



Final Energy Audit Report

West Orange Board of Education
January 11, 2013



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January 11, 2013

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Subject: Final Energy Audit Report for the West Orange Board of Education

Dear Mr. Csigi:

Please find enclosed one (1) hard copy along with a digital copy of our final energy audit report for the West Orange Board of Education.

Should you have any questions, kindly give me a call.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Matthew T. Goss'.

Matthew T. Goss, P.E., C.E.M., C.E.A., LEED®AP
Senior Project Manager
CDM Smith

cc: Chris Korzenko (CDM Smith)

Enclosure



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Executive Summary

As part of an initiative to reduce energy cost and consumption, West Orange Board of Education has secured the services of CDM Smith to perform an energy audit for 13 facilities which are owned and operated by the Board in an effort to develop comprehensive Energy Conservation and Retrofit Measures (ECRMs).

CDM Smith's energy audit team visited the facilities from July 30 through August 1, 2012. As a result of the site visit, and evaluation of the historical energy usage of the facilities, CDM Smith was successful in identifying opportunities for energy savings measures.

CDM Smith has also evaluated the potential for renewable energy technologies to be implemented at the Board's facilities to offset the electrical energy usage. Specifically, the use of solar electric photovoltaic panels, ground source heat pumps and wind turbines were investigated.

Potential energy cost savings may be available for the Board through the use of a third party electric or gas supplier. Additionally, there is potential for the Board to make money by participation in a Demand Response Program, as discussed in Section 5.2.

Not all ECRMs identified as a result of the energy audit are recommended. ECRMs must be economically feasible to be recommended to the Board for implementation. The feasibility of each ECRM was measured through a simple payback analysis. The simple payback period was determined after establishing Engineer's Opinion of Probable Construction Cost estimates, Operation and Maintenance (O&M) cost estimates, projected annual energy savings estimates, and the potential value of New Jersey Clean Energy rebates, or Renewable Energy Credits, if applicable. ECRMs with a payback period of 20 years or less can be recommended.

Historical Energy Usage

The following table, Table ES-1, summarizes the historical energy usage at each of the Board's facilities as presented in Section 3. The data in Table ES-1 has been taken from the facility data forms provided by the Board. These values can serve as a bench-marking tool, along with the building profiles that have been established through the EPA's Portfolio Manager Program, to quantify the reduction in electrical energy and natural gas usage following the implementation of the recommended ECRMs.

Table ES-1						
Summary of Annual Energy Usage & Cost						
	Electrical Energy Use (kWh)	Peak Summer Demand (kW)	Peak Winter Demand (kW)	Fuel Use for Entire Building (therms)	Cost for Electric Service	Cost for Fuel
Administration Building	361,745	115	88	33,618	\$55,721	\$35,423
Edison Central Six School	859,781	306	315	23,508	\$143,901	\$22,063
Gregory Elementary School	463,156	172	205	51,892	\$79,686	\$55,612
Hazel Elementary School	145,826	59	86	20,198	\$23,744	\$22,814
Liberty Middle School	1,000,359	533	333	48,909	\$170,625	\$48,471
Mt. Pleasant Elementary School	179,773	78	78	21,199	\$30,121	\$23,287
Pleasantdale Elementary School	370,573	155	111	24,216	\$60,408	\$10,492
Redwood Elementary School	326,147	114	109	-	\$51,751	-
Roosevelt Elementary School	966,966	273	387	42,715	\$152,326	\$17,973
St. Cloud Elementary School	196,010	55	69	3,250	\$30,582	\$3,391
Washington Elementary School	276,800	87	89	45,973	\$43,083	\$47,604
West Orange High School	3,278,790	800	1,057	65.315	\$492,373	\$23,341
West Orange Bus Garage	76,940	32	44	2,055	\$13,431	\$2,119
Total	8,502,866			317,598	\$1,347,752	\$312,590

Recommended ECRMs

The following Table ES-2 presents the ranking of recommended ECRMs identified for the building lighting and HVAC systems based on the simple payback analysis.

Additional ECRMs associated with the building envelope and other miscellaneous appliances were identified and evaluated, as discussed in Sections 2 and 4; however, were not recommended due to longer payback periods. This table includes the Engineer's Opinion of Probable Construction Cost, projected annual energy cost savings, projected annual energy usage savings, and total simple payback period for each recommended ECRM. The ECRMs are ranked based on payback period.

Table ES-2 ¹							
Ranking of Energy Savings Measures Summary							
Overall Ranking (Based on Simple Payback)	Facility Measure	Retrofit Cost	Incentive	Total Cost	Energy Savings	Annual Fiscal Savings ²	Simple Payback (Years)
1	Gregory School Lighting Upgrades	\$392,132	\$43,550	\$348,582	165,247	\$29,744	8.0
2	Bus Garage Lighting Upgrades	\$104,346	\$8,165	\$96,181	37,794	\$7,559	9.1
3	Washington School Lighting Upgrades	\$254,987	\$29,285	\$225,702	89,767	\$14,363	9.9
4	West Orange High School Lighting Upgrades	\$1,350,130	\$152,700	\$1,197,430	494,209	\$74,131	10.1
5	Edison Middle School Lighting Upgrades	\$371,033	\$42,305	\$328,728	103,098	\$17,527	11.4
6	Hazel School Lighting Upgrades	\$223,480	\$25,210	\$198,270	56,346	\$9,579	12.0
7	Administration Building Lighting Upgrades	\$211,874	\$24,515	\$187,359	57,538	\$8,631	12.3
8	Roosevelt Middle School Lighting Upgrades	\$620,228	\$68,855	\$551,373	157,641	\$23,646	12.6
9	Pleasantdale School Lighting Upgrades	\$355,003	\$39,970	\$315,033	88,217	\$14,115	13.2
10	Redwood School Lighting Upgrades	\$368,664	\$42,385	\$326,279	88,775	\$14,204	13.5
11	St. Cloud School Lighting Upgrades	\$275,722	\$31,045	\$244,677	66,357	\$10,617	13.7
12	Mt. Pleasant School Lighting Upgrades	\$264,236	\$31,235	\$233,001	55,938	\$9,509	14.1
13	Liberty Middle School Lighting Upgrades	\$724,050	\$78,300	\$645,750	135,608	\$23,053	14.5

1. Engineers Probable Construction Cost takes into account any applicable rebates.
2. Annual Fiscal Savings takes into account additional O&M cost or savings associated with the measure.

Renewable Energy Technologies

Solar Energy

Section 4 of the report provides for an economic evaluation of a solar energy system recommended to be installed at several of the Board's facilities. The evaluation covered the economic feasibility of the Board installing a solar energy system under a typical construction contract and to assume full responsibility of the operation of such a system.

Based on a simple payback model, summarized in Table ES-3, it would not benefit the Board to further investigate the installation of a solar energy system at 13 buildings. This is primarily based on the initial upfront capital investment required for a solar energy system installation and the 21.5 year payback period. Other options such as Power Purchase Agreements are potentially available as well to help finance the project. Solar technology is constantly changing and will most likely continue to lower in price.

Two major factors influencing the project financial evaluation is the variance of the prevailing energy market conditions and Solar Renewable Energy Credit (SREC) rates, with the largest impact to the payback model being the SREC credit pricing. For the payback model, conservative estimates of the SREC's market value over a 25 year period were assumed, as discussed in Section 4.

Table ES-3 includes a simple payback analysis for the installation of a solar energy system at the identified Board buildings.

Table ES-3	
Simple Payback Analysis for Solar Energy Systems	
Estimated Budgetary Project Cost	\$18,844,363
1 st Year Production	1,876,528 kWh
Annual Electric Savings	\$313,203
Annual Estimated SREC Revenue	\$562,958
Project Simple Payback	21.5

Wind Power Generation

Section 4 of the report provides for an economic evaluation of a wind turbine energy system recommended to be installed at any of the thirteen facilities. The evaluation covered the economic feasibility of furnishing and installing a wind turbine energy system under a typical construction contract and to assume full responsibility of the operation of such a system.

CDM Smith completed a preliminary desktop wind power production analysis and has concluded that an additional on-site feasibility study is warranted and recommended. Such a feasibility study would include the installation of a wind test rig to measure actual wind conditions as observed on-site.

Wind power as a renewable energy source also qualifies for Renewable Energy Certificates (RECs). The prevailing energy market, Renewable Energy Incentive Program (REIP) and RECs comprise the major factors influencing a wind turbine energy system installation. Other options, such as government bonds or a Power Purchase Agreement are potentially available and can assist with the financing of this project.

Table ES-4 includes a typical simple payback analysis for the installation of a wind turbine energy system. Refer to Appendix K for a more detailed wind energy financing spreadsheet.

Table ES-4			
Ranking of Energy Savings Measures Summary – Wind Turbine Energy System			
Parameter	Wind Turbine (Minimum Site Wind Speed – 4.4 m/s)	Wind Turbine (Maximum Site Wind Speed – 6.4 m/s)	Wind Turbine (Average Site Wind Speed – 5.5 m/s)
Engineer's Opinion of Probable Cost	\$450,000	\$450,000	\$450,000
1 st Year Production	77,066.0	157,143.0	123,812.0
Annual Estimated Electric Savings	\$12,986	\$26,479	\$20,862
Annual Estimated REC Revenue	\$1,927	\$3,929	\$3,095
Project Simple Payback	30.2	14.8	18.8

Recommended ECRMs

Table ES-5 summarizes the Total Engineer's Opinion of Probable Construction Cost, annual energy savings, projected annual energy and O&M cost savings and the payback period based on the implementation of all of the above recommended ECRMs.

Table ES-5			
Recommended ECRM's ¹			
Total Engineer's Opinion of Probable Construction Cost	Projected Annual Energy Savings	Projected Annual Fiscal Savings	Simple Payback Period (years)
\$4,898,366	1,596,536 kWh	\$426,607	11.5

1. Does not include energy savings associated with Solar Energy System or Wind Power Generation.

Utility Submetering and Combined Heat and Power (CHP)

Section 4 of the report provides for an economic evaluation and further details on installation and savings generated by these measures. Table ES-6 includes summary of the savings and economics.

Table ES-6 ¹							
Ranking of Energy Savings Measures Summary							
Ranking	Measure	Retrofit Cost	Incentive	Total Cost	Energy Savings	Annual Fiscal Savings ²	Simple Payback (Years)
1	Submetering	\$32,500	\$0	\$32,500	170,623 kWh 10,229 therms	\$35,619	0.9

Table ES-6 ¹							
Ranking of Energy Savings Measures Summary							
Ranking	Measure	Retrofit Cost	Incentive	Total Cost	Energy Savings	Annual Fiscal Savings ²	Simple Payback (Years)
2	Combined Heat and Power	\$143,000	\$42,900	\$100,100	280,800 kWh -36,374 therms	\$12,243	10.3

Section 1 Introduction

1.1 General

As part of an initiative to reduce energy cost and consumption, the West Orange Board of Education has secured the services of CDM Smith to perform an energy audit at 13 facilities in an effort to develop comprehensive energy conservation initiatives.

The performance of an energy audit requires a coordinated phased approach to identify, evaluate, and recommend energy conservation and retrofit measures (ECRMs). The various phases conducted under this energy audit included the following:

Gather preliminary data on all facilities;

Facility inspection;

Identify and evaluate potential ECRMs and evaluate renewable/distributed energy measures;

Develop the energy audit report.

Figure 1-1 is a schematic representation of the phases utilized by CDM Smith to prepare the energy audit report.

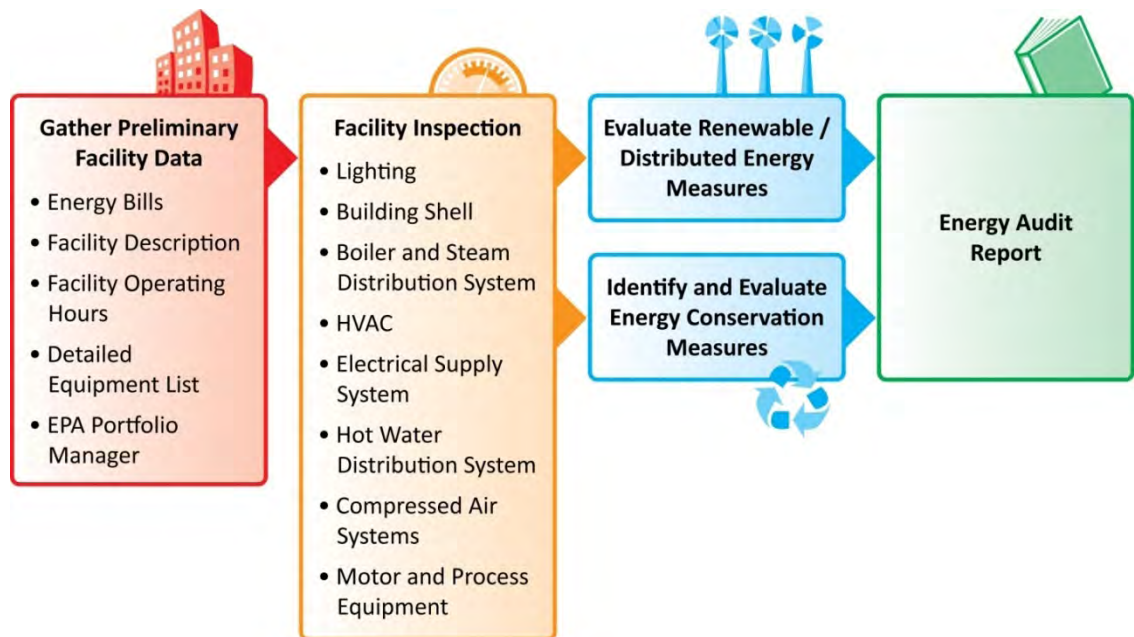


Figure 1-1: Energy Audit Phases

1.2 Background

The facilities that were included in the energy audit for the Board were the Administration Building, Edison Central Six School, Gregory Elementary School, Hazel Elementary School, Liberty Middle School, Mt. Pleasant Elementary School, Pleasantdale Elementary School, Redwood Elementary School, Roosevelt Middle School, St. Cloud Elementary School, Washington Elementary School, West Orange High School, and the West Orange Bus Garage.

The Administration Building was constructed in 1937 and is approximately 35,700 square feet. It is normally occupied during 7am to 5pm by 40 staff.

The Edison Central Six School was constructed in 1927 and is approximately 82,510 square feet. It is normally occupied during 7am to 9pm by 458 students.

The Gregory Elementary School was constructed in 1950 and is approximately 61,666 square feet. It is normally occupied during 7am to 9pm by 522 students.

The Hazel Elementary School was constructed in 1950 and is approximately 44,290 square feet. It is normally occupied during 7am to 9pm by 329 students.

The Liberty Middle School was constructed in 2005 and is approximately 115,741 square feet. It is normally occupied during 7am to 9pm by 543 students.

The Mt. Pleasant Elementary School was constructed in 1957 and is approximately 41,992 square feet. It is normally occupied during 7am to 9pm by 391 students.

The Pleasantdale Elementary School was constructed in 1928 and is approximately 76,071 square feet. It is normally occupied during 7am to 11pm by 430 students.

The Redwood Elementary School was constructed in 1961 and is approximately 53,176 square feet. It is normally occupied during 7am to 9pm by 529 students.

The Roosevelt Middle School was constructed in 1962 and is approximately 111,738 square feet. It is normally occupied during 7am to 5pm by 470 students.

The St. Cloud Elementary School was constructed in 1929 and is approximately 42,186 square feet. It is normally occupied during 7am to 9pm by 358 students.

The Washington Elementary School was constructed in 1937 and is approximately 57,588 square feet. It is normally occupied during 7am to 9pm by 430 students.

The West Orange High School was constructed in 1959 and is approximately 381,668 square feet. It is normally occupied during 7am to 11pm by 2002 students.

The West Orange Bus Garage was constructed in the 1970's and is approximately 42,201 square feet. It is normally occupied during 6 am to 6pm by 40 staff.

1.3 Purpose and Scope

There are two objectives of this energy audit. One is to identify energy conservation and retrofit measures to reduce energy usage. The second is to develop an economic basis to financially validate the planning and implementation of identified energy conservation and retrofit measures.

Significant energy savings may be available with retrofits to the heating, cooling, and lighting systems. It should be noted that the magnitude of energy savings available is not only dependent on the type of heating, lighting or insulation systems in use. Energy savings is also dependent on the age and condition of the equipment and the capital available to implement major changes. The rising cost of power and the desire to minimize dependence on foreign oil supplies, energy consumption is taking a higher priority across the nation. Feasible alternatives for reducing energy consumption and operating costs must be evaluated on a case-by-case basis.

The purpose of this energy audit is to identify the various critical building comfort systems that are major consumers of natural gas and electrical energy and that are clear candidates for energy savings measures. In addition, potential energy producing systems such as solar electric and wind energy systems were also evaluated. A discussion on these technologies is included in Section 4 Energy Conservation and Retrofit Measures (ECRM).

In addition to identifying ECRMs the potential for on-site energy generation was evaluated. There is potential for further energy cost savings through the use of a third party energy supplier and participation in a Demand Response Program. This is discussed further in Section 5.

Section 2

Facility Description

2.1 Administration Building

2.1.1 Description of Building Envelope

The energy audit included an evaluation of the building envelope (exterior shell) to determine the components' effective R-values. These values are to be utilized in the building model and to locate and fix any thermal weaknesses that may be present. The components of a building envelope include the exterior walls, foundation, and roof. The construction and material, age, and general condition of these components, including exterior windows and doors, impact the building's energy use.

The original portion of the building is solid brick wall. The new portions of the building are concrete masonry unit walls, or CMU. The building exterior is stucco finish. The visible roof decking is steel deck on steel trusses. The additions are assumed to be insulated to R-10. The roof is assumed to be insulated to R-20.

The building has aluminum frame windows. The windows are a mix of double and single pane. The doors of the building are of various ages. Some doors are deteriorated weather stripping which contributes to infiltration. The weather stripping should be inspected and replaced as needed.

Overall, it was determined that the building envelope is in good condition. While some minor changes are strongly recommended. Modifications to the insulation system and windows would not prove to be cost-effective, from an energy savings stand-point.

2.1.2 Description of Building HVAC

The building is heated primarily by steam unit ventilators and radiators. The boiler plant contains two HB Smith 28HE-S-12, gas fired, cast iron boilers. The boiler outputs are rated at 82% efficient and 2,443 MBH (MBH = 1,000 btu's per hour). Electric heat is installed in the basement where spaces have been subdivided. The building heating is primarily controlled by pneumatic controls.

The building is cooled by a mix of window air conditioners and direct expansion, or dx, split systems. These systems are controlled by the unit controls or wall mount thermostats.

The building has a direct digital control, or DDC, system to control and monitor the building systems. The large rooms also have DDC sensors to report the space conditions back to the central system. The DDC cannot control the individual space temperatures, but it can alarm for high or low temperatures. Individual space heating is controlled by pneumatic thermostats.

The domestic hot water is generated in a 75 gallon storage type water heater that was installed in 2000. The water heater is a gas fired Bradford White model, rated at 75 MBH input and 80% efficient.

2.1.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.2 Edison Central Six School

2.2.1 Description of Building Envelope

The building exterior is primarily brick. The original building walls are solid brick. The building has at least one major addition. The newest addition has CMU walls with rigid exterior insulation and stucco finish. The addition is assumed to be the only portion of the building with insulated walls. The roof is a combination of peaked roof with slate exterior, and flat roof with bitumen rolls or EPDM surface.

The building has double pane windows with aluminum frames. The doors are mostly steel except for the main entrance which is solid wood.

2.2.2 Description of Building HVAC

The building has multiple systems. The original building is heated by steam radiators and unit ventilators. One portion of the building is heated and cooled by Airedale air conditioning, or AC, units with electric heat. The unit ventilators in the new building have hot water coils for heating. The building has two gas fired roof top units serving the gymnasium and the media center.

The boilers are gas fired steam boilers by Superior. The boilers are from 1960 and rated at 6,800 MBH each. The boilers are estimated to be about 70% efficient. Heating hot water for the unit ventilators is generated by a steam to hot water heat exchanger in the boiler room.

The building is cooled by dx coils in the unit ventilators and the two packaged rooftop units.

The original building's heating system is controlled by pneumatic controls. The new building heating and cooling systems are controlled by DDC automated logic controls.

2.2.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.3 Gregory Elementary School

2.3.1 Description of Building Envelope

The original building was built around 1950. The building received additions in the 1970's and the 1990's. The building has concrete walls with stucco exterior. The two additions are assumed to be CMU walls. The exterior stucco of the 1970's addition is on steel mesh panels. Many of these panels have rusted and have been bolted through to hold them to the masonry structure. The 1990's addition is assumed to have insulation in the walls.

The original building has a peaked roof with asphalt shingles. The 1990's addition has steel roof framing and corrugated steel decking. The roof has two inches of rigid polyisocyanurate insulation on the addition.

The windows in the original building and in the 1970's addition have single panel aluminum frames. The 1990's addition has double pane windows.

2.3.2 Description of Building HVAC

The classrooms are heated by unit ventilators. The heating system is supplied by two steam boilers. The boilers are HB Smith 28HE-S-14 cast iron sectional boilers rated at 4,293 MBH each. The addition is heated by a Trane gas fired roof top unit rated at 250 MBH input. The addition is ventilated by an AnnexAir energy recovery ventilator.

The addition is cooled by the Trane roof top unit. The remainder of the building is cooled by window air conditioners and dx split systems. The window and split systems are individually controlled. The building has a mix of pneumatic and DDC controls.

The building domestic hot water is generated by two gas fired storage type water heaters. These water heaters are both rated at 70 MBH input with 75 gallons of storage capacity each. The units are from 1999 and 2005.

2.3.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.4 Hazel Elementary School

2.4.1 Description of Building Envelope

The building is brick exterior with drywall or plaster interior finish. The walls of the original building are solid brick. The addition is assumed to be CMU walls with brick exterior. These walls are assumed to be insulated to R-10

The building roof is timber framed with asphalt shingles. The original building roof is not insulated. The addition is assumed to be insulated to R-20.

The building windows are double pane with aluminum frames. The doors are all insulated metal doors. The windows and the doors are less than 10 years old.

2.4.2 Description of Building HVAC

The building is heated by steam unit ventilators in the classrooms and radiators in stairwells and other spaces. The steam is generated by two cast iron sectional gas fired boilers. The boilers are HB Smith 450 Mills rated at 82% efficient and 5,372 MBH input each. These boilers were installed in 2007.

The building is cooled by window air conditioners and split systems. These systems only cool the administrative offices, library, and computer lab.

The building control system consists of pneumatic control valves on the radiators with a thermostat in each space. The DDC system monitors the building temperatures and systems but does not have control over all set points.

The hot water is generated by a gas fired storage water heater. The unit is rated at 76 MBH input, 75 gallons of storage capacity, and was installed in 2004.

2.4.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.5 Liberty Middle School

2.5.1 Description of Building Envelope

The building was built in 2005. The walls are steel structure with interstitial CMU block, brick façade and drywall interior. The exterior walls have 2 inches of rigid insulation. The building has a flat roof with membrane and bitumen rolls. The roof has 4 inches of rigid insulation above the deck.

The building windows are all double pane, aluminum framed units. The doors are all metal and in good condition.

2.5.2 Description of Building HVAC

The building is heated and cooled by packaged roof top multi-zone air handlers. These units have hot water preheat coils and packaged air cooled dx cooling. Each zone has a hot water reheat coil. Heating hot water is provided by the boiler plant. The boiler plant has 3 gas fired DeDietrich boilers. Each boiler is cast iron sectional and rated at 1658 MBH input. The boilers were installed in 2005. Non instructional spaces have packaged terminal air conditioners and small dx split systems with electric heat.

The space temperature is controlled by a central DDC system.

The building hot water is heated by 2 gas fired water heaters which were installed in 2005. Each unit has 250 gallons storage capacity and is rated at 399 MBH input.

2.5.3 Description of Building Lighting

This building has an existing lighting system which consists of 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 linear fluorescent fixtures, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.6 Mt. Pleasant Elementary School

2.6.1 Description of Building Envelope

The building has at least one major addition. The original building has solid brick exterior walls. The newer addition has CMU walls with a brick exterior face and a painted block interior face. The addition walls are assumed to be insulated to R-10.

The building has a flat roof with an EPDM surface. The roof appears to have two inches of rigid insulation. The exterior walls appear to have no insulation installed.

The building windows are double pane aluminum frame units. The windows appear to be in good condition.

2.6.2 Description of Building HVAC

The heating system consists of unit ventilators in the classrooms. These are controlled by pneumatic thermostats in each space. Non-classrooms are heated by convectors. The heating boilers were removed at the time of the site visit.

The building cooling system is very limited. The space cooling is limited to 10 window air conditioners and two dx split systems. Each unit is independently controlled.

Service hot water is produced by a gas fired, storage type water heater that was installed in 2005. The unit is rated at 270 MBH input with 97 gallon storage capacity.

2.6.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.7 Pleasantdale Elementary School

2.7.1 Description of Building Envelope

The building has at least one major addition. The original building has solid brick walls. The addition has CMU walls with brick exterior, metal studs with fiberglass batts and drywall interior. The building has a flat roof with an EPDM membrane and stone ballast. The addition walls are assumed to be insulated to R-10. The roof of the addition is assumed to be insulated to R-20.

The building windows are double pane glass with aluminum frames. All the windows appear to have been replaced within the last 15 years and are in good condition.

2.7.2 Description of Building HVAC

The building heating system consists of steam unit ventilators in the classrooms and unit heaters and radiators in the other spaces. The steam is generated by two Weil McLain 1888, gas-fired, cast iron steam boilers. Each boiler is rated at 80% efficient and 4,640 MBH output. The boilers are less than 10 years old.

Each unit heater has a pneumatic thermostat in the space controlling the steam valve. The addition has automated logic controls for the unit ventilators.

The building is cooled by 40 window air conditioners. These units have individual controls. The units are of various ages.

Domestic hot water is generated by a gas fired storage type water heater that was installed in 2009. The unit is rated at 80% efficient, 91 gallons of storage and 199 MBH input capacity.

2.7.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.8 Redwood Elementary School

2.8.1 Description of Building Envelope

The building has multiple additions. The original building has solid brick walls. The additions have CMU walls with brick facades. The most recent addition is assumed to have insulation in the walls. The interior finish of the walls is painted block, curtain wall, or drywall.

The building has a flat roof. The roof finish is a mix of built-up tar with stone ballast, bitumen rolls, and EPDM membrane. The addition roof structure consists of steel trusses supporting corrugated steel decking. The addition roof is assumed to be insulated.

The building has double pane windows with aluminum frames. These have all been replaced in the last 20 years. The gym also has some glass block.

2.8.2 Description of Building HVAC

The building heating system is comprised of unit ventilators in the classrooms. The auditorium has a large air handler for heating and ventilation. The original building has steam heating coils in all the heating units. The additions have hot water coils in all the heating units. The gym has an energy recovery unit with a gas fired heater. The gym addition also has a gas fired make-up air unit.

The heating system is supplied from the central boiler plant. The boilers are HB Smith 28HE-13 gas fired, cast iron sectional, steam boilers. The boilers are rated at 83% efficient and 3,978 MBH input. Space heating hot water is generated by a steam to hot water converter. The whole building is heated by hot water.

The building has five split system air conditioners serving offices and the library. The building also has 15 window air conditioners. These units are not controlled by the central DDC system.

The original building heating system is controlled by pneumatic controls. The DDC system monitors the pneumatic controls and select space temperatures of pneumatic controlled areas. The addition is controlled by the DDC control system.

Domestic hot water is heated by a gas fired storage type water heater. The unit was installed in 2005 and rated at 80% efficient, 91 gallons of storage with 199 MBH input capacity.

2.8.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.9 Roosevelt Middle School

2.9.1 Description of Building Envelope

The building has a major and recent addition. The original building has solid brick walls. The addition has CMU walls with 2" exterior insulation finishing system, or EIFS. The original building roof is peaked with slate surface. The remainder of the building has a flat roof with bitumen rolls or EPDM membrane finish.

The windows are double pane with aluminum frames. The windows were all replaced about 15 years ago.

2.9.2 Description of Building HVAC

The original building heats with steam provided by two superior fire tube boilers which were installed in 1968. Each steam boiler is rated at 11,700 MBH input with an estimated efficiency of 75%.

The addition is heated by two hot water boilers. Each of these boilers is a RayPack HiDelta installed in 2000. These are rated at 80% efficient and 1,260 MBH input each.

The building heating system consists of unit ventilators in all the classrooms, cafeteria, and offices. The classrooms in the main building have Airedale air source heat pump units. The building has radiators in the hallways and air handlers for all other spaces. The library is cooled by a packaged roof top unit from the 1990's rated at 12 tons of cooling capacity. The gym roof top unit is heating and ventilation only. The four music rooms are conditioned by gas fired, packaged roof top air conditioners. Each of these units is rated at three to ten tons cooling and 100 to 250 MBH heating.

There are nine split systems that serve the building at an average of three tons each. The main building Airedale heat pumps also cool. These units serve classrooms, special classes and large offices.

The building is controlled by a DDC control system for the addition, heat pumps and the newer boilers. Pneumatic controls are limited to steam radiators and the steam boilers.

Domestic hot water is heated by three gas fired, storage type water heaters. Two units were installed in 2004 and rated at 80% efficient, 100 gallon storage and 199 MBH input capacity each. The last unit is an AO Smith rated at 720 MBH input capacity, 140 gallon storage and was installed in 2000.

2.9.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.10 St. Cloud Elementary School

2.10.1 Description of Building Envelope

The building has multiple additions. The original building exterior walls are solid brick. The newer additions are CMU walls with brick exterior and painted CMU interior. The addition walls are assumed to be insulated.

The building has a mix of flat and peaked roof. The peaked roof is slate with a metal surface. The flat roof is EPDM and in poor condition. The roof has bubbled, in some places the membrane is multiple inches off the roof surface. The roof has many puddles and is assumed to be un-insulated.

The building has double pane windows with aluminum frames in the classrooms. One hallway has single pane windows with aluminum frames.

2.10.2 Description of Building HVAC

The heating system consists of air handlers and unit ventilators. The unit ventilators are controlled by a pneumatic thermostat in each space. These units are supplied with hot water from the central boiler plant. The building has two HB Smith cast iron sectional boilers. Each boiler is rated at 4193 MBH steam. The

boilers are less than 20 years old. The boilers feed steam to a hot water converter which supplies the radiation and heating coils.

The building has 11 window air conditioners to cool the library, offices and other select areas. These units are all individually controlled.

The heating controls are pneumatic. The building is monitored by the DDC system.

Domestic hot water is generated by a gas fired storage type water heater. The storage water heater is rated at 180 MBH input capacity, 98 gallon storage and was installed in the 1990's.

2.10.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.11 Washington Elementary School

2.11.1 Description of Building Envelope

The building is brick exterior with drywall interior finish. The exterior walls are solid brick. The building had an addition in 2005. These walls are CMU with drywall interior and brick exterior. The addition is assumed to be insulated.

The roof is a mix of sloped roof with slate exterior and flat roof with EPDM exterior. The flat roof is assumed to be insulated. The windows are double pane with aluminum frames.

2.11.2 Description of Building HVAC

The building is heated by steam radiators and a mix of steam and hot water unit ventilators. The unit ventilators are controlled by pneumatic thermostats. The addition is heated and cooled by gas fired packaged roof top air conditioner. This unit is rated at about 400 MBH and controlled by DDC thermostats and controls. The addition also has a gas fired make up air unit rated at 250 MBH.

The heating boilers that serve the building were removed for replacement during the inspection. There was no domestic hot water heater installed during the inspection.

The original building is minimally cooled by seven window air conditioners rated at about 12 MBH each.

2.11.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.12 West Orange High School

2.12.1 Description of Building Envelope

The building is made of multiple buildings and additions. The building walls are masonry. The original buildings were CMU with brick façade. The additions are a mix of stucco and brick exterior over two inches of rigid insulation and CMU block. The interior walls of the addition are a mix of painted block and drywall.

The roof of the building is flat. The older portions of the building have bitumen roll roofing and some standing seam roofing. The remainder of the building has EPDM roof surface. The roof is assumed to be insulated.

The windows are aluminum framed with double panes. The windows are of various age and condition.

2.12.2 Description of Building HVAC

The building has multiple heating systems. The spaces are heated and ventilated by unit vents in the classrooms and roof top units for the major spaces. The cafeteria and gym are heated by gas fired roof top units. The remainder of the heat is generated in three boiler plants. The first boiler plant is comprised of two Weil McLain 94 boilers installed in 2004 and rated at 6,100 MBH output each. These units are gas fired, hot water, and are rated at 83% efficient.

The second boiler plant is comprised of two Weil McLain 1888 boilers rated at 4,640 MBH each. These boilers are gas fired steam, rated at 82% efficient and were installed in 2000. The third boiler plant has two Cleaver Brooks fire tube boilers rated at 7,000 MBH each. The boilers are gas fired hot water. These boilers were installed in 1959 and estimated to be 70% efficient.

The building is cooled by many window air conditioners, split systems, and packaged roof top units. The building also has a chilled water system that serves the addition. The chiller has a York 200 ton scroll compressor. The chiller condenser water rejects heat with dry coolers on the roof.

The DDC system controls the heating and cooling systems.

The building domestic hot water is generated in all three of the boiler plants. The first boiler plant has two Lochinvar hot water boilers. Each boiler is rated at 1700 MBH input and 90% efficient with a dedicated 1000 gallon storage tank. The other two boiler plants each have a Ruud storage type water heater. Each heater is gas fired at 300 MBH input capacity, 91 gallons of storage and was installed in 2004.

2.12.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 linear fluorescent fixtures, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

2.13 West Orange Bus Garage

2.13.1 Description of Building Envelope

The building is all CMU block. The exterior is painted block. The interior in the garage, shop, and bay are raw block. The interior wall finishes of the office areas are dry wall. The roofs are a mix of timber and steel framing and decking.

The building has minimal windows. The windows are a mix of single and double pane windows with vinyl frames.

2.13.2 Description of Building HVAC

The building heating system consists of gas fired unit heaters heating the warehouse, a furnace heating the shop, and electric unit heaters and baseboard in the office areas and break rooms. The garage is unheated.

The offices and break room are the only areas cooled. These spaces are cooled by window air conditioners that are less than five years old.

All units, except the furnace, are controlled by the unit mounted controls. The furnace is controlled by a single set point thermostat.

Domestic hot water is generated by two electric storage type water heaters. Each heater is rated at 2000 watts input capacity and has five gallons storage.

2.13.3 Description of Building Lighting

This building has an existing lighting system which consists of 1X2 (1 and 2 lamp), 2X2 (2 and 3 lamp), 1X4 (1, 2 lamp), 2X4 (2, 3, and 4 lamp) T8 and T12 linear fluorescent fixtures with magnetic ballasts, compact fluorescent, incandescent, and high intensity discharge (HID) fixtures. Refer to Section 4 Appendix D for a more detailed description.

Section 3

Baseline Energy Use

3.1 Utility Data Analysis

The first step in the energy audit process is the compilation and quantification of the facility's current and historical energy usage and associated utility costs. It is important to establish the existing patterns of electricity, gas, and oil usage in order to be able to identify areas in which energy consumption can be reduced.

For this study, the monthly gas and electric bills per facility were analyzed and unit costs of energy were obtained. The unit cost of energy, as determined from the information provided by the Board, was utilized in determining the feasibility of switching from one energy source to another, or reducing the demand on that particular source of energy to create annual cost savings for the Board.

3.1.1 Electric Charges

It is also important to understand how the utilities charge for the service. The majority of the energy consumed is electric as a result of both indoor and outdoor lighting and appliances, such as kitchen appliances, computers, printers and projectors. Electricity is charged by three basic components: electrical consumption (kWh), electrical demand (kW) and power factor (kVAR) (reactive power). The cost for electrical consumption is similar to the cost for fuel and the monthly consumption appears on the utility bill as kWh consumed per month with a cost figure associated with it. The service connections are either billed on a flat rate or time of day rates per kWh.

Electrical demand can be as much as 50 percent or more of the electric bill. The maximum demand (kW value) during the billing period is multiplied by the demand cost factor and the result is added to the electric bill. It is often possible to decrease the electric bill by 15 – 25 percent by reducing the demand, while still using the same amount of energy.

The power factor (reactive power) is the power required to energize electric and magnetic fields that result in the production of real power. Power factor is important because transmission and distribution systems must be designed and built to manage the need for real power, as well as the reactive power component (the total power). If the power factor is low, then the total power required can be greater than 50 percent or more than the real power alone. The power factor charge is a penalty for having a low power factor. Fortunately, this penalty charge does not impact the Board.

The other parts of the electric bill are the supply charges, delivery charges, system benefits, transmission revenue adjustments, state and municipality tariff surcharges and sales taxes, which cannot be avoided.

Public Service Electric & Gas (PSEG) is the supplier and distributor for the Edison Six School, Liberty Middle School, High School, and Bus Garage. South Jersey Energy is the current supplier, and PSE&G is the current distributor of electric energy for the remaining Board facilities.

3.1.2 Natural Gas Charges

PSE&G is the current supplier and distributor of natural gas for the Board. The Board is charged for the cost of the natural gas, a delivery charge and a customer charge, which covers gas administration charges.

3.2 Facility Results

3.2.1 Administration Building

Electric power for the Administration Building is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-1 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the Administration Building is approximately 30,145 kWh/month.

Table 3.2-1 illustrates the seasonal peak demand loads for the Administration Building from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-1: Administration Building Electricity Usage



The most recent tariff rates available at the time of this audit for the electrical service at the Administration Building from PSE&G are as follows:

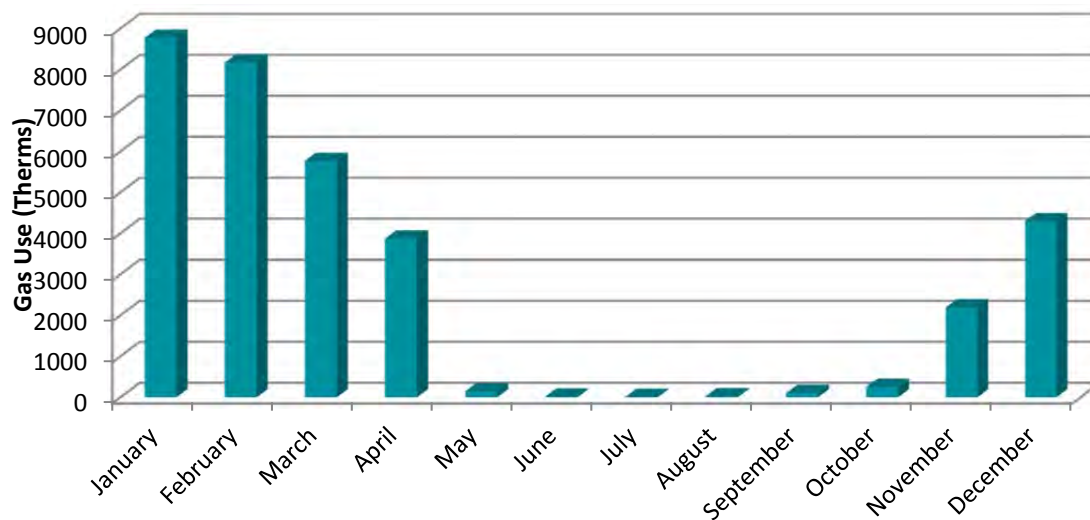
	Acct #: 67 387 822 09
Service Charge:	\$4.3/month
Delivery Service Charges:	\$0.011251875/kWh \$4.160340909/kW
Societal Benefits Charge:	\$0.007599063/kWh
Securitization Transition:	\$0.010626250/kWh

Table 3.2-1: Administration Building Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	115
Winter	88

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-2 illustrates the monthly average natural gas consumption at the Administration Building from January 2011 through December 2011.

Figure 3.2-2: Administration Building Gas Usage

For more on the Administration Building's gas usage, refer to Section 4.2.

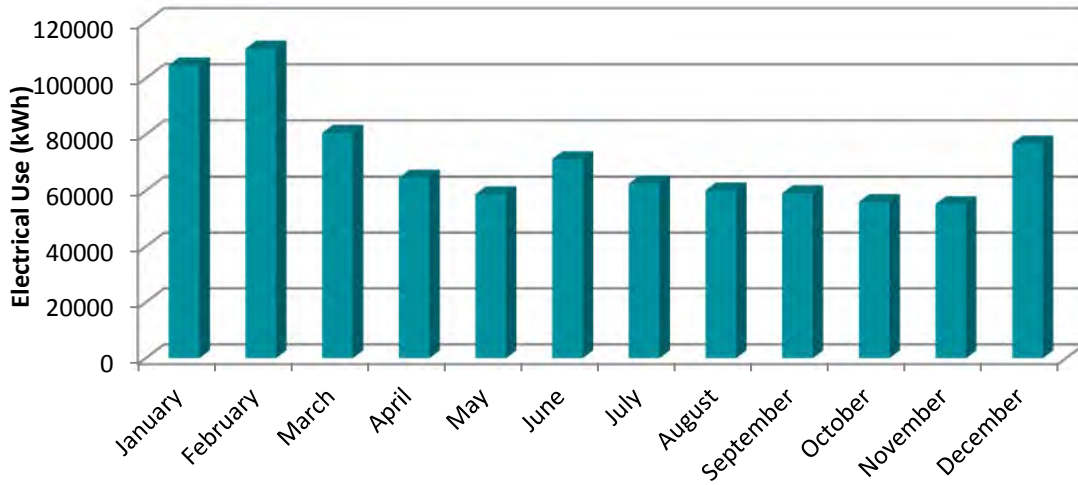
3.2.2 Edison Central Six School

Electric power for the Edison Central Six School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-3 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the Edison Central Six School is approximately 71,648 kWh/month.

Table 3.2-2 illustrates the seasonal peak demand loads for the Edison Central Six School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-3: Edison Central Six School Electricity Usage



The most recent tariff rates available at the time of this audit for the electrical service at the Edison Central Six School from PSE&G are as follows:

	Acct #: 42 005 376 05
Service Charge:	\$377.71/month
Delivery Service Charges:	\$0.007163953/kWh - On Peak \$0.007164007/kWh - Off Peak \$3.424/kW
Societal Benefits Charge:	\$0.007599063/kWh
Securitization Transition:	\$0.010626250/kWh
Supply Charges:	Generation - \$4.846484676/kW Transmission - \$1.860789738/kW On Peak - First 16,500 - \$0.102987273/kWh Next - \$0.104647863/kWh Off Peak - First 18,000 - \$0.065503889/kWh Next - \$0.067165104/kWh

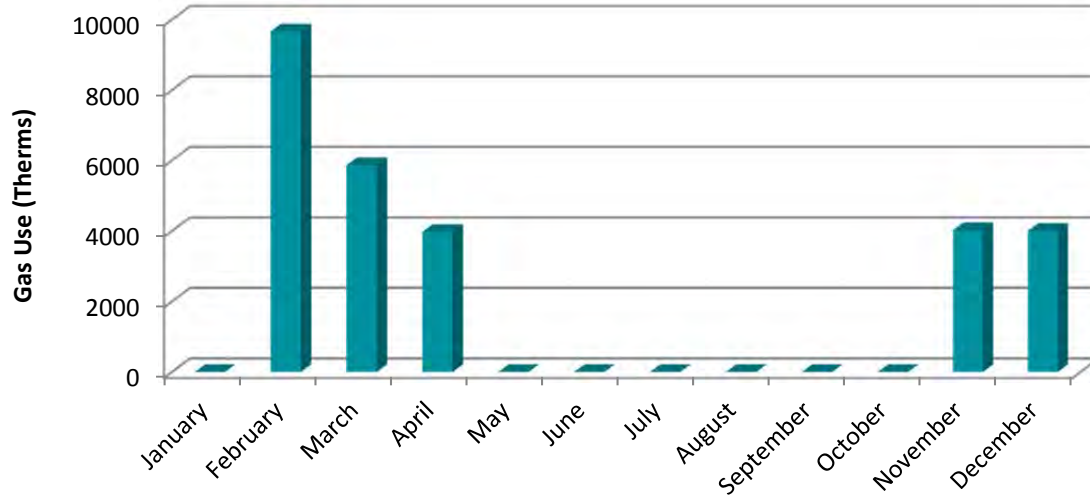
Table 3.2-2: Edison Central Six School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	306
Winter	315

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-4 illustrates the monthly average natural gas consumption at the Edison Central Six School from January 2011 through December 2011.

Figure 3.2-4: Edison Central Six School Gas Usage



The billing information for January and May to October were not available. The usage from May to November is combined in the November usage. For more on the Edison Central Six School's gas usage, refer to Section 4.2.

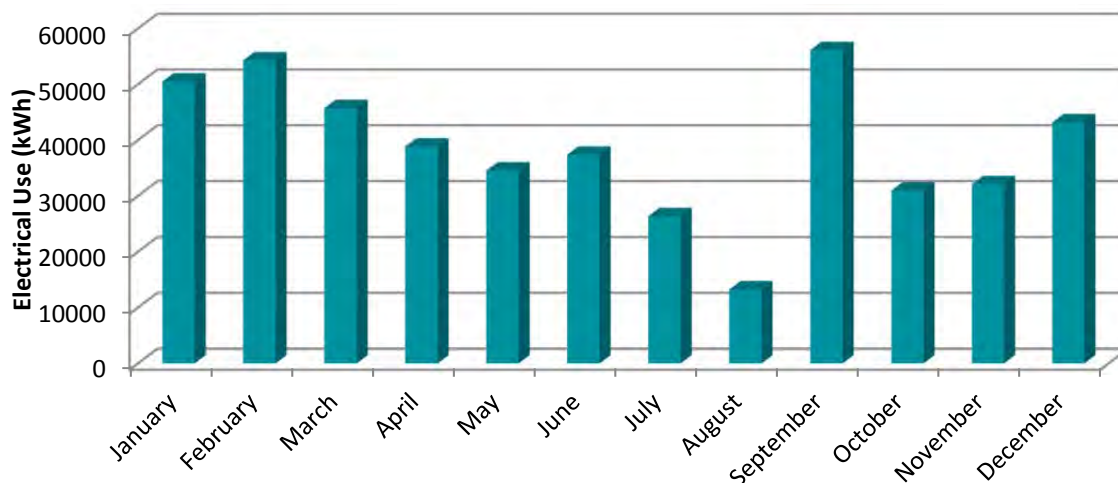
3.2.3 Gregory Elementary School

Electric power for the Gregory Elementary School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-5 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the Gregory Elementary School is approximately 38,596 kWh/month. Usage data for September was high compared due to prior months, and this could possibly be attributed to an estimated usage bill, or a billing error.

Table 3.2-3 illustrates the seasonal peak demand loads for the Gregory Elementary School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-5: Gregory Elementary School Electricity Usage



The most recent tariff rates available at the time of this audit for the electrical service at the Gregory Elementary School from PSE&G are as follows:

	Acct #: 65 747 073 07
Service Charge:	\$4.3/month
Delivery Service Charges:	\$0.011251875/kWh \$4.160340909/kW
Societal Benefits Charge:	\$0.007599063/kWh
Securitization Transition:	\$0.010626250/kWh

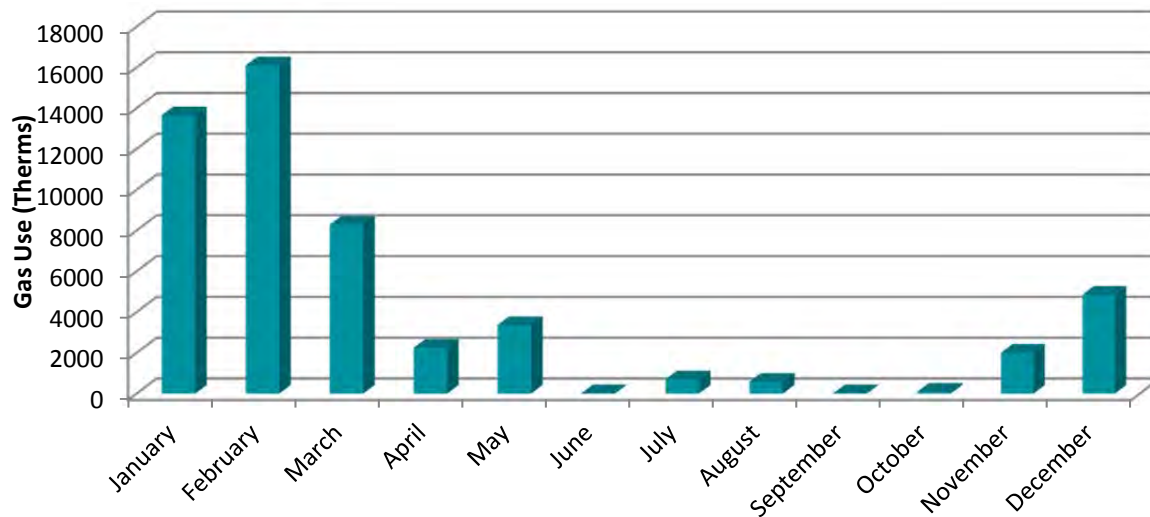
Table 3.2-3: Gregory Elementary School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	205
Winter	172

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-6 illustrates the monthly average natural gas consumption at the Gregory Elementary School from January 2011 through December 2011.

Figure 3.2-6: Gregory Elementary School Gas Usage



For more on the Gregory Elementary School gas usage, refer to Section 4.2.

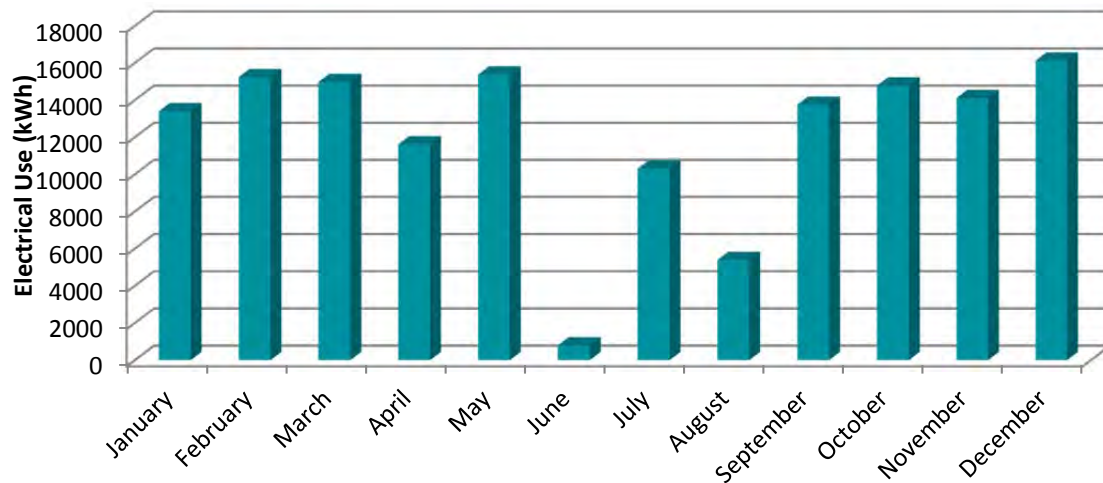
3.2.4 Hazel Elementary School

Electric power for the Hazel Elementary School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-7 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the Hazel Elementary School is approximately 12,152 kWh/month. Usage data for June was low compared due to prior months, and this could possibly be attributed to an estimated usage bill, or a billing error.

Table 3.2-4 illustrates the seasonal peak demand loads for the Hazel Elementary School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-7: Hazel Elementary School Electricity Usage



The most recent tariff rates available at the time of this audit for the electrical service at the Hazel Elementary School from PSE&G are as follows:

	Acct #: 65 133 609 00
Service Charge:	\$4.3/month
Delivery Service Charges:	\$0.011251875/kWh \$4.160340909/kW
Societal Benefits Charge:	\$0.007599063/kWh
Securitization Transition:	\$0.010626250/kWh

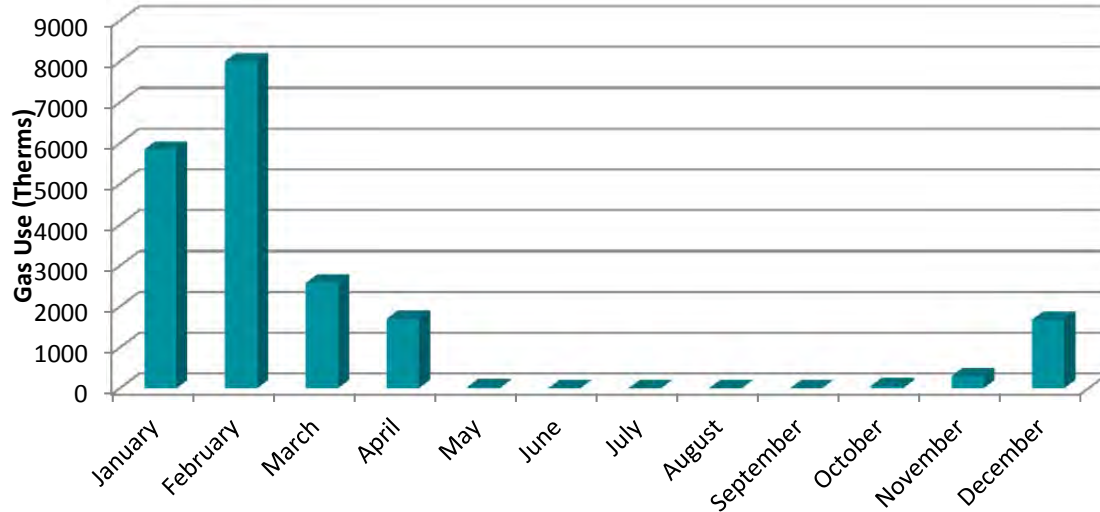
Table 3.2-4: Hazel Elementary School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	59
Winter	86

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-8 illustrates the monthly average natural gas consumption at Hazel Elementary School from January 2011 through December 2011.

Figure 3.2-8: Hazel Elementary School Gas Usage



For more on the Hazel Elementary School gas usage, refer to Section 4.2.

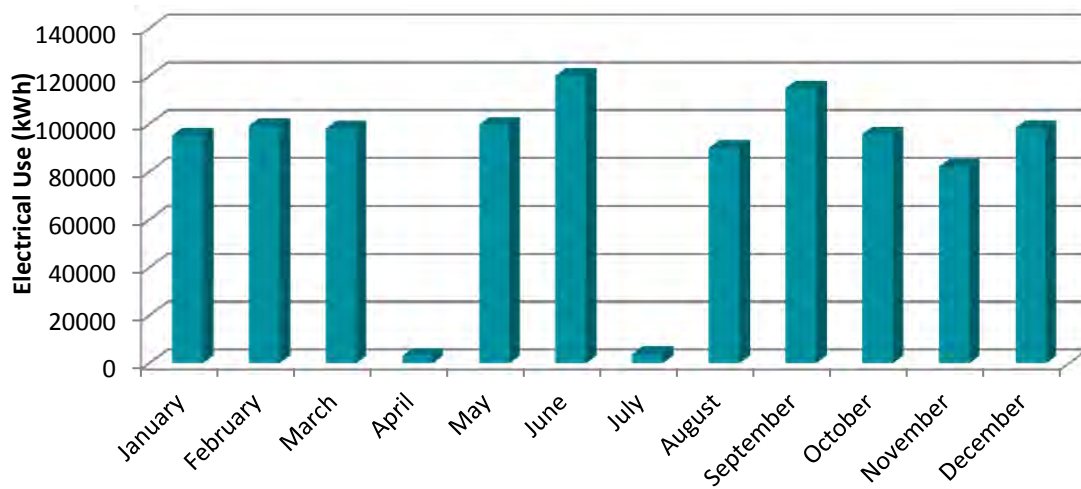
3.2.5 Liberty Middle School

Electric power for the Liberty Middle School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-9 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the Liberty Middle School is approximately 83,363 kWh/month. Usage data for April, and July was low compared to prior months, and this could possibly be attributed to an estimated usage bill, or a billing error.

Table 3.2-5 illustrates the seasonal peak demand loads for the Liberty Middle School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-9: Liberty Middle School Electricity Usage



The most recent tariff rates available at the time of this audit for the electrical service at Liberty Middle School from PSE&G are as follows:

	Acct #: 42 004 063 06
Service Charge:	\$377.71/month
Delivery Service Charges:	\$0.007163913/kWh - On Peak \$0.007164022/kWh - Off Peak \$3.424/kW
Societal Benefits Charge:	\$0.007599032/kWh
Securitization Transition:	\$0.010187185/kWh
Supply Charges:	Generation - \$4.845639049/kW Transmission - \$1.983077198/kW On Peak - First 6,688 - \$0.102987440/kWh Next - \$0.104647989/kWh Off Peak - First 4,738 - \$0.065504432/kWh Next - \$0.067165105/kWh

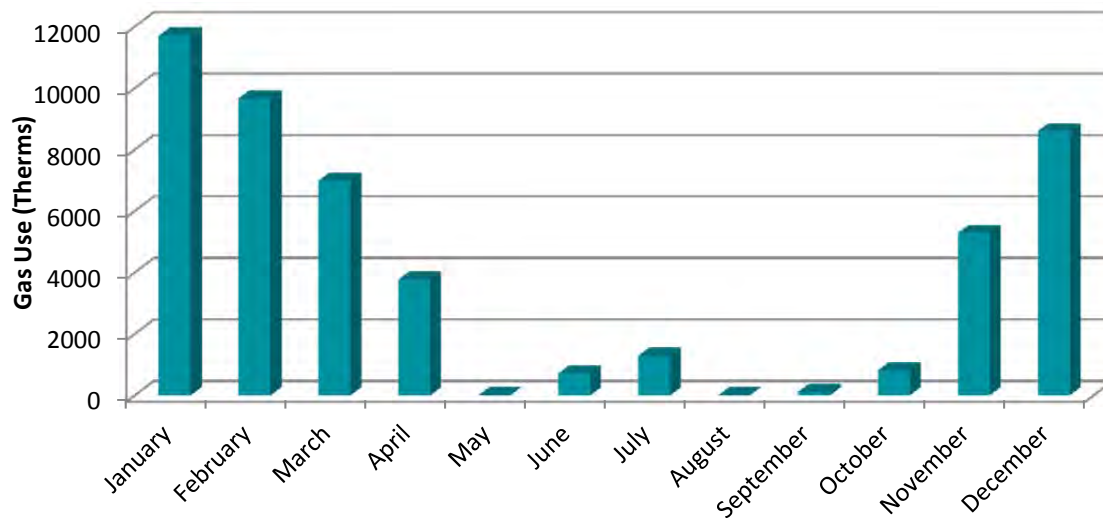
Table 3.2-5: Liberty Middle School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	533
Winter	333

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-10 illustrates the monthly average natural gas consumption at the Liberty Middle School from January 2011 through December 2011.

Figure 3.2-10: Liberty Middle School Gas Usage



For more on the Liberty Middle School gas usage, refer to Section 4.2.

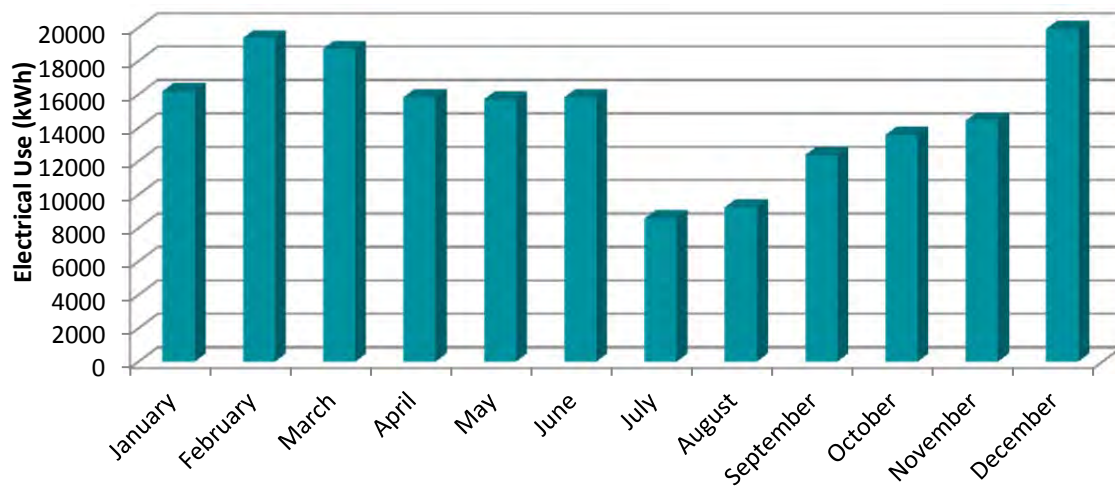
3.2.6 Mt. Pleasant Elementary School

Electric power for the Mt. Pleasant Elementary School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-11 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the Mt. Pleasant Elementary School is approximately 14,981 kWh/month.

Table 3.2-6 illustrates the seasonal peak demand loads for the Mt. Pleasant Elementary School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-11: Mt. Pleasant Elementary School Electricity Usage



The most recent tariff rates available at the time of this audit for the electrical service at the Mt. Pleasant Elementary School from PSE&G are as follows:

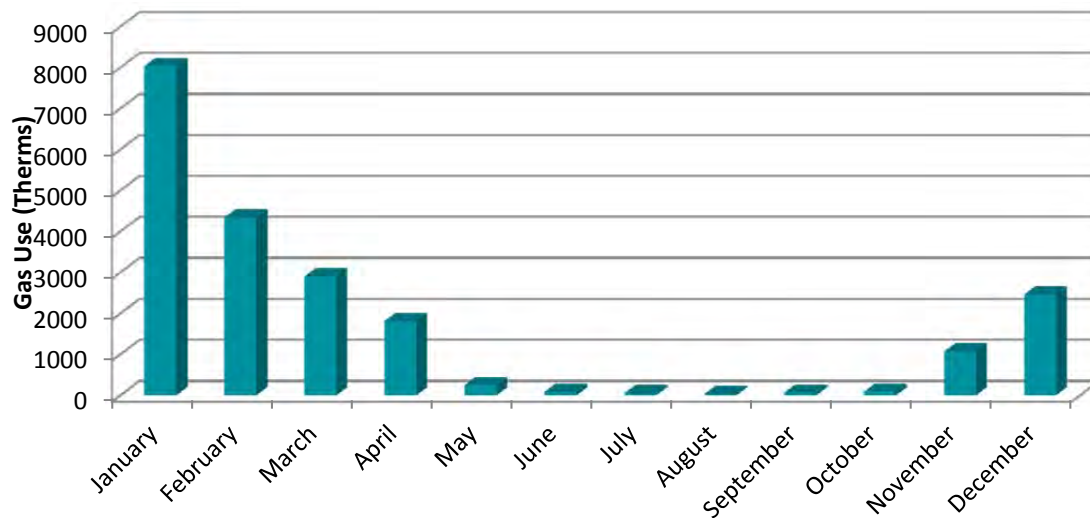
	Acct #: 66 610 487 00
Service Charge:	\$4.3/month
Delivery Service Charges:	\$0.011251875/kWh \$4.160340909/kW
Societal Benefits Charge:	\$0.007599063/kWh
Securitization Transition:	\$0.010626250/kWh

Table 3.2-6: Mt. Pleasant Elementary School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	78
Winter	78

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-12 illustrates the monthly average natural gas consumption at the Mt. Pleasant Elementary School from January 2011 through December 2011.

Figure 3.2-12: Mt. Pleasant Elementary School Gas Usage

For more on the Mt. Pleasant Elementary School gas usage, refer to Section 4.2.

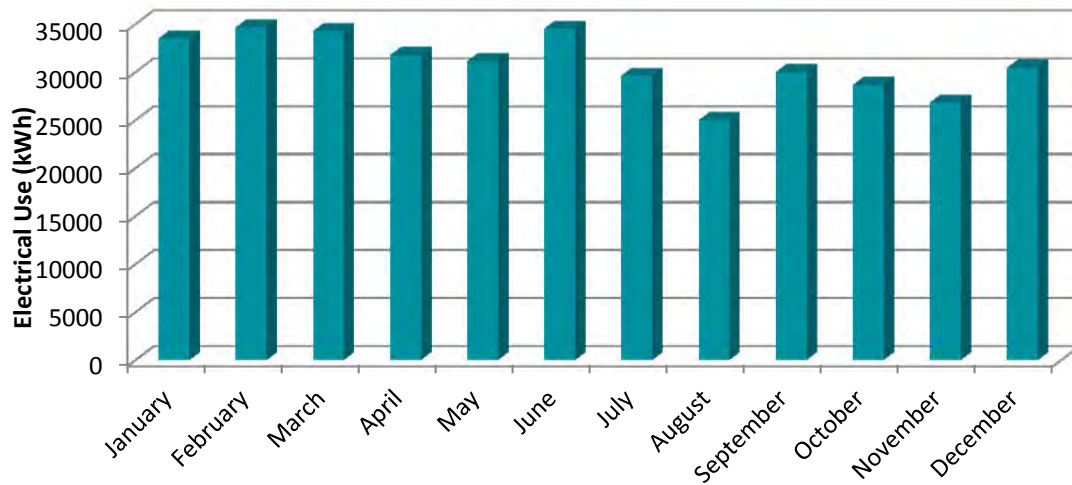
3.2.7 Pleasantdale Elementary School

Electric power for Pleasantdale Elementary School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-13 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the Pleasantdale Elementary School is approximately 30,881 kWh/month.

Table 3.2-7 illustrates the seasonal peak demand loads for the Pleasantdale Elementary School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-13: Pleasantdale Elementary School Electricity Usage



The most recent tariff rates available at the time of this audit for the electrical service at the Pleasantdale Elementary School from PSE&G are as follows:

	Acct #: 42 005 484 02
Service Charge:	\$4.3/month
Delivery Service Charges:	\$0.011251875/kWh \$4.160340909/kW
Societal Benefits Charge:	\$0.007599063/kWh
Securitization Transition:	\$0.010626250/kWh

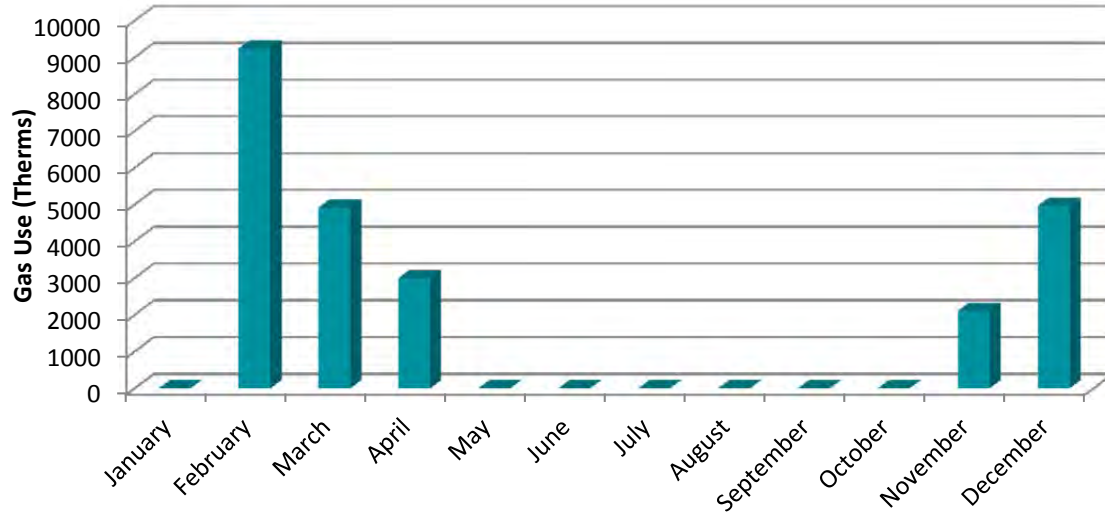
Table 3.2-7: Pleasantdale Elementary School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	155
Winter	111

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-14 illustrates the monthly average natural gas consumption at the Pleasantdale Elementary School from January 2011 through December 2011.

Figure 3.2-14: Pleasantdale Elementary School Gas Usage



The billing information for January is missing. There was no billing information submitted for the months of May thru October. For more on the Pleasantdale Elementary School gas usage, refer to Section 4.2.

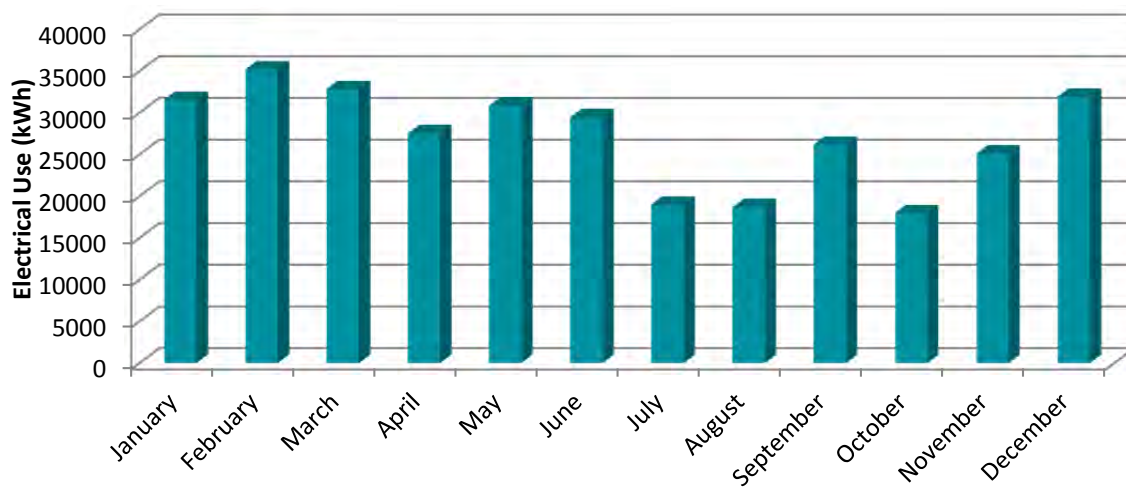
3.2.8 Redwood Elementary School

Electric power for the Redwood Elementary School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-15 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for Redwood Elementary School is approximately 27,179 kWh/month.

Table 3.2-8 illustrates the seasonal peak demand loads for the Redwood Elementary School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-15: Redwood Elementary School Electricity Usage



The most recent tariff rates available at the time of this audit for the electrical service at Redwood Elementary School from PSE&G are as follows:

	Acct #: 66 001 936 03
Service Charge:	\$4.3/month
Delivery Service Charges:	\$0.011251875/kWh \$4.160340909/kW
Societal Benefits Charge:	\$0.007599063/kWh
Securitization Transition:	\$0.010626250/kWh

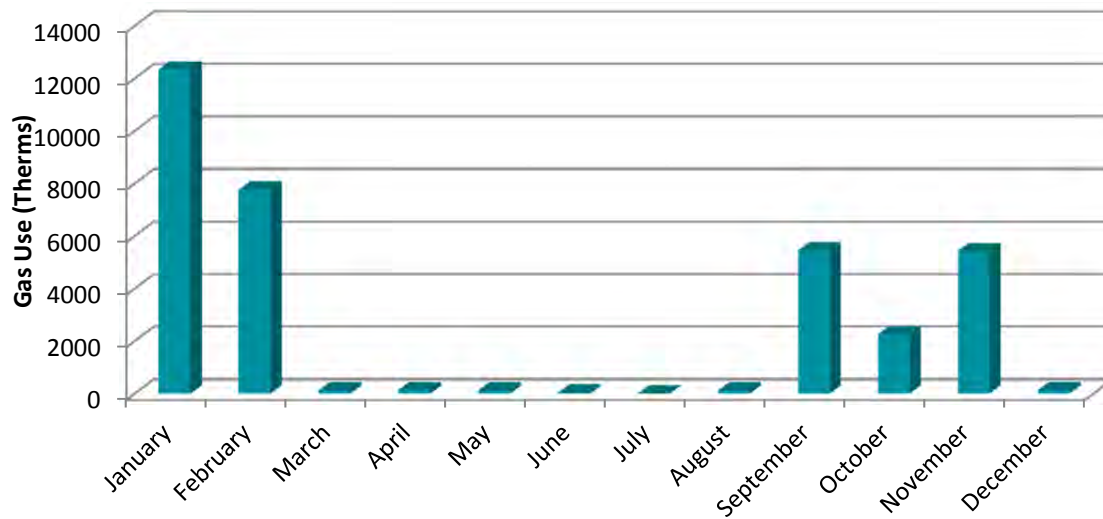
Table 3.2-8: Redwood Elementary School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	114
Winter	109

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-16 illustrates the monthly average natural gas consumption at Redwood Elementary School from January 2011 through December 2011.

Figure 3.2-16: Redwood Elementary School Gas Usage



One meter is missing monthly bills for March thru October and December. The usage from March to September is combined in the September usage. For more on the Redwood Elementary School gas usage, refer to Section 4.2.

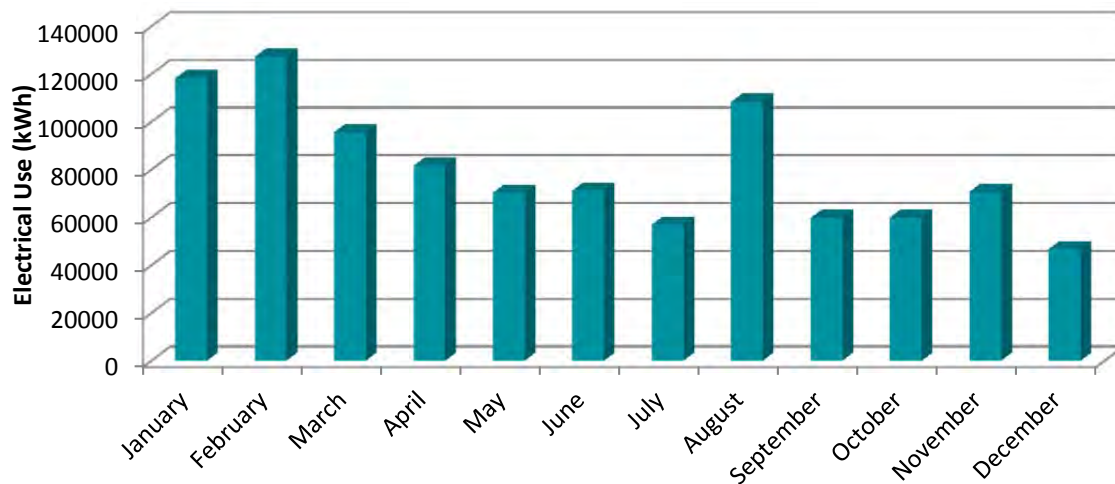
3.2.9 Roosevelt Middle School

Electric power for the Roosevelt Middle School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-17 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the Roosevelt Middle School is approximately 80,580 kWh/month.

Table 3.2-9 illustrates the seasonal peak demand loads for the Roosevelt Middle School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-17: Roosevelt Middle School Electricity Usage



The most recent tariff rates available at the time of this audit for the electrical service at the Roosevelt Middle School from PSE&G are as follows:

	Acct #: 42 003 067 00
Service Charge:	\$4.3/month
Delivery Service Charges:	\$0.011251875/kWh \$4.160340909/kW
Societal Benefits Charge:	\$0.007599063/kWh
Securitization Transition:	\$0.010626250/kWh

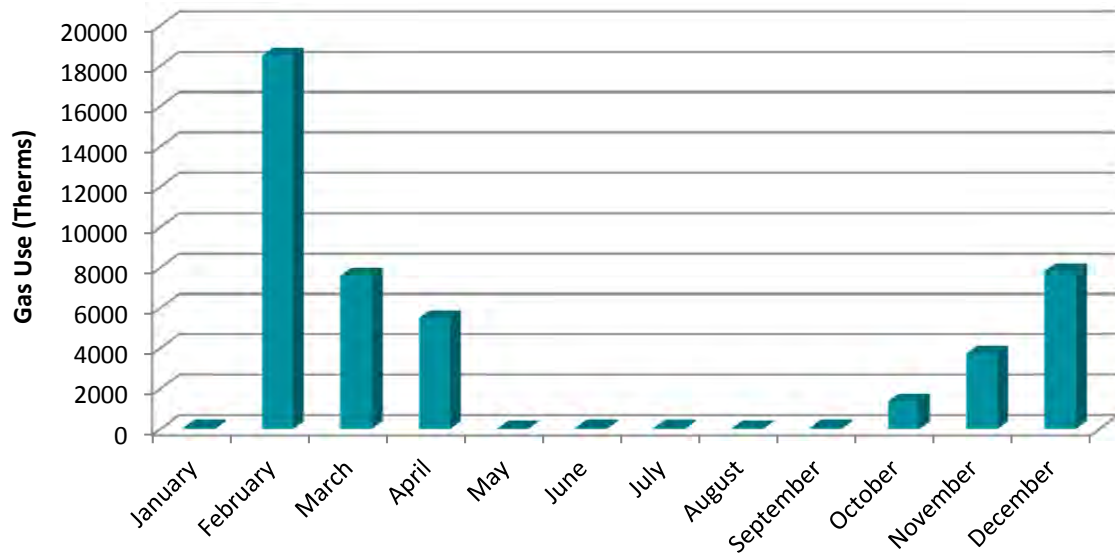
Table 3.2-9 Roosevelt Middle School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	273
Winter	387

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-18 illustrates the monthly average natural gas consumption at Roosevelt Middle School from January 2011 through December 2011.

Figure 3.2-18: Roosevelt Middle School Gas Usage



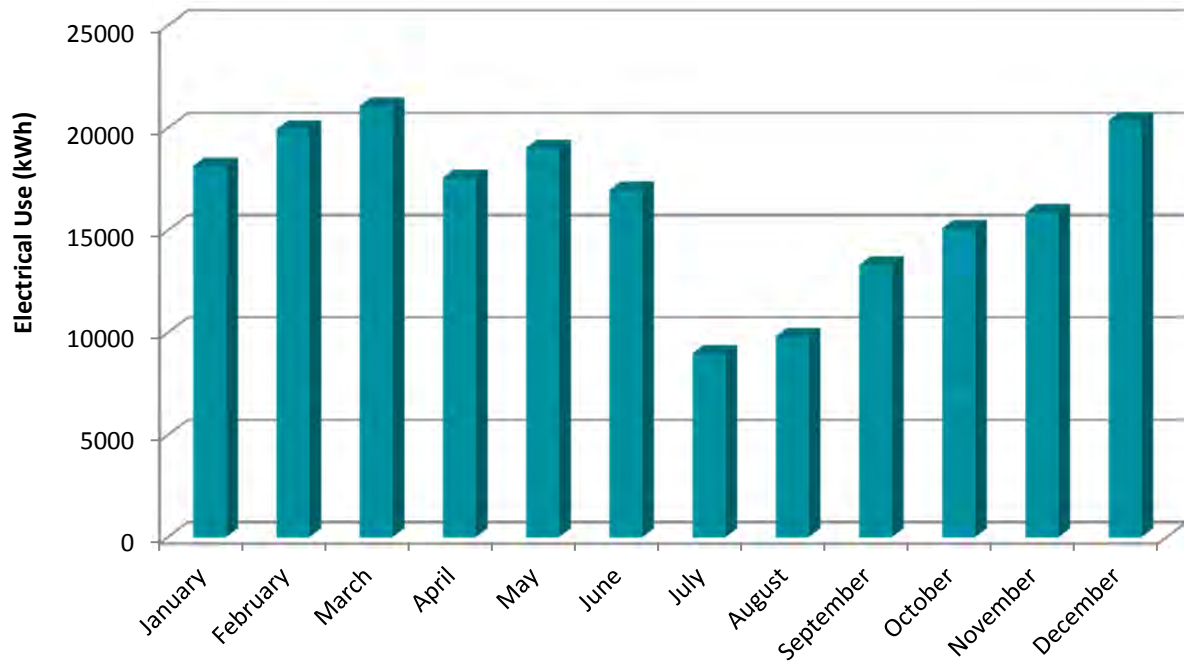
The bills for one of the natural gas meters is missing for January and May to September. For more on the Roosevelt Middle School gas usage, refer to Section 4.2.

3.2.10 St. Cloud Elementary School

Electric power for St. Cloud Elementary School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-19 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the St. Cloud Elementary School is approximately 16,334 kWh/month. Electric usage for the months of July through September is low due to school not being in session.

Table 3.2-10 illustrates the seasonal peak demand loads for the St. Cloud Elementary School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-19: St. Cloud Elementary School Electricity Usage

The most recent tariff rates available at the time of this audit for the electrical service at the St. Cloud Elementary School from PSE&G are as follows:

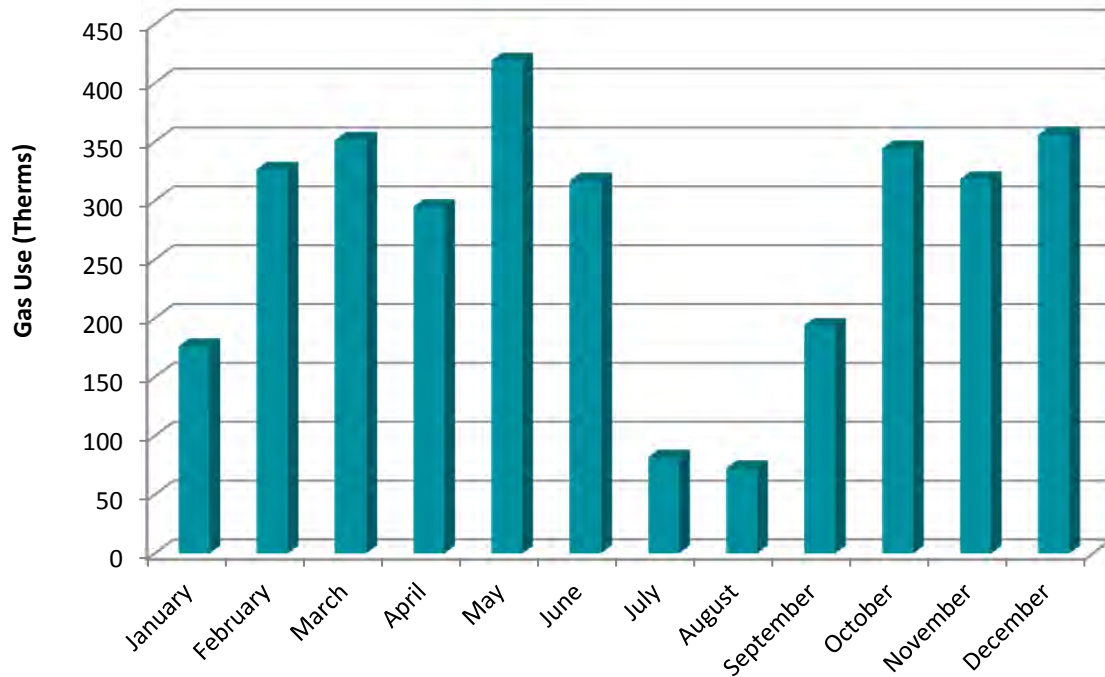
	Acct #: 65 698 950 09
Service Charge:	\$4.3/month
Delivery Service Charges:	\$0.011251875/kWh \$4.160340909/kW
Societal Benefits Charge:	\$0.007599063/kWh
Securitization Transition:	\$0.010626250/kWh

Table 3.2-10: St. Cloud Elementary School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	55
Winter	69

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-20 illustrates the monthly average natural gas consumption at the St. Cloud Elementary School from January 2011 through December 2011.

Figure 3.2-20: St. Cloud Elementary School Gas Usage

The gas usage for this site is particularly low. The bills submitted for this audit may be missing an account or utility meter. The Board should investigate the natural gas usage before certifying the building's EnergyStar rating or proceeding with natural gas saving measures. For more on the St. Cloud Elementary School gas usage, refer to Section 4.2.

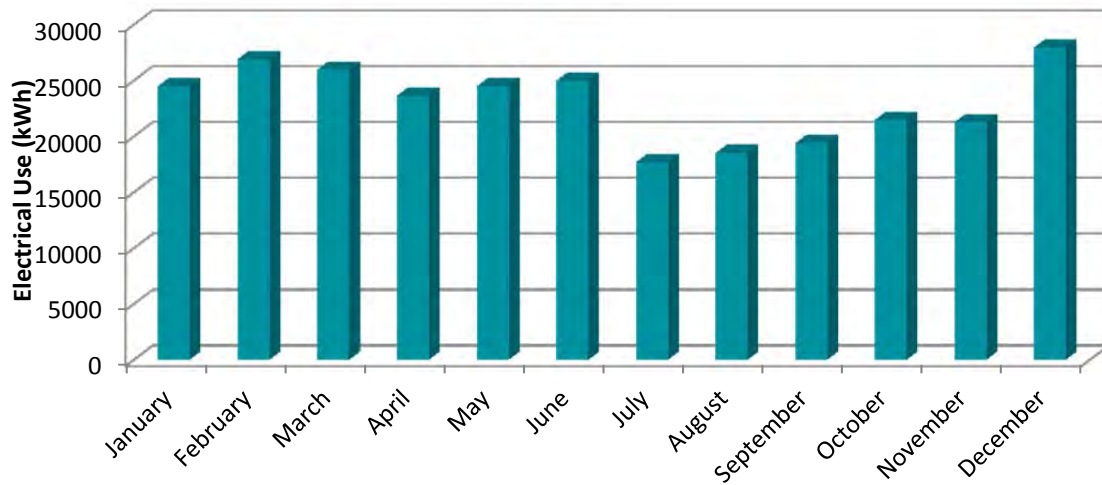
3.2.11 Washington Elementary School

Electric power for the Washington Elementary School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-21 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the Washington Elementary School is approximately 23,067 kWh/month.

Table 3.2-11 illustrates the seasonal peak demand loads for the Washington Elementary School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-21: Washington Elementary School Electricity Usage



The most recent tariff rates available at the time of this audit for the electrical service at the Washington Elementary School from PSE&G are as follows:

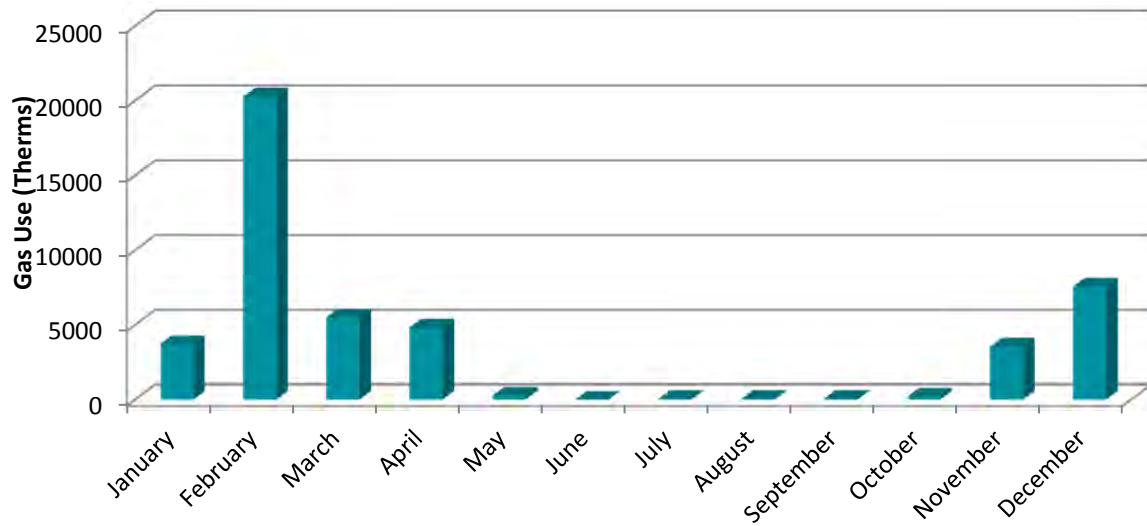
	Acct #: 65 308 269 04
Service Charge:	\$4.3/month
Delivery Service Charges:	\$0.011251875/kWh \$4.160340909/kW
Societal Benefits Charge:	\$0.007599063/kWh
Securitization Transition:	\$0.010626250/kWh

Table 3.2-11: Washington Elementary School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	87
Winter	89

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-22 illustrates the monthly average natural gas consumption at the Washington Elementary School from January 2011 through December 2011.

Figure 3.2-22: Washington Elementary School Gas Usage

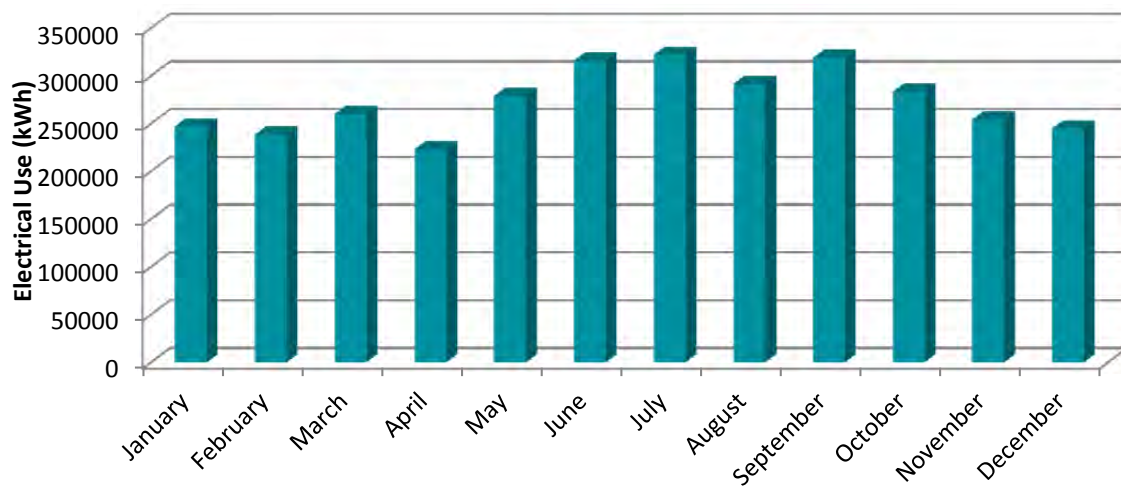
The gas bills for Washington Elementary are inconsistent due to many estimated bills. When the estimated bills are under reporting the usage the actual meter readings look like a large spike. For more on the Washington Elementary School gas usage, refer to Section 4.2.

3.2.12 West Orange High School

Electric power for the West Orange High School is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-23 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the West Orange High School is approximately 273,232 kWh/month.

Table 3.2-12 illustrates the seasonal peak demand loads for the West Orange High School from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-23: West Orange High School Electricity Usage

The most recent tariff rates available at the time of this audit for the electrical service at the West Orange High School from PSE&G are as follows:

	Acct #: 42 008 288 04
Service Charge:	\$377.71/month
Delivery Service Charges:	\$0.007164010/kWh - On Peak \$0.007163943/kWh - Off Peak \$3.424/kW
Societal Benefits Charge:	\$0.007599032/kWh
Securitization Transition:	\$0.012067977/kWh
Supply Charges:	Generation - \$4.844940704/kW Transmission - \$2.025097616 /kW On Peak - \$0.102986978/kWh Off Peak - \$0.065503954/kWh

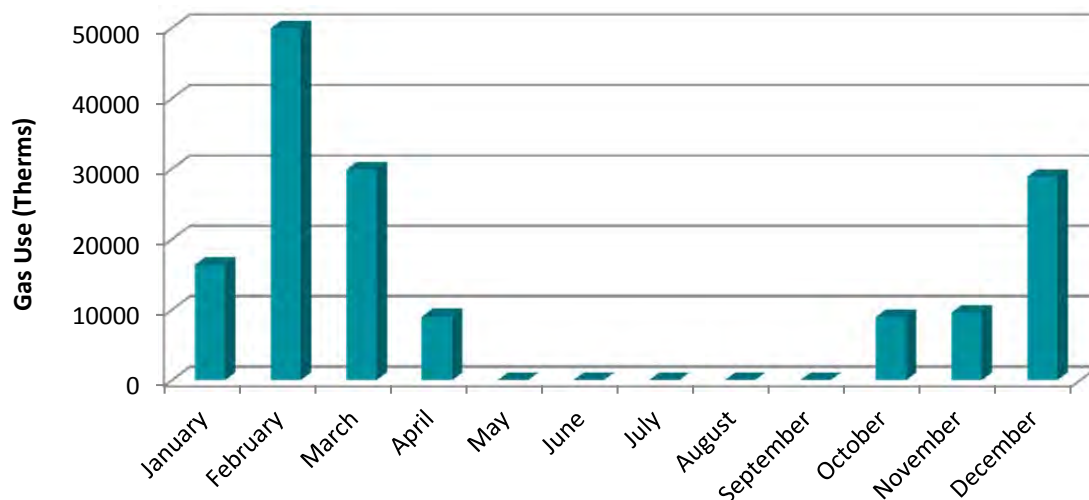
Table 3.2-12: West Orange High School Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	1,057
Winter	800

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-24 illustrates the monthly average natural gas consumption at the West Orange High School from January 2011 through December 2011.

Figure 3.2-24: West Orange High School Gas Usage



The inconsistent usage is the result of missing bills for at least one of the meters for almost every month. For more on the West Orange High School gas usage, refer to Section 4.2.

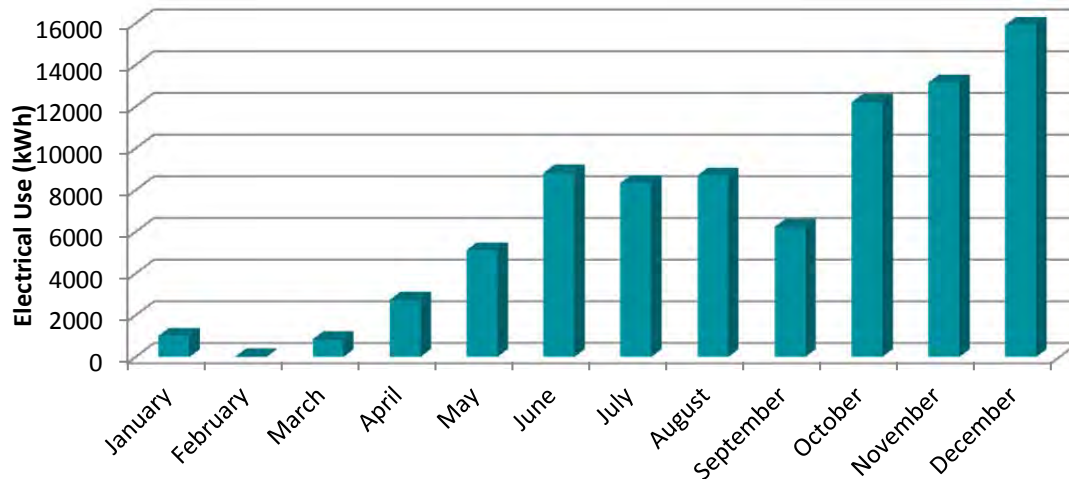
3.2.13 West Orange Bus Garage

Electric power for the West Orange Bus Garage is fed from one General Service Secondary three phase line from PSE&G. Figure 3.2-25 illustrates the average monthly total energy consumption from January 2011 through December 2011.

From this graph, it can be determined that the baseline electrical consumption for the West Orange Bus Garage is approximately 7,694 kWh/month. The annual usage for the Bus Garage appears to have been estimated to be very low for the first half of the year, and then compensated for in the bills for the remaining months of the year. To more accurately determine the annual usage for the Bus Garage, an additional one or two years of electrical bills would need to be analyzed.

Table 3.2-13 illustrates the seasonal peak demand loads for the West Orange Bus Garage from January 2011 through December 2011. The information presented is only as recent as the most recent bill received.

Figure 3.2-25: West Orange Bus Garage Electricity Usage



The inconsistent usage is due to missing utility bills for the main electric meter for January and February.

The most recent tariff rates available at the time of this audit for the electrical service at the West Orange Bus Garage from PSE&G are as follows:

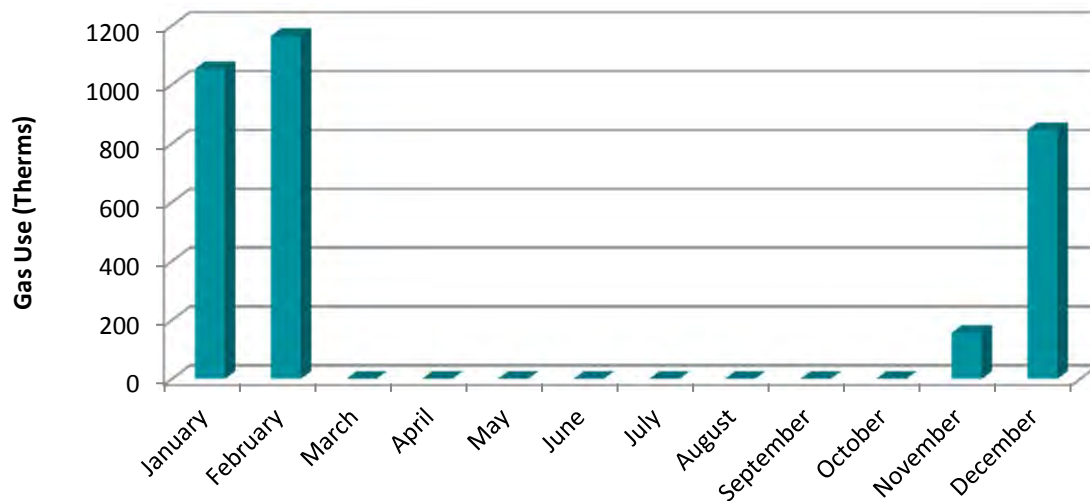
	Acct #: 65 382 585 03
Service Charge:	\$3.87/month
Delivery Service Charges:	\$0.011250000/kWh \$3.424/kW
Societal Benefits Charge:	\$0.007602273/kWh
Securitization Transition:	\$0.009943182/kWh
Supply Charges:	Generation - \$4.845639049/kW Transmission - \$1.983077198/kW \$0.094920455/kWh

Table 3.2-13: West Orange Bus Garage Seasonal Peak Demands

Season	Peak Demand (kW)
Summer	32
Winter	44

Refer to Table 3.3-1 in Section 3.3 for the average electrical aggregate cost. These tariffs are subject to change quite frequently. Refer to Appendix A for a complete Historical Data Analysis.

Figure 3.2-26 illustrates the monthly average natural gas consumption at the West Orange Bus Garage from January 2011 through December 2011.

Figure 3.2-26: West Orange Bus Garage Gas Usage

The inconsistent usage is due to the only 4 bills submitted for the site gas usage. For more on the West Orange Bus Garage gas usage, refer to Section 4.2.

3.3 Aggregate Costs

For the purposes of computing energy savings for all identified energy conservation and retrofit measures, aggregate unit costs for electrical energy and fuel, in terms of cost/kWh and cost/therm, were determined for each service location and utilized in the simple payback analyses discussed in subsequent sections. The aggregate unit cost accounts for all distribution and supply charges for each location. Table 3.3-1 and Table 3.3-2 summarize the aggregate costs for electrical energy consumption and therms utilized, respectively.

Table 3.3-1: Electrical Aggregate Unit Costs

Service Location	Aggregate \$ / kW-hr
Administration Building	\$0.15
Edison Central Six School	\$0.17
Gregory Elementary School	\$0.18
Hazel Elementary School	\$0.17

Service Location	Aggregate \$ / kW-hr
Liberty Middle School	\$0.17
Mt. Pleasant Elementary School	\$0.17
Pleasantdale Elementary School	\$0.16
Redwood Elementary School	\$0.16
Roosevelt Elementary School	\$0.16
St. Cloud Elementary School	\$0.16
Washington Elementary School	\$0.16
West Orange High School	\$0.15
West Orange Bus Garage	\$0.20

Table 3.3-2: Natural Gas Aggregate Unit Costs

Service Location	Aggregate \$ / therm
Administration Building	\$0.97
Edison Central Six School	\$0.94
Gregory Elementary School	\$1.07
Hazel Elementary School	\$1.13
Liberty Middle School	\$0.99
Mt. Pleasant Elementary School	\$1.10
Pleasantdale Elementary School**	\$0.43
Redwood Elementary School**	-
Roosevelt Elementary School**	\$0.42
St. Cloud Elementary School	\$1.04
Washington Elementary School	\$1.04
West Orange High School**	\$0.36
West Orange Bus Garage	\$1.03

** These utility bills appear to be incomplete. Specifically these buildings appear to be missing a portion of the charge which would be consistent with a third party provider.

3.4 Portfolio Manager

3.4.1 Portfolio Manager Overview

Portfolio Manager is an interactive energy management tool that allows the Board to track and assess energy consumption at the facilities in a secure online environment. Portfolio Manager can help the Board set investment priorities, verify efficiency improvements, and receive EPA recognition for superior energy performance.

3.4.2 Energy Performance Rating

For many facilities, you can rate their energy performance on a scale of 1–100 relative to similar facilities nationwide. Your facility is *not* compared to the other facilities entered into Portfolio Manager to determine your ENERGY STAR rating. Instead, statistically representative models are used to compare your facility against similar facilities from a national survey conducted by the Department of Energy's Energy

Information Administration. This national survey, known as the Commercial Building Energy Consumption Survey (CBECS), is conducted every four years, and gathers data on building characteristics and energy use from thousands of facilities across the United States. Your facility's peer group of comparison is those facilities in the CBECS survey that have similar facility and operating characteristics. A rating of 50 indicates that the facility, from an energy consumption standpoint, performs better than 50% of all similar facilities nationwide, while a rating of 75 indicates that the facility performs better than 75% of all similar facilities nationwide.

3.4.3 Portfolio Manager Account Information

A Portfolio Manager account has been established for the Board, which includes a profile for the 13 buildings. Information entered into this Portfolio Manager Facility profile, including electrical energy consumption and natural gas consumption has been used to establish a performance baseline.

It is recommended that the information be updated to track the buildings' energy usage. Only the Bus Garage is not eligible for an energy star label. Ratings were given for the remaining 12 buildings. Results are a reflection of the information supplied. If more recent information is entered into the Portfolio Manager account, there is a possibility for better results. The buildings with rankings over 75 should have utility data further verified if the Board is interested in certifying the buildings.

Building	Energy Star Score
Administration	53
Edison Central Six	2
Gregory Elementary	37
Hazel Elementary	85
Liberty Elementary	47
Mt. Pleasant Elementary	80
Pleasantdale Elementary*	86
Redwood Elementary*	75
Roosevelt Middle*	65
St. Cloud Elementary	75
Washington Elementary	73
West Orange High School*	79

* The Energy Star rating for this building needs to be reviewed because incomplete utility bills were used for the Portfolio Manager analysis.

The following website link, username and password shall be used to access the Portfolio Manager account and building profiles that has been established for the Board:

<https://www.energystar.gov/istar/pmpam/>

USERNAME: WestOrangeTownship

PASSWORD: ENERGYSTAR

Section 4

Energy Conservation and Retrofit Measures (ECRM)

The following is a summary of how Annual Return on Investment (AROI), Internal Rate of Return (IRR), and Net Present Value (NPV) will be broken down in the cost analysis for all ECRMs recommended in this report.

Included in the simplified payback analysis summary table is the 'Annual Return on Investment' (AROI) values. This value is a performance measure used to evaluate the efficiency of an investment and is calculated using the following equation:

$$AROI = \frac{AECS + OCS}{NET\ ECM\ Cost} - \frac{1}{Lifetime}$$

Where OCS = Operating Cost Savings, and AECS = Annual Energy Cost Savings.

Also included in the table are net present values for each option. The NPV calculates the present value of an investment's future cash flows based on the time value of money, which is accounted for by a discount rate (DR) (assume bond rate of 3%). NPV is calculated using the following equation:

$$NPV = \sum_{n=0}^N \frac{C_n}{(1 + DR)^n}$$

Where C_n =Annual cash flow, and N = number of years.

The Internal Rate of Return (IRR) expresses an annual rate that results in a break-even point for the investment. If the Board is currently experiencing a lower return on their capital than the IRR, the project is financially advantageous. This measure also allows the Board to compare ECRM's against each other to determine the most appealing choices.

$$IRR \rightarrow 0 = \sum_{n=0}^N \frac{C_n}{(1 + IRR)^n}$$

Where C_n =Annual cash flow, and N = number of years.

The lifetime energy savings represents the cumulative energy savings over the assumed life of the ECRM.

4.1 Building Lighting Systems

The goal of this section is to present any lighting energy conservation measures that may also be cost beneficial. It should be noted that replacing current bulbs with more energy-efficient equivalents will have a small effect on the building heating and cooling loads. The building cooling load will see a small decrease from an upgrade to more efficient bulbs and the heating load will see a small increase, as the more energy efficient bulbs give off less heat.

Two options are offered for all of the buildings, where both interior and exterior lighting upgrades are being proposed. The first option will be for upgrading existing interior lighting, and the second option will be for upgrading existing exterior lighting. A total cost for upgrading both options at the same time will be presented. Retrofitting of existing fluorescent fixtures includes upgrading both ballasts and lamps for the fixture. For buildings only requiring interior or exterior upgrades, only the applicable upgrade option is listed. Refer to Appendix D for more information.

Please note that the Engineer's Estimate of Probable Construction Costs presented herein are estimates based on historic data compiled from similar installations and engineering opinions. Additional engineering will be required for each measure identified in this report and final scope of work and budget cost estimates will need to be confirmed prior to the coordination of project financing or the issuance of a Request for Proposal.

It is recommended that the existing lighting systems at the facilities listed in Section 1 be upgraded to high efficiency standards to create lighting uniformity throughout the portfolio of properties. The recommended lighting upgrades, as presented in Appendix D, involve the replacement of existing T8 fluorescent, incandescent, and exterior high intensity discharge (HID) fixtures with compact fluorescent (CFL), and energy efficient light emitting diode (LED) fixtures. The fixture wattage and pricing for the interior lighting ECMs listed in this report is based on LED linear panel style fixtures, which can be recessed in a drop ceiling, surface mounted, or pendant mounted as need be. For the exterior lighting replacement ECMs, high efficiency wall mounted LED fixtures have been used as a basis for cost and energy use. Both of these types of fixtures meet the requirements of the NJ Clean Energy Program, and are eligible for incentives.

Energy savings associated with replacing traditional T8 and HID lighting with LED lighting can be broken out into two categories, reduction in wattage, and reduced maintenance costs. The reduction in wattage realized from the Board replacing the existing T8 and HID fixtures with LED equivalents throughout their facilities will yield approximately 25-50% energy savings per light fixture. For example, a (2) lamp T8 fixture consumes 51 watts of power, and the equivalent replacement LED fixture consumes 36 watts of power, a reduction of 27%. Secondly, the reduced maintenance costs associated with LED light fixtures will result in additional fiscal savings for the Board, referred to as net maintenance cost savings (NMCS) in the energy audit report. Typical LED fixtures on the market today have a rated useful life ranging from 80,000 to 100,000 hours. This is about five times higher than the useful life rating of a T8 fixture, which typically ranges from 20,000 to 30,000 hours. The extended useful life of the LED fixtures will result in the Board having to change light bulbs and ballasts less often. Extrapolating this over the quantity of light fixtures in all of the Board's facilities being replaced with LED fixtures, the savings can be quite substantial. Please refer to Appendix D for a line-by-line proposed detailed lighting upgrades list.

The following table, Table 4.1-1, summarizes a simple payback analysis assuming the implementation of all lighting system improvements at all of the West Orange Board of Education facilities. In addition to Table 4.1, Appendix N includes a breakdown of all the lighting recommendations for the West Orange Board of Education school facilities, broken down into the following categories: corridors (hallways, lobby, and stairwells), classrooms, gym/auditorium (including locker rooms, and kitchen), bathrooms, and the

remaining other spaces. The summary tables list the inflated cost (with and without labor), net maintenance cost savings (NMCS), energy savings (\$ and kWh), and simple payback for all the lighting retrofit and replacement measures included in the original energy audit report. The information presented in Appendix N can be used as a tool for planning the implementation of the lighting system improvements at the West Orange Board of Education School facilities.

Table 4.1-1

West Orange Board of Education Lighting

Location	Engineers Opinion of Probable Cost	Incentives	Total Cost	Energy Savings	Energy Savings+NMCS	Simple Payback (Years)	KW Save	KWH Save	Net Maintenance Cost Savings (NMCS)	Annual Return on Investment (AROI)	Internal Rate of Return (IRR)	Net Present Value (NPV)	Lifetime Savings (15 Years)
Administration Building - Interior	\$207,415	\$23,915	\$183,500	\$8,491	\$15,093	12.2	15.5	56,605	\$6,602	1.6%	5.4%	\$36,293	\$157,919
Administration Building - Exterior	\$4,459	\$600	\$3,859	\$140	\$190	20.3	0.3	933	\$50	(1.8%)	(1.0%)	(\$1,093)	\$2,603
Administration Building - Total	\$211,874	\$24,515	\$187,359	\$8,631	\$15,282	12.3	15.7	57,538	\$6,652	1.5%	5.3%	\$35,200	\$160,522
Edison Middle School - Interior	\$370,139	\$42,205	\$327,934	\$17,506	\$28,822	11.4	22.9	102,976	\$11,316	2.1%	6.4%	\$91,796	\$325,592
Edison Middle School - Exterior	\$894	\$100	\$794	\$21	\$49	16.2	0.2	122	\$28	(0.5%)	1.7%	(\$81)	\$384
Edison Middle School - Total	\$371,033	\$42,305	\$328,728	\$17,527	\$28,870	11.4	23.1	103,098	\$11,344	2.1%	6.3%	\$91,716	\$325,976
Gregory School - Interior	\$373,059	\$40,550	\$332,509	\$28,106	\$41,293	8.1	37.0	156,142	\$13,187	5.8%	11.8%	\$268,842	\$522,732
Gregory School - Exterior	\$19,074	\$3,000	\$16,074	\$1,639	\$2,042	7.9	2.8	9,105	\$403	6.0%	12.2%	\$13,658	\$30,483
Gregory School - Total	\$392,132	\$43,550	\$348,582	\$29,745	\$43,334	8.0	39.8	165,247	\$13,590	5.8%	11.8%	\$282,450	\$553,215
Hazel School - Interior	\$216,931	\$24,410	\$192,521	\$8,915	\$15,683	12.3	15.0	52,439	\$6,769	1.5%	5.3%	\$35,876	\$165,803
Hazel School - Exterior	\$6,549	\$800	\$5,749	\$664	\$811	7.1	1.2	3,907	\$147	7.4%	14.0%	\$6,060	\$12,354
Hazel School - Total	\$223,480	\$25,210	\$198,270	\$9,579	\$16,494	12.0	16.2	56,347	\$6,915	1.7%	5.6%	\$41,936	\$178,157
Liberty Middle School - Interior	\$638,839	\$66,200	\$572,639	\$21,304	\$40,397	14.2	41.8	125,320	\$19,093	0.4%	3.4%	\$15,668	\$396,238
Liberty Middle School - Exterior	\$85,211	\$12,100	\$73,111	\$1,749	\$4,014	18.2	11.8	10,288	\$2,265	(1.2%)	0.3%	(\$14,654)	\$32,528
Liberty Middle School - Total	\$724,050	\$78,300	\$645,750	\$23,053	\$44,411	14.5	53.6	135,608	\$21,358	0.2%	3.0%	\$1,013	\$428,766
Mt. Pleasant School - Interior	\$252,043	\$29,660	\$222,383	\$9,098	\$15,944	13.9	11.2	53,518	\$6,846	0.5%	3.6%	\$9,807	\$169,214
Mt. Pleasant School - Exterior	\$12,193	\$1,575	\$10,618	\$411	\$585	18.2	1.1	2,420	\$173	(1.2%)	0.3%	(\$2,104)	\$7,651
Mt. Pleasant School - Total	\$264,236	\$31,235	\$233,001	\$9,509	\$16,528	14.1	12.3	55,938	\$7,019	0.4%	3.4%	\$7,703	\$176,864
Pleasantdale School - Interior	\$345,934	\$38,695	\$307,239	\$13,710	\$23,294	13.2	19.7	85,686	\$9,584	0.9%	4.3%	\$31,991	\$254,986
Pleasantdale School - Exterior	\$9,069	\$1,275	\$7,794	\$405	\$525	14.8	0.7	2,532	\$120	0.1%	2.8%	(\$148)	\$7,534
Pleasantdale School - Total	\$355,003	\$39,970	\$315,033	\$14,115	\$23,819	13.2	20.4	88,217	\$9,704	0.9%	4.3%	\$31,842	\$262,519
Redwood School - Interior	\$337,226	\$38,110	\$299,116	\$12,897	\$22,342	13.4	18.2	80,605.2	\$9,445	0.8%	4.1%	\$26,253	\$239,867
Redwood School - Exterior	\$31,439	\$4,275	\$27,164	\$1,307	\$1,800	15.1	2.4	8,169.5	\$493	(0.04%)	2.5%	(\$950)	\$24,311
Redwood School - Total	\$368,665	\$42,385	\$326,280	\$14,204	\$24,142	13.5	20.6	88,774.6	\$9,938	0.7%	4.0%	\$25,302	\$264,178
Roosevelt Middle School - Interior	\$608,477	\$67,405	\$541,072	\$22,897	\$42,900	12.6	43.0	152,645.8	\$20,003	1.3%	4.9%	\$83,680	\$425,857
Roosevelt Middle School - Exterior	\$11,751.6	\$1,450	\$10,302	\$749	\$954	10.8	1.5	4,995.6	\$205	2.6%	7.1%	\$3,596	\$7,966
Roosevelt Middle School - Total	\$620,228.1	\$68,855	\$551,373	\$23,646	\$43,854	12.6	44.5	157,641.5	\$20,208	1.3%	5.0%	\$87,276	\$197,467
St. Cloud School - Interior	\$269,776.7	\$30,245	\$239,532	\$10,189	\$17,208	13.9	14.3	63,680.1	\$7,019	0.5%	3.6%	\$11,073	\$189,501
St. Cloud School - Exterior	\$5,945.5	\$800	\$5,146	\$428	\$626	8.2	0.8	2,677.0	\$197	5.5%	11.4%	\$3,966	\$7,966
St. Cloud School - Total	\$275,722.2	\$31,045	\$244,677	\$10,617	\$17,834	13.7	15.1	66,357.0	\$7,217	0.6%	3.8%	\$15,039	\$197,467
Washington School - Interior	\$254,244.2	\$29,185	\$225,059	\$14,305	\$22,747	9.9	25.7	89,408.6	\$8,441	3.4%	8.4%	\$106,203	\$266,064
Washington School - Exterior	\$743.2	\$100	\$643	\$57	\$66	9.8	0.0	358.3	\$8	3.5%	8.6%	\$313	\$1,066
Washington School - Total	\$254,987.3	\$29,285	\$225,702	\$14,363	\$22,812	9.9	25.8	89,766.9	\$8,450	3.4%	8.4%	\$106,516	\$267,131

Table 4.1-1

West Orange Board of Education Lighting

Location	Engineers Opinion of Probable Cost	Incentives	Total Cost	Energy Savings	Energy Savings+NMCS	Simple Payback (Years)	KW Save	KWH Save	Net Maintenance Cost Savings (NMCS)	Annual Return on Investment (ARO I)	Internal Rate of Return (IRR)	Net Present Value (NPV)	Lifetime Savings (15 Years)
West Orange High School - Interior	\$1,340,153.6	\$151,400	\$1,188,754	\$73,754	\$118,096	10.1	121.2	491,691.1	\$44,342	3.3%	8.2%	\$531,091	\$1,371,738
West Orange High School - Exterior	\$9,976.3	\$1,300	\$8,676	\$378	\$532	16.3	0.5	2,518.1	\$154	(0.5%)	1.6%	(\$937)	\$7,025
West Orange High School - Total	\$1,350,129.8	\$152,700	\$1,197,430	\$74,131	\$118,628	10.1	121.7	494,209.2	\$44,496	3.2%	8.1%	\$530,154	\$1,378,763
Bus Garage - Interior	\$101,119.9	\$7,730	\$93,390	\$7,399	\$10,405	9.0	15.2	36,993.7	\$3,006	4.5%	10.0%	\$58,142	\$137,609
Bus Garage - Exterior	\$3,226.5	\$435	\$2,792	\$160	\$193	14.4	0.2	800.4	\$33	0.3%	3.1%	\$25	\$2,977
Bus Garage - Total	\$104,346.3	\$8,165	\$96,181	\$7,559	\$10,599	9.1	15.4	37,794.1	\$3,040	4.4%	9.8%	\$58,167	\$140,586

4.2 HVAC Systems

The goal of this section is to present any heating and cooling energy reduction and cost saving measures that may also be cost beneficial. Where possible, measures will be presented with a life-cycle cost analysis. This analysis displays a payback period based on weighing the capital cost of the measure against predicted annual fiscal savings. To do this, the buildings have been modeled as accurately as possible to predict energy usage for space heating and cooling, as well as domestic hot water use.

Each building is modeled using software called eQuest, a Department of Energy-sponsored energy modeling program, to establish a baseline space heating and cooling energy usage. Climate data from Newark, NJ was used for analyses. From this, the model may be calibrated, using historical utility bills, to predict the impact of theoretical energy savings measures.

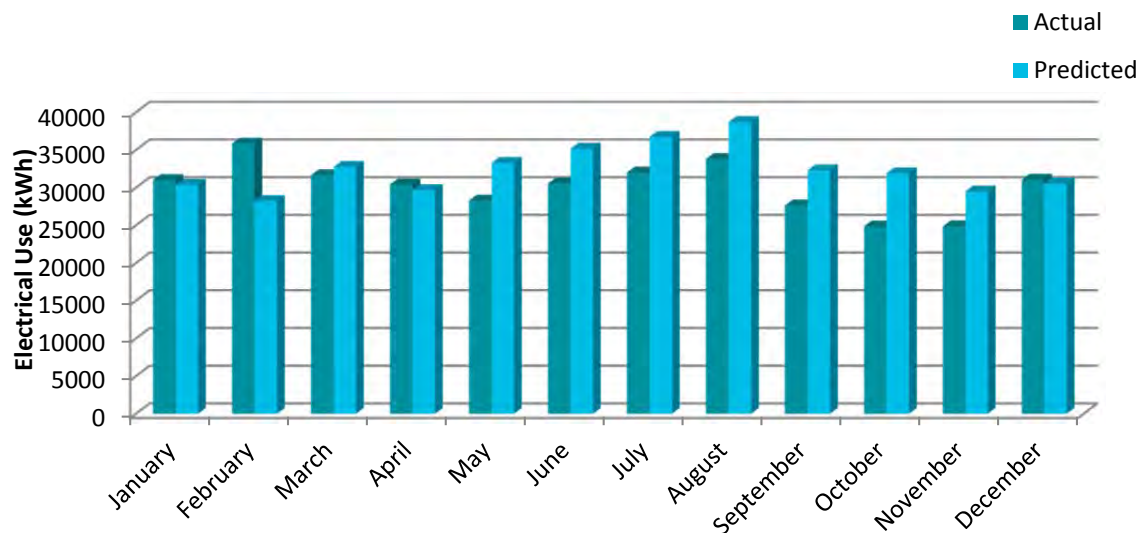
Once annual energy savings from a particular measure have been predicted and the initial capital cost has been estimated, payback periods may be approximated. Equipment cost estimate calculations are provided in Appendix H.

All major equipment noted during CDM Smith's on site audit is listed in Appendix M, along with estimated current ages. It should be noted that only equipment that was observed at the time of the audit is included.

4.2.1 Administration Building

A model of Administration Building was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-1 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-1: Administration Building Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith's field audit. Figure 4.2-2 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-2: Administration Building Electricity Usage Breakdown

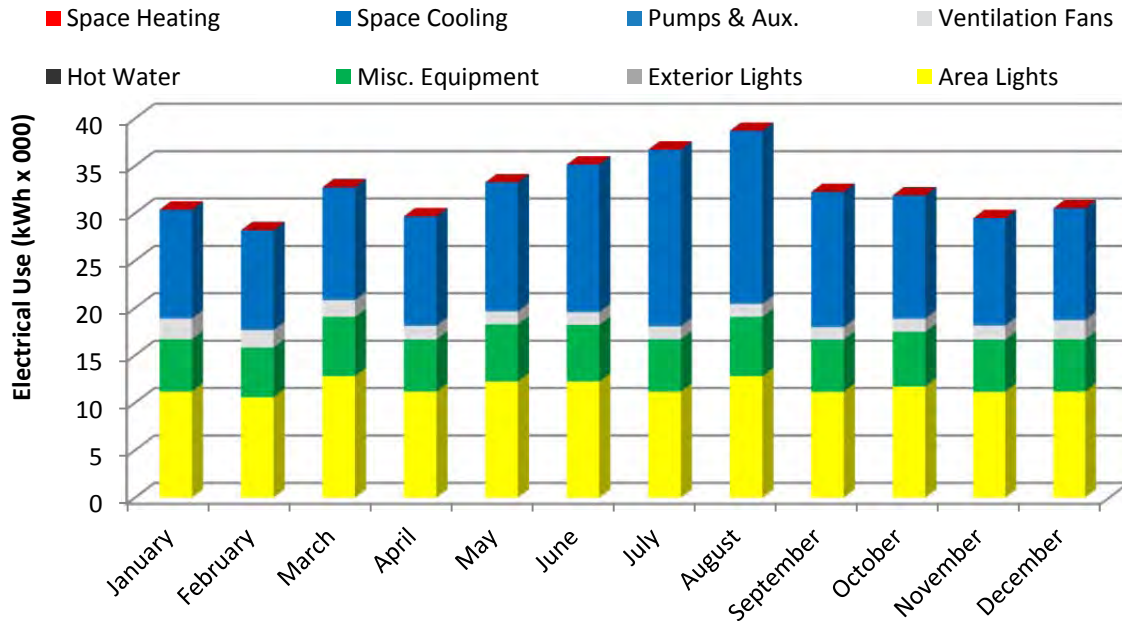
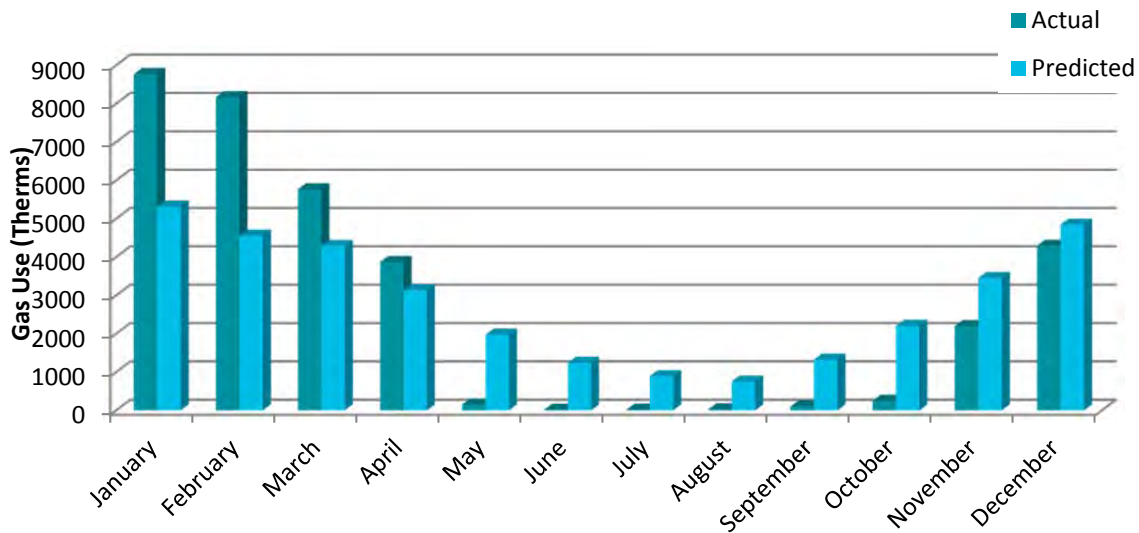


Figure 4.2-3 below compares actual natural gas usage to model-predicted natural gas use.

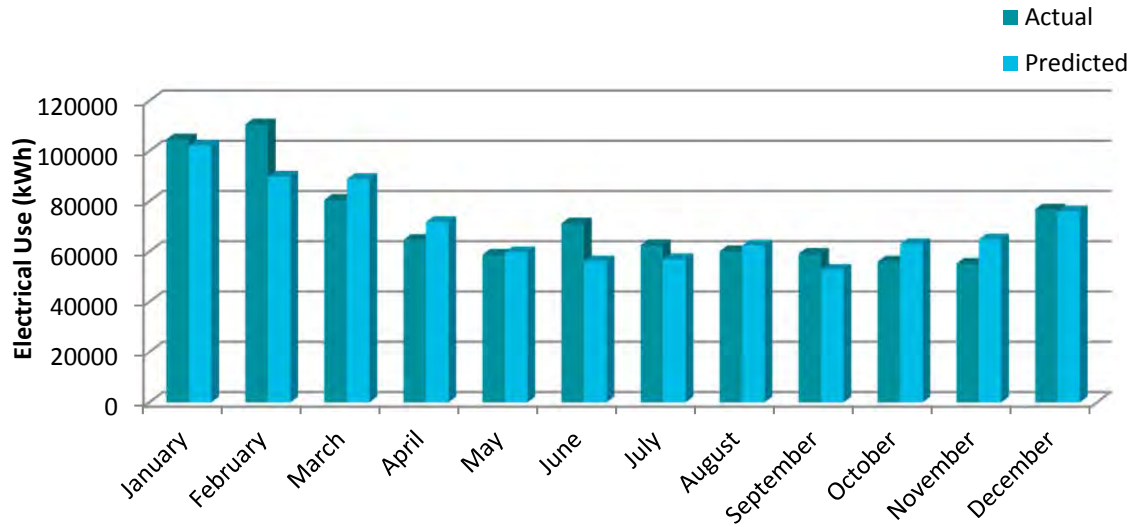
Figure 4.2-3: Administration Building Natural Gas Usage



4.2.2 Edison Central Six School

A model of Edison Central Six School was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-4 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-4: Edison Central Six Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith’s field audit. Figure 4.2-5 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-5: Edison Central Six Electricity Usage Breakdown

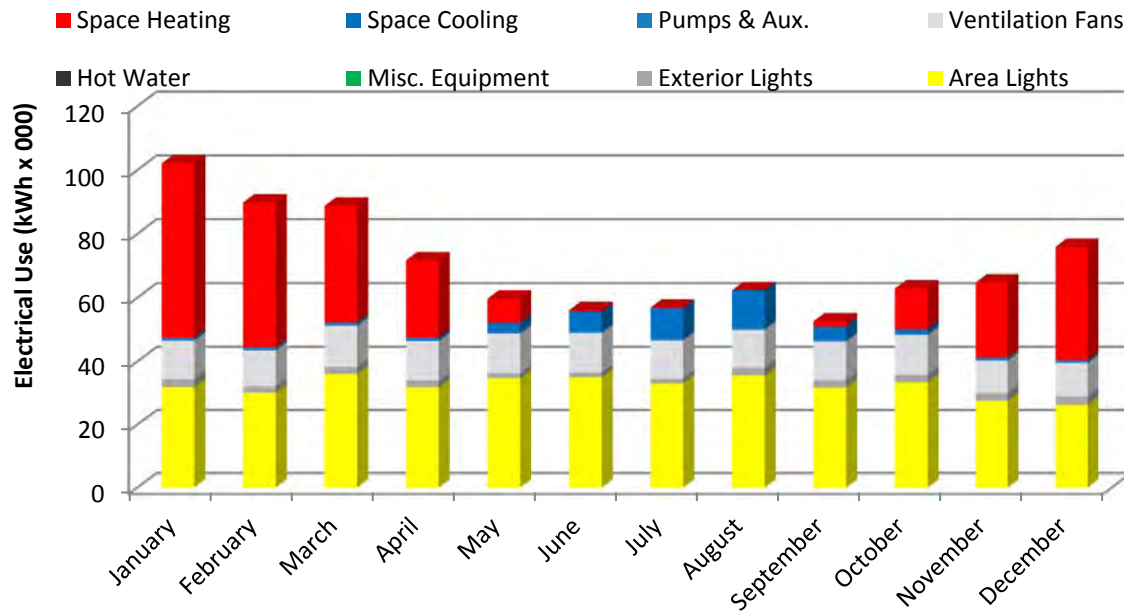
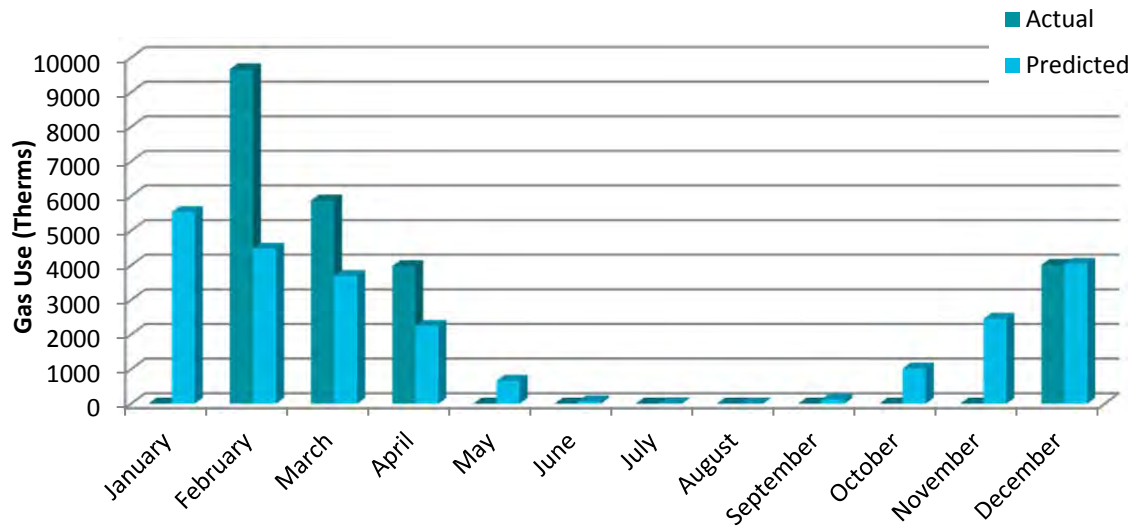


Figure 4.2-6 below compares actual natural gas usage to model-predicted natural gas use.

Figure 4.2-6: Edison Central Six Natural Gas Usage



Currently, the heating system utilizes two steam boilers rated at 6,800 MBH each. CDM Smith conservatively estimates these boilers to be 70% efficient. CDM Smith recommends replacing aging boilers with a system of high-efficiency steam boilers. CDM Smith recommends that the units be replaced with units of equivalent heating capacity or that new units be sized based upon installed system radiation. This replacement was evaluated using a boiler efficiency of 83%.

Fiscal savings from such an upgrade are then identified in Table 4.2-1 below. Lifetime savings calculations for all ECRM's may be found in Appendix I. It's important to note that these are estimates based on building models, and further investigation is warranted before pursuing boiler replacements.

Table 4.2-1 Edison Central Six Boiler Upgrade Payback	
Predicted Annual Savings (Therms)	4707
Total Annual Savings	\$ 4,425
Initial Capital Cost of Upgrade	\$ 159,000
Incentives**	\$ 12,000
Cost of Upgrade	\$ 147,000
Annual Maintenance Cost Savings (AMCS)	\$ 0
Simple Payback	33.2
Lifetime Energy Savings (24 years)*	\$ 134,604
Annual Return on Investment (AROI)	(1.24%)
Internal Rate of Return (IRR)	(0.84%)
Net Present Value (NPV)	(\$ 58,634)

*Assumes 2% yearly inflation on natural gas costs

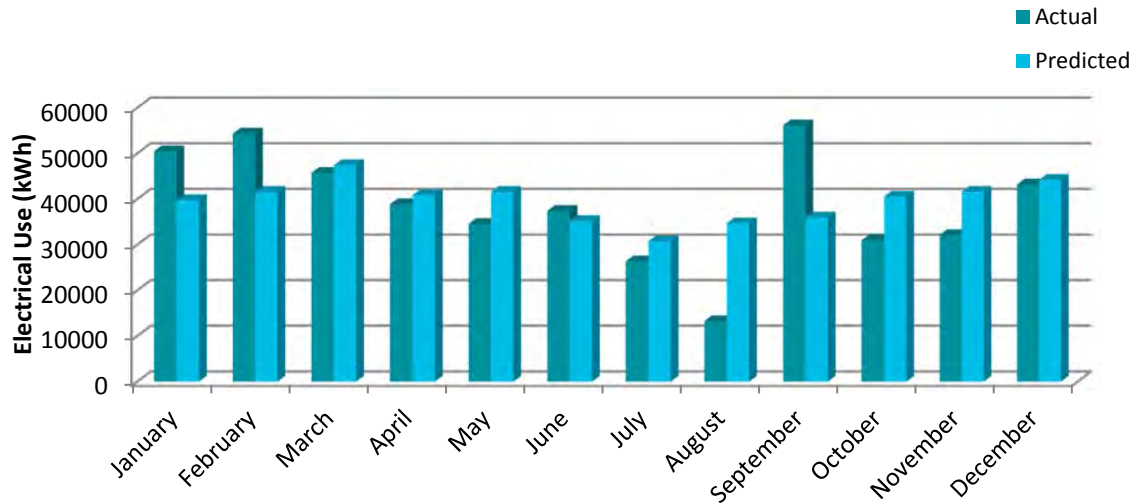
**Incentives, per New Jersey Clean Energy Program, are \$1.00 per MBH

This measure is not recommended due to the long payback. When the boiler is due for replacement this measure should be reevaluated.

4.2.3 Gregory Elementary School

A model of Gregory Elementary School was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-7 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-7: Gregory Elementary Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith’s field audit. Figure 4.2-8 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-8: Gregory Elementary Electricity Usage Breakdown

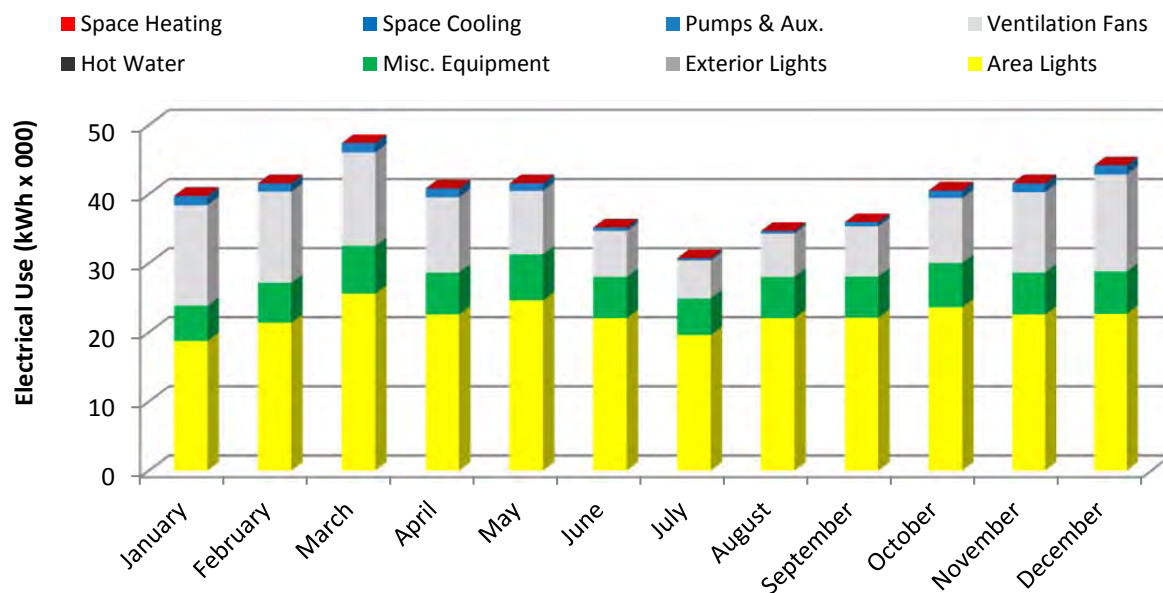
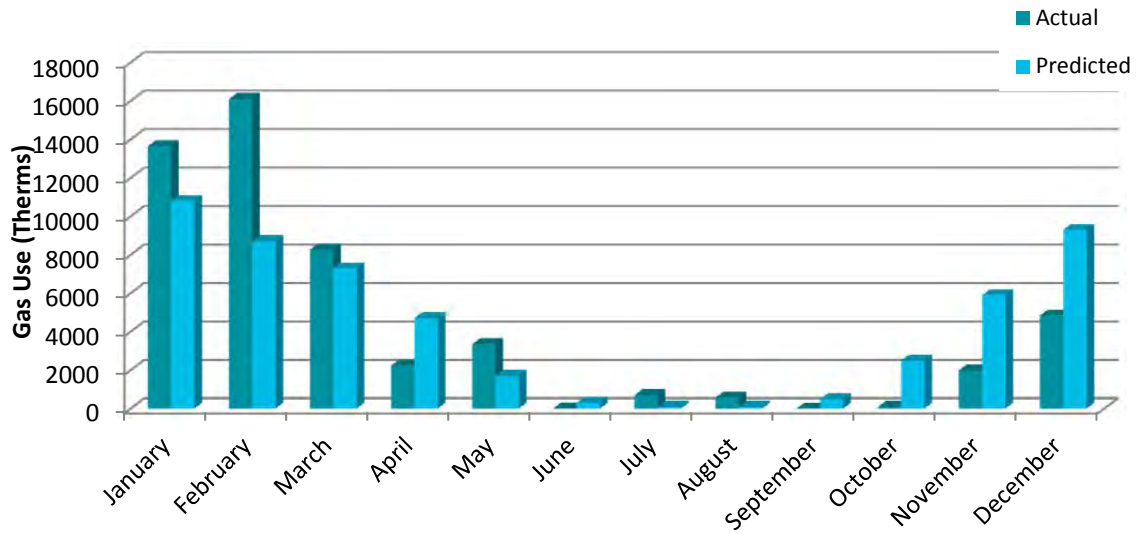


Figure 4.2-9 below compares actual natural gas usage to model-predicted natural gas use.

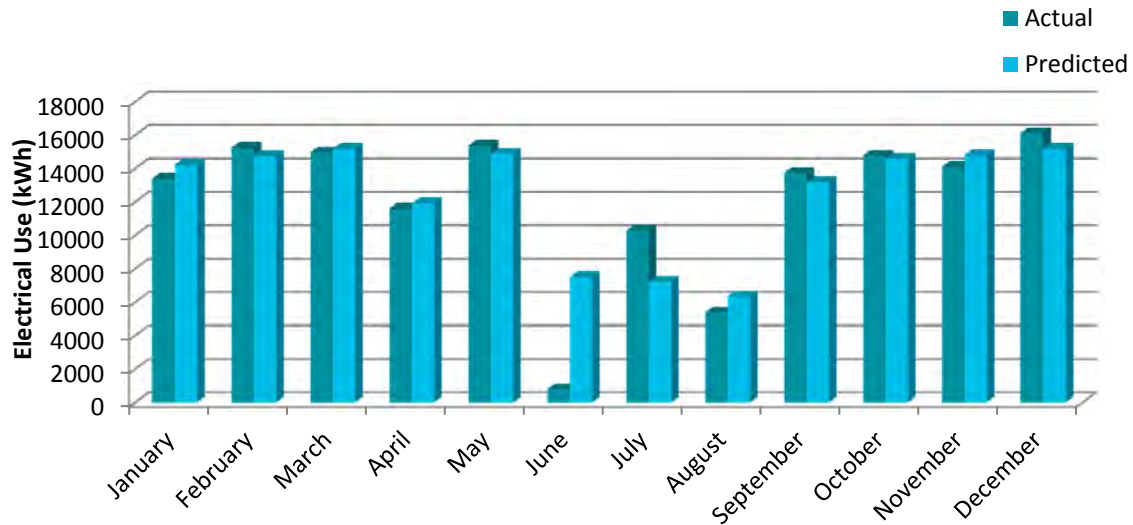
Figure 4.2-9: Gregory Elementary Natural Gas Usage



4.2.4 Hazel Elementary School

A model of Hazel Elementary School was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-10 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-10: Hazel Elementary Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith’s field audit. Figure 4.2-11 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-11: Hazel Elementary Electricity Usage Breakdown

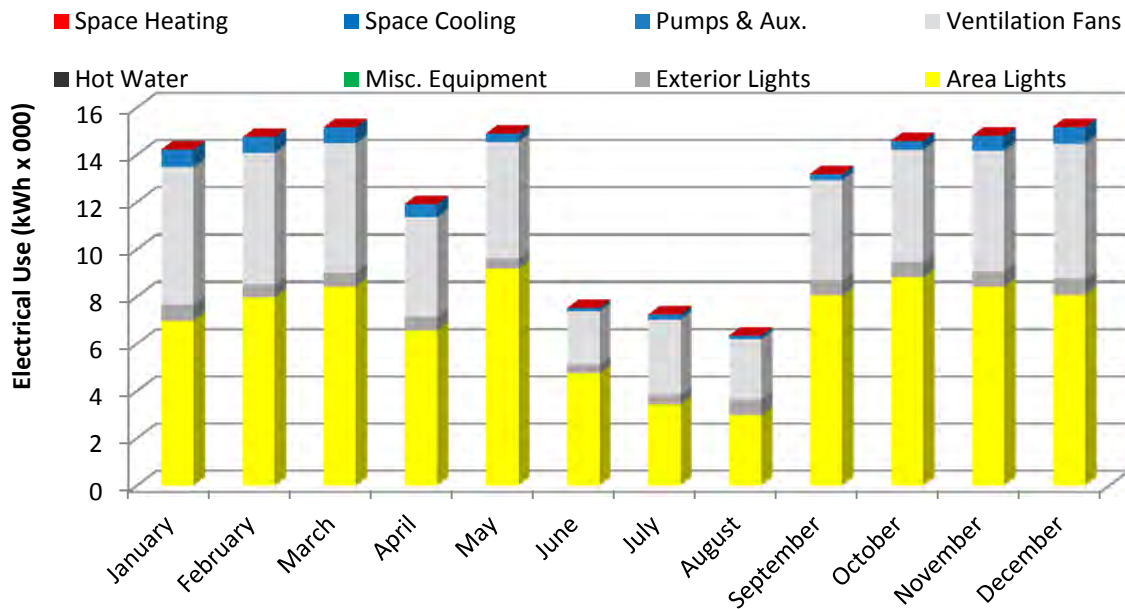
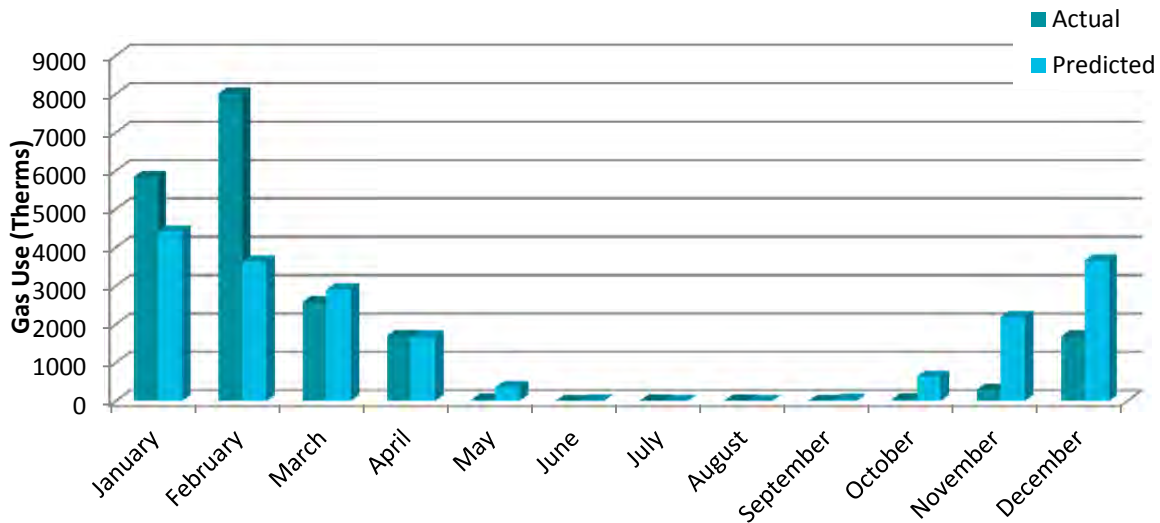


Figure 4.2-12 below compares actual natural gas usage to model-predicted natural gas use.

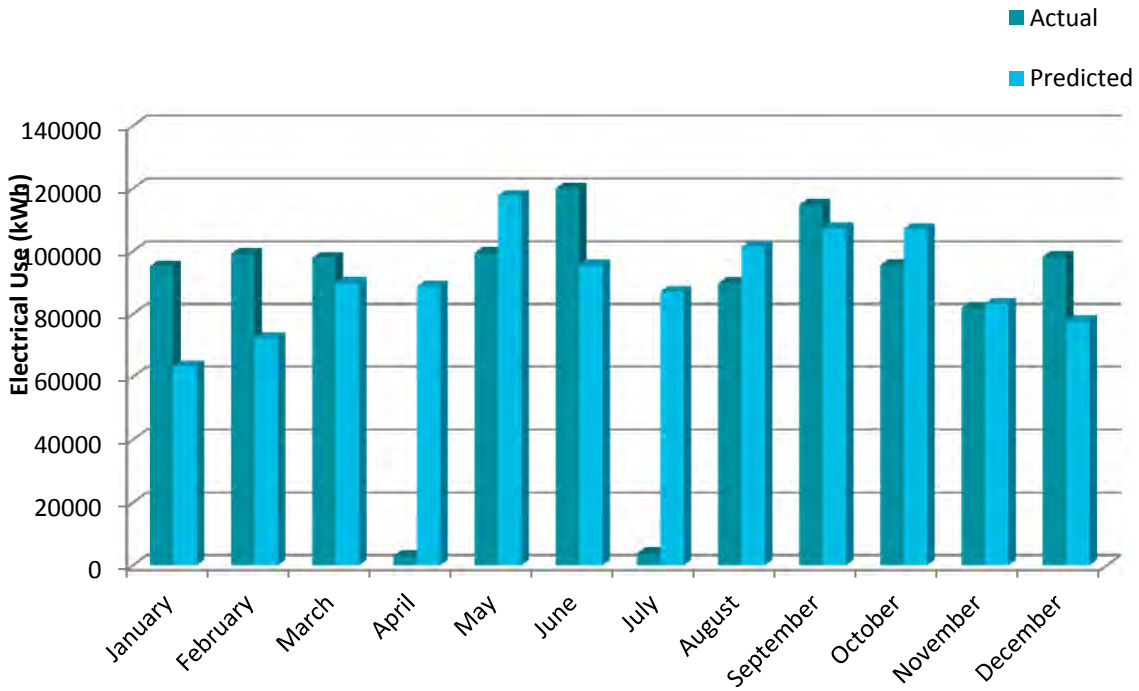
Figure 4.2-12: Hazel Elementary Natural Gas Usage



4.2.5 Liberty Middle School

A model of Liberty Middle School was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-13 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-13: Liberty Middle School Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith’s field audit. Figure 4.2-14 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-14: Liberty Middle School Electricity Usage Breakdown

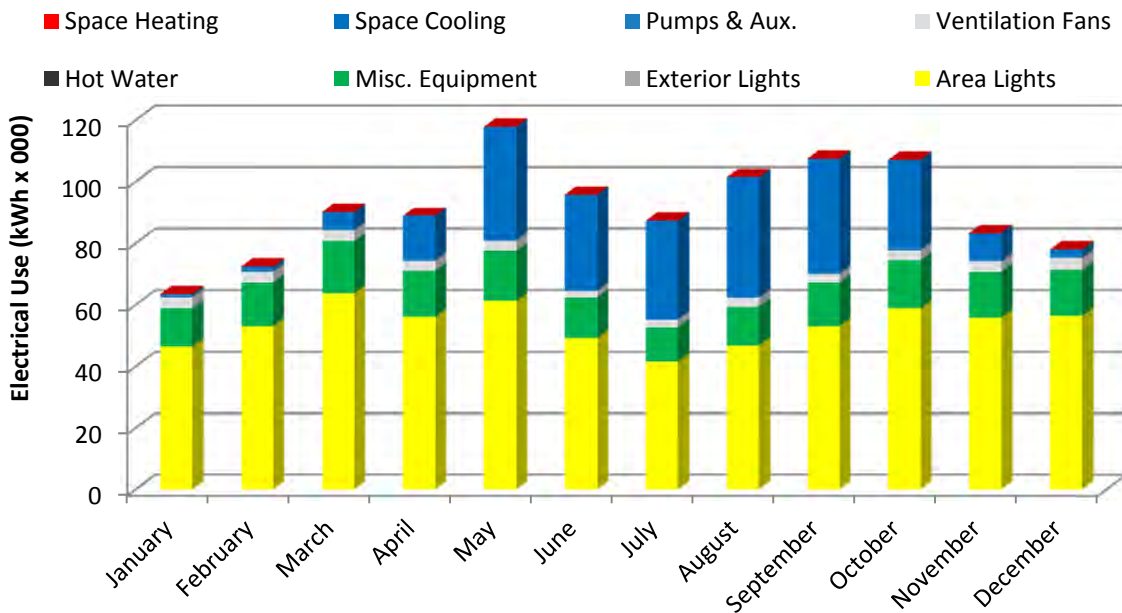
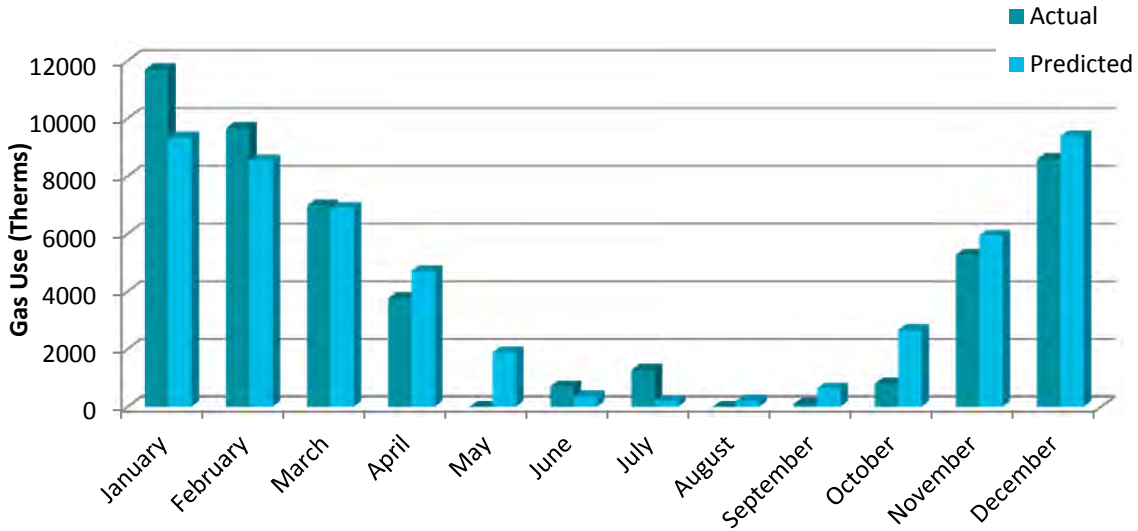


Figure 4.2-15 below compares actual natural gas usage to model-predicted natural gas use.

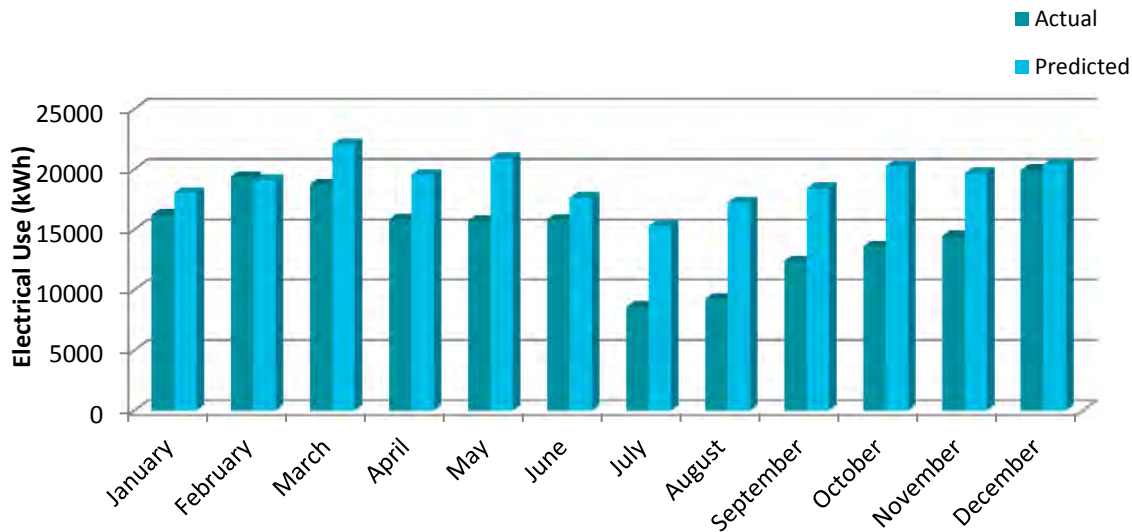
Figure 4.2-15: Liberty Middle School Natural Gas Usage



4.2.6 Mt. Pleasant Elementary School

A model of Mt. Pleasant Elementary School was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-16 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-16: Mt. Pleasant Elementary Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith’s field audit. Figure 4.2-17 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-17: Mt. Pleasant Elementary Electricity Usage Breakdown

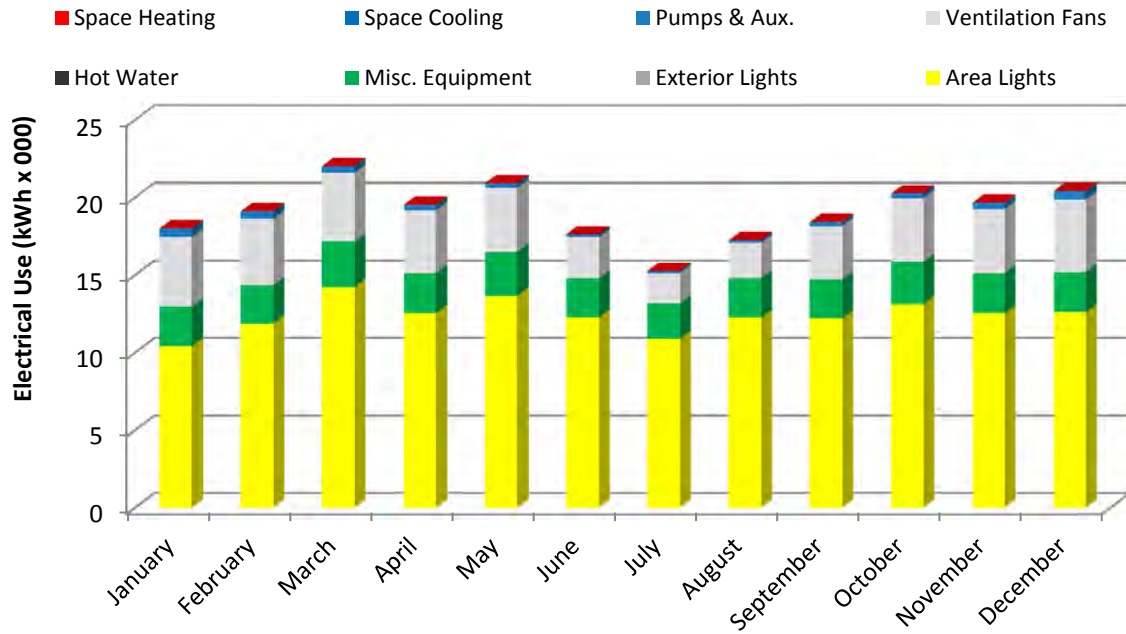
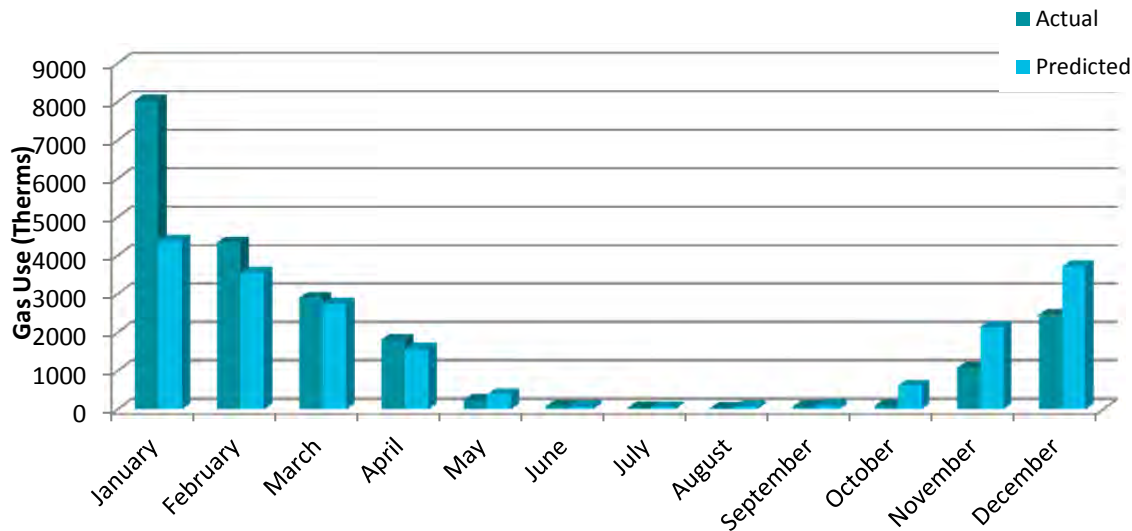


Figure 4.2-18 below compares actual natural gas usage to model-predicted natural gas use.

Figure 4.2-18: Mt. Pleasant Elementary Natural Gas Usage



Currently, the heating system utilizes two steam boilers. These boilers are estimated to be rated at 4000 MBH each. CDM Smith conservatively estimates these boilers to be 70% efficient. CDM Smith recommends replacing the aging boilers with a system of high-efficiency steam boilers. Due to the changes in the heating system, the boiler shall be properly sized for the connected radiation. This replacement was evaluated using a boiler efficiency of 83%.

Fiscal savings from such an upgrade are then identified in Table 4.2-2 below. Lifetime savings calculations for all ECRM's may be found in Appendix I. It's important to note that these are estimates based on building models, and further investigation is warranted before pursuing boiler replacements.

Table 4.2-2	
Mt. Pleasant Boiler Upgrade Payback	
Predicted Annual Savings (Therms)	3736
Total Annual Savings	\$ 3,699
Initial Capital Cost of Upgrade	\$ 159,000
Incentives**	\$ 8,000
Cost of Upgrade	\$ 151,000
Annual Maintenance Cost Savings (AMCS)	\$ 0
Simple Payback	40.8
Lifetime Energy Savings (24 years)*	\$ 112,520
Annual Return on Investment (AROI)	(4.22%)
Internal Rate of Return (IRR)	(2.09%)
Net Present Value (NPV)	(\$ 100,647)

*Assumes 2% yearly inflation on natural gas costs

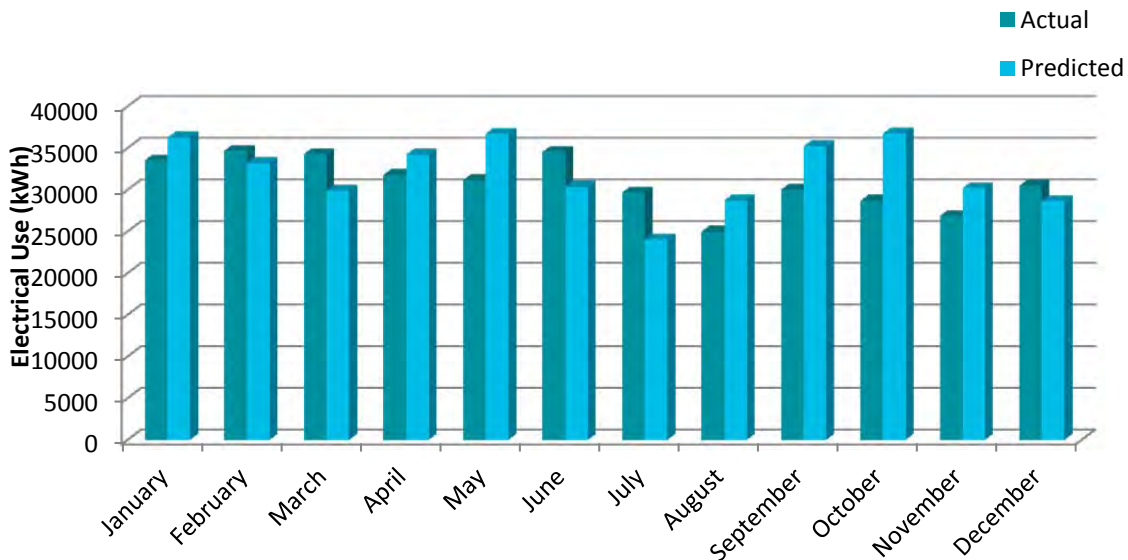
**Incentives, per New Jersey Clean Energy Program, are \$1.00 per MBH

This measure is not recommended due to the long payback. When the boiler is due for replacement this measure should be reevaluated.

4.2.7 Pleasantdale Elementary School

A model of Pleasantdale Elementary School was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-19 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-19: Pleasantdale Elementary Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith’s field audit. Figure 4.2-20 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-20: Pleasantdale Elementary Electricity Usage Breakdown

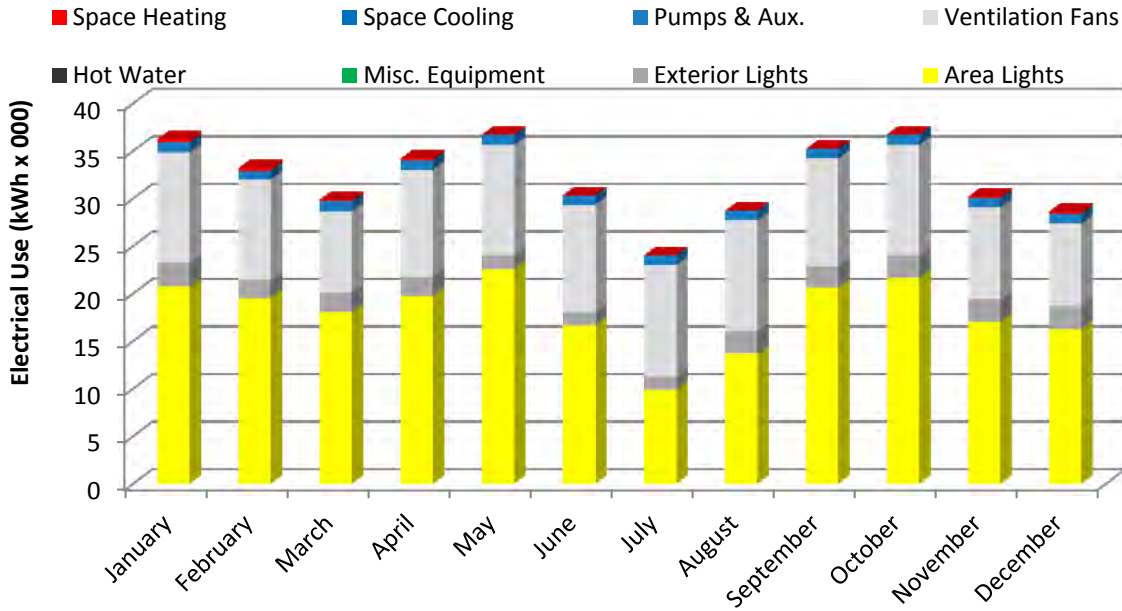
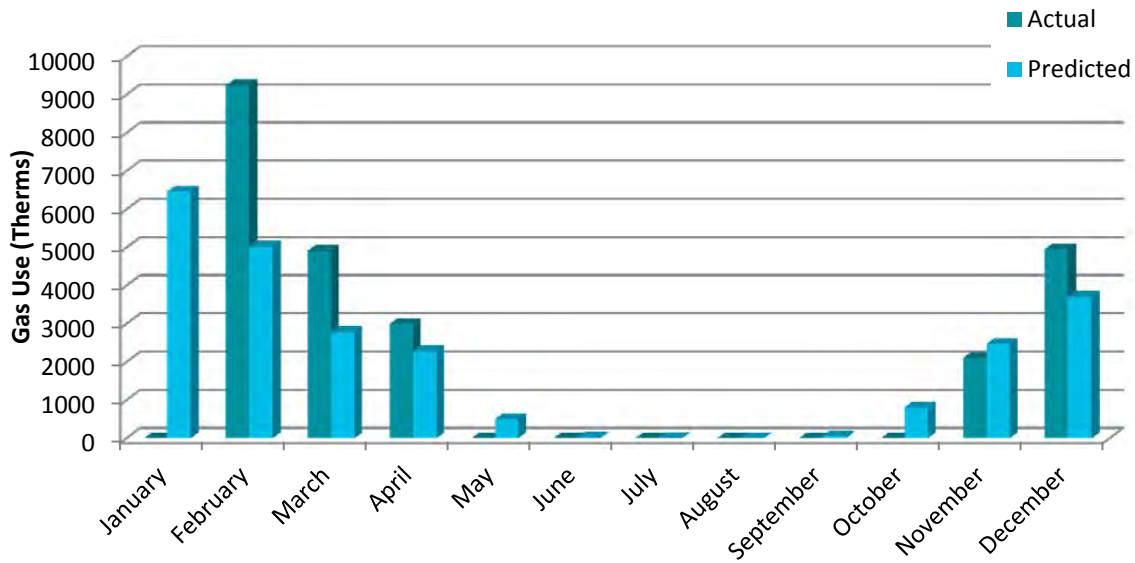


Figure 4.2-21 below compares actual natural gas usage to model-predicted natural gas use.

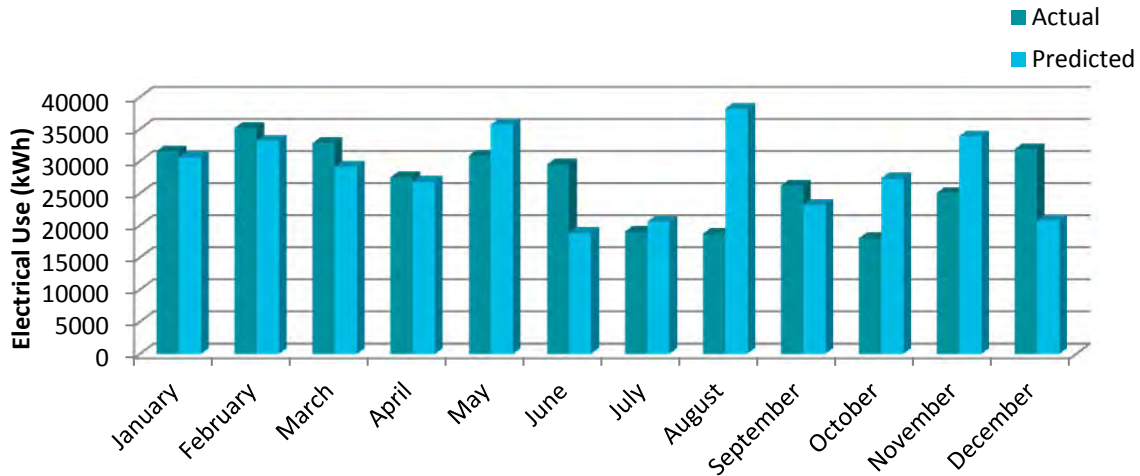
Figure 4.2-21: Pleasantdale Elementary Natural Gas Usage



4.2.8 Redwood Elementary School

A model of Rosewood Elementary was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-22 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-22: Redwood Elementary Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith’s field audit. Figure 4.2-23 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-23: Redwood Elementary Electricity Usage Breakdown

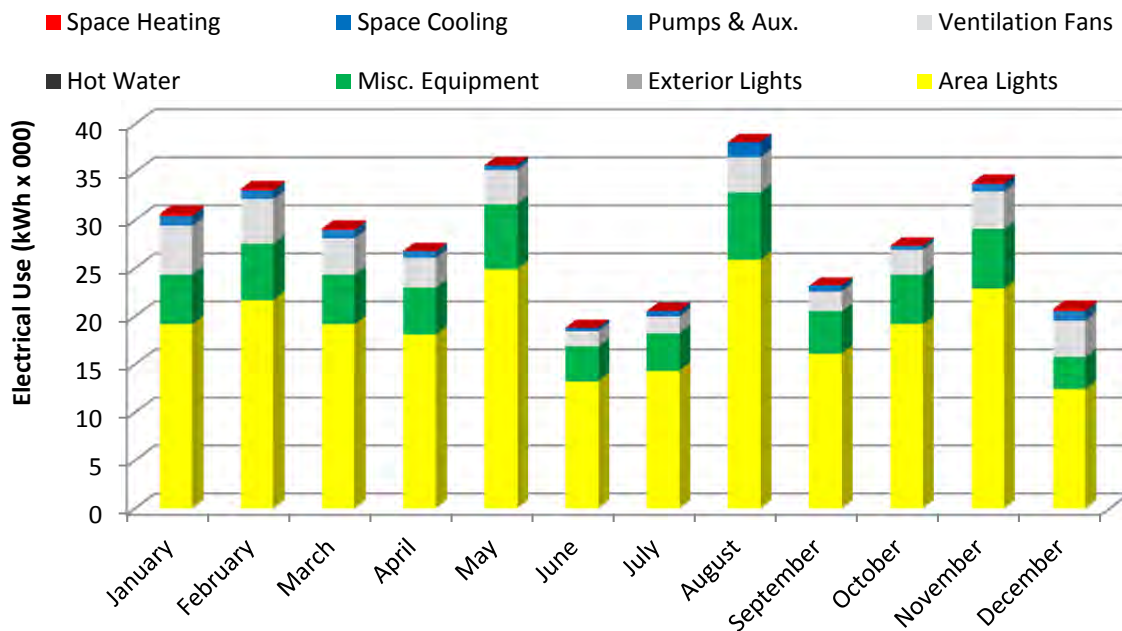
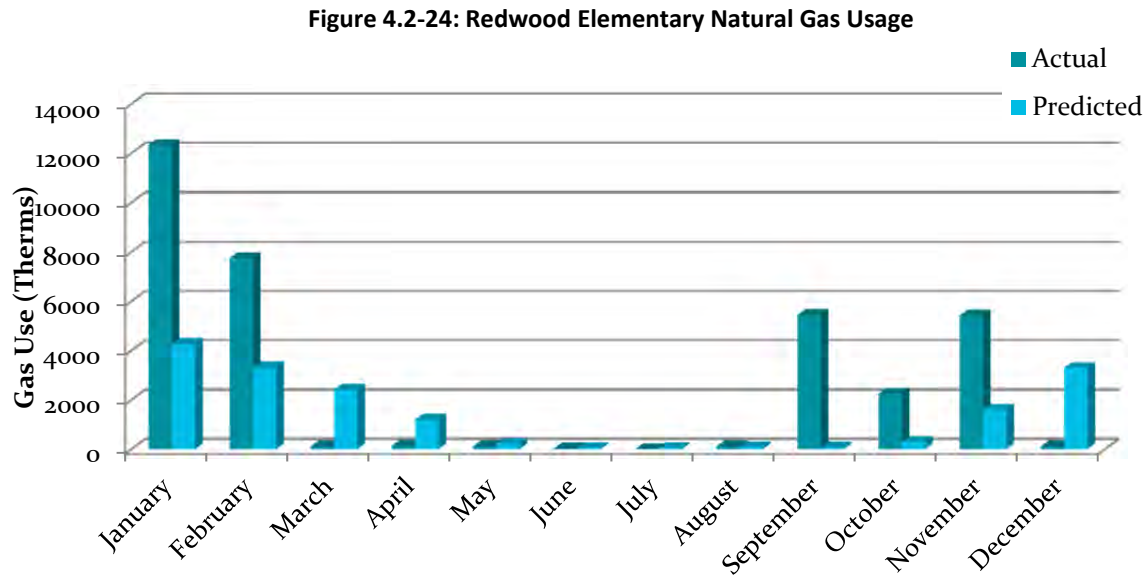


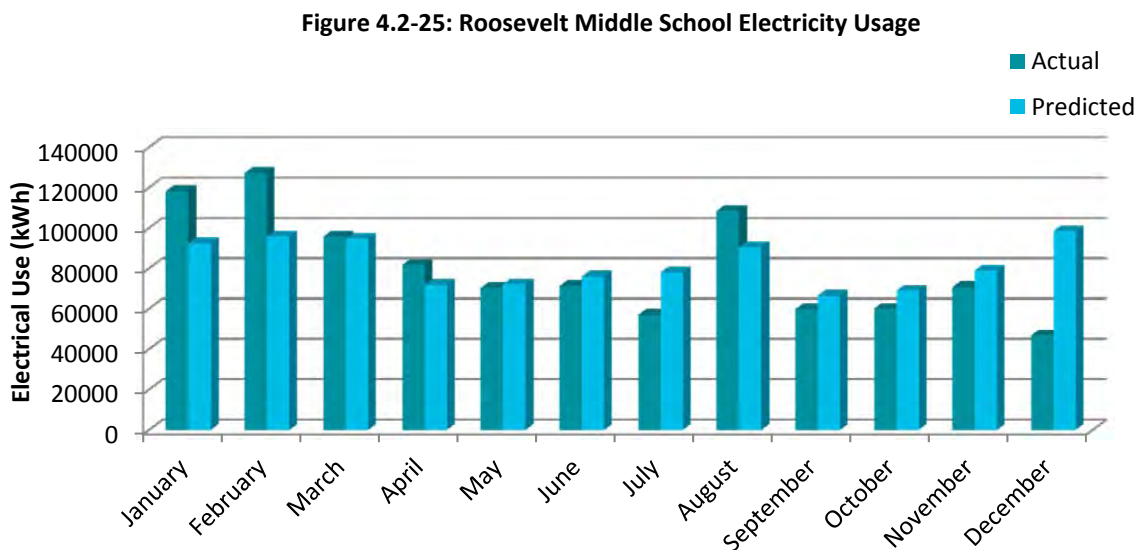
Figure 4.2-24 below compares actual natural gas usage to model-predicted natural gas use.



Natural gas bills were not provided for the Redwood Elementary School. Gas usage has therefore been predicted by the eQuest model.

4.2.9 Roosevelt Middle School

A model of Roosevelt Middle School was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-25 below compares actual monthly electricity usages, with those predicted by the eQuest model.



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith's field audit. Figure 4.2-26 presents this

information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-26: Roosevelt Middle School Electricity Usage Breakdown

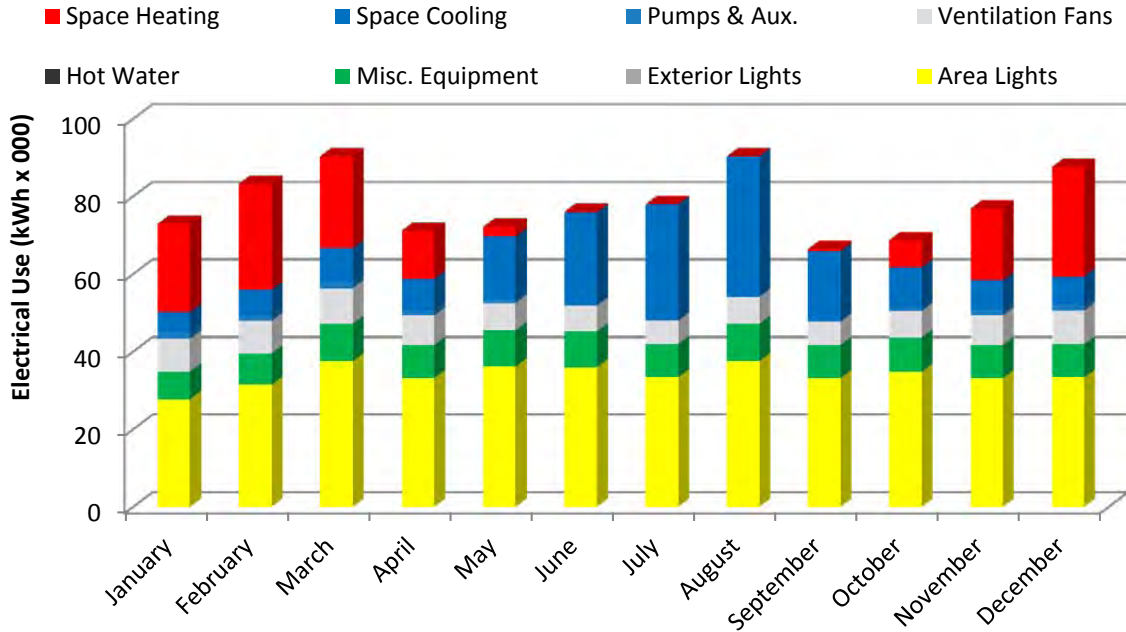
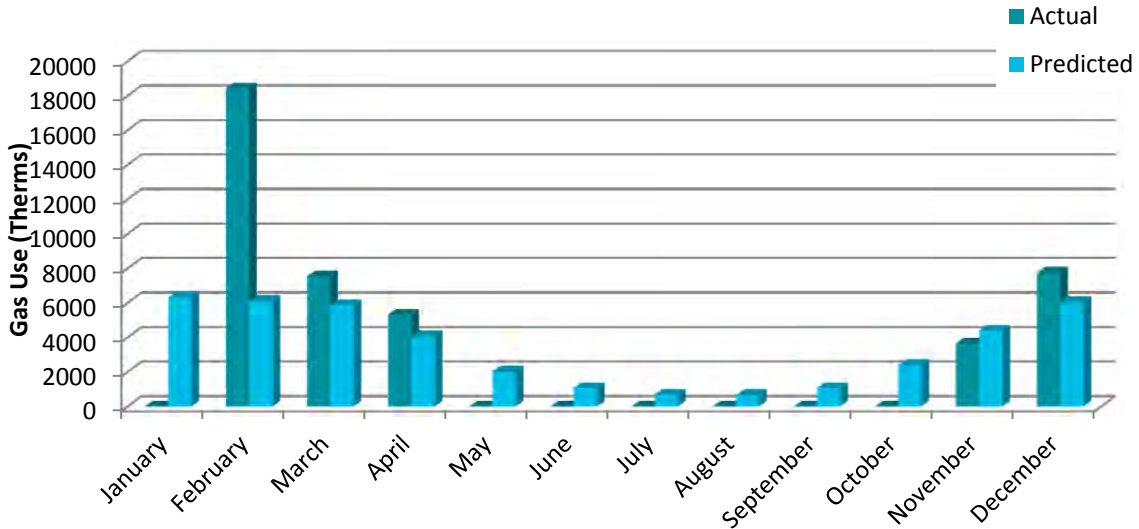


Figure 4.2-27 below compares actual natural gas usage to model-predicted natural gas use.

Figure 4.2-27: Roosevelt Middle School Natural Gas Usage

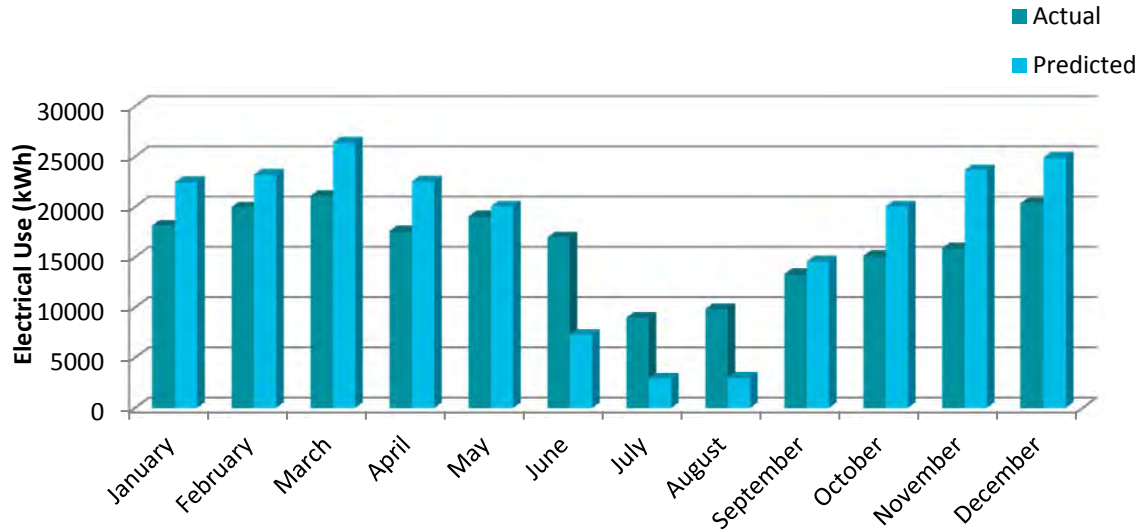


4.2.10 St. Cloud Elementary

A model of St. Cloud Elementary was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through

December 2011. Figure 4.2-28 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-28: St. Cloud Elementary Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith’s field audit. Figure 4.2-29 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-29: St. Cloud Elementary Electricity Usage Breakdown

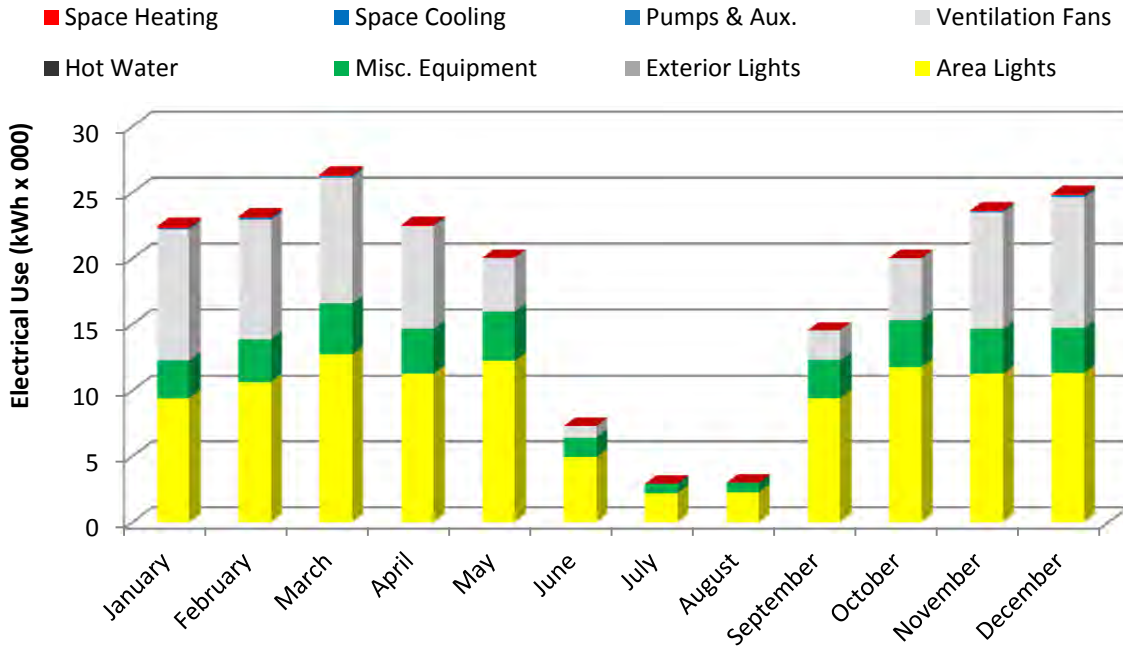
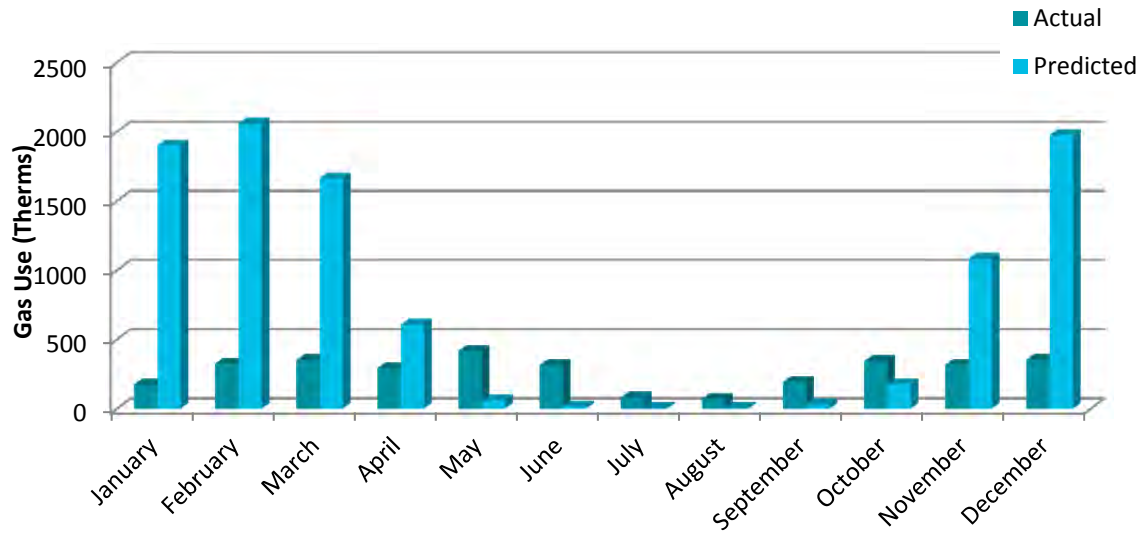


Figure 4.2-30 below compares actual natural gas usage to model-predicted natural gas use.

Figure 4.2-30: St. Cloud Elementary Natural Gas Usage

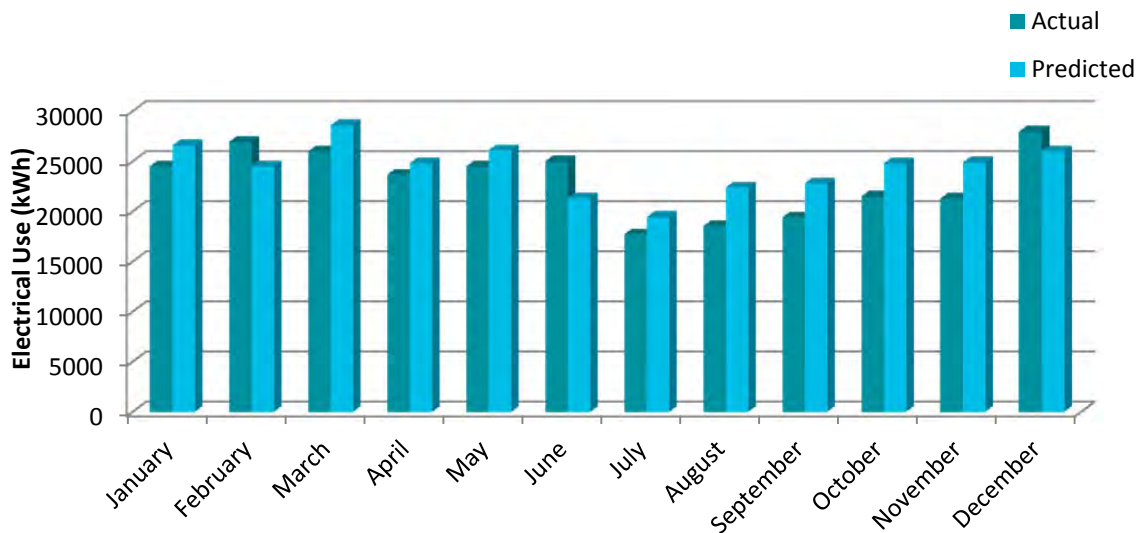


There is a large difference between the modeled and the billed usage. The site should verify that the billed usage is correct for the building. The billing may be missing a meter or other heating fuel.

4.2.11 Washington Elementary

A model of Washington Elementary was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-31 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-31: Washington Elementary Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith’s field audit. Figure 4.2-32 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-32: Washington Elementary Electricity Usage Breakdown

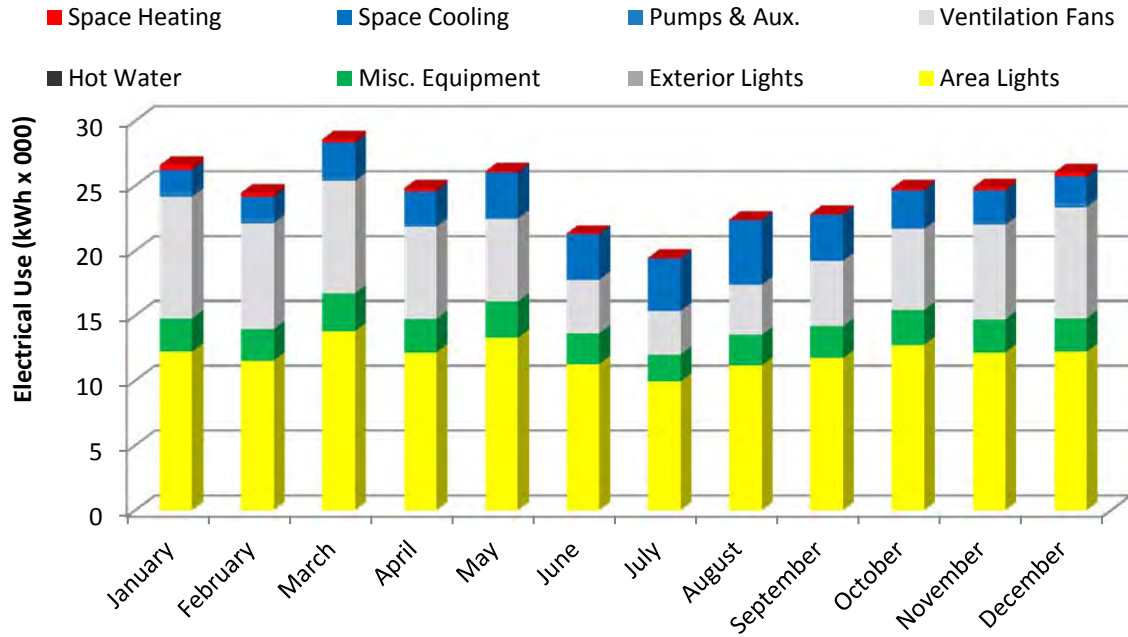
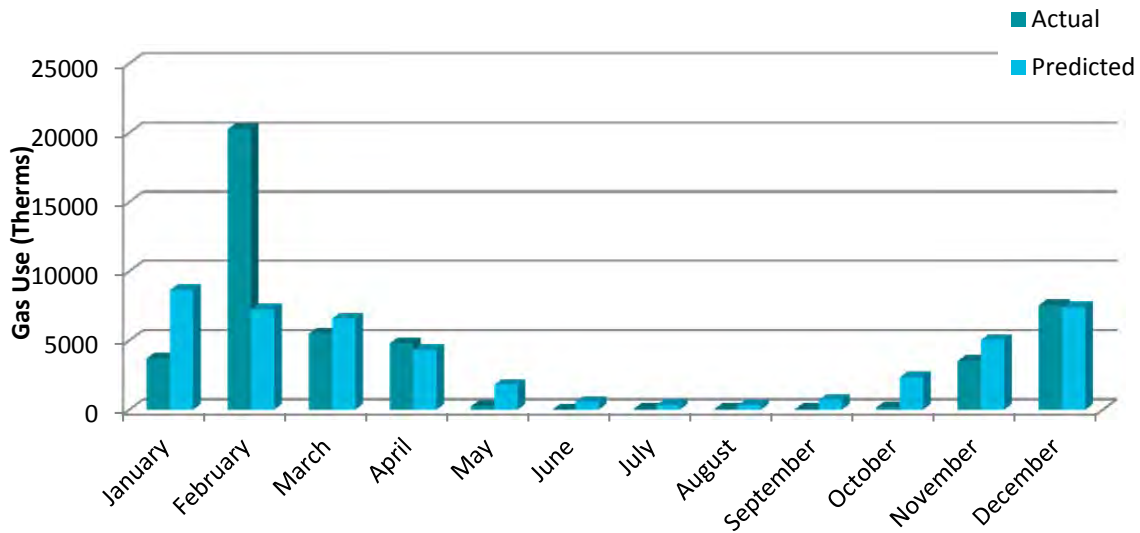


Figure 4.2-33 below compares actual natural gas usage to model-predicted natural gas use.

Figure 4.2-33: Washington Elementary Natural Gas Usage



Currently, the heating system utilizes steam boilers. The new units are estimated to be rated at 4000 MBH each. CDM Smith conservatively estimates these boilers to be 70% efficient. CDM Smith recommends replacing the aging boilers with a system of high-efficiency steam boilers. CDM Smith recommends that the units be replaced with units of equivalent heating capacity or that new units be sized based upon installed system radiation. This replacement was evaluated using a boiler efficiency of 83%.

Fiscal savings from such an upgrade are then identified in Table 4.2-3 below. Lifetime savings calculations for all ECRM's may be found in Appendix I. It's important to note that these are estimates based on building models, and further investigation is warranted before pursuing boiler replacements.

Table 4.2-3	
Washington Elementary Boiler Upgrade Payback	
Predicted Annual Savings (Therms)	6,368
Total Annual Savings	\$ 6,623
Initial Capital Cost of Upgrade	\$ 159,000
Incentives**	\$ 8,000
Cost of Upgrade	\$ 151,000
Annual Maintenance Cost Savings (AMCS)	\$ 0
Simple Payback	22.8
Lifetime Energy Savings (24 years)*	\$ 141,808
Annual Return on Investment (ARO I)	0.22%
Internal Rate of Return (IRR)	2.26%
Net Present Value (NPV)	(\$ 12,747)

*Assumes 2% yearly inflation on natural gas costs

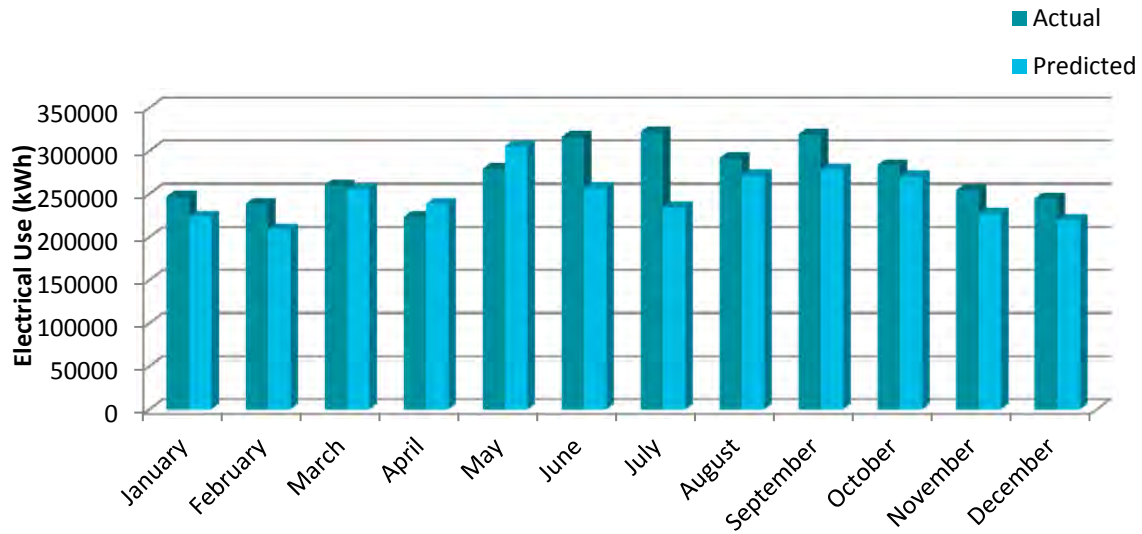
**Incentives, per New Jersey Clean Energy Program, are \$1.00 per MBH

This measure is not recommended due to the long payback. When the boiler is due for replacement this measure should be reevaluated.

4.2.12 West Orange High School

A model of West Orange High School was created in eQuest to predict heating and cooling loads for the building. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. Figure 4.2-34 below compares actual monthly electricity usages, with those predicted by the eQuest model.

Figure 4.2-34: West Orange High School Electricity Usage



Once the eQuest model was calibrated, it could be used to predict approximate major usage categories, such as lighting, plug loads (miscellaneous), ventilation, and cooling. It should be noted that these are only estimated usages based on information gathered during CDM Smith’s field audit. Figure 4.2-35 presents this information to help the Board visualize where CDM Smith anticipates the electricity is ultimately being used.

Figure 4.2-35: West Orange High School Electricity Usage Breakdown

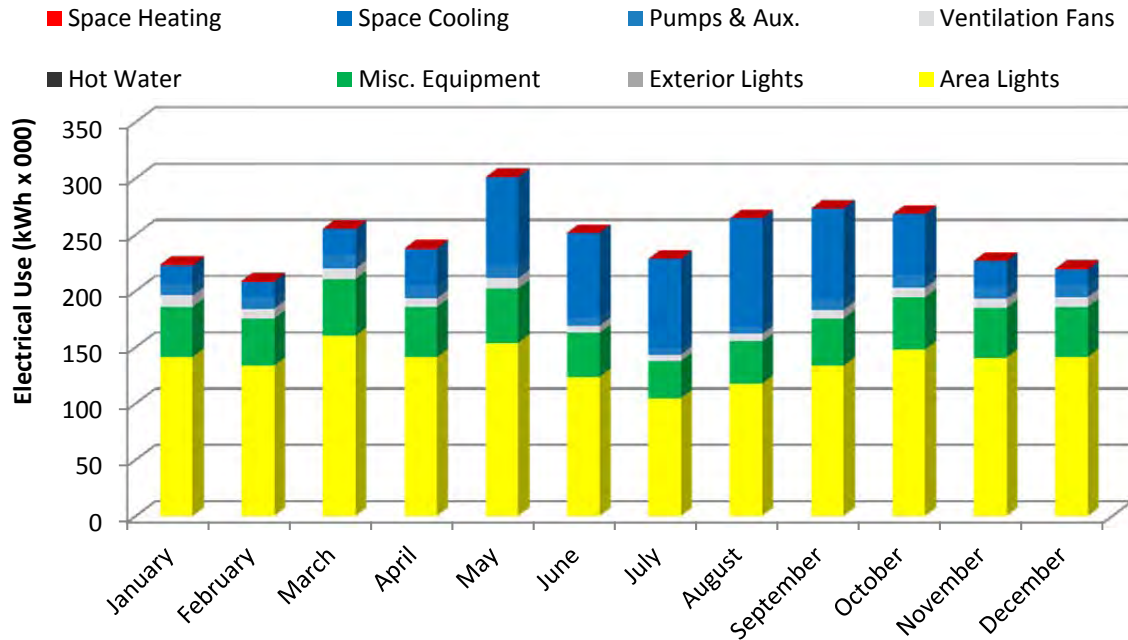
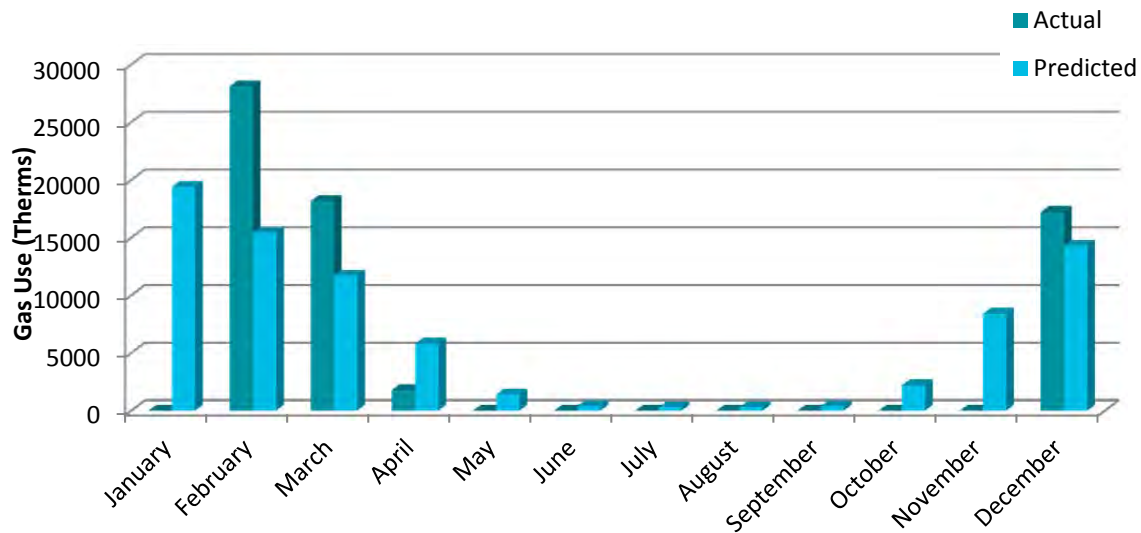


Figure 4.2-36 below compares actual natural gas usage to model-predicted natural gas use.

Figure 4.2-36: West Orange High School Natural Gas Usage



4.2.13 West Orange Bus Garage

A bin hour model was created for the West Orange Bus Garage. This model correlates the energy usage to the outdoor air temperatures, internal loads and the heating and cooling systems. To calibrate this model, CDM Smith used electricity bills and natural gas bills from January 2011 through December 2011. The model output is included in Appendix C.

Currently, the heating system utilizes a gas furnace rated at 250 MBH and 3 gas fired unit heaters with a capacity of 100 MBH each. CDM Smith conservatively estimates these heaters to be 70% efficient.

CDM Smith recommends replacing the existing heaters with a system of high-efficiency, condensing models. CDM Smith recommends that the units be replaced with units of equivalent heating capacity. The replacement is based upon new heaters being furnaces rated at 95% efficient.

Fiscal savings from such an upgrade are then identified in Table 4.2-4 below. Lifetime savings calculations for all ECRM's may be found in Appendix I. It's important to note that these are estimates based on building models, and further investigation is warranted before pursuing heating system replacements.

Predicted Annual Savings (Therms)	457
Total Annual Savings	\$ 475
Initial Capital Cost of Upgrade	\$ 29,000
Incentives**	\$ 1,600
Cost of Upgrade	\$ 27,400
Annual Maintenance Cost Savings (AMCS)	\$ 0
Simple Payback	57.7
Lifetime Energy Savings (24 years)*	\$ 14,459
Annual Return on Investment (ARO I)	(2.43%)

Table 4.2-4 Bus Garage Heating Upgrade Payback	
Internal Rate of Return (IRR)	(4.32%)
Net Present Value (NPV)	(\$ 17,478)

*Assumes 2% yearly inflation on natural gas costs

**Incentives, per New Jersey Clean Energy Program, are \$400 per furnace

This measure is not recommended due to the long payback. When the equipment is due for replacement this measure should be reevaluated.

4.2.14 Utility Submetering

While the existing building management systems control building operations, they do not presently have the capability to measure or record the building's natural gas consumption or electrical power consumption. At present, utility supplied meters are the only devices recording the building natural gas and electrical usage. The monthly totalized usages offer little information about the actual building operating characteristics. Submetering the building service affords the capability to record natural gas and electrical usage in adjustable intervals (typically in 5 to 15 minute intervals). Using this information, building managers can make informed decisions to proactively reduce consumption. CDM Smith estimates these savings as 2% of the total submetered usage.

At a minimum, CDM Smith recommends installing submeters on the main natural gas and electrical services. Further evaluation for installation of submetering should be considered on a case by case basis for major power panels within the electrical distribution system and major natural gas consumptions. The installed submeters shall be capable of recording a minimum of 30 days of power and natural gas usage and demand at 15 minute intervals. The meters shall also be able to communicate over the Automated Logic Controls building management system or other network so the building managers have access to the meters and the meter information. Submeters shall be Noveda or equal.

Table 4.2-5 School by School Submetering Breakdown									
Schools	Electrical		Gas		Submeter Electric		Submeter Gas		Savings
	kW	\$	Therms	\$	kWh	\$	Therms	\$	\$
Administration Building	362,720	\$55,855	\$33,618	\$35,423	7,254	\$1,117	672	\$708	\$1,825
Gregory Elementary	464,515	\$79,885	\$51,892	\$55,612	9,290	\$1,598	1,038	\$1,112	\$2,710
Hazel Elementary	146,331	\$23,820	\$20,198	\$22,814	2,927	\$476	404	\$456	\$932
Liberty Middle School	1,003,447	\$171,092	\$48,909	\$48,471	20,069	\$3,422	978	\$969	\$4,391
West Orange High School	3,286,426	\$493,407	\$152,664	\$112,500	65,729	\$9,868	3,053	\$2,250	\$12,118
Edison Central Six	862,200	\$144,260	\$27,530	\$26,085	17,244	\$2,885	551	\$522	\$3,407
Mt. Pleasant Elementary	180,400	\$30,211	\$21,199	\$23,287	3,608	\$604	424	\$466	\$1,070
Pleasantdale Elementary	371,528	\$60,546	\$24,260	\$10,591	7,431	\$1,211	485	\$212	\$1,423
Redwood Elementary	327,150	\$51,891	\$33,894	\$19,077	6,543	\$1,038	678	\$382	\$1,420
Roosevelt Middle School	968,400	\$152,734	\$44,843	\$20,223	19,368	\$3,055	897	\$404	\$3,459

Table 4.2-5 School by School Submetering Breakdown									
Schools	Electrical		Gas		Submeter Electric		Submeter Gas		Savings
	kW	\$	Therms	\$	kWh	\$	Therms	\$	\$
St Cloud Elementary	196,650	\$30,672	\$3,250	\$3,391	3,933	\$613	65	\$68	\$681
Washington Elementary	277,680	\$43,206	\$45,973	\$47,604	5,554	\$864	919	\$952	\$1,816
West Orange Bus Garage	83,693	\$14,998	\$3,219	\$3,298	1,674	\$300	64	\$66	\$366
Savings Totals					170,624	\$27,051	10,229	\$8,568	\$35,619

Fiscal savings presented below are based upon 2% savings of electrical and natural gas usage at all the West Orange BOE buildings. The measure involves installing a submeter at each building service. The costs below are based on 13 electric services and 13 gas services, software and initial setup at the 13 buildings listed above. Actual installation costs are dependent on physical locations of meters, and equipment installed. The Noveda meters have an annual monitoring fee.

Table 4.2-6 West Orange Electrical Submetering	
Predicted Annual Electric Savings (kWh)	170,623
Predicted Annual Electric Savings (\$)	\$27,051
Predicted Annual Gas Savings (therms)	10,229
Predicted Annual Gas Savings (\$)	\$8,568
Total Annual Savings	\$35,619
Initial Capital Cost of Upgrade	\$32,500
Annual Metering Cost	\$20,800
Incentives**	\$0
Cost of Upgrade	\$32,500
Annual Maintenance Cost Savings (AMCS)	\$0
Simple Payback	0.9

4.2.15 Combined Heat and Power Public School Program

Combined heat and power is producing electricity using another fuel. The electricity is produced by a generator turned by a turbine or reciprocating engine. The engine produces mechanical energy and thermal energy. The generator uses the mechanical energy to produce electricity. By producing electricity on site, both the electricity and the thermal byproduct can be used by the building. Since the schools don't have a constant thermal load, a portion of the thermal energy produced will be wasted. The buildings of West Orange were evaluated to find potential candidates for cogeneration. The utility usage of the following schools appears to be well suited for cogeneration: Liberty Middle School, West Orange High School, Edison Central Six, Roosevelt Middle School. This evaluation is very minimal. Further evaluation should be performed before pursuing this measure.

The savings presented below are based upon the building using 100% of the electrical power and 50% of the thermal energy produced. The savings are presented for a single 65 kW cogeneration engine with heat recovery. These economics can be applied to each of the schools. Further analysis is included in Appendix C.

Table 4.2-7 Combined Heat and Power	
Predicted Annual Electric Savings (kWh)	280,800
Predicted Annual Electric Savings (\$)	\$42,120
Predicted Annual Gas Savings (therms)	-36,374
Predicted Annual Gas Savings (\$)	\$-29,877
Total Annual Savings	\$12,243
Initial Capital Cost of Upgrade	\$143,000
Incentives**	\$42,900
Cost of Upgrade	\$100,100
Annual Maintenance Cost Savings (AMCS)*	\$-2,527
Simple Payback	10.3

** Incentive \$2.25/watt or 30% of the total.

*Annual Maintenance cost based upon \$0.009/kWh.

4.3 Alternative Energy Sources

4.3.1 Photovoltaic Solar Energy System Overview

Photovoltaic (PV) cells convert energy from sunlight directly into electrical energy through the use of silicon semi conductors, diodes and collection grids. Several PV cells are then linked together in a single frame of module to become a solar panel. PV cells are able to convert the energy from the sun into electricity. The angle of inclination of the PV cells, the amount of sunlight available, the orientation of the panels, the amount of physical space available and the efficiency of the individual panels are all factors that affect the amount of electricity that is generated.

Based on the estimated cumulative total available roof area, calculations determine that the installation of thirteen (13) systems with a total rating of approximately 1,531 kW (dc) will be appropriate for the thirteen (13) buildings listed below.

As part of this energy audit, a preliminary engineering feasibility study of the existing building sites to support solar generation systems was completed consisting of the following tasks:

Site visit by CDM Smith engineers;



Fixed Tilt System

Satellite Image Analysis and Conceptual design and layout of the photovoltaic system;

Design and construction cost estimates;

Determine a preliminary design for the size and energy production of the solar system.

The total unobstructed available area of each section of roof having a southern exposure for the existing buildings were evaluated. It is important to note that the structural integrity of the roofs was not confirmed during CDM Smith's site visit, therefore, buildings may require some degree of roof reinforcing work prior to the implementation of a roof mounted solar system.

In the case of the flat areas, the PV system sizing and kWh production was calculated assuming the installation of a crystalline module facing south direction (180 Degree Azimuth) and tilted approximately 20 degrees to allow better rain water shedding and snow melting. Please note that the kWh production as well as system size may differ significantly based on final panel tilt selected during the RFP and design phase.

Blended electric rates were used based on actual utility bills and were applied for the buildings.

The following is a preliminary study on the feasibility of installing PV solar systems at thirteen (13) buildings to generate a portion of each building's electricity requirements. Each system is designed to offset the electric purchased from the local utility and not as a backup or emergency source of power.

In order to determine the best location for the installation of the PV solar system, a satellite image analysis and site walkthrough of the buildings was performed during the week of July 30th, 2012.

Also, as part of the assessment, CDM Smith investigated possible locations for electrical equipment that need to be installed such as combiner boxes, disconnect switches and DC to AC inverters. Consideration was also given to locations of interconnection between the solar system and building's electrical grid.

Table 4.3-1 provides a summary of all proposed roof mounted PV systems for the Board. The Project Team conducted facility walkthroughs and utilized satellite image analysis and to determine the estimated total available area, then calculated the potential capacity of a solar array system for each location. It should be noted that the interconnection point for the PV system will require a modification or replacement of the existing service entrance equipment wherein the PV system feeder connections will have to be made after the main circuit breaker, and protective relaying will also have to be implemented. Any connection points would have to meet NEC and local utility requirements. Further investigation and verification of existing electrical equipment at each location would be required prior to implementation of a PV system. See section 2 for a detailed description of each building's roof type.

Location	Roof Type	Proposed PV Array Size (kW DC)
Administration Building	Flat	43.0
Edison Middle School	Flat/Sloped	148.6
Gregory School	Flat/Sloped	109.9
Hazel School	Flat/Sloped	21.5
Liberty Middle School	Flat	279.8

Table 4.3-1 Proposed Solar System Summary		
Location	Roof Type	Proposed PV Array Size (kW DC)
Mt. Pleasant School	Flat	322.8
Pleasantdale School	Flat/Sloped	56.0
Redwood School	Flat	102.3
Roosevelt Middle School	Flat/Sloped	64.6
St. Cloud School	Flat/Sloped	39.8
Washington School	Flat/Sloped	46.5
West Orange High School	Flat	252.9
Bus Garage	Flat	43.0

4.3.1.1 Basis for Design and Calculations

The proposed Photovoltaic (PV) Power systems outlined in Table 4.3-1 for each facility are comprised of the PV arrays, inverter(s), combiner boxes, disconnect switches, and all of the necessary wiring and interconnection equipment. The solar panels will be mounted onto the roof. The array outputs will feed power into the DC to AC inverters. AC outputs will then be connected at each building's electrical service as outlined above. Pending further engineering analysis of the roofs, it is yet to be determined if the solar arrays will be installed using a self-ballasting system, or roof penetration system, or a combination of both.

The most common roof mounted system is referred to as a ("fixed tilt") system typically mounted to a metal rack that can be fixed at a specific angle. There are also ("tracking systems") or movable along one or two axes to follow the position of the sun during the day. For a roof-mounted PV system, tracking systems are very rarely installed and are usually used for ground-mounted systems only, as they require more complex racks and higher maintenance costs. For the "fixed" system, the tilt is determined based on the following factors: geographical location, total targeted kWh production, seasonal electricity requirements and weather conditions such as wind. Ideally, the module tilt for Central NJ should be 25-35 degrees with an azimuth as close as possible to 180 (south); however, experience has shown that PV systems are typically installed at a tilt of 20degrees or lower in order to avoid any issues with wind and to maximize total system size.

The type of PV panels and equipment used to mount the system shall be determined based on the wind conditions and structural integrity of the roof determined during the design phase of the project. In general, penetration/tie-down systems, non-penetrating ballasted type systems, or a combination of the two should be considered.

4.3.1.2 Calculation of PV System Yield

An industry accepted software package PV Watts was used to calculate projected annual electrical production of the crystalline silicon PV system in its first year. Results of this calculation are summarized in Table 4.3-2. The PV systems were designed to provide maximum kWh production based on available roof space.

Table 4.3-2 Summary of Solar (PV) Systems									
Building	Square Footage Available (ft2)	Size (kW DC)	First Year Solar kWh Production	First Year Energy Savings	SRECs	ARO I	IRR	NPV	Lifetime Savings (25 Years)
Administration Building	4,304.0	43.0	52,767.0	\$7,915.1	\$15,830.1	(0.28%)	(2.10%)	(\$262,622.40)	\$288,577.1
Edison Middle School	14,859.6	148.6	182,178.2	\$30,970.3	\$54,653.5	0.56%	(0.17%)	(\$516,813.55)	\$1,129,154.2
Gregory School	10,986.0	109.9	134,687.9	\$24,243.8	\$40,406.4	0.55%	(0.08%)	(\$383,872.41)	\$883,911.7
Hazel School	2,152.0	21.5	26,383.5	\$4,485.2	\$7,915.1	(0.77%)	(2.94%)	(\$181,743.45)	\$163,527.0
Liberty Middle School	27,976.0	279.8	342,985.8	\$58,307.6	\$102,895.7	0.72%	0.12%	(\$862,664.91)	\$2,125,851.4
Mt. Pleasant School	32,280.0	322.8	395,752.8	\$67,278.0	\$118,725.8	0.74%	0.16%	(\$976,151.82)	\$2,452,905.5
Pleasantdale School	5,595.2	56.0	68,597.2	\$10,975.5	\$20,579.1	0.00%	(1.40%)	(\$288,221.05)	\$400,160.3
Redwood School	10,232.8	102.3	125,453.6	\$20,072.6	\$37,636.1	0.33%	(0.75%)	(\$423,506.19)	\$731,831.6
Roosevelt Middle School	6,456.0	64.6	79,150.6	11,872.6	\$23,745.2	0.00%	(1.53%)	(\$331,433.60)	\$432,865.7
St. Cloud School	3,981.2	39.8	48,809.5	7,809.5	\$14,642.9	(0.25%)	(1.92%)	(\$241,138.06)	\$284,729.4
Washington School	4,648.3	46.5	56,988.4	\$9,118.1	\$17,096.5	(0.13%)	(1.67%)	(\$260,599.03)	\$332,440.8
West Orange High School	25,286.0	252.9	310,006.4	\$49,601.0	\$93,001.9	0.59%	(0.23%)	(\$862,633.60)	\$1,808,416.6
Bus Garage	4,304.0	43.0	52,767.0	\$10,553.4	\$15,830.1	0.16%	(0.64%)	(\$202,283.67)	\$384,769.5

4.3.2 On-Site Wind Power Generation

On-site wind power generation typically utilizes a form of turbine, which is rotated with the flow of wind across it, this rotational force powers a generator, producing DC electricity. The DC electricity is then converted into AC electricity, which can be used for commercial power, or can be fed back into the power grid, reducing the overall electric demand. The size of the turbine is proportional to the amount of wind and concurrently the amount of energy it can produce.

CDM Smith has determined that it may be economically feasible for the Board to install wind turbine energy systems at its facilities. This is primarily due to a payback of less than 20 years for electrical energy produced at average wind speeds. There are many other incentives that could possibly provide additional funding which would reduce the payback period further.

Utilizing NASA's Atmospheric Science Data Center online wind mapping tool, it was determined that the local average wind speeds for the Board ranged from 4.44 m/s to 6.4 m/s at 42.7 meters above the ground. In general, around 7mph of average wind speed, as determined over the course of a year, is necessary to "fuel" the turbine. These values fall within the range of feasibility for installation of a new wind turbine system.



For the purposes of this feasibility analysis, CDM Smith chose a 35kW Endurance G-3120 wind turbine. Please refer to Appendix L for vendor information. This turbine size is used most often for small commercial applications. Power Curve data was determined through the use of the product specification sheets on vendor websites. Actual turbine size, height, location, and manufacturer should be determined upon design of a wind turbine system.

The estimated wind speed data, associated wind probability distribution function (weibull value), turbulence losses, and other relevant data were then incorporated into Wind Cad to estimate the annual output for the wind turbine. Refer to Appendix I for Wind Cad Modeling.

Table 4.3-3 includes a simple payback analysis for the installation of one wind turbine energy system. Refer to Appendix J for a more detailed wind turbine financing spreadsheet, including utility cost avoidance and REC's.

Parameter	Wind Turbine (Minimum Site Wind Speed – 4.4 m/s)	Wind Turbine (Maximum Site Wind Speed – 6.4 m/s)	Wind Turbine (Average Site Wind Speed – 5.5 m/s)
Engineer's Opinion of Probable Cost	\$450,000	\$450,000	\$450,000
1 st Year Production	77,066.0	157,143.0	123,812.0

Parameter	Wind Turbine (Minimum Site Wind Speed – 4.4 m/s)	Wind Turbine (Maximum Site Wind Speed – 6.4 m/s)	Wind Turbine (Average Site Wind Speed –5.5 m/s)
Annual Estimated Electric Savings	\$12,986	\$26,479	\$20,862
Annual Estimated REC Revenue	\$1,927	\$3,929	\$3,095
Project Simple Payback	30.2	14.8	18.8
Annual Return On Investment (AROI)	(0.7%)	0.3%	1.3%
Lifetime Energy Savings (25 years)	\$473,446	\$965,390	\$760,625
Internal Rate of Return (IRR)	0.1%	6.6%	4.4%
Net Present Value (NPV)	(\$121,168)	\$220,512	\$78,292

*Refer to Appendix J for Wind Cad Modeling

It should be noted that CDM Smith used only REC values in determining simple payback periods. As stated above, other incentives and financial programs such as Power Purchase Agreements are available to help finance this installation. For example, if a Power Purchase Agreement is completed, the private company financing the project would benefit from the 30% tax credit. Other incentives such as CREB's and first year usage incentives could be available to the Board in lowering the payback period. Refer to www.dsireusa.org for an extensive listing of possible incentives for New Jersey.

It should also be noted that the wind turbine represented above is for feasibility purposes only. If the Board decides to install a wind turbine system(s), different mounting heights, turbine sizes, and manufacturers should be considered. In addition, permits may be required for installation according to local zoning laws. The FAA must also be notified in order to give clearance for the tower, and for installation of aviation safety lights if necessary.

4.3.3 Additional Measures

It may be possible to reduce the plug load of the facilities even further with the implementation of smart strips and energy star appliances. Smart Strips save energy by electronically unplugging all of the devices that are plugged into the "Automatically Switched outlets" when the device plugged into the control outlet is turned off. It is important to note that CDM Smith is not suggesting that computers be plugged into the automatically switched off outlets, as there would be potential for the computers to be shut off mid-operation. There are a vast amount of computer peripherals that are typically left on after a computer is shut off, including monitors, scanners, printers and DSL/Cable modems. These peripherals can be plugged into the automatic outlets.

A standard Smart Strip has one 'control' outlet, six (6) outlets that are automatically switched off when the control device is and three (3) outlets that are always hot. An example of how the Board can implement the use of Smart Strips office or library settings is to plug a computer into the control outlet, five (5) monitors and a personal printer (8 W in standby mode) into the automatic outlets and three (3) computers into the always hot outlets. An LCD monitor can use up to 34W; in standby mode the monitor utilizes 1 – 2W. A CRT

monitor typically utilizes around 75W. The following table 4.3-4 summarizes the payback of a Smart Strip, assuming 5 LCD monitors and 1 printer are automatically powered down that would otherwise been left on 8 hours/day and in standby mode 16 hours/day, 5 days/week for 9 months.

Table 4.3-4: Simple Payback Smart Strip Application Example	
Predicted Annual Savings – 5 LCD monitors, 1 printer (kWh)	308
*Total Annual Savings	\$52.4
Initial Capital Cost 40/52.4	\$40
Simple Payback (years)	0.76
Lifetime Energy Savings (15 years)	\$786

*Aggregate Cost of \$0.17/kWh

The following Table 4.3-5 summarizes other applications for the Smart Strip that may be applicable throughout the buildings:

Table 4.3-5 Applications for Smart Strips	
Control Outlet	Switched Outlets
Computer	Monitors, printers, scanners, lamps
TV	VCR, DVD player, cable box
Lamp	Stereo, space heater

The Board should continue to implement Energy Star appliances. This is recommended on an 'as-needed' basis.

In addition to replacing old appliances with Energy Star appliances, the following two maintenance procedures can work to save the energy consumed by the refrigerators. One is cleaning dirty condenser coils, twice a year. A refrigerator's condenser coils and cooling fins are located either under the unit behind a grille in the front or on the back of the appliance. The coils can be cleaned with a brush or vacuum cleaner hose. The second source of wasted energy associated with a refrigerator is the door seal. Realignment the door or replacing a no longer airtight door seal will work to improve energy efficiency.

Section 5

Evaluation of Energy Purchasing and Procurement Strategies

5.1 Energy Deregulation

In 1999, New Jersey State Legislature passed the Electric Discount & Energy Competition Act (EDECA) to restructure the electric power industry in New Jersey. This law, the deregulation of the market, allowed all consumers to shop for their electric supplier. The intent was to create a competitive market for electrical energy supply. As a result, utilities were allowed to charge Cost of Service and customers were given the ability to choose a third party supplier. Energy deregulation in New Jersey increased the energy buyers' options by separating the function of electricity distribution from that of electricity supply.

As noted in Section 3, the Board is currently benefitting from the deregulation of the market and is utilizing South Jersey Energy as their third party electric service supplier for nine of the thirteen facilities. A quote was requested for the West Orange High School, Liberty Middle School, Edison Central Six School, and the Bus Garage, but unfortunately the quoted rate was not lower than the rate currently being paid by the Board for those facilities.

To sell electric generation service in New Jersey, electric power suppliers must be licensed by the New Jersey Board of Public Utilities (NJ BPU). They must also be registered with the local public utility (PSE&G) to sell electric service in that utility's service areas. The following suppliers are licensed with the NJ BPU and are registered to sell electric service in the PSE&G service territory:

- Amerada Hess Corp.
- BOC Energy Services
- Con Edison Solutions, Inc.
- Constellation New Energy, Inc.
- Direct Energy, LLC.
- First Energy Solutions Corp.
- Glacial Energy
- Integrys Energy Service
- Liberty Power
- Pepco Energy Services, Inc.
- PP&L Energy Plus, LLC.
- Reliant Energy Solutions East, LLC.
- Sempra Energy Solutions
- South Jersey Energy
- Strategic Energy LLC.
- Suez Energy Resources NA, Inc.
- UGI Energy Services

5.2 Demand Response Program

Demand Response is a program through which a business can make money on reducing their electricity use when wholesale electricity prices are high, or when heavy demand causes instability on the electric grid, which can result in voltage fluctuations or grid failure. Demand Response is an energy management program that compensates the participant for reducing their energy consumption at critical times. Demand Response is a highly efficient and cost effective means of reducing the potential for electrical grid failure and price volatility and is one of the best solutions to the Mid-Atlantic region's current energy challenges.

The program provides at least two hours advance notice before curtailment is required. There is typically one event a year that lasts about three hours in the summer months, when demand for electricity is at its highest.

Participation in Demand Response is generally done through companies known as Curtailment Service Providers, or CSPs, who are members of PJM Interconnection. There is no cost to enroll in the program and participation is voluntary, for instance, you can choose when you want to participate. In most cases, there is no penalty for declining to reduce your electricity use when you are asked to do so. The event is managed remotely by notifying your staff of the curtailment request and then enacting curtailment through your Building Management System. CSPs will share in a percentage of your savings, which may differ among various CSPs, since there may be costs associated with the hardware and/or software required for participation, so it is recommended that a number of CSPs be contacted to review their offers.

Section 6

Ranking of Energy Conservation and Retrofit Measures (ECRMs)

6.1 ECRMs

The main objective of this energy audit is to identify potential Energy Conservation and Retrofit Measures and to determine whether or not the identified ECRMs are economically feasible to warrant the cost for planning and implementation of each measure. Economic feasibility of each identified measure was evaluated through a simple payback analysis. The simple payback analysis consists of establishing the Engineer's Opinion of Probable Construction Cost estimates; O&M cost savings estimates, projected annual energy savings estimates and the potential value of New Jersey Clean Energy Rebates or Renewable Energy Credits, if applicable. The simple payback period is then determined as the amount of time (years) until the energy savings associated with each measure amounts to the capital investment cost.

As discussed in Section 3, aggregate unit costs for electrical energy delivery and usage and natural gas delivery and usage, which accounts for all demand and tariff charges at each complex, was determined and utilized in the simple payback analyses.

In general, ECRMs having a payback period of 20 years or less have been recommended and only those recommended ECRMs within Section 4 of the report have been ranked for possible implementation. The most attractive rankings are those with the lowest simple payback period.

Ranking of ECRMs has been broken down into the following categories:

- Lighting Systems
- HVAC Systems
- Solar Systems
- Wind Systems

6.1.1 Lighting Systems

Table 6.1-1 includes the recommended ECRMs to provide energy savings for all building lighting systems, which include the installation of energy-efficient luminaires and occupancy sensors. A detailed discussion on building lighting systems is presented in Section 4.1.

Table 6.1-1					
Ranking of Energy Savings Measures Summary – Lighting System Retrofits					
Complex	Retrofit Cost	Incentives	Total Cost	Annual Fiscal Savings	Simple Payback (Years)
Gregory School - Total	\$392,132	\$43,550	\$348,582	\$29,744	8.0
Bus Garage - Total	\$104,346	\$8,165	\$96,181	\$7,559	9.1
Washington School - Total	\$254,987	\$29,285	\$225,702	\$14,363	9.9
West Orange High School - Total	\$1,350,130	\$152,700	\$1,197,430	\$74,131	10.1
Edison Middle School - Total	\$371,033	\$42,305	\$328,728	\$17,527	11.4
Hazel School - Total	\$223,480	\$25,210	\$198,270	\$9,579	12.0
Administration Building - Total	\$211,874	\$24,515	\$187,359	\$8,631	12.3
Roosevelt Middle School - Total	\$620,228	\$68,855	\$551,373	\$23,646	12.6
Pleasantdale School - Total	\$355,003	\$39,970	\$315,033	\$14,115	13.2
Redwood School - Total	\$368,664	\$42,385	\$326,279	\$14,204	13.5
St. Cloud School - Total	\$275,722	\$31,045	\$244,677	\$10,617	13.7
Mt. Pleasant School - Total	\$264,236	\$31,235	\$233,001	\$9,509	14.1
Liberty Middle School - Total	\$724,050	\$78,300	\$645,750	\$23,053	14.5

6.1.2 HVAC Systems

This section includes the recommended ECRM to provide energy savings for building HVAC systems, which provide a simple payback of less than 20 years. A detailed discussion on building HVAC systems is presented in Section 4.2. Presently there are no recommended HVAC measures with a payback of less than 20 years.

6.1.3 Solar Energy

Implementation of new solar energy systems has been evaluated to determine the economic feasibility for furnishing and installing such systems. Based on the simple payback modeling performed, it would not benefit the Board to further investigate installing the solar energy systems. This is primarily based on the initial upfront capital investment required for a solar energy system installation and a payback period greater than 20 years. Table 6.1-2, includes a ranking of the solar energy ECRMs evaluated for the Board.

Table 6.1-2				
Ranking of Energy Savings Measures Summary – Solar Energy Systems				
Building	Retrofit Cost	Annual SREC Credit	Annual Fiscal Savings	Simple Payback (Years)
Mt. Pleasant School	\$3,756,500	\$118,726	\$67,278	21.1
Liberty Middle School	\$3,272,300	\$102,896	\$58,308	21.2

Table 6.1-2				
Ranking of Energy Savings Measures Summary – Solar Energy Systems				
Building	Retrofit Cost	Annual SREC Credit	Annual Fiscal Savings	Simple Payback (Years)
West Orange High School	\$2,969,675	\$93,002	\$49,601	21.8
Edison Middle School	\$1,796,701	\$54,653	\$30,970	21.9
Gregory School	\$1,360,921	\$40,406	\$24,244	22.0
Redwood School	\$1,276,186	\$37,636	\$20,073	23.1
Bus Garage	\$609,200	\$15,830	\$10,553	24.1
Pleasantdale School	\$754,460	\$20,579	\$10,976	25.0
Roosevelt Middle School	\$851,300	\$23,745	\$11,873	25.0
Washington School	\$647,936	\$17,097	\$9,118	25.8
St. Cloud School	\$572,885	\$14,643	\$7,810	26.7
Administration Building	\$609,200	\$15,830	\$7,915	26.8
Hazel School	\$367,100	\$7,915	\$4,485	30.9

6.1.4 Wind Energy

Implementation of new wind energy systems has been evaluated to determine the economic feasibility for furnishing and installing such systems. Based on the simple payback modeling performed, it would benefit the Board to further investigate installing the wind energy systems. This is primarily based on the initial upfront capital investment required for a wind energy system installation and an acceptable payback period. Table 6.1-3, includes a ranking of the wind energy ECRMs evaluated for the Board.

Table 6.1-3			
Ranking of Energy Savings Measures Summary – Wind Turbine Energy System			
Parameter	Wind Turbine (Minimum Site Wind Speed – 4.4 m/s)	Wind Turbine (Maximum Site Wind Speed – 6.4 m/s)	Wind Turbine (Average Site Wind Speed – 5.5 m/s)
Engineer's Opinion of Probable Cost	\$450,000	\$450,000	\$450,000
1 st Year Production	77,066.0	157,143.0	123,812.0
Annual Estimated Electric Savings	\$12,986	\$26,479	\$20,862
Annual Estimated REC Revenue	\$1,927	\$3,929	\$3,095
Project Simple Payback	30.2	14.8	18.8

6.1.5 Submetering and Combined Heat and Power

Submetering electrical and natural gas usage gives greater information to building staff. This information better equips the building staff to identify times of the day for potential savings.

The combined heat and power produces electric energy with the benefit of producing thermal energy as a byproduct of the generation process. The yield of the combined heat and power is a greater value than the commodity consumed by the CHP system. Table 6.1-4, includes a ranking of the above listed systems for the Board.

Ranking	Measure	Retrofit Cost	Incentive	Total Cost	Energy Savings	Annual Fiscal Savings	Simple Payback (Years)
1	Submetering	\$32,500	\$0	\$32,500	170,623 kWh 10,229 therms	\$35,619	0.9
2	Combined Heat and Power	\$143,000	\$42,900	\$100,100	280,800 kWh -36,374 therms	\$12,243	10.3

Section 7

Grants, Incentives and Funding Sources

7.1 Renewable Energy

7.1.1 Renewable Energy Certificates (NJ BPU)

As part of New Jersey's Renewable Portfolio Standards (RPS), electric suppliers are required to have an annually-increasing percentage of their retail sales generated by renewable energy. Electric suppliers fulfill this obligation by purchasing renewable energy certificates (RECs) from the owners of solar generating systems. One REC is created for every 1,000 kWh (1 MWh) of renewable electricity generated. Although solar systems generate electricity and SRECs in tandem, the two are independent commodities and sold separately. The RPS, and creation of RECs, is intended to provide additional revenue flow and financial support for renewable energy projects in New Jersey. Class I RECs, which include electricity generated from wind, wave, tidal, geothermal and sustainable biomass, typically trade at around \$25/MWh. RECs generated from solar electricity, or SRECs, trade at \$550/MWh due to supplemental funding from NJ BPU. The supplemental funding will decrease over time to \$350/MWh.

7.1.2 Clean Energy Solutions Capital Investment Loan/Grant (NJ EDA)

NJ EDA, in cooperation with NJ DEP, is offering interest-free loans and grants for energy efficiency, combined heat and power (CHP), and renewable energy projects with total project capital equipment costs of at least \$1 million. The interest-free loans are available for up to \$5 million, a portion of which may be issued as a grant. For additional information, contact CESCI@njeda.com or call 866-534-7789.

7.1.3 Renewable Energy Incentive Program (NJ BPU)

The Renewable Energy Incentive Program (REIP) is currently on hold. For more information on REIP, please see www.njcleanenergy.com.

7.1.4 Grid Connected Renewables Program (NJ BPU)

The New Jersey Grid Connected Renewables Program offers competitive incentives for wind and sustainable biomass electricity generation projects larger than 1 Megawatt (MW). Most of the incentives offered under this program will take the form of a payment for energy production (\$/MWh) once the project is operating. Incentives range up to \$58.49/MWh for publicly-owned wastewater biogas projects. Up to 10% of the incentive may be requested in the form of a lump grant to cover up-front costs such as financing fees, interconnection fees, project design, permitting, and construction costs. For more information on the Grid Connected Renewable Program, please see www.njcleanenergy.com.

7.1.5 Utility Financing Programs

All four Electric Distribution Companies (EDCs) in New Jersey have developed long term contracting or financing programs for the development of solar energy systems. In all of the programs, Solar Renewable Energy Credits (SRECs) generated by the solar energy systems will be sold at auction to energy suppliers who are required to purchase a certain quantity of SRECs to meet their Renewable Portfolio Standard requirements.

7.1.6 Renewable Energy Manufacturing Incentive (NJ BPU)

New Jersey's Renewable Energy Manufacturing Incentive (REMI) program provides rebates to purchase and install solar panels, inverters, and racking systems manufactured in New Jersey. Rebates for panels start at \$0.25 per watt and rebates for tracking systems and inverters start at \$0.15 per watt for solar projects up to 500 kW in capacity. To be eligible for REMI, applicants must apply to either the [Renewable Energy Incentive Program \(REIP\)](#) or the [SREC Registration Program \(SRP\)](#).

7.1.7 Clean Renewable Energy Bonds (IRS)

The IRS is currently not accepting application for CREBs. For more information, please refer to <http://www.irs.gov/pub/irs-drop/a-10-54.pdf>.

7.1.8 Qualified Energy Conservation Bonds (IRS)

These IRS 0% interest bonds are very similar to CREBs except they are allocated based on state and county population. New Jersey was allocated \$90 million as part of the ARRA stimulus fund. QECBs are typically distributed through municipal bond banks or state economic development agencies.

7.1.9 Global Climate Change Mitigation Incentive Fund (US EDA)

The Economic Development Agency (part of the U.S. Department of Commerce) administers the GCCMIF to public works projects that reduce greenhouse gas emissions and creates new jobs. In FY 2012, \$16.5 million was allocated to the fund, and additional funding is expected to be allocated in FY 2013. Applications are due on a rolling basis. The program does not have a maximum grant amount but does limit the grant to 50 percent of the project cost.

7.1.10 Private Tax-Exempt Financing

Similar to traditional municipal bond financing, there are many private financial service companies that offer a myriad of options for tax-exempt financing of municipal projects. The providers of these services suggest that this capital can be offered at competitive rates in an expedited timeframe and with fewer complications when compared to traditional municipal financing methods. Though these factors would need to be compared on a case-by-case basis, the one distinct advantage to private financing on the current project would likely be the flexibility to structure payments to meet budget needs with consideration given to the terms and conditions of existing loan and/or bond agreements. For example, this mechanism could be used to limit the initial debt payments when the current bond debt is the greatest and the operations savings of the project has yet to be fully realized. It should also be noted that, in many cases, the construction and long term financing can be rolled into a single private financing agreement. Also, in some instances, equipment manufacturers have the ability to offer competitive financing terms (e.g. Siemens Financial Services Corporation), though financing from these sources is generally contingent upon a substantial portion of the project cost (~20% to 30%) being for their respective equipment.

7.1.11 Performance Based Contracts (ESCOs)

A second financing alternative for a project of this nature would be to enter into a Performance Based Contract with an Energy Services Company (ESCO). The premise of this type of contract is that it requires no initial municipal capital contributions in order to implement the project - instead relying on future operations cost savings and/or energy production, to fund the annual payments. Prior to entering into an agreement for the funding of the project, an ESCO would perform an energy audit and/or conceptual studies to confirm future energy cost savings or energy production inherent with the projects implementation and operation. The contract would then be formulated based on some measurable parameter(s) (energy production, etc.) which would be verified by measurement throughout the contract duration. The savings in energy costs or energy production would then be used to pay back the capital investment of the project over the contract time period (typically on the order of 10-years or less). The ESCO would guarantee the agreed upon energy savings or energy production. If the project does not meet energy savings or production commitments, the ESCO pays the owner the equivalent difference.

With this funding alternative, the ownership and operation of the facility would be maintained by the original owner. A performance contract may also include ESCO operation and maintenance of the energy-related facilities if that were deemed appropriate. Significant ESCO's with experience in this area include Siemens Building Technologies, Chevron and Johnson Controls. CDM Smith has functioned in several roles on performance based contracts including being the owner's representative and, on different contracts, providing design-build services (as a subcontractor to the ESCO). CDM Smith can provide additional experience-based information upon request.

7.1.12 Power Purchase Agreements (SPC)

A Power Purchase Agreement (PPA) also delivers a project with no initial capital contribution by the original owner. In this model, a Special Purpose Company (SPC) created by a developer, would own the energy production facilities. Within the framework of a PPA, a SPC will typically lease property from the owners for construction and operation of the new facilities. The funding and construction of the new facilities would be performed by the SPC who would then own and operate the facilities for the duration of the contract (typically 20 to 30 years). Throughout that period of time, the original owner would purchase power from the SPC at a pre-negotiated rate which would take into account the initial capital cost, operation and maintenance of the constructed facility, ancillary benefits of the project and investor returns on investment. For renewable energy, financial incentives may enable this financing approach to compete favorably with utility power tariffs. Incentives include state and local tax credits, renewable energy credits, and Federal energy production tax credits or energy investment tax credits. It is expected that a number of experienced companies and developers may be interested in a PPA for New Jersey municipal renewable energy projects.

7.2 Energy Efficiency

7.2.1 Introduction

New Jersey's Clean Energy Program (NJ CEP) promotes increased energy efficiency and the use of clean, renewable sources of energy including solar, wind, geothermal, and sustainable biomass. The results for New Jersey are a stronger economy, less pollution, lower costs, and reduced demand for electricity. NJCEP offers financial incentives, programs, and services for residential, commercial, and municipal customers.

NJCEP reduces the need to generate electricity and burn natural gas which eliminates the pollution that would have been caused by such electric generation or natural gas usage. The benefits of these programs continue for the life of the measures installed, which on average is about 15 years. Thus, the public receives

substantial environmental and public health benefits from programs that also lower energy bills and benefit the economy.

7.2.2 New Jersey Smart Start Buildings Program (NJ BPU)

The New Jersey Smart Start Buildings Program offers rebate incentives for several qualifying equipment such as high efficient premium motors and lighting, and lighting controls.

Incentive information and incentive calculation worksheets are provided for the various new equipment installation identified in this report and are included in Appendix F.

7.2.3 Pay for Performance Program (NJ BPU)

Another program offered through the New Jersey Smart Start Program, is the Pay for Performance Program. Commercial, industrial and institutional buildings are eligible for participation if not already receiving Energy Efficiency and Conservation Block Grants.

Incentives are available for buildings that are able to present an Energy Reduction Plans that reduce the building's current energy consumption by 15% or more, in addition to incentives for installing the recommended measures and incentives for presenting the energy savings in a post-construction benchmarking report. No more than 50% of the total energy savings may be derived from lighting retrofits. In addition, the total energy savings of 15% may not come from the implementation of one energy savings measure. The incentive structure is provided in Appendix F.

The recommended ECRM's presented in this report are expected to warrant participation in this program.

7.2.4 Direct Install (NJ BPU)

Owners of existing small to mid-size commercial and industrial facilities with a peak electric demand that did not exceed 150 kW in any of the preceding 12 months are eligible to participate in Direct Install. Buildings must be located in New Jersey and served by one of the state's public, regulated electric or natural gas utility companies.

This program will cover up to 70% of the retro-fitting costs associated with the use of new energy efficient equipment. Lighting, HVAC, refrigeration, motors, natural gas systems, and variable frequency drives are covered under the Direct Install program.

Based on the requirement to have not exceeded a peak demand of 150 kW in the preceding 12 months, the Administration Building, Hazel Elementary School, Mt. Pleasant Elementary School, Redwood Elementary School, St. Cloud Elementary School, Washington Elementary School, and the Bus Garage all qualify. The Direct Install Program is designed to fast-track project implementation so energy savings can be realized sooner rather than later. The steps for participation are to contact the contractor assigned and trained to provide Direct Install services in your County and schedule an Energy Assessment with this contractor. The contractor will assist in completing the Program Application and Participation Agreement.

The Energy Assessment with the participating contractor will work to determine which conservation measures qualify and the resulting project cost. Following this assessment, a scope of work will be finalized and installation will be arranged. Following completion of the installation a 'project completion form' must be submitted to the program representative assigned to the project.

The contractor for Essex County is:

Lime Energy
Tony McCoy
Phone: 732-791-5380
Email: tmccoy@lime-energy.com

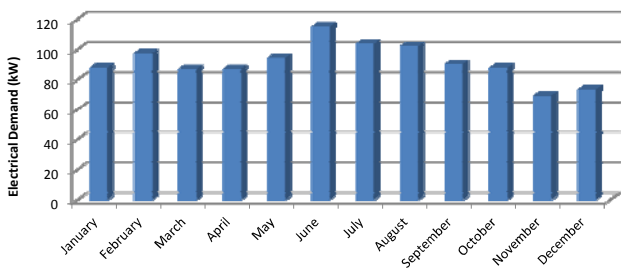
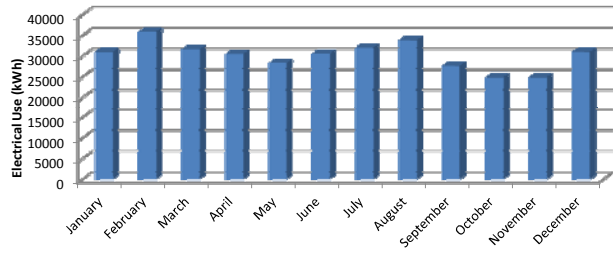
Any additional information on the Direct Install Program can be obtained by calling 866-NJSMART or by e-mail to DirectInstall@trcsolutions.com



Appendix A

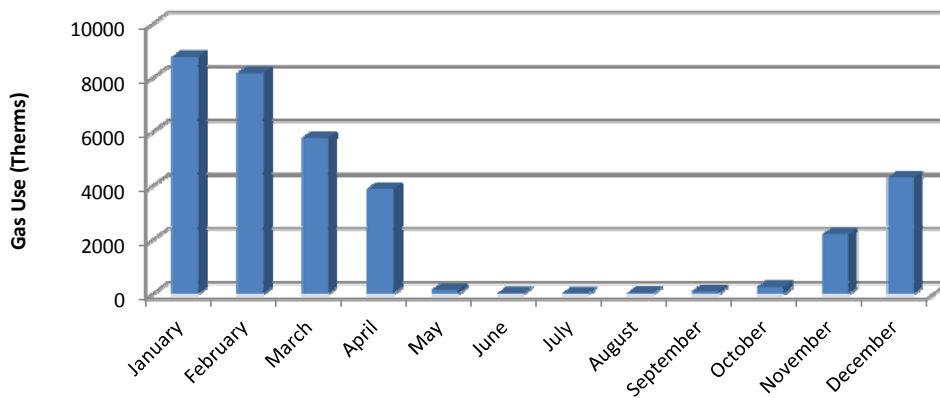
Energy Audit Building	BUILDING NAME	Administration
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	3738782209
Meter Number	METER NUMBER	728005545

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					
2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 1,313.68	\$ 3,443.20	\$ 4,756.88			32000	88.0	
Feb	1	Mar	1	\$ 1,450.00	\$ 3,882.21	\$ 5,332.21			36080	97.6	
Mar	1	Apr	1	\$ 1,270.00	\$ 3,374.34	\$ 4,644.34			31360	87.2	
Apr	1	May	1	\$ 1,288.00	\$ 3,271.04	\$ 4,559.04			30400	87.2	
May	1	June	1	\$ 1,266.00	\$ 2,681.11	\$ 3,947.11			28160	94.4	
June	1	July	1	\$ 2,514.00	\$ 2,917.23	\$ 5,431.23			30640	115.2	
July	1	Aug	1	\$ 2,433.00	\$ 3,046.72	\$ 5,479.72			32000	104.0	
Aug	1	Sept	1	\$ 2,514.00	\$ 3,221.91	\$ 5,735.91			33840	102.4	
Sept	1	Oct	1	\$ 2,130.00	\$ 2,612.56	\$ 4,742.56			27440	90.4	
Oct	1	Nov	1	\$ 1,147.00	\$ 2,353.59	\$ 3,500.59			24720	88.0	
Nov	1	Dec	1	\$ 1,082.00	\$ 2,368.82	\$ 3,450.82			24880	69.6	
Dec	1	Jan	1	\$ 1,304.00	\$ 2,970.55	\$ 4,274.55			31200	73.6	



Energy Audit Building	BUILDING NAME	Administration Building
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	3738782209
Meter Number	METER NUMBER	2806958

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1	\$ 2,930.29	\$ 6,112.75	\$9,043.04	8769
Feb	1	Mar	1		\$ 8,575.00	\$8,575.00	8167
Mar	1	Apr	1		\$ 6,148.00	\$6,148.00	5767
Apr	1	May	1		\$ 3,092.00	\$3,092.00	3870
May	1	June	1		\$ 219.00	\$219.00	148
June	1	July	1		\$ 111.00	\$111.00	17
July	1	Aug	1		\$ 107.00	\$107.00	12
Aug	1	Sept	1		\$ 122.00	\$122.00	27
Sept	1	Oct	1		\$ 179.00	\$179.00	101
Oct	1	Nov	1		\$ 290.00	\$290.00	251
Nov	1	Dec	1		\$ 2,944.00	\$2,944.00	2195
Dec	1	Jan	1		\$ 4,593.00	\$4,593.00	4294

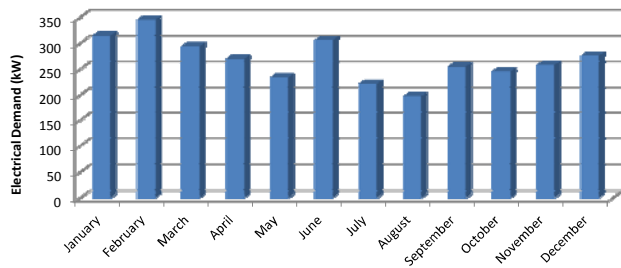
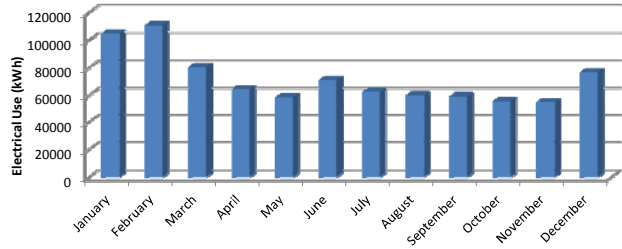


Energy Audit Building	BUILDING NAME	Edison Central Six
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	42 005 376 05
Meter Number	METER NUMBER	778019688

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

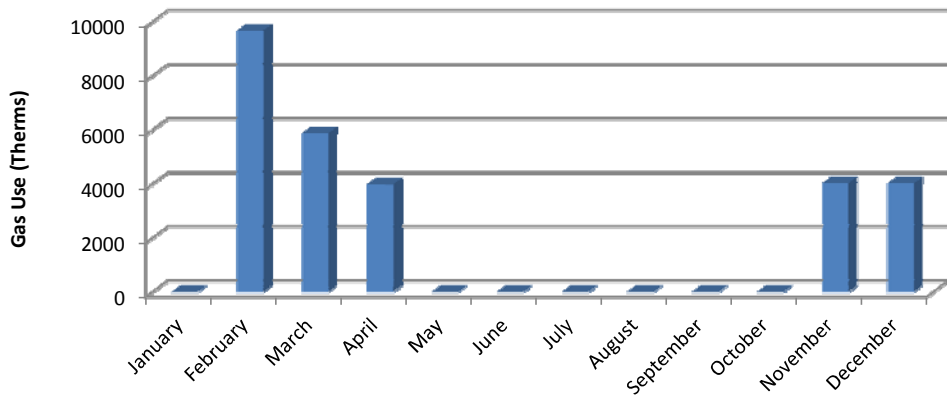
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 4,197.61	\$ 10,645.09	\$ 14,842.70			108000		315.0
Feb	1	Mar	1	\$ 4,301.02	\$ 11,622.81	\$ 15,923.83			111000		345.0
Mar	1	Apr	1	\$ 3,340.84	\$ 9,102.94	\$ 12,443.78			79200		294.0
Apr	1	May	1	\$ 2,986.80	\$ 7,340.27	\$ 10,327.07			64200		270.0
May	1	June	1	\$ 2,746.61	\$ 6,847.61	\$ 9,594.22			58500		234.0
June	1	July	1	\$ 5,839.52	\$ 8,391.46	\$ 14,230.98			71700		306.0
July	1	Aug	1	\$ 4,614.13	\$ 7,607.56	\$ 12,221.69			62100		222.0
Aug	1	Sept	1	\$ 4,334.70	\$ 7,560.88	\$ 11,895.58			60000		198.0
Sept	1	Oct	1	\$ 4,983.68	\$ 7,533.49	\$ 12,517.17			59100		255.0
Oct	1	Nov	1	\$ 2,748.08	\$ 6,780.94	\$ 9,529.02			55800		246.0
Nov	1	Dec	1	\$ 2,792.11	\$ 6,431.91	\$ 9,224.02			55200		258.0
Dec	1	Jan	1	\$ 3,476.43	\$ 8,033.86	\$ 11,510.29			77400		276.0



Energy Audit Building	BUILDING NAME	Edison School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	65 133 609 00
Meter Number	METER NUMBER	2809035

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$0.00	
Feb	1	Mar	1	\$ 2,305.46	\$ 6,822.42	\$9,127.88	9663
Mar	1	Apr	1	\$ 1,545.23	\$ 3,886.60	\$5,431.83	5867
Apr	1	May	1	\$ 1,118.24	\$ 2,633.30	\$3,751.54	3974
May	1	June	1			\$0.00	
June	1	July	1			\$0.00	
July	1	Aug	1			\$0.00	
Aug	1	Sept	1			\$0.00	
Sept	1	Oct	1			\$0.00	
Oct	1	Nov	1			\$0.00	
Nov	1	Dec	1			\$4,021.61	4022
Dec	1	Jan	1	\$ 1,348.31	\$ 2,403.82	\$3,752.13	4004

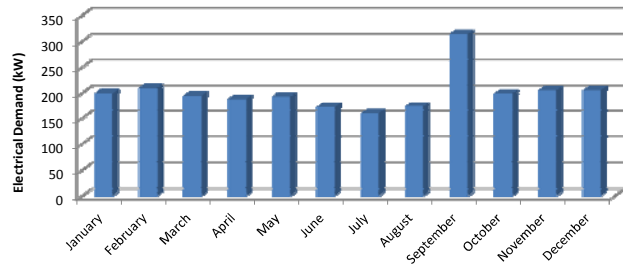
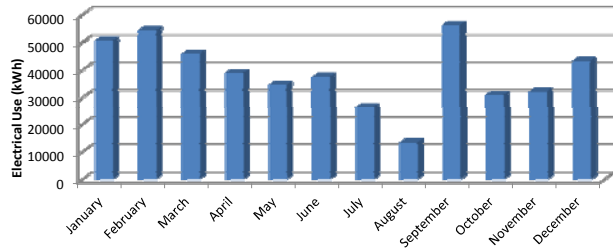


Energy Audit Building	BUILDING NAME	Gregory Elementary School
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	65 747 076 07
Meter Number	METER NUMBER	678001118

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

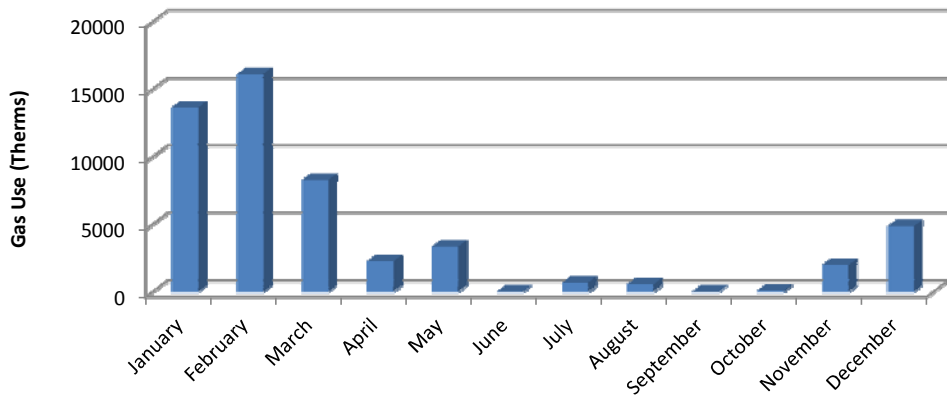
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 2,375.61	\$ 5,606.50	\$ 7,982.11			52105	199.8	
Feb	1	Mar	1	\$ 2,453.66	\$ 5,869.58	\$ 8,323.24			54550	210.2	
Mar	1	Apr	1	\$ 2,122.68	\$ 4,868.90	\$ 6,991.58			45250	195.0	
Apr	1	May	1	\$ 1,966.08	\$ 4,160.89	\$ 6,126.97			38670	188.6	
May	1	June	1	\$ 1,874.46	\$ 3,271.41	\$ 5,145.87			34360	193.4	
June	1	July	1	\$ 3,446.46	\$ 3,572.28	\$ 7,018.74			37520	171.8	
July	1	Aug	1	\$ 2,874.76	\$ 2,470.70	\$ 5,345.46			25950	159.8	
Aug	1	Sept	1	\$ 2,587.85	\$ 1,222.02	\$ 3,809.87			12835	173.4	
Sept	1	Oct	1	\$ 7,661.85	\$ 5,481.24	\$ 13,143.09			57570	314.0	
Oct	1	Nov	1	\$ 1,786.65	\$ 2,858.68	\$ 4,645.33			30025	199.0	
Nov	1	Dec	1	\$ 1,891.90	\$ 3,065.29	\$ 4,957.19			32195	205.4	
Dec	1	Jan	1	\$ 2,255.81	\$ 4,140.21	\$ 6,396.02			43485	205.4	



Energy Audit Building	BUILDING NAME	Gregory Elementary School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	65 747 073 07
Meter Number	METER NUMBER	2279759

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1	\$ 4,484.31	\$ 9,513.28	\$13,997.59	13647
Feb	1	Mar	1	\$ 5,205.74	\$ 11,366.85	\$16,572.59	16100
Mar	1	Apr	1	\$ 3,637.67	\$ 5,486.34	\$9,124.01	8283
Apr	1	May	1	\$ 366.59	\$ 1,487.10	\$1,853.69	2246
May	1	June	1	\$ 472.70	\$ 2,277.61	\$2,750.31	3359
June	1	July	1	\$ 100.10	\$ 13.32	\$113.42	20
July	1	Aug	1	\$ 197.50	\$ 474.96	\$672.46	700
Aug	1	Sept	1	\$ 183.61	\$ 393.38	\$576.99	578
Sept	1	Oct	1	\$ 298.59	\$ 10.88	\$309.47	16
Oct	1	Nov	1	\$ 113.05	\$ 57.26	\$170.31	93
Nov	1	Dec	1	\$ 2,403.71	\$ 1,211.24	\$3,614.95	2002
Dec	1	Jan	1	\$ 2,945.54	\$ 2,910.68	\$5,856.22	4848



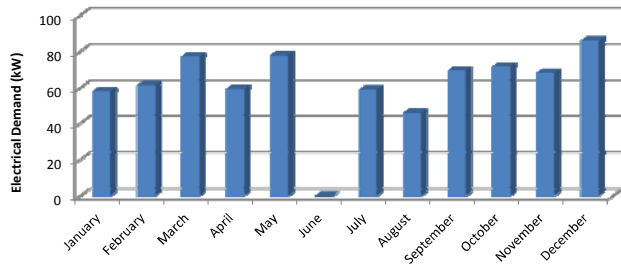
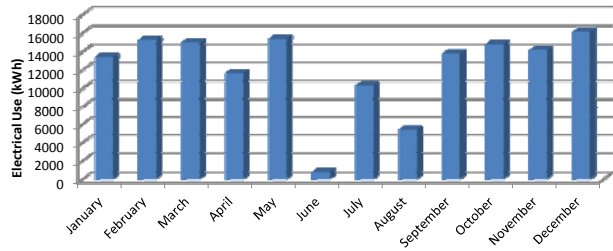
Energy Audit Building	BUILDING NAME	Hazel School
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	65 133 609 00
Meter Number	METER NUMBER	678003618

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

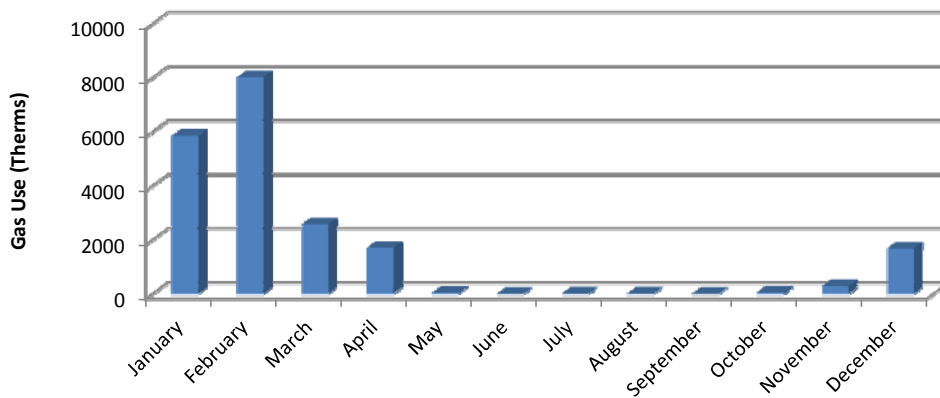
2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 654.07	\$ 1,488.11	\$ 2,142.18			13830		58.2
Feb	1	Mar	1	\$ 701.52	\$ 1,649.51	\$ 2,351.03			15330		61.5
Mar	1	Apr	1	\$ 755.59	\$ 1,604.32	\$ 2,359.91			14910		77.4
Apr	1	May	1	\$ 600.83	\$ 1,239.55	\$ 1,840.38			11520		59.4
May	1	June	1	\$ 806.93	\$ 1,473.85	\$ 2,280.78			15480		78.0
June	1	July	1	\$ 68.82	\$ 21.83	\$ 90.65			321		
July	1	Aug	1	\$ 1,102.44	\$ 1,011.13	\$ 2,113.57			10620		59.1
Aug	1	Sept	1	\$ 755.57	\$ 497.00	\$ 1,252.57			5220		45.9
Sept	1	Oct	1	\$ 1,374.20	\$ 1,336.75	\$ 2,710.95			14040		69.6
Oct	1	Nov	1	\$ 768.62	\$ 1,408.16	\$ 2,176.78			14790		71.7
Nov	1	Dec	1	\$ 737.78	\$ 1,342.46	\$ 2,080.24			14100		68.4
Dec	1	Jan	1	\$ 881.13	\$ 1,539.55	\$ 2,420.68			16170		86.1

estimate



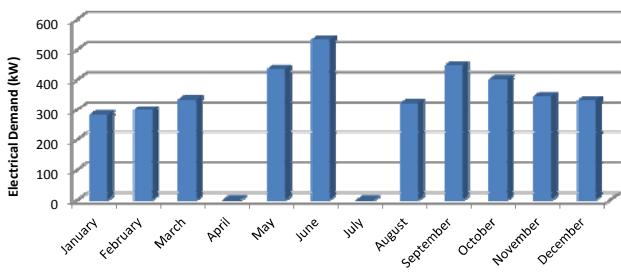
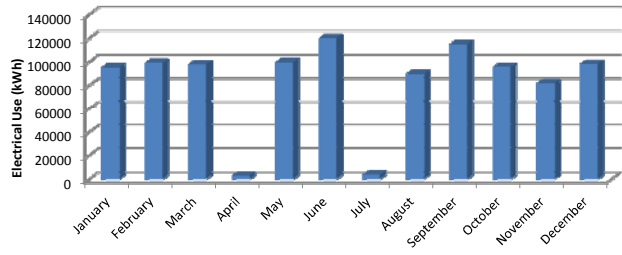
Energy Audit Building	BUILDING NAME	Hazel School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	65 133 609 00
Meter Number	METER NUMBER	1828187

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1	\$ 1,888.92	\$ 4,073.91	\$5,962.83	5844
Feb	1	Mar	1	\$ 2,547.80	\$ 5,651.56	\$8,199.36	8005
Mar	1	Apr	1	\$ 1,459.34	\$ 1,707.60	\$3,166.94	2578
Apr	1	May	1	\$ 311.81	\$ 1,124.95	\$1,436.76	1699
May	1	June	1	\$ 101.83	\$ 21.56	\$123.39	32
June	1	July	1	\$ 97.29	\$ -	\$97.29	0
July	1	Aug	1	\$ 98.35	\$ 5.01	\$103.36	7
Aug	1	Sept	1	\$ 100.51	\$ 5.02	\$105.53	7
Sept	1	Oct	1	\$ 99.50	\$ -	\$99.50	0
Oct	1	Nov	1	\$ 107.53	\$ 33.91	\$141.44	55
Nov	1	Dec	1	\$ 962.13	\$ 176.80	\$1,138.93	292
Dec	1	Jan	1	\$ 1,231.13	\$ 1,007.78	\$2,238.91	1679



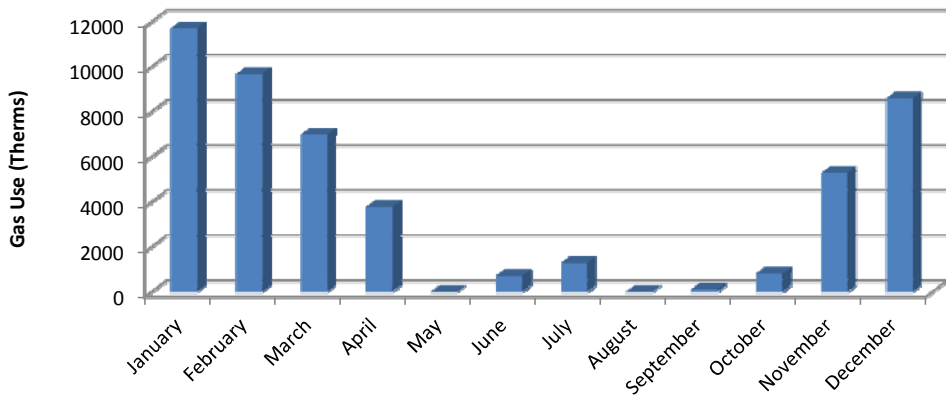
Energy Audit Building	BUILDING NAME	Liberty Middle School
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	42 004 063 06
Meter Number	METER NUMBER	778016927

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					
2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 3,796.49	\$ 11,380.03	\$ 15,176.52			98352	281.8	
Feb	1	Mar	1	\$ 3,858.30	\$ 12,380.36	\$ 16,238.66			99662	297.5	
Mar	1	Apr	1	\$ 3,937.41	\$ 12,221.60	\$ 16,159.01			97611	335.4	
Apr	1	May	1			\$ -					
May	1	June	1	\$ 4,624.83	\$ 12,094.65	\$ 16,719.48			102855	435.4	
June	1	July	1	\$ 9,782.33	\$ 13,573.61	\$ 23,355.94			120868	532.9	
July	1	Aug	1			\$ -					
Aug	1	Sept	1	\$ 6,696.91	\$ 11,501.20	\$ 18,198.11			92856	323.1	
Sept	1	Oct	1	\$ 8,776.86	\$ 13,258.15	\$ 22,035.01			115709	447.3	
Oct	1	Nov	1	\$ 4,346.93	\$ 10,719.29	\$ 15,066.22			94958	401.5	
Nov	1	Dec	1	\$ 3,831.51	\$ 9,387.21	\$ 13,218.72			81771	345.8	
Dec	1	Jan	1	\$ 4,263.03	\$ 10,660.83	\$ 14,923.86			98805	332.7	



Energy Audit Building	BUILDING NAME	Liberty Middle School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	42 004 063 06
Meter Number	METER NUMBER	3164353

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1	\$ 3,625.36	\$ 8,168.57	\$11,793.93	11701
Feb	1	Mar	1	\$ 3,225.82	\$ 6,802.15	\$10,027.97	9665
Mar	1	Apr	1	\$ 2,688.78	\$ 4,545.21	\$7,233.99	6985
Apr	1	May	1	\$ 512.86	\$ 2,514.75	\$3,027.61	3767
May	1	June	1			\$0.00	
June	1	July	1	\$ 199.66	\$ 484.13	\$683.79	716
July	1	Aug	1	\$ 270.29	\$ 873.33	\$1,143.62	1286
Aug	1	Sept	1			\$0.00	
Sept	1	Oct	1	\$ 115.22	\$ 182.67	\$297.89	108
Oct	1	Nov	1	\$ 217.51	\$ 496.11	\$713.62	810
Nov	1	Dec	1	\$ 2,294.71	\$ 3,170.15	\$5,464.86	5279
Dec	1	Jan	1	\$ 2,926.46	\$ 5,157.60	\$8,084.06	8592

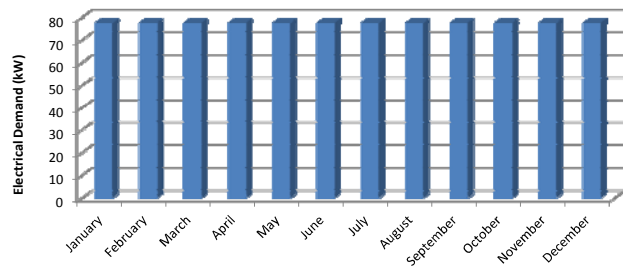
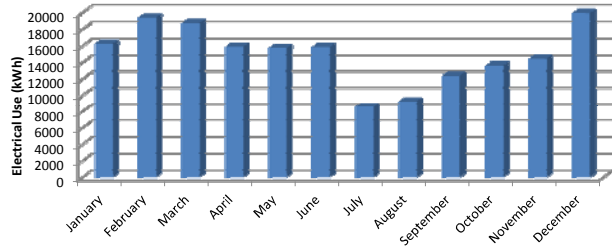


Energy Audit Building	BUILDING NAME	Mt. Pleasant Elementary School
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	66 610 487 00
Meter Number	METER NUMBER	728012065

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

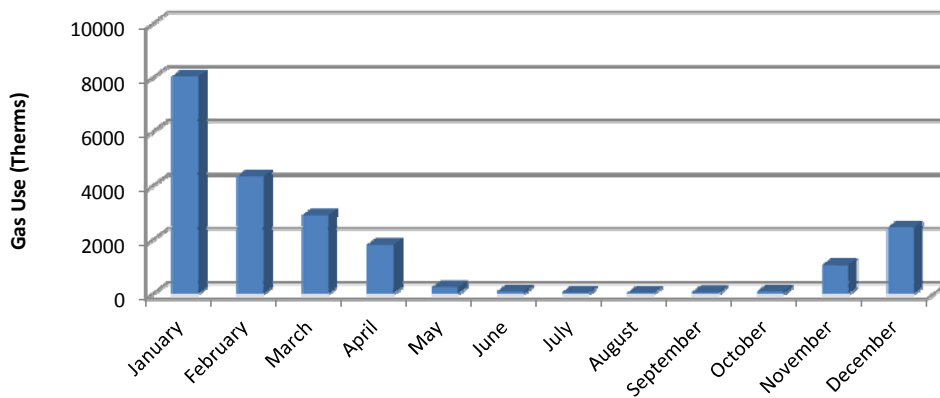
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 819.93	\$ 1,799.07	\$ 2,619.00			16720		77.6
Feb	1	Mar	1	\$ 889.15	\$ 2,100.35	\$ 2,989.50			19520		77.6
Mar	1	Apr	1	\$ 863.82	\$ 2,005.66	\$ 2,869.48			18640		77.6
Apr	1	May	1	\$ 804.86	\$ 1,695.78	\$ 2,500.64			15760		77.6
May	1	June	1	\$ 811.44	\$ 1,492.89	\$ 2,304.33			15680		77.6
June	1	July	1	\$ 1,515.91	\$ 1,508.13	\$ 3,024.04			15840		77.6
July	1	Aug	1	\$ 1,236.52	\$ 792.15	\$ 2,028.67			8320		77.6
Aug	1	Sept	1	\$ 1,291.46	\$ 883.55	\$ 2,175.01			9280		77.6
Sept	1	Oct	1	\$ 1,412.36	\$ 1,188.22	\$ 2,600.58			12480		77.6
Oct	1	Nov	1	\$ 756.57	\$ 1,294.86	\$ 2,051.43			13600		77.6
Nov	1	Dec	1	\$ 788.73	\$ 1,378.64	\$ 2,167.37			14480		77.6
Dec	1	Jan	1	\$ 968.93	\$ 1,911.82	\$ 2,880.75			20080		77.6



Energy Audit Building	BUILDING NAME	Mt. Pleasant Elementary School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	66 610 487 00
Meter Number	METER NUMBER	2643880

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1	\$ 2,420.55	\$ 5,603.11	\$8,023.66	8037
Feb	1	Mar	1	\$ 1,720.21	\$ 3,069.59	\$4,789.80	4343
Mar	1	Apr	1	\$ 1,430.77	\$ 1,920.81	\$3,351.58	2900
Apr	1	May	1	\$ 323.48	\$ 1,201.16	\$1,524.64	1814
May	1	June	1	\$ 132.73	\$ 168.06	\$300.79	248
June	1	July	1	\$ 109.69	\$ 58.75	\$168.44	87
July	1	Aug	1	\$ 104.84	\$ 35.80	\$140.64	53
Aug	1	Sept	1	\$ 104.50	\$ 23.72	\$128.22	35
Sept	1	Oct	1	\$ 109.05	\$ 41.99	\$151.04	66
Oct	1	Nov	1	\$ 112.92	\$ 56.73	\$169.65	92
Nov	1	Dec	1	\$ 1,076.85	\$ 646.38	\$1,723.23	1068
Dec	1	Jan	1	\$ 1,340.40	\$ 1,474.77	\$2,815.17	2456

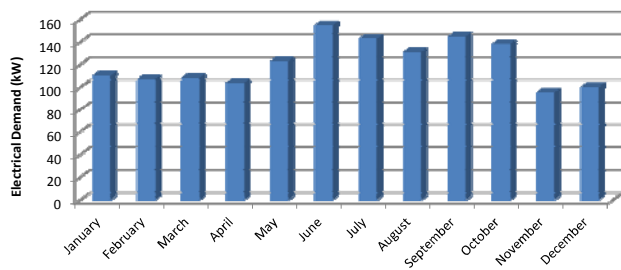
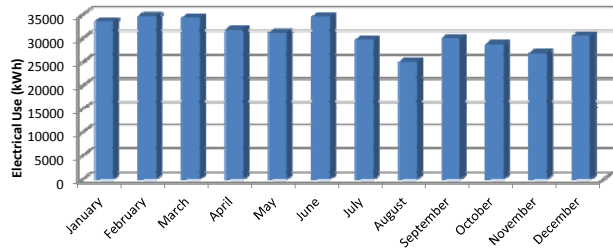


Energy Audit Building	BUILDING NAME	Pleasantdale Elementary School
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	42 005 484 02
Meter Number	METER NUMBER	778019768

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

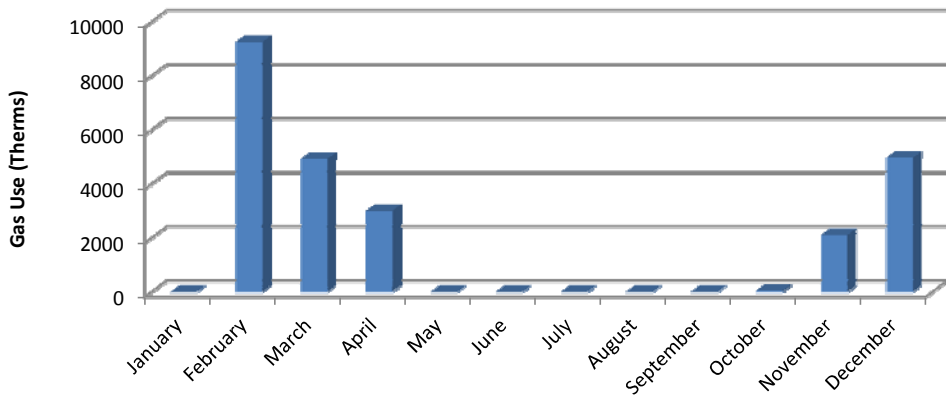
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 1,626.99	\$ 3,662.39	\$ 5,289.38			34590		110.8
Feb	1	Mar	1	\$ 1,604.53	\$ 3,683.57	\$ 5,288.10			34790		107.3
Mar	1	Apr	1	\$ 1,593.08	\$ 3,615.48	\$ 5,208.56			34147		108.6
Apr	1	May	1	\$ 1,568.48	\$ 3,360.21	\$ 4,928.69			31736		104.2
May	1	June	1	\$ 1,633.42	\$ 2,908.03	\$ 4,541.45			31092		123.4
June	1	July	1	\$ 3,098.51	\$ 3,245.12	\$ 6,343.63			34696		154.8
July	1	Aug	1	\$ 2,828.12	\$ 2,754.36	\$ 5,582.48			29449		143.2
Aug	1	Sept	1	\$ 2,603.06	\$ 2,323.47	\$ 4,926.53			24842		131.4
Sept	1	Oct	1	\$ 2,904.36	\$ 2,824.70	\$ 5,729.06			30201		144.7
Oct	1	Nov	1	\$ 1,639.02	\$ 2,675.24	\$ 4,314.26			28603		138.4
Nov	1	Dec	1	\$ 1,451.57	\$ 2,508.01	\$ 3,959.58			26815		95.7
Dec	1	Jan	1	\$ 1,575.66	\$ 2,858.93	\$ 4,434.59			30567		100.4



Energy Audit Building	BUILDING NAME	Pleasantdale Elementary School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	67 299 550 07
Meter Number	METER NUMBER	2209053

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$0.00	
Feb	1	Mar	1	\$ 3,303.57		\$3,303.57	9244
Mar	1	Apr	1	\$ 2,435.45		\$2,435.45	4917
Apr	1	May	1	\$ 441.97		\$441.97	2996
May	1	June	1			\$0.00	
June	1	July	1			\$0.00	
July	1	Aug	1			\$0.00	
Aug	1	Sept	1			\$0.00	
Sept	1	Oct	1			\$0.00	
Oct	1	Nov	1	\$ 99.00		\$99.00	43
Nov	1	Dec	1	\$ 1,883.90		\$1,883.90	2103
Dec	1	Jan	1	\$ 2,427.24		\$2,427.24	4957

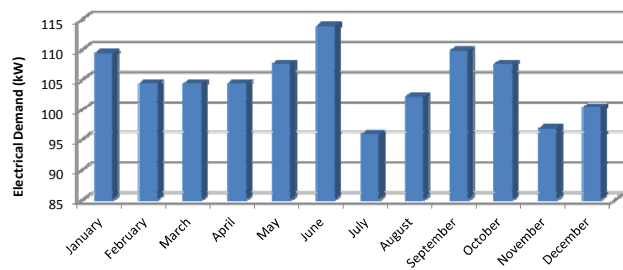
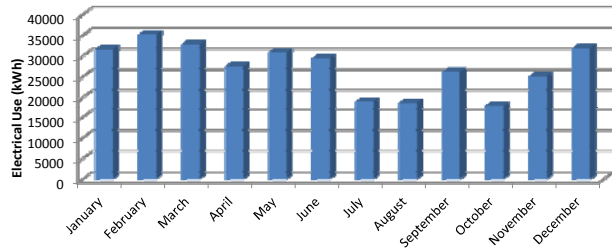


Energy Audit Building	BUILDING NAME	Redwood Elementary School
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	66 001 936 03
Meter Number	METER NUMBER	678001488

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

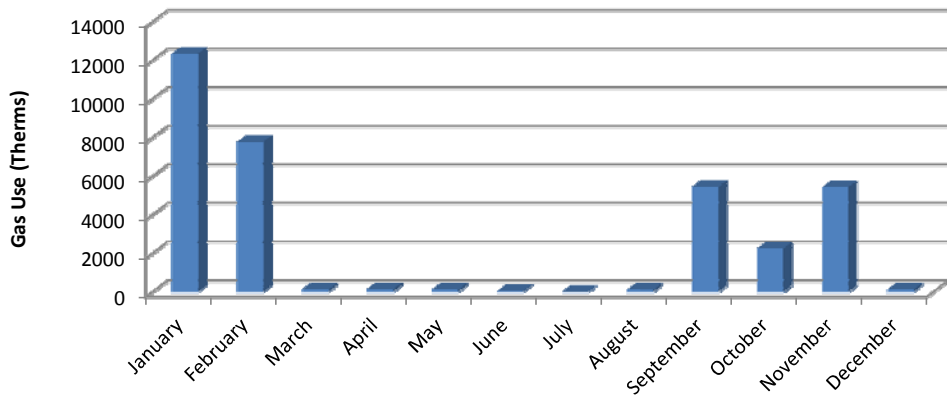
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 1,419.77	\$ 3,505.61	\$ 4,925.38			32580		109.4
Feb	1	Mar	1	\$ 1,456.99	\$ 3,805.81	\$ 5,262.80			35370		104.4
Mar	1	Apr	1	\$ 1,377.95	\$ 3,510.45	\$ 4,888.40			32625		104.4
Apr	1	May	1	\$ 1,267.95	\$ 2,943.94	\$ 4,211.89			27360		104.4
May	1	June	1	\$ 1,406.80	\$ 2,943.42	\$ 4,350.22			30915		107.6
June	1	July	1	\$ 2,453.06	\$ 2,802.03	\$ 5,255.09			29430		113.9
July	1	Aug	1	\$ 1,838.31	\$ 1,773.76	\$ 3,612.07			18630		95.9
Aug	1	Sept	1	\$ 1,941.99	\$ 1,778.05	\$ 3,720.04			18675		102.2
Sept	1	Oct	1	\$ 2,327.41	\$ 2,519.26	\$ 4,846.67			26460		109.8
Oct	1	Nov	1	\$ 1,010.86	\$ 1,683.79	\$ 2,694.65			17685		107.6
Nov	1	Dec	1	\$ 1,211.59	\$ 2,412.15	\$ 3,623.74			25335		96.8
Dec	1	Jan	1	\$ 1,445.62	\$ 3,054.81	\$ 4,500.43			32085		100.4



Energy Audit Building	BUILDING NAME	Redwood Elementary School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	67 380 139 06
Meter Number	METER NUMBER	2348942

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	21	Feb	22			\$4,191.03	12342
Feb	23	Mar	23			\$3,226.49	7756
Mar	24	Apr	1			\$330.00	121
Apr	1	May	1			\$200.00	147
May	1	June	1			\$200.00	122
June	1	July	1			\$200.00	35
July	1	Aug	1			\$200.00	7
Aug	1	Sept	1			\$200.00	115
Sept	1	Oct	1			\$5,449.39	5449
Oct	20	Nov	18			\$2,003.52	2254
Nov	19	Dec	21			\$2,750.94	5424
Dec	1	Jan	1			\$125.49	120

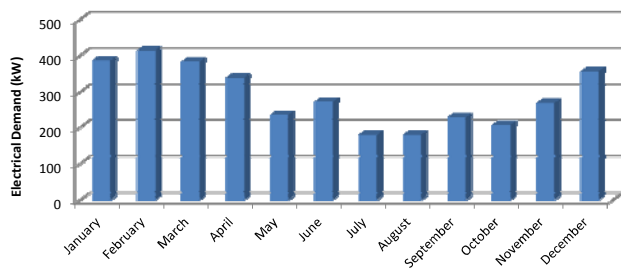
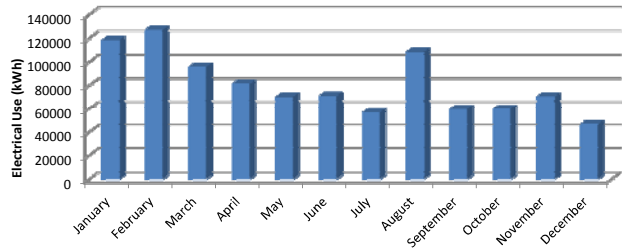


Energy Audit Building	BUILDING NAME	Roosevelt Middle School
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	42 003 067 00
Meter Number	METER NUMBER	778018144

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

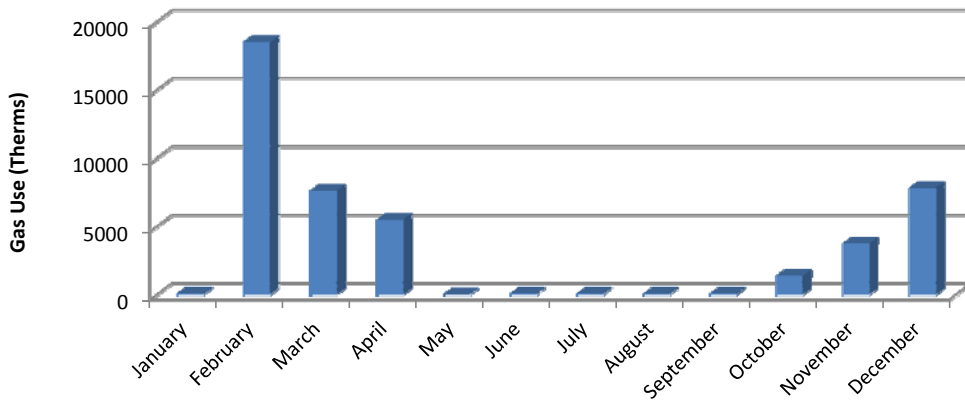
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 4,802.02	\$ 12,927.95	\$ 17,729.97			122100		387.0
Feb	1	Mar	1	\$ 4,952.29	\$ 13,531.46	\$ 18,483.75			127800		414.0
Mar	1	Apr	1	\$ 4,019.56	\$ 9,973.90	\$ 13,993.46			94200		384.0
Apr	1	May	1	\$ 3,671.25	\$ 8,608.04	\$ 12,279.29			81300		339.0
May	1	June	1	\$ 3,052.12	\$ 6,537.75	\$ 9,589.87			69900		234.0
June	1	July	1	\$ 5,449.67	\$ 6,678.04	\$ 12,127.71			71400		273.0
July	1	Aug	1	\$ 3,975.11	\$ 5,275.09	\$ 9,250.20			56400		180.0
Aug	1	Sept	1	\$ 7,574.65	\$ 10,297.65	\$ 17,872.30			110100		180.0
Sept	1	Oct	1	\$ 4,641.30	\$ 5,443.45	\$ 10,084.75			58200		228.0
Oct	1	Nov	1	\$ 2,725.44	\$ 5,611.80	\$ 8,337.24			60000		207.0
Nov	1	Dec	1	\$ 3,268.08	\$ 6,649.98	\$ 9,918.06			71100		270.0
Dec	1	Jan	1	\$ 4,229.31	\$ 8,838.58	\$ 13,067.89			45900		357.0



Energy Audit Building	BUILDING NAME	Roosevelt Middle School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	66 997 371 04
Meter Number	METER NUMBER	1792404

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1	\$ 89.00		\$89.00	72
Feb	1	Mar	1	\$ 6,239.35		\$6,239.35	18508
Mar	1	Apr	1	\$ 4,038.29		\$4,038.29	7602
Apr	1	May	1	\$ 846.49		\$846.49	5489
May	1	June	1	\$ 15.00		\$15.00	13
June	1	July	1	\$ 73.00		\$73.00	62
July	1	Aug	1	\$ 65.00		\$65.00	54
Aug	1	Sept	1	\$ 68.00		\$68.00	46
Sept	1	Oct	1	\$ 76.00		\$76.00	68
Oct	1	Nov	1	\$ 73.00		\$1,372.00	1372
Nov	1	Dec	1	\$ 3,289.61		\$3,289.61	3742
Dec	1	Jan	1	\$ 4,051.21		\$4,051.21	7816

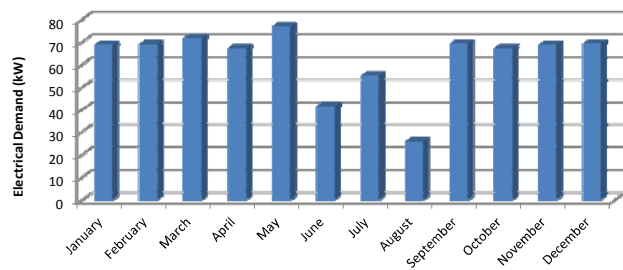
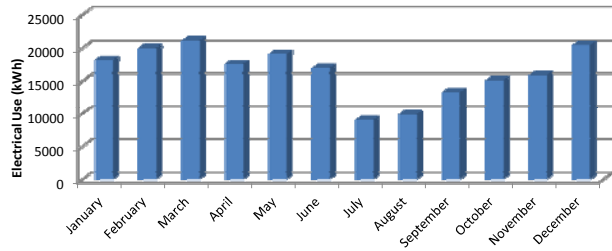


Energy Audit Building	BUILDING NAME	St. Cloud Elementary School
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	65 968 950 09
Meter Number	METER NUMBER	278007392

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

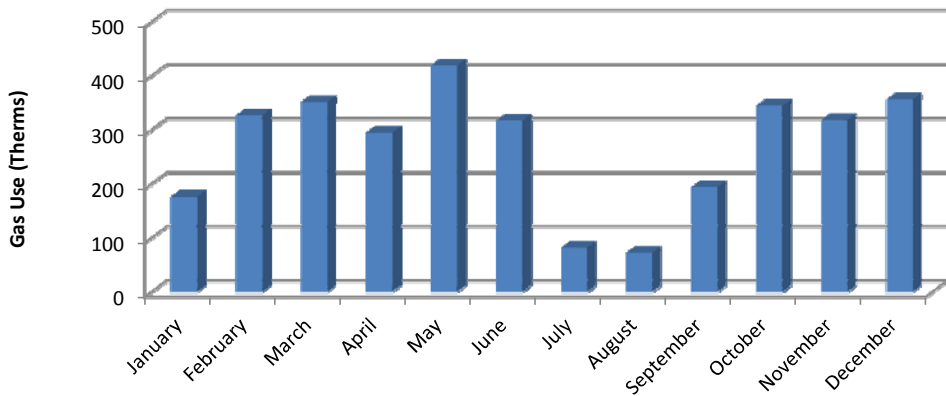
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 841.92	\$ 2,014.27	\$ 2,856.19			18720		68.7
Feb	1	Mar	1	\$ 868.34	\$ 2,156.30	\$ 3,024.64			20040		69.0
Mar	1	Apr	1	\$ 908.08	\$ 2,262.83	\$ 3,170.91			21030		71.7
Apr	1	May	1	\$ 813.10	\$ 1,878.70	\$ 2,691.80			17460		67.2
May	1	June	1	\$ 912.20	\$ 1,813.75	\$ 2,725.95			19050		76.8
June	1	July	1	\$ 1,128.44	\$ 1,608.10	\$ 2,736.54			16890		41.7
July	1	Aug	1	\$ 984.52	\$ 828.33	\$ 1,812.85			8700		55.2
Aug	1	Sept	1	\$ 686.12	\$ 936.87	\$ 1,622.99			9840		25.8
Sept	1	Oct	1	\$ 1,346.90	\$ 1,276.77	\$ 2,623.67			13410		69.3
Oct	1	Nov	1	\$ 759.83	\$ 1,439.58	\$ 2,199.41			15120		67.2
Nov	1	Dec	1	\$ 795.70	\$ 1,513.84	\$ 2,309.54			15900		68.7
Dec	1	Jan	1	\$ 946.74	\$ 1,950.85	\$ 2,897.59			20490		69.3



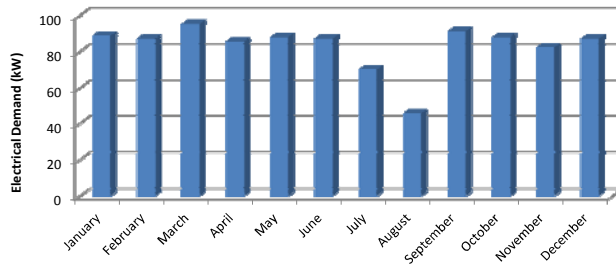
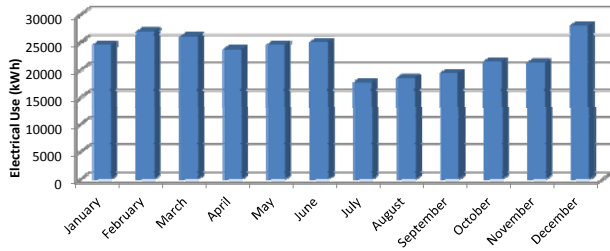
Energy Audit Building	BUILDING NAME	St. Cloud Elementary School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	65 968 950 09
Meter Number	METER NUMBER	2471319

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1	\$ 69.36	\$ 122.57	\$191.93	176
Feb	1	Mar	1	\$ 130.45	\$ 230.47	\$360.92	326
Mar	1	Apr	1	\$ 143.10	\$ 232.69	\$375.79	351
Apr	1	May	1	\$ 107.80	\$ 195.04	\$302.84	295
May	1	June	1	\$ 148.20	\$ 284.00	\$432.20	419
June	1	July	1	\$ 114.60	\$ 214.60	\$329.20	317
July	1	Aug	1	\$ 37.36	\$ 55.37	\$92.73	82
Aug	1	Sept	1	\$ 34.99	\$ 49.22	\$84.21	72
Sept	1	Oct	1	\$ 75.67	\$ 124.06	\$199.73	194
Oct	1	Nov	1	\$ 126.11	\$ 211.92	\$338.03	344
Nov	1	Dec	1	\$ 131.73	\$ 192.50	\$324.23	318
Dec	1	Jan	1	\$ 145.14	\$ 213.61	\$358.75	356



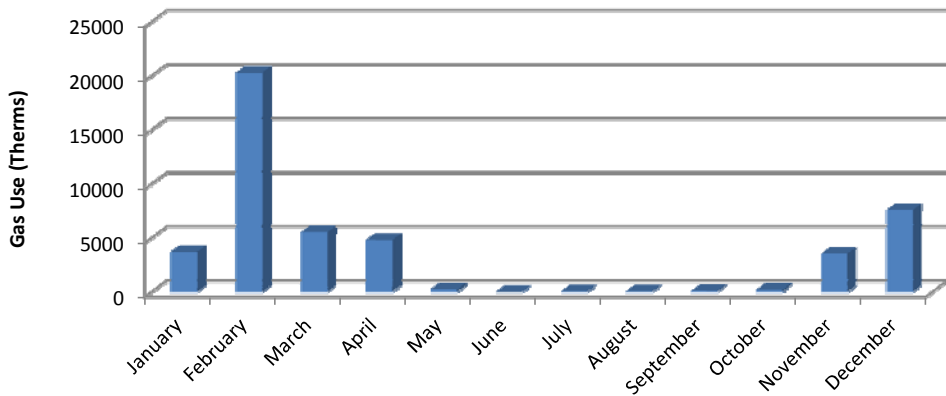
Energy Audit Building	BUILDING NAME	Washington Elementary School
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	65 308 269 04
Meter Number	METER NUMBER	728011060

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					
2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 1,118.78	\$ 2,720.13	\$ 3,838.91			25280	88.8	
Feb	1	Mar	1	\$ 1,145.60	\$ 2,909.50	\$ 4,055.10			27040	87.2	
Mