters & Distribution Pumps

2.9 Food Service and Refrigeration Equipment

The kitchen has a mix of gas and electric equipment including a gas convection oven and steamer that are used to prepare meals for students. Most cooking is done using the convection gas-fired oven. Bulk prepared foods are held in several electric holding cabinets. Equipment is high efficiency and in good condition.

The kitchen has several stand-up solid door refrigerators and ice makers. There are also refrigerator and freezer chests. All equipment is standard efficiency and appears to be in good condition.

There is a walk-in refrigerator and medium temperature freezer that was not accessible to the auditor onsite. All capacities on these have been assumed for analytical purposes.

Gas Convection & Stove

Reach in Refrigerator

Walk-In Cooler

2.10 Plug Load & Vending Machines

You may wish to consider paying particular attention to minimizing your plug load usage. This report makes suggestions for ECMs in this area as well as Energy Efficient Best Practices.

There are approximately 150 computer work stations throughout the facility. Plug loads throughout the building include general café and office equipment. There are classroom typical loads such as smart boards, projectors, and fans.

There are several residential style refrigerators throughout the building that are used to store food. These vary in condition and efficiency. Both of the schools have one refrigerated vending machines without controls.

Refrigerator & Vending Machine

Washer & Dryer Machines

2.11 Water-Using Systems

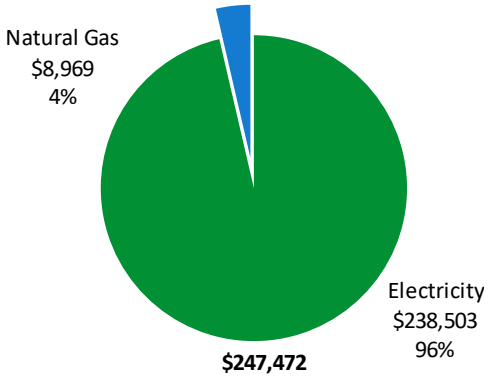
Faucet flow rates are at 1.5 gallons per minute (gpm) or higher. Toilets are rated at 1.6 gallons per flush (gpf) and urinals are rated at 1.0 gpf.

Typical Lavatory Sink

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	1,537,189 kWh	$238,503
Natural Gas	6,615 Therms	$8,969
Total		**$247,472**



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.

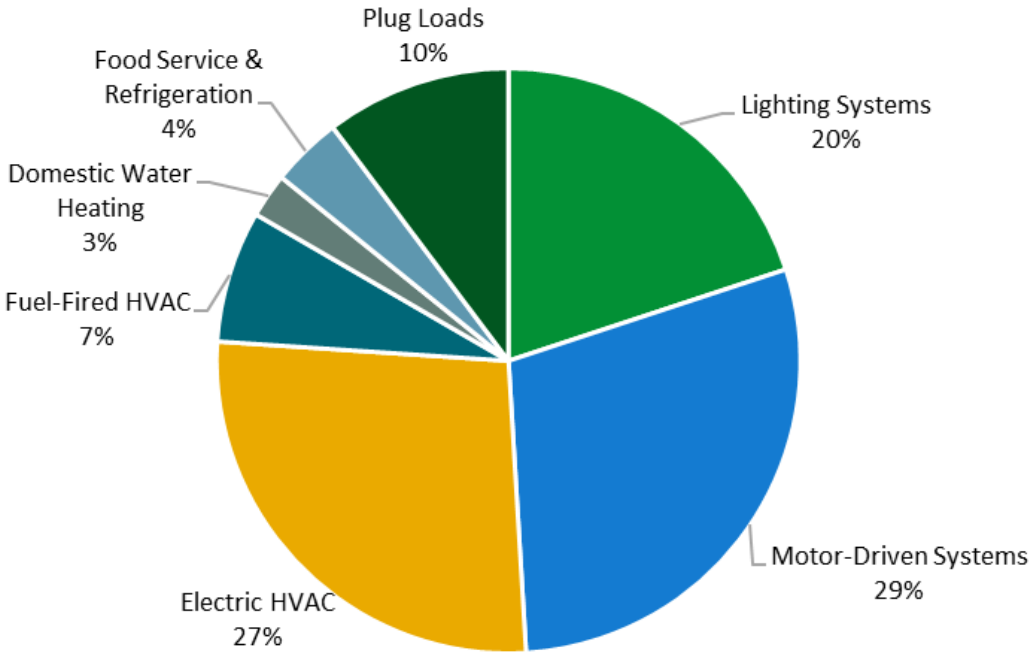
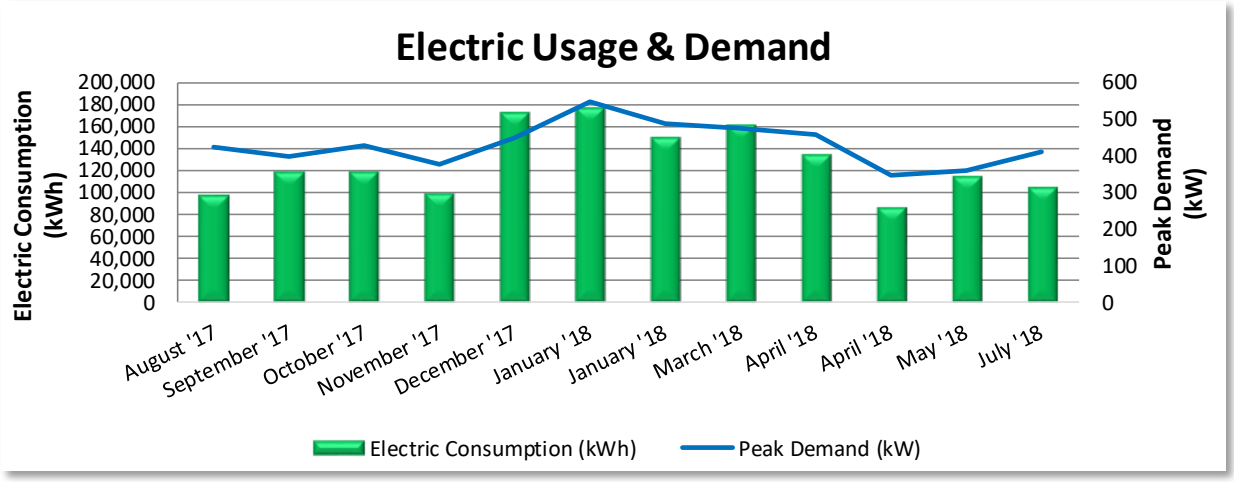


Figure 5 - Energy Balance

3.1 Electricity

City of Vineland delivers electricity under rate class Industrial Service Rate.



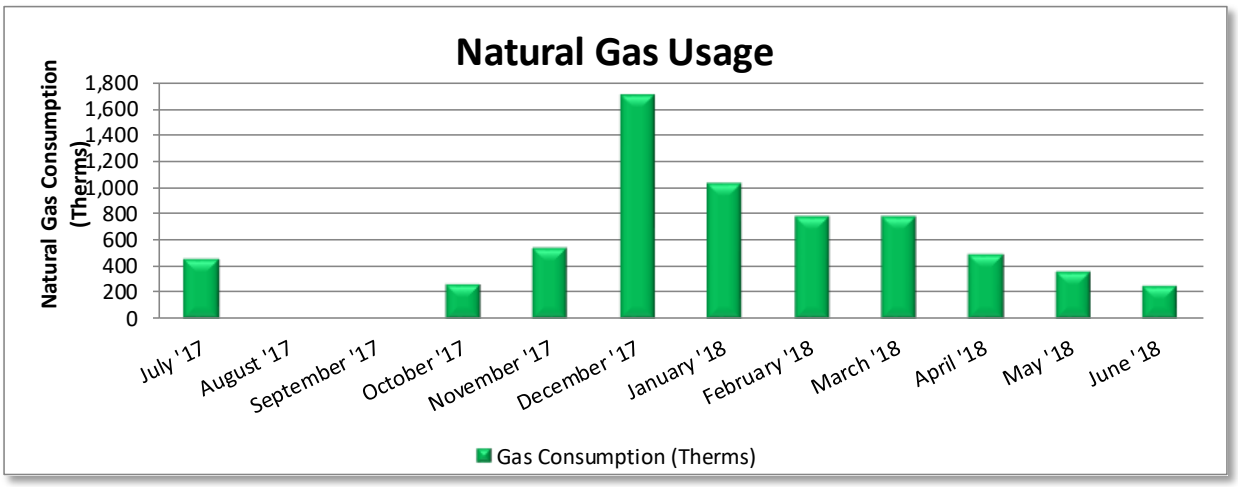
Electric Billing Data					
Period Ending	**Days in Period**	**Electric Usage (kWh)**	**Demand (kW)**	**Demand Cost**	**Total Electric Cost**
8/17/17	30	98,400	423	$3,483	$15,168
9/20/17	34	118,800	399	$4,904	$18,722
10/19/17	29	119,700	426	$4,680	$18,198
11/17/17	29	99,300	375	$41,500	$15,634
12/20/17	33	173,700	447	$4,470	$23,372
1/19/18	30	177,900	546	$5,460	$24,781
2/15/18	27	150,000	489	$4,890	$22,179
3/19/18	32	161,700	473	$4,730	$24,255
4/19/18	31	134,700	456	$5,031	$22,065
5/14/18	25	87,000	348	$4,107	$15,669
6/15/18	32	115,500	360	$4,523	$19,718
7/19/18	34	104,700	411	$5,524	$19,394
Totals	**366**	**1,541,400**	**546**	**$93,300**	**$239,156**
Annual	**365**	**1,537,189**	**546**	**$93,045**	**$238,503**

Notes:

- Peak demand of 546 kW occurred in January '18.
- Average demand over the past 12 months was 429 kW.
- The average electric cost over the past 12 months was $0.155/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

South Jersey Gas delivers natural gas under rate class General Service.



Gas Billing Data			
Period Ending	**Days in Period**	**Natural Gas Usage (Therms)**	**Natural Gas Cost**
8/4/17	30	456	$540
9/11/17	38	0	$37
10/5/17	24	0	$23
11/7/17	33	259	$329
12/6/17	29	540	$728
1/9/18	34	1,700	$2,348
2/7/18	29	1,031	$1,431
3/7/18	28	781	$1,087
4/9/18	33	780	$1,096
5/7/18	28	487	$591
6/7/18	31	351	$451
7/6/18	29	249	$333
Totals	**366**	**6,633**	**$8,994**
Annual	**365**	**6,615**	**$8,969**

Notes:

- The average gas cost for the past 12 months is $1.356/therm, which is the blended rate used throughout the analysis.

3.3 Benchmarking

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

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

Benchmarking Score	**N/A**

Due to its unique characteristics, this building type is not able to receive a benchmarking score. This report contains suggestions about how to improve building performance and reduce energy costs.

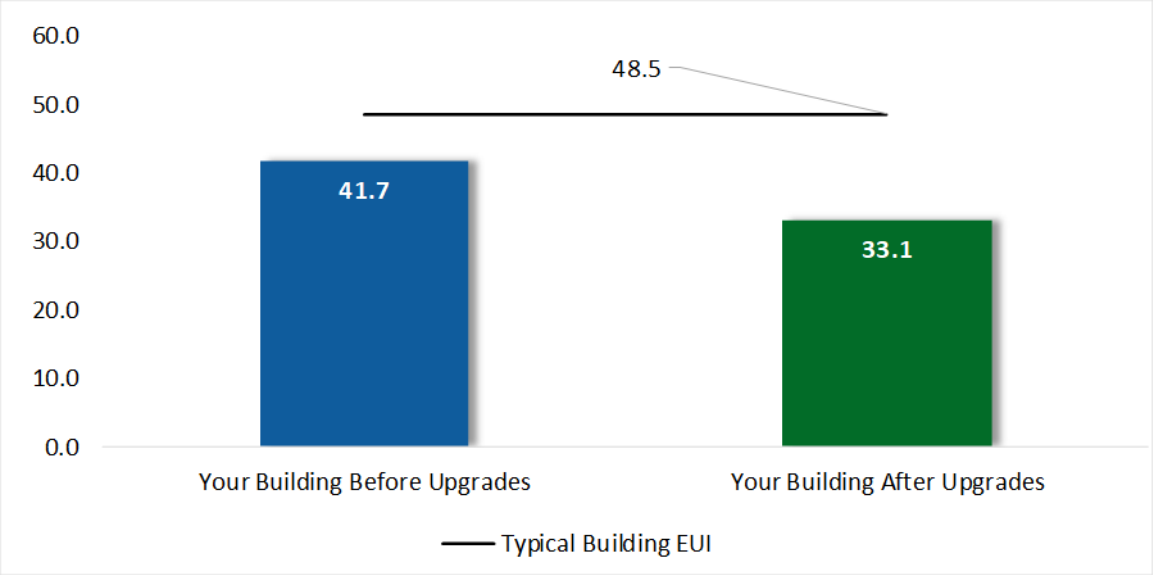


Figure 6 - Energy Use Intensity Comparison[3]

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. A number of factors can cause a building to vary from the "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.

[3] Based on all evaluated ECMs

Tracking Your Energy Performance

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

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

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

For more information on ENERGY STAR® and Portfolio Manager®, visit their website[4].

[4] https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1.

4 Energy Conservation Measures

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

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

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

Financial incentives are based on the current NJCEP prescriptive SmartStart program. A higher level of investigation may be necessary to support any SmartStart Custom, Pay for Performance, or Direct Install incentive applications. Some measures and proposed upgrades may be eligible for higher incentives than those shown below through other NJCEP programs described in a following section of this report.

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 ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**197,046**	**50.9**	**-31**	**$30,152**	**$143,830**	**$0**	**$143,830**	**4.8**	**194,794**
ECM 1	Install LED Fixtures	Yes	61,383	6.5	-5	$9,455	$68,190	$0	$68,190	7.2	61,217
ECM 2	Retrofit Fixtures with LED Lamps	Yes	135,663	44.4	-26	$20,697	$75,640	$0	$75,640	3.7	133,577
Lighting Control Measures			**14,144**	**3.7**	**-3**	**$2,154**	**$18,012**	**$0**	**$18,012**	**8.4**	**13,897**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	14,144	3.7	-3	$2,154	$18,012	$0	$18,012	8.4	13,897
Motor Upgrades			**3,020**	**0.8**	**0**	**$469**	**$4,772**	**$0**	**$4,772**	**10.2**	**3,041**
ECM 4	Premium Efficiency Motors	Yes	3,020	0.8	0	$469	$4,772	$0	$4,772	10.2	3,041
Variable Frequency Drive (VFD) Measures			**106,063**	**29.1**	**0**	**$16,456**	**$52,577**	**$0**	**$52,577**	**3.2**	**106,805**
ECM 5	Install VFDs on Constant Volume (CV) Fans	Yes	106,063	29.1	0	$16,456	$52,577	$0	$52,577	3.2	106,805
Electric Unitary HVAC Measures			**26,942**	**13.5**	**0**	**$4,180**	**$272,037**	**$0**	**$272,037**	**65.1**	**27,131**
ECM 6	Install High Efficiency Air Conditioning Units	No	26,942	13.5	0	$4,180	$272,037	$0	$272,037	65.1	27,131
Gas Heating (HVAC/Process) Replacement			**0**	**0.0**	**64**	**$871**	**$56,054**	**$6,400**	**$49,654**	**57.0**	**7,521**
ECM 7	Install High Efficiency Furnaces	No	0	0.0	64	$871	$56,054	$6,400	$49,654	57.0	7,521
Food Service & Refrigeration Measures			**3,224**	**0.4**	**0**	**$500**	**$460**	**$0**	**$460**	**0.9**	**3,246**
ECM 8	Vending Machine Control	Yes	3,224	0.4	0	$500	$460	$0	$460	0.9	3,246
TOTALS			**350,439**	**98.3**	**30**	**$54,783**	**$547,743**	**$6,400**	**$541,343**	**9.9**	**356,434**

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

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

Figure 7 – All Evaluated ECMs

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**197,046**	**50.9**	**-31**	**$30,152**	**$143,830**	**$0**	**$143,830**	**4.8**	**194,794**
ECM 1	Install LED Fixtures	61,383	6.5	-5	$9,455	$68,190	$0	$68,190	7.2	61,217
ECM 2	Retrofit Fixtures with LED Lamps	135,663	44.4	-26	$20,697	$75,640	$0	$75,640	3.7	133,577
Lighting Control Measures		**14,144**	**3.7**	**-3**	**$2,154**	**$18,012**	**$0**	**$18,012**	**8.4**	**13,897**
ECM 3	Install Occupancy Sensor Lighting Controls	14,144	3.7	-3	$2,154	$18,012	$0	$18,012	8.4	13,897
Motor Upgrades		**3,020**	**0.8**	**0**	**$469**	**$4,772**	**$0**	**$4,772**	**10.2**	**3,041**
ECM 4	Premium Efficiency Motors	3,020	0.8	0	$469	$4,772	$0	$4,772	10.2	3,041
Variable Frequency Drive (VFD) Measures		**106,063**	**29.1**	**0**	**$16,456**	**$52,577**	**$0**	**$52,577**	**3.2**	**106,805**
ECM 5	Install VFDs on Constant Volume (CV) Fans	106,063	29.1	0	$16,456	$52,577	$0	$52,577	3.2	106,805
Food Service & Refrigeration Measures		**3,224**	**0.4**	**0**	**$500**	**$460**	**$0**	**$460**	**0.9**	**3,246**
ECM 8	Vending Machine Control	3,224	0.4	0	$500	$460	$0	$460	0.9	3,246
TOTALS		**323,497**	**84.8**	**-34**	**$49,732**	**$219,652**	**$0**	**$219,652**	**4.4**	**321,782**

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

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

Figure 8 – 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 ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**197,046**	**50.9**	**-31**	**$30,152**	**$143,830**	**$0**	**$143,830**	**4.8**	**194,794**
ECM 1	Install LED Fixtures	61,383	6.5	-5	$9,455	$68,190	$0	$68,190	7.2	61,217
ECM 2	Retrofit Fixtures with LED Lamps	135,663	44.4	-26	$20,697	$75,640	$0	$75,640	3.7	133,577

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 are 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: gymnasium, pool, and exterior fixtures.

ECM 2: 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.

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, CFL, 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 ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Control Measures		**14,144**	**3.7**	**-3**	**$2,154**	**$18,012**	**$0**	**$18,012**	**8.4**	**13,897**
ECM 3	Install Occupancy Sensor Lighting Controls	14,144	3.7	-3	$2,154	$18,012	$0	$18,012	8.4	13,897

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 3: 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.

4.3 Motors

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Motor Upgrades		**3,020**	**0.8**	**0**	**$469**	**$4,772**	**$0**	**$4,772**	**10.2**	**3,041**
ECM 4	Premium Efficiency Motors	3,020	0.8	0	$469	$4,772	$0	$4,772	10.2	3,041

ECM 4: Premium Efficiency Motors

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

Affected motors:

Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Additional Motor Description
Casimer - Room 556	Casimer - Room 556	1	Supply Fan	0.3	
Casimer - Room 553	Casimer - Room 553	1	Supply Fan	0.3	
Casimer - Room 552	Casimer - Room 552	1	Supply Fan	0.3	
Casimer - Room 437	Casimer - Room 437	1	Supply Fan	0.3	
Casimer - Room 436	Casimer - Room 436	1	Supply Fan	0.3	
Casimer - Room 433	Casimer - Room 433	1	Supply Fan	0.3	
Casimer - Room 403	Casimer - Room 403	1	Supply Fan	0.5	
Casimer - Room 535	Casimer - Room 535	1	Supply Fan	0.5	
Casimer - Room 565	Casimer - Room 565	1	Supply Fan	0.5	
Casimer - Room 537	Casimer - Room 537	1	Supply Fan	0.5	
Casimer - Room 562	Casimer - Room 562	1	Supply Fan	0.5	
Casimer - Room 561	Casimer - Room 561	1	Supply Fan	0.5	
Casimer - Room 558	Casimer - Room 558	1	Supply Fan	0.5	

Savings are based on the difference between baseline and proposed efficiencies and the assumed annual operating hours. The base case motor energy consumption is estimated using the efficiencies found on nameplates or estimated based on the age of the motor and our best estimates of motor run hours. Efficiencies of proposed motor upgrades are obtained from the current *New Jersey's Clean Energy Program Protocols to Measure Resource Savings*.

4.4 Variable Frequency Drives (VFD)

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Variable Frequency Drive (VFD) Measures		**106,063**	**29.1**	**0**	**$16,456**	**$52,577**	**$0**	**$52,577**	**3.2**	**106,805**
ECM 5	Install VFDs on Constant Volume (CV) Fans	106,063	29.1	0	$16,456	$52,577	$0	$52,577	3.2	106,805

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 5: 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: ERU 3, DH1, and ERU 5.

4.5 Electric Unitary HVAC

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Electric Unitary HVAC Measures		**26,942**	**13.5**	**0**	**$4,180**	**$272,037**	**$0**	**$272,037**	**65.1**	**27,131**
ECM 6	Install High Efficiency Air Conditioning Units	26,942	13.5	0	$4,180	$272,037	$0	$272,037	65.1	27,131

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 at this facility 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 packaged AC unit and the split AC units are eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

ECM 6: Install High Efficiency Air Conditioning Units

We evaluated replacing the 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 load, and the estimated annual operating hours.

Affected units: all packaged units and split AC units.

4.6 Gas-Fired Heating

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Gas Heating (HVAC/Process) Replacement		**0**	**0.0**	**64**	**$871**	**$56,054**	**$6,400**	**$49,654**	**57.0**	**7,521**
ECM 7	Install High Efficiency Furnaces	0	0.0	64	$871	$56,054	$6,400	$49,654	57.0	7,521

ECM 7: Install High Efficiency Furnaces

We evaluated replacing standard efficiency furnaces with condensing furnaces. Improved combustion technology and heat exchanger design optimize heat recovery from the combustion gases which can significantly improve furnace efficiency. Savings result from improved system efficiency.

Note: these units produce acidic condensate that requires proper drainage.

Affected units: all furnaces.

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 ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Food Service & Refrigeration Measures		**3,224**	**0.4**	**0**	**$500**	**$460**	**$0**	**$460**	**0.9**	**3,246**
ECM 8	Vending Machine Control	3,224	0.4	0	$500	$460	$0	$460	0.9	3,246

ECM 8: Vending Machine Control

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

5 Energy Efficient Best Practices

A whole building maintenance plan will extend equipment life; improve occupant comfort, health, and safety; and reduce energy and maintenance costs. 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 can't manage what you don't 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[5] . Your account has already been established. Now you can continue to keep tabs on your energy performance every month.

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.

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.

Thermostat Schedules and Temperature Resets

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

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.

[5] https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager.

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.

Furnace Maintenance

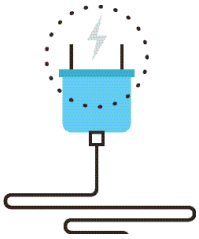
Preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. Following the manufacturer's instructions, a yearly tune-up should: check for gas / carbon monoxide leaks; change the air and fuel filters; check components for cracks, corrosion, dirt, 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.

Water Heater Maintenance

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.

Plug Load Controls



Reducing plug loads is a common way to decrease your electrical use. Limiting the energy use of plug loads can include increasing occupant awareness, removing under-used equipment, installing hardware controls, and using software controls. Consider enabling the most aggressive power settings on existing devices or install load sensing or occupancy sensing (advanced) power strips[6]. Your local utility may offer incentives or rebates for this equipment.

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

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[7] or download a copy of EPA's "WaterSense® at Work: Best Management Practices for Commercial and Institutional Facilities"[8] 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.

[7] https://www.epa.gov/watersense.

[8] https://www.epa.gov/watersense/watersense-work-0.

6 On-site Generation

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.

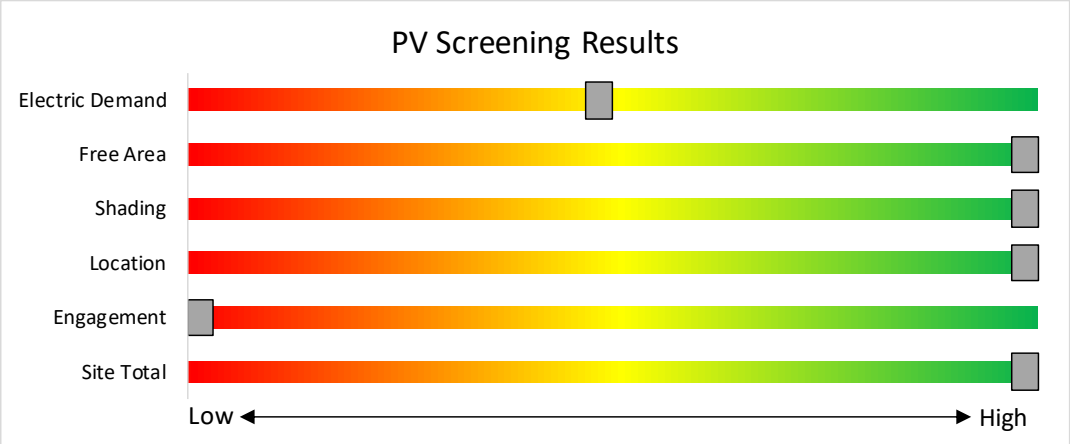
6.1 Solar Photovoltaic

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 high potential for installing a PV array.

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

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



Potential	High	
System Potential	429	kW DC STC
Electric Generation	511,098	kWh/yr
Displaced Cost	$79,300	/yr
Installed Cost	$1,115,400	

Figure 9 - Photovoltaic Screening

Solar Renewable Energy Certificate (SREC) Registration Program (SRP)

Rebates are not available for solar projects, but owners of solar projects MUST register their projects in the SREC Registration Program before starting construction. Once your PV system is up and running, you periodically earn credits, which can then be sold on the open market for up to 15 years.

If you are considering installing solar photovoltaics on your building, visit www.njcleanenergy.com/srec for more information about the SREC Registration Program.

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:

- **Basic Info on Solar PV in NJ**: www.njcleanenergy.com/whysolar.
- **NJ Solar Market FAQs**: 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.

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.

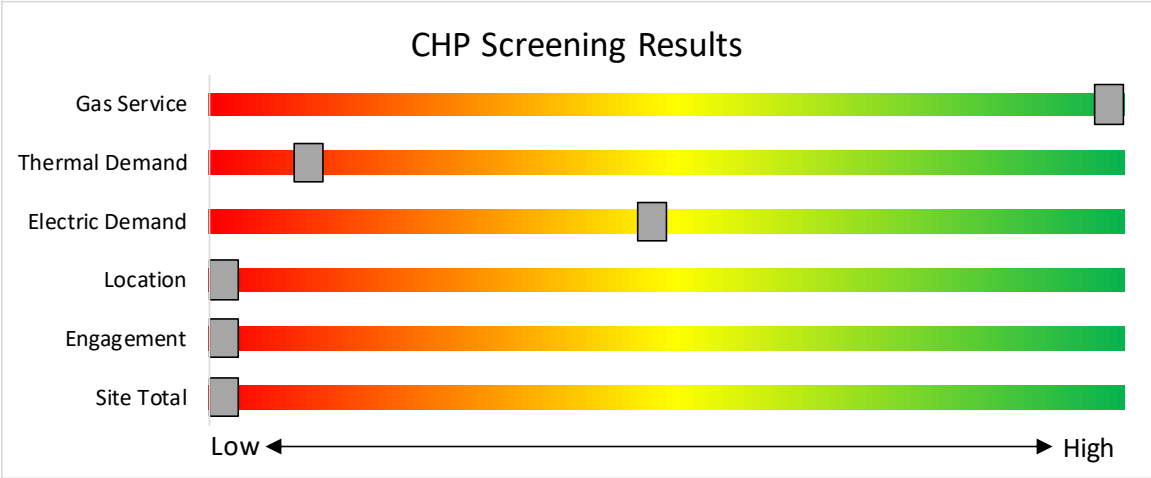
CHP systems typically produce a portion of the electric power used on-site, with the balance of electric power needs supplied by the local utility company. The heat is used to supplement (or replace) existing boilers and provide space heating and/or domestic hot water heating. Waste heat can also be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

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.



Potential	None	
System Type	None	
System Potential	0	kW
Electric Generation	0	kWh/yr
Thermal Generation	0	MBtu/yr
Displaced Cost	$0	/yr
Installed Cost	$0	

Figure 10 - 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/.

7 Project Funding and Incentives

Ready to improve your building's performance? New Jersey's Clean Energy Programs can help. Pick the program that works best for you. Incentive programs that may apply to this facility are identified in the Executive Summary. This section provides an overview of currently available New Jersey's Clean Energy Programs.

	SmartStart *Flexibility to install at your own pace*	**Direct Install** *Turnkey installation*	**Pay for Performance** *Whole building upgrades*
Who should use it?	Buildings installing individual measures or small group of measures.	Small to mid-size facilities that can bundle multiple measures together. Average peak demand should be below 200 kW. Not suitable for significant building shell issues.	Mid to large size facilities looking to implement as many measures as possible at one time. Peak demand should be over 200 kW.
How does it work?	Use in-house staff or your preferred contractor.	Pre-approved contractors pass savings along to you via reduced material and labor costs.	Whole-building approach to energy upgrades designed to reduce energy use by at least 15%. The more you save, the higher the incentives.
What are the Incentives?	Fixed incentives for specific energy efficiency measures.	Incentives pay up to 70% of eligible costs, up to $125,000 per project. You pay the remaining 30% directly to the contractor.	Up to 25% of installation cost, calculated based on level of energy savings per square foot.
How do I participate?	Submit an application for the specific equipment to be installed.	Contact a participating contractor in your region.	Contact a pre-qualified Partner to develop your Energy Reduction Plan and set your energy savings targets.
Take the next step by visiting **www.njcleanenergy.com** for program details, applications, and to contact a qualified contractor.			

7.1 SmartStart

SmartStart 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.

SmartStart routinely adds, removes, or modifies incentives from year-to-year for various energy efficient equipment based on market trends and new technologies.

Equipment with Prescriptive Incentives Currently Available:

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

Incentives

The SmartStart Prescriptive program provides fixed incentives for specific energy efficiency measures. Prescriptive incentives vary by equipment type.

SmartStart Custom provides incentives for more unique or specialized technologies or systems that are not addressed through prescriptive incentives. Custom incentives are calculated at $0.16/kWh and $1.60/therm based on estimated annual savings. Incentives are capped at 50% of the total installed incremental project cost, or a project cost buy down to a one-year payback (whichever is less). Program incentives are capped at $500,000 per electric account and $500,000 per natural gas account, per fiscal year.

How to Participate

Submit an application for the specific equipment to be installed. Many applications are designed as rebates, although others require application approval prior to installation. You can work with your preferred contractor or use internal staff to install measures.

Visit www.njcleanenergy.com/SSB for a detailed program description, instructions for applying, and applications.

7.2 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 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, up to $125,000 per project. Each entity is limited to incentives up to $250,000 per fiscal year.

How to Participate

To participate in Direct Install, you will need to contact the participating contractor assigned to the region of the state where your facility is located. A complete list of Direct Install program partners is provided on the Direct Install website linked below. 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 program, subject to program caps and eligibility, while the remaining 30% of the cost is paid to the contractor by the customer.

Detailed program descriptions and applications can be found at: www.njcleanenergy.com/DI.

7.3 Pay for Performance - Existing Buildings

Pay for Performance works for larger customers with a peak demand over 200 kW. The minimum installed scope of work must include at least two unique measures that results in at least 15% source energy savings, and lighting cannot make up the majority of the savings. P4P is a generally a good option for medium-to-large sized facilities looking to implement as many measures as possible under a single project to achieve deep energy savings. This program 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

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

How to Participate

Contact one of the pre-approved consultants and contractors ("Partners"). Under direct contract to you, they will help further evaluate the measures identified in this report through development of the energy reduction plan), assist you in implementing selected measures, and verify actual savings one year after the installation. Your Partner will also help you apply for incentives.

Approval of the final scope of work is required by the program prior to installation. Installation can be done by the contractor of your choice (some P4P Partners are also contractors) or by internal staff, but the Partner remains involved throughout construction to ensure compliance with the program requirements.

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

7.4 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)[1]	Incentive ($/kW)	% of Total Cost Cap per Project[3]	$ Cap per Project[3]
Powered by non-renewable or renewable fuel source[4]	≤500 kW	$2,000	30-40%[2]	$2 million
Gas Internal Combustion Engine	>500 kW - 1 MW	$1,000		
Gas Combustion Turbine	> 1 MW - 3 MW	$550	30%	$3 million
Microturbine Fuel Cells with Heat Recovery	>3 MW	$350		
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 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.

7.5 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 in to contracts to help finance building energy upgrades. Annual payments are lower than the savings projected from the 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 (ESP) can begin. The ESP demonstrates that the total project costs of the ECMs are offset by the energy savings over the financing term, not to exceed 15 years. The verified savings will then be used to pay for the financing.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. 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.

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.

7.6 SREC Registration Program

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

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

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

Electricity suppliers, the primary purchasers of SRECs, are required to pay a Solar Alternative Compliance Payment (SACP) if they do not meet the requirements of New Jersey's Solar Renewable Portfolio Standard. Purchasing SRECs can help them meet those requirements. As SRECs are traded in a competitive market, the price may vary significantly. The actual price of an SREC during a trading period fluctuates depending on supply and demand.

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

8 Energy Purchasing and Procurement Strategies

8.1 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. So, though you may choose a different company from which to buy your electric power, responsibility for your facility's interconnection to the grid and repair to local power distribution will still reside with the traditional utility company serving your region.

If your facility is not purchasing electricity from a third-party supplier, consider shopping for a reduced rate from third-party electric suppliers. If your facility 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[9].

8.2 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 that fluctuate monthly. The utility provides basic gas supply service (BGSS) to customers who choose not to buy from a third-party supplier for natural gas commodity.

A customer's decision about whether to buy natural gas from a retail supplier 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[10].

[9] www.state.nj.us/bpu/commercial/shopping.html.

[10] www.state.nj.us/bpu/commercial/shopping.html.

APPENDIX A: EQUIPMENT INVENTORY & RECOMMENDATIONS

Lighting Inventory & Recommendations

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Front recessed	4	LED Lamps: Recessed 1 lamp	Photocell		13	4,380		None	No	4	LED Lamps: Recessed 1 lamp	Photocell	13	4,380	0.0	0	0	$0	$0	$0	0.0
Pole light	13	Metal Halide: (1) 250W Lamp	Photocell		295	4,380	1	Fixture Replacement	No	13	LED - Fixtures: High-Bay	Photocell	89	4,380	0.0	11,758	0	$1,824	$10,073	$0	5.5
Wall pack	4	Compact Fluorescent: 4 pin 2 lamps	Photocell		64	4,380	2	Relamp	No	4	LED Lamps: 4 pin 2 lamps	Photocell	45	4,380	0.0	336	0	$52	$217	$0	4.2
Back recessed	6	LED Lamps: Recessed 1 lamp	Photocell		32	4,380		None	No	6	LED Lamps: Recessed 1 lamp	Photocell	32	4,380	0.0	0	0	$0	$0	$0	0.0
Mechanical room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	2	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.1	151	0	$23	$146	$0	6.4
Hallway	74	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Time Switch	S	62	2,400	2	Relamp	No	74	LED - Linear Tubes: (2) 4' Lamps	Time Switch	29	2,400	1.8	6,447	-1	$982	$2,702	$0	2.8
Hallway	15	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	15	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Main lobby	9	Compact Fluorescent: 4 pin 2 lamps	Wall Switch	S	52	2,450	2, 3	Relamp	Yes	9	LED Lamps: 4 pin 2 lamps	Occupancy Sensor	36	1,691	0.2	652	0	$99	$759	$0	7.6
Main lobby	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	339	0	$52	$110	$0	2.1
Main lobby	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
Back entrance	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
Back entrance	14	Compact Fluorescent: 4 pin 2 lamps	Wall Switch	S	52	2,450	2	Relamp	No	14	LED Lamps: 4 pin 2 lamps	Wall Switch	36	2,450	0.2	589	0	$90	$761	$0	8.5
Recessed courtyard lights	14	Compact Fluorescent: 4 pin 2 lamps	Photocell		52	4,380	2	Relamp	No	14	LED Lamps: 4 pin 2 lamps	Photocell	36	4,380	0.0	957	0	$148	$761	$0	5.1
Main office	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	509	0	$78	$434	$0	5.6
Main office	3	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,450	2, 3	Relamp	Yes	3	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	0	0.2	922	0	$140	$489	$0	3.5
Main office	3	Compact Fluorescent: 4 pin 2 lamps	Wall Switch	S	52	2,450	2, 3	Relamp	Yes	3	LED Lamps: 4 pin 2 lamps	Occupancy Sensor	36	0	0.1	420	0	$64	$433	$0	6.8
Room 423	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	S	114	1,691	2	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,691	0.1	208	0	$32	$146	$0	4.6
Room 422	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	S	114	2,450	2, 3	Relamp	Yes	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,691	0.2	798	0	$121	$408	$0	3.4
Room 421	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	S	114	1,691	2	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,691	0.1	208	0	$32	$146	$0	4.6
Room 420	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	S	114	1,691	2	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,691	0.1	208	0	$32	$146	$0	4.6
Room 419	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	S	114	1,691	2	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,691	0.1	208	0	$32	$146	$0	4.6
Room 418	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	S	114	1,691	2	Relamp	No	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,691	0.2	417	0	$63	$292	$0	4.6
Room 416	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	123	0	$19	$73	$0	3.9
Room 415	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	S	114	1,691	2	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,691	0.1	208	0	$32	$146	$0	4.6
Electrical room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,040	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.0	76	0	$12	$73	$0	6.4

	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room 412	41	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	S	114	1,691	2	Relamp	No	41	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,691	1.7	4,270	-1	$650	$2,994	$0	4.6
Room 412	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
Room 414	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	S	114	1,691	2	Relamp	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,691	0.1	208	0	$32	$146	$0	4.6
Room 413	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	226	0	$34	$189	$0	5.5
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,450	0.0	89	0	$14	$37	$0	2.7
Laundry room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,450	0.0	178	0	$27	$73	$0	2.7
Pool	12	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,450	2	Relamp	No	12	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,450	0.2	566	0	$86	$219	$0	2.5
Pool	8	Metal Halide: (1) 250W Lamp	Wall Switch	S	295	2,450	1	Fixture Replacement	No	8	LED - Fixtures: High-Bay	Wall Switch	89	2,450	1.2	4,452	-1	$678	$6,199	$0	9.1
Jantiors	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,040	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.0	38	0	$6	$37	$0	6.4
Laundry room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,450	0.0	178	0	$27	$73	$0	2.7
Room 403	25	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	25	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.8	2,829	-1	$431	$1,453	$0	3.4
Room 403	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
Room 405	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	920	0	$140	$548	$0	3.9
Restroom	1	U-Bend Fluorescent - T8: U T8 (32W) - 1L	Wall Switch	S	39	2,450	2	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,450	0.0	16	0	$2	$72	$0	29.4
Room 408	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	123	0	$19	$73	$0	3.9
Room 406	1	U-Bend Fluorescent - T8: U T8 (32W) - 1L	Wall Switch	S	39	2,450	2	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,450	0.0	16	0	$2	$72	$0	29.4
Room 523	13	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	13	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	798	0	$122	$475	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 522	13	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	13	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	798	0	$122	$475	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,450	0.0	89	0	$14	$37	$0	2.7
Room 526	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	736	0	$112	$438	$0	3.9
Room 527	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	736	0	$112	$438	$0	3.9
Room 519	13	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	13	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	798	0	$122	$475	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 518	13	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	13	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	798	0	$122	$475	$0	3.9

	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 528	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	736	0	$112	$438	$0	3.9
Room 529	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	453	0	$69	$416	$0	6.0
Room 530	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 514	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.3	1,018	0	$155	$599	$0	3.9
Room 516	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	339	0	$52	$226	$0	4.4
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 504	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	368	0	$56	$219	$0	3.9
Room 511	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	339	0	$52	$226	$0	4.4
Room 509	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	9	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.4	1,528	0	$233	$763	$0	3.3
Room 512	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	184	0	$28	$110	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 510	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.2	679	0	$103	$335	$0	3.2
Room 506	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	184	0	$28	$110	$0	3.9
Room 505	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	339	0	$52	$226	$0	4.4
Room 508	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Restroom	1	U-Bend Fluorescent - T8: U T8 (32W) - 1L	Wall Switch	S	39	2,450	2	Relamp	No	1	LED - Linear Tubes: (2) U-Lamp	Wall Switch	33	2,450	0.0	16	0	$2	$72	$0	29.4
Room 503	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	184	0	$28	$110	$0	3.9
Room 502	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	123	0	$19	$73	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 533	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	184	0	$28	$110	$0	3.9
Room 534	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	123	0	$19	$73	$0	3.9
Room 535	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 565	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9

	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 537	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 562	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 561	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 558	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Janitors	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,040	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.0	38	0	$6	$37	$0	6.4
Women restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	184	0	$28	$110	$0	3.9
Men's restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	184	0	$28	$110	$0	3.9
Hallway	2	Compact Fluorescent: 4 pin 2 lamps	Timeclock	S	52	4,368	2	Relamp	No	2	LED Lamps: 4 pin 2 lamps	Timeclock	36	4,368	0.0	150	0	$23	$109	$0	4.8
Electrical room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,040	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.0	38	0	$6	$37	$0	6.4
Room 543	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	679	0	$103	$489	$0	4.7
Room 556	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 544	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 553	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 547	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 552	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9

	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room 548	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 437	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 441	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 446	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	679	0	$103	$489	$0	4.7
Room 436	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 433	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 427	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	1,018	0	$155	$599	$0	3.9
Room 432	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	368	0	$56	$219	$0	3.9
Room 431	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 425	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	679	0	$103	$489	$0	4.7
Room 424	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	339	0	$52	$226	$0	4.4
Room 428	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	982	0	$150	$584	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 442	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	123	0	$19	$73	$0	3.9
Room 445	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.0	92	0	$14	$55	$0	3.9
Main Electric Room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,450	0.1	356	0	$54	$146	$0	2.7
Electrical room 1	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,040	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.0	38	0	$6	$37	$0	6.4
Mechanical room	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.2	302	0	$46	$292	$0	6.4
Electrical room 2	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	8,760	2	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	8,760	0.1	1,908	0	$291	$219	$0	0.8

	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Gym	23	Metal Halide: (1) 400W Lamp	Wall Switch	S	458	2,450	1, 3	Fixture Replacement	Yes	23	LED - Fixtures: High-Bay	Occupancy Sensor	137	1,691	6.0	22,513	-5	$3,429	$22,882	$0	6.7
Gym	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
Gym	1	LED - Fixtures: High-Bay	Wall Switch	S	125	2,450		None	No	1	LED - Fixtures: High-Bay	Wall Switch	125	2,450	0.0	0	0	$0	$0	$0	0.0
Cafertorium	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
Cafertorium	25	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,450	2, 3	Relamp	Yes	25	LED - Linear Tubes: (1) 4' Lamp	Occupancy Sensor	15	1,691	0.4	1,482	0	$226	$996	$0	4.4
Cafertorium	30	Compact Fluorescent: Screw-in 3 lamps	Wall Switch	S	126	2,450	2, 3	Relamp	Yes	30	LED Lamps: Screw-in 3 lamps	Occupancy Sensor	88	1,691	1.4	5,267	-1	$802	$2,360	$0	2.9
Storage room	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	718	0.1	192	0	$29	$262	$0	9.0
Stage	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,450	0.2	711	0	$108	$292	$0	2.7
Stage	4	Compact Fluorescent: Screw-in 3 lamps	Wall Switch	S	126	2,450	2	Relamp	No	4	LED Lamps: Screw-in 3 lamps	Wall Switch	88	2,450	0.1	407	0	$62	$207	$0	3.3
Stage entrance	2	Compact Fluorescent: Screw-in 2 lamps	Wall Switch	S	52	1,040	2	Relamp	No	2	LED Lamps: Screw-in 2 lamps	Wall Switch	36	1,040	0.0	36	0	$5	$69	$0	12.7
Stage	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Loading dock	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	2	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,040	0.1	227	0	$35	$219	$0	6.4
Kitchen	7	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	7	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.3	1,188	0	$181	$653	$0	3.6
Dishwasher room	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	339	0	$52	$226	$0	4.4
Storage room	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,040	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.0	76	0	$12	$73	$0	6.4
Custodian	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,450	0.0	133	0	$20	$55	$0	2.7
Office	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	184	0	$28	$110	$0	3.9
Kitchen hood	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,450	0.1	267	0	$41	$110	$0	2.7
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Café girls restroom	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	226	0	$34	$189	$0	5.5
Café boys restroom	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	339	0	$52	$226	$0	4.4
Cafeteria lobby	10	Compact Fluorescent: 4 pin 2 lamps	Wall Switch	S	52	2,450	2	Relamp	No	10	LED Lamps: 4 pin 2 lamps	Wall Switch	36	2,450	0.1	420	0	$64	$544	$0	8.5
Main hallway	20	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Time Switch	S	62	490	2	Relamp	No	20	LED - Linear Tubes: (2) 4' Lamps	Time Switch	29	490	0.5	356	0	$54	$730	$0	13.5
Main hallway	6	Compact Fluorescent: 4 pin 2 lamps	Time Switch	S	52	490	2	Relamp	No	6	LED Lamps: 4 pin 2 lamps	Time Switch	36	490	0.1	50	0	$8	$326	$0	42.4
Main hallway	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

	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
1st floor hallway	23	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Time Switch	S	62	490	2	Relamp	No	23	LED - Linear Tubes: (2) 4' Lamps	Time Switch	29	490	0.5	409	0	$62	$840	$0	13.5
1st floor hallway	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
Main lobby	19	Compact Fluorescent: 4 pin 2 lamps	Time Switch	S	52	490	2	Relamp	No	19	LED Lamps: 4 pin 2 lamps	Time Switch	36	490	0.2	160	0	$24	$1,033	$0	42.4
Main lobby	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 lobby	11	Compact Fluorescent: Wall mount - screw in - 1 lamp	Time Switch	S	26	490	2	Relamp	No	11	LED Lamps: Wall mount - screw in - 1 lamp	Time Switch	18	490	0.1	46	0	$7	$189	$0	26.9
Main entrance	2	Compact Fluorescent: 4 pin 2 lamps	Time Switch	S	52	490	2	Relamp	No	2	LED Lamps: 4 pin 2 lamps	Time Switch	36	490	0.0	17	0	$3	$109	$0	42.4
Display light	4	LED Lamps: Screw-in 1 lamp	Wall Switch	S	9	2,450		None	No	4	LED Lamps: Screw-in 1 lamp	Wall Switch	9	2,450	0.0	0	0	$0	$0	$0	0.0
Restroom hallway	2	Compact Fluorescent: 4 pin 2 lamps	Time Switch	S	52	490	2	Relamp	No	2	LED Lamps: 4 pin 2 lamps	Time Switch	36	490	0.0	17	0	$3	$109	$0	42.4
1st floor hallway	6	Compact Fluorescent: 4 pin 2 lamps	Time Switch	S	52	490	2	Relamp	No	6	LED Lamps: 4 pin 2 lamps	Time Switch	36	490	0.1	50	0	$8	$326	$0	42.4
Room 211	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,450	0.1	267	0	$41	$110	$0	2.7
Room 212	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	368	0	$56	$219	$0	3.9
Room 213	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	736	0	$112	$438	$0	3.9
Room 214	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 215	18	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	18	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.6	1,657	0	$252	$986	$0	3.9
Room 217	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 218	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 219	13	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	13	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	798	0	$122	$475	$0	3.9
Room 219 restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 221	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	368	0	$56	$219	$0	3.9
Room 222	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	184	0	$28	$110	$0	3.9
Room 223	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	679	0	$103	$489	$0	4.7
Room 224	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	679	0	$103	$489	$0	4.7
Room 230	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	920	0	$140	$548	$0	3.9
Room 228	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	920	0	$140	$548	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9

	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 225	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	679	0	$103	$489	$0	4.7
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Storage room	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,040	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.0	38	0	$6	$37	$0	6.4
Room 124	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	905	0	$138	$562	$0	4.1
Room 130	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	920	0	$140	$548	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 133	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	920	0	$140	$548	$0	3.9
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 135	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	123	0	$19	$73	$0	3.9
Room 136	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	123	0	$19	$73	$0	3.9
Room 137	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	184	0	$28	$110	$0	3.9
Janitors	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,040	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.0	76	0	$12	$73	$0	6.4
Room 121	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	736	0	$112	$438	$0	3.9
Room 116	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	736	0	$112	$438	$0	3.9
Room 117	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 118	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 119	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 120	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Boys restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	453	0	$69	$416	$0	6.0
Girls restroom	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	566	0	$86	$453	$0	5.3
Break room	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	905	0	$138	$562	$0	4.1
Room 103	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.3	1,018	0	$155	$599	$0	3.9
Room 103	7	Compact Fluorescent: 4 pin 2 lamps	Wall Switch	S	52	2,450	2, 3	Relamp	Yes	7	LED Lamps: 4 pin 2 lamps	Occupancy Sensor	36	1,691	0.1	507	0	$77	$381	$0	4.9
Room 103	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Room 107	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	184	0	$28	$110	$0	3.9
Room 108	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	368	0	$56	$219	$0	3.9
Room 109	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,691	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	184	0	$28	$110	$0	3.9
Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	1,040	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	718	0.1	144	0	$22	$226	$0	10.3
Room 105	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	509	0	$78	$434	$0	5.6
Room 111	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	509	0	$78	$434	$0	5.6
Storage	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	S	93	1,040	2	Relamp	No	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,040	0.1	113	0	$17	$110	$0	6.4
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,450	0.0	89	0	$14	$37	$0	2.7
Library	13	Compact Fluorescent: 4 pin 1 lamp	Wall Switch	S	32	2,450	2, 3	Relamp	Yes	13	LED Lamps: 4 pin 1 lamp	Occupancy Sensor	22	1,691	0.2	580	0	$88	$623	$0	7.1
Library	16	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,450	2, 3	Relamp	Yes	16	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	1,691	0.2	917	0	$140	$790	$0	5.7
Library	12	LED - Fixtures: Ambient - 2' - Direct Fixture	Wall Switch	S	40	2,450	3	None	Yes	12	LED - Fixtures: Ambient - 2' - Direct Fixture	Occupancy Sensor	40	1,691	0.1	401	0	$61	$0	$0	0.0
Video room	6	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,450	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 2' Lamps	Occupancy Sensor	17	1,691	0.1	344	0	$52	$465	$0	8.9
Library office	2	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Wall Switch	S	90	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	323	0	$49	$226	$0	4.6
Back library	8	Linear Fluorescent - T5: 4' T5 (28W) - 3L	Wall Switch	S	90	2,450	2, 3	Relamp	Yes	8	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.3	1,293	0	$197	$708	$0	3.6
Break room	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.5	2,037	0	$310	$927	$0	3.0
Room 232	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	920	0	$140	$548	$0	3.9
Room 233	15	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	15	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	920	0	$140	$548	$0	3.9
Room 234	21	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	21	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.5	1,289	0	$196	$767	$0	3.9
Room 235	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	123	0	$19	$73	$0	3.9
Storage room	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	1,040	2	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	1,040	0.0	57	0	$9	$55	$0	6.4
2nd floor hallway	30	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Time Switch	S	62	490	2	Relamp	No	30	LED - Linear Tubes: (2) 4' Lamps	Time Switch	29	490	0.7	534	0	$81	$1,095	$0	13.5
2nd floor hallway	7	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	7	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
2nd floor hallway	1	Compact Fluorescent: 4 pin 2 lamps	Time Switch	S	52	490	2	Relamp	No	1	LED Lamps: 4 pin 2 lamps	Time Switch	36	490	0.0	8	0	$1	$54	$0	42.4
Stairwell	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	339	0	$52	$335	$0	6.5
Staiwell	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	113	0	$17	$37	$0	2.1

	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Stairwell	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Room 609	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 610	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 607	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 606	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 605	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 611	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 612	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 604	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	123	0	$19	$73	$0	3.9
Room 603	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	123	0	$19	$73	$0	3.9
Room 614	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	491	0	$75	$292	$0	3.9
Room 615	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	491	0	$75	$292	$0	3.9
Room 602	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	491	0	$75	$292	$0	3.9
Room 601	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	491	0	$75	$292	$0	3.9
Room 616	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	491	0	$75	$292	$0	3.9
Room 617	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	491	0	$75	$292	$0	3.9
Room 633	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	453	0	$69	$262	$0	3.8
Room 632	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	226	0	$34	$189	$0	5.5
Restroom	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	61	0	$9	$37	$0	3.9
Room 631	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	491	0	$75	$292	$0	3.9
Room 618	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	491	0	$75	$292	$0	3.9
Room 619	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	491	0	$75	$292	$0	3.9
Boys restroom	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	453	0	$69	$416	$0	6.0
Janitors	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,040	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,040	0.0	38	0	$6	$37	$0	6.4
Room 620	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9

	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Girls restroom	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.2	566	0	$86	$453	$0	5.3
Room 627	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	368	0	$56	$219	$0	3.9
Room 621	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 622	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 623	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 626	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Room 625	18	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Occupancy Sensor	S	62	1,691	2	Relamp	No	18	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.4	1,105	0	$168	$657	$0	3.9
Stairwell 2	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	339	0	$52	$335	$0	6.5
Stairwell 2	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.0	113	0	$17	$37	$0	2.1
Stairwell	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Room 301	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,450	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,691	0.1	339	0	$52	$226	$0	4.4
Room 306	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.1	453	0	$69	$262	$0	3.8
Girls locker room	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	1,018	0	$155	$599	$0	3.9
Boys locker room	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,450	2, 3	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,691	0.3	1,018	0	$155	$599	$0	3.9
Changing room	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,040	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	718	0.2	288	0	$44	$489	$0	11.1
Wall pack	21	Compact Fluorescent: 4 pin 2 lamps	Photocell		64	4,380	2	Relamp	No	21	LED Lamps: 4 pin 2 lamps	Photocell	45	4,380	0.0	1,766	0	$274	$1,142	$0	4.2
Pole light	8	Metal Halide: (1) 250W Lamp	Photocell		295	4,380	1	Fixture Replacement	No	8	LED - Fixtures: High-Bay	Photocell	89	4,380	0.0	7,236	0	$1,123	$6,199	$0	5.5
Wall pack	4	Halogen Incandescent: Screw-in 1 lamp	Photocell		70	4,380	2	Relamp	No	4	LED Lamps: Screw-in 1 lamp	Photocell	11	4,380	0.0	1,042	0	$162	$121	$0	0.7
Wall pack	2	LED Lamps: Screw in 1 lamp	Photocell		9	4,380		None	No	2	LED Lamps: Screw in 1 lamp	Photocell	9	4,380	0.0	0	0	$0	$0	$0	0.0
Recessed	10	Metal Halide: (1) 50W Lamp	Photocell		72	4,380	1	Fixture Replacement	No	10	LED - Fixtures: High-Bay	Photocell	22	4,380	0.0	2,208	0	$343	$7,749	$0	22.6
Pole light	4	Metal Halide: (1) 100W Lamp	Photocell		128	4,380	1	Fixture Replacement	No	4	LED - Fixtures: High-Bay	Photocell	38	4,380	0.0	1,570	0	$244	$3,100	$0	12.7
Wall pack	10	Metal Halide: (1) 100W Lamp	Photocell		128	4,380	1	Fixture Replacement	No	10	LED - Fixtures: High-Bay	Photocell	38	4,380	0.0	3,924	0	$609	$7,749	$0	12.7
Porch light	2	Metal Halide: (1) 175W Lamp	Photocell		215	4,380	1	Fixture Replacement	No	2	LED - Fixtures: High-Bay	Photocell	65	4,380	0.0	1,318	0	$205	$1,550	$0	7.6
Front recessed	6	LED Lamps: Screw-in 1 lamp	Photocell		13	4,380		None	No	6	LED Lamps: Screw-in 1 lamp	Photocell	13	4,380	0.0	0	0	$0	$0	$0	0.0
Front recessed	2	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Photocell		32	4,380	2	Relamp	No	2	LED - Linear Tubes: (1) 4' Lamp	Photocell	15	4,380	0.0	153	0	$24	$37	$0	1.5

	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Pole light	10	Metal Halide: (1) 250W Lamp	Photocell		295	4,380	1	Fixture Replacement	No	10	LED - Fixtures: High-Bay	Photocell	89	4,380	0.0	9,045	0	$1,403	$7,749	$0	5.5
Pole light	1	LED - Fixtures: Flag light 1 lamp	Photocell		200	4,380		None	No	1	LED - Fixtures: Flag light 1 lamp	Photocell	200	4,380	0.0	0	0	$0	$0	$0	0.0
Front wall pack	8	Halogen Incandescent: Screw-in 1 lamp	Photocell		250	4,380	2	Relamp	No	8	LED Lamps: Screw-in 1 lamp	Photocell	38	4,380	0.0	7,446	0	$1,155	$242	$0	0.2

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?	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Gloria - Roof	Various spaces	1	Exhaust Fan	0.3	60.0%	No	B	2,745		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Roof	Various spaces	2	Exhaust Fan	0.3	60.0%	No	B	2,745		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Elevator room	Elevator room	1	Process Pump	15.0	70.0%	No	B	920		No	70.0%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Mechanical room	Water supply	2	Water Supply Pump	7.5	89.5%	No	B	3,391		No	89.5%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Roof	Various spaces	2	Exhaust Fan	0.3	60.0%	No	B	2,745		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Roof	RTU 1	1	Supply Fan	7.5	89.5%	Yes	B	2,745		No	89.5%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Roof	RTU 1	1	Exhaust Fan	2.0	84.0%	Yes	B	2,745		No	84.0%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Roof	ERU 3	1	Supply Fan	7.5	89.5%	No	B	3,391	5	No	91.0%	Yes	1	2.2	8,185	0	$1,270	$4,738	$0	3.7
Gloria - Roof	ERU 3	1	Exhaust Fan	7.5	89.5%	No	B	3,391	5	No	91.0%	Yes	1	2.3	8,185	0	$1,270	$4,738	$0	3.7
Gloria - Roof	DH2	1	Supply Fan	1.5	84.0%	No	B	2,745		No	84.0%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Roof	DH1	1	Supply Fan	10.0	89.5%	No	B	3,391	5	No	91.7%	Yes	1	3.0	11,057	0	$1,716	$5,152	$0	3.0
Gloria - Roof	DH1	1	Exhaust Fan	2.0	84.0%	No	B	2,745	5	No	86.5%	Yes	1	0.6	1,923	0	$298	$3,261	$0	10.9
Gloria Roof	Unknown	1	Exhaust Fan	0.3	60.0%	No	B	2,745		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Roof	RTU 2	1	Supply Fan	7.5	89.5%	Yes	B	3,391		No	89.5%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Roof	RTU 2	1	Exhaust Fan	2.0	84.0%	Yes	B	2,745		No	84.0%	No		0.0	0	0	$0	$0	$0	0.0
Gloria - Roof	ERU 5	1	Supply Fan	15.0	91.0%	No	B	3,391	5	No	93.0%	Yes	1	4.4	16,242	0	$2,520	$7,041	$0	2.8
Gloria - Roof	ERU 5	1	Exhaust Fan	10.0	89.5%	No	B	3,391	5	No	91.7%	Yes	1	3.1	11,057	0	$1,716	$5,152	$0	3.0

Electric HVAC Inventory & Recommendations

		Existing Conditions					Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	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/EER)	Heating Mode Efficiency (COP)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Roof	ERU2	1	Packaged AC	8.00		B	6	Yes	1	Packaged AC	8.00		11.50		1.0	1,975	0	$306	$14,257	$0	46.5
Roof	ERU1	1	Packaged AC	8.00		B	6	Yes	1	Packaged AC	8.00		11.50		1.0	1,975	0	$306	$14,257	$0	46.5
Mech room	Mech room	1	Electric Resistance Heat		17.06	B		No							0.0	0	0	$0	$0	$0	0.0
Hallway	Hallway	5	Electric Resistance Heat		13.64	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Closet	Closet	1	Water Source HP	4.00	51.40	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Closet	Closet	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 403	Room 403	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 535	Room 535	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 565	Room 565	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 537	Room 537	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 562	Room 562	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 561	Room 561	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 558	Room 558	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 556	Room 556	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 544	Room 544	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 553	Room 553	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 547	Room 547	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 552	Room 552	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 548	Room 548	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 437	Room 437	1	Water Source HP	2.50	29.30	B		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 (kBtu/hr)	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 (COP)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Casimer Dallago - Room 441	Room 441	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 436	Room 436	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 433	Room 433	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 431	Room 431	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Casimer Dallago - Room 428	Room 428	1	Water Source HP	3.00	38.10	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 228	Gloria - Room 228	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 130	Gloria - Room 130	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 133	Gloria - Room 133	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 121	Gloria - Room 121	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 116	Gloria - Room 116	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 117	Gloria - Room 117	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 118	Gloria - Room 118	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 119	Gloria - Room 119	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 120	Gloria - Room 120	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Main office	Gloria - Main office	1	Electric Resistance Heat		13.64	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 232	Gloria - Room 232	1	Water Source HP	5.00	58.60	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 233	Gloria - Room 233	1	Water Source HP	5.00	58.60	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 234	Gloria - Room 234	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Loading dock	Gloria - Loading dock	1	Electric Resistance Heat		17.06	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Girls restroom	Gloria - Girls restroom	1	Electric Resistance Heat		13.64	B		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 (kBtu/hr)	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 (COP)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Gloria - Boys restroom	Gloria - Boys restroom	1	Electric Resistance Heat		13.64	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Cafeteria lobby	Gloria Cafeteria lobby	1	Electric Resistance Heat		13.64	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Hallway	Gloria - Hallway	4	Electric Resistance Heat		13.64	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Main entrance	Gloria - Main entrance	1	Electric Resistance Heat		13.64	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 213	Gloria - Room 213	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 214	Gloria - Room 214	1	Water Source HP	2.00	24.60	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 215	Gloria - Room 215	1	Water Source HP	2.00	24.60	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 217	Gloria - Room 217	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 218	Gloria - Room 218	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 219	Gloria - Room 219	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 230	Gloria - Room 230	1	Water Source HP	2.50	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 609	Gloria - Room 609	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 610	Gloria - Room 610	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 607	Gloria - Room 607	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 606	Gloria - Room 606	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 605	Gloria - Room 605	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 611	Gloria - Room 611	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 612	Gloria - Room 612	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 620	Gloria - Room 620	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 621	Gloria - Room 621	1	Water Source HP	3.00	29.30	B		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 (kBtu/hr)	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 (COP)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Gloria - Room 622	Gloria - Room 622	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 623	Gloria - Room 623	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room 626	Gloria - Room 626	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Room625	Gloria - Room625	1	Water Source HP	3.00	29.30	B		No							0.0	0	0	$0	$0	$0	0.0
Gloria - Roof	RTU 1	1	Packaged AC	40.00		B	6	Yes	1	Packaged AC	40.00		9.50		3.4	6,821	0	$1,058	$88,639	$0	83.8
Gloria - Roof	CU 2	1	Split-System AC	2.00		B	6	Yes	1	Split-System AC	2.00		14.00		0.3	508	0	$79	$2,992	$0	33.3
Gloria - Roof	ERU 3	1	Packaged AC	6.00		B	6	Yes	1	Packaged AC	6.00		11.50		0.8	1,565	0	$243	$10,693	$0	40.4
Gloria - Roof	DH2	1	Split-System AC	4.50		B	6	Yes	1	Split-System AC	4.50		14.00		0.6	1,143	0	$177	$6,733	$0	33.3
Gloria - Roof	CU 1	1	Split-System AC	2.00		B	6	Yes	1	Split-System AC	2.00		14.00		0.3	508	0	$79	$2,992	$0	33.3
Gloria - Roof	DH1	1	Split-System AC	24.00		B	6	Yes	1	Split-System AC	24.00		10.50		1.8	3,539	0	$549	$28,579	$0	45.1
Gloria - Roof	RTU 2	1	Packaged AC	40.00		B	6	Yes	1	Packaged AC	40.00		9.50		3.4	6,821	0	$1,058	$88,639	$0	83.8
Gloria - Roof	ERU 5	1	Packaged AC	8.00		B	6	Yes	1	Packaged AC	8.00		11.50		1.0	2,087	0	$324	$14,257	$0	40.4
Gloria - Mech room	Gloria - Mech room	1	Electric Resistance Heat		17.06			No							0.0	0	0	$0	$0	$0	0.0
Gloria - Mech room	Gloria - Mech room	1	Electric Resistance Heat		17.06			No							0.0	0	0	$0	$0	$0	0.0

Fuel Heating Inventory & Recommendations

		Existing Conditions				Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Output Capacity per Unit (MBh)	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Casimer - Roof	ERU-2	1	Furnace	320.00	B	7	Yes	1	Furnace	320.00	95.00%	AFUE	0.0	0	9	$116	$7,250	$800	55.8
Casimer - Roof	ERU-1	1	Furnace	320.00	B	7	Yes	1	Furnace	320.00	95.00%	AFUE	0.0	0	9	$116	$7,250	$800	55.8
Gloria - Roof	RTU 1	1	Furnace	437.00	B	7	Yes	1	Furnace	437.00	95.00%	AFUE	0.0	0	11	$146	$9,901	$800	62.2
Gloria - Roof	ERU 3	1	Furnace	320.00	B	7	Yes	1	Furnace	320.00	95.00%	AFUE	0.0	0	9	$116	$7,250	$800	55.8
Gloria - Roof	DF2	1	Furnace	80.00	B	7	Yes	1	Furnace	80.00	95.00%	AFUE	0.0	0	2	$29	$1,813	$800	35.0
Gloria - Roof	DF1	1	Furnace	240.00	B	7	Yes	1	Furnace	240.00	95.00%	AFUE	0.0	0	6	$87	$5,438	$800	53.5
Gloria - Roof	RTU 2	1	Furnace	437.00	B	7	Yes	1	Furnace	437.00	95.00%	AFUE	0.0	0	11	$146	$9,901	$800	62.2
Gloria - Roof	ERU 5	1	Furnace	320.00	B	7	Yes	1	Furnace	320.00	95.00%	AFUE	0.0	0	9	$116	$7,250	$800	55.8

DHW Inventory & Recommendations

		Existing Conditions			Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Gloria - Mechanical room	Gloria - Mechanical room	2	Tankless Water Heater	N		No						0.0	0	0	$0	$0	$0	0.0

Walk-In Cooler/Freezer Inventory & Recommendations

	Existing Conditions		Proposed Conditions				Energy Impact & Financial Analysis						
Location	Cooler/ Freezer Quantity	Case Type/Temperature	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	1	Cooler (35F to 55F)		No	No	No	0.0	0	0	$0	$0	$0	0.0
Kitchen	1	Medium Temp Freezer (0F to 30F)		No	No	No	0.0	0	0	$0	$0	$0	0.0

Commercial Refrigerator/Freezer Inventory & Recommendations

	Existing Conditions			Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Refrigerator/ Freezer 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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	1	Stand-Up Refrigerator, Solid Door (31 - 50 cu. ft.)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen	3	Refrigerator Chest	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	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	1	Self-Contained Unit (<175 lbs/day), Batch	Yes		No	0.0	0	0	$0	$0	$0	0.0

Cooking Equipment Inventory & Recommendations

	Existing Conditions			Proposed Conditions		Energy Impact & Financial Analysis						
Location	Quantity	Equipment Type	High Efficiency Equipement?	ECM #	Install High Efficiency Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen	1	Insulated Food Holding Cabinet (1/2 Size)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen	1	Gas Convection Oven (Half Size)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen	1	Gas Convection Oven (Half Size)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen	1	Gas Steamer	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen	1	Insulated Food Holding Cabinet (1/2 Size)	Yes		No	0.0	0	0	$0	$0	$0	0.0
Kitchen	1	Insulated Food Holding Cabinet (1/2 Size)	Yes		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	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	Total Installation Cost	Total Incentives	Payback w/ Incentives in Years
Dishwasher	1	Door Type (High Temp)	Electric	Electric	Yes		No	0.0	0	0	$0	$0	$0	0.0

Plug Load Inventory

	Existing Conditions			
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?
Casimer Dallago ECC	7	Microwave	900.0	Yes
Casimer Dallago ECC	4	Coffee	400.0	Yes
Casimer Dallago ECC	6	Washing machine	1,000.0	Yes
Casimer Dallago ECC	3	Dryer	1,500.0	Yes
Casimer Dallago ECC	10	Refrigerator	220.0	Yes
Casimer Dallago ECC	14	Small Refrigerator	90.0	Yes
Casimer Dallago ECC	21	Television	110.0	Yes
Casimer Dallago ECC	4	Water cooler	520.0	Yes
Casimer Dallago ECC	35	Desktop	145.0	Yes
Casimer Dallago ECC	10	Printer	60.0	Yes
Casimer Dallago ECC	70	Laptops	75.0	Yes
Gloria Sabater ECC	23	Small Refrigerator	80.0	Yes
Gloria Sabater ECC	3	Kitchen electric tables	3,000.0	Yes
Gloria Sabater ECC	23	Microwave	900.0	Yes
Gloria Sabater ECC	36	Television	120.0	Yes
Gloria Sabater ECC	5	Refrigerator	200.0	Yes
Gloria Sabater ECC	1	Water cooler	320.0	Yes
Gloria Sabater ECC	3	Toaster	1,200.0	Yes
Gloria Sabater ECC	3	Coffee Machine	400.0	Yes
Gloria Sabater ECC	1	Kiln	######	Yes
Gloria Sabater ECC	150	Desktop	145.0	Yes
Gloria Sabater ECC	10	Printer	80.0	Yes
Gloria Sabater ECC	810	Laptops	75.0	Yes

APPENDIX B: ENERGY STAR® STATEMENT OF ENERGY PERFORMANCE

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.

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ENERGY STAR® Statement of Energy Performance

N/A

ENERGY STAR® Score[1]

Casimer Dallago Early Childhood Center and Gloria M. Sabater Elementary School

Primary Property Type: K-12 School
Gross Floor Area (ft²): 141,585
Built: 1956

For Year Ending: June 30, 2018
Date Generated: October 14, 2019

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

Property & Contact Information

Property Address
Casimer Dallago Early Childhood Center and Gloria M. Sabater Elementary School
301 S. East Boulevard
Vineland, New Jersey 08360

Property ID: 7566444

Property Owner
_____
,
(___)___-_____

Primary Contact
Gene Mercoli
61 W. Landis Avenue
Vineland, NJ 08360
856-794-6700, ext. 2226
jrosado@trcsolutions.com

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
42 kBtu/ft²

Source EUI
109.2 kBtu/ft²

Annual Energy by Fuel

Natural Gas (kBtu)	664,986 (11%)
Electric - Grid (kBtu)	5,274,581 (89%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	40.1
National Median Source EUI (kBtu/ft²)	104.4
% Diff from National Median Source EUI	5%

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	570

Signature & Stamp of Verifying Professional

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

Signature: _____ Date: _____

Licensed Professional

___ _____
,
(___)___-_____
_____

Professional Engineer Stamp
(if applicable)

APPENDIX C: GLOSSARY

TERM	DEFINITION
Blended Rate	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.
Btu	*British thermal unit*: a unit of energy equal to the amount of heat required to increase the temperature of one pound of water by one-degree Fahrenheit.
CHP	*Combined heat and power*. Also referred to as cogeneration.
COP	*Coefficient of performance*: a measure of efficiency in terms of useful energy delivered divided by total energy input.
Demand Response	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.
DCV	*Demand control ventilation*: a control strategy to limit the amount of outside air introduced to the conditioned space based on actual occupancy need.
US DOE	*United States Department of Energy*
EC Motor	*Electronically commutated motor*
ECM	*Energy conservation measure*
EER	*Energy efficiency ratio*: a measure of efficiency in terms of cooling energy provided divided by electric input.
EUI	*Energy Use Intensity:* measures energy consumption per square foot and is a standard metric for comparing buildings' energy performance.
Energy Efficiency	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.
ENERGY STAR®	ENERGY STAR® is the government-backed symbol for energy efficiency. The ENERGY STAR® program is managed by the EPA.
EPA	*United States Environmental Protection Agency*
Generation	The process of generating electric power from sources of primary energy (e.g., natural gas, the sun, oil).
GHG	*Greenhouse gas* 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.
gpf	*Gallons per flush*

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

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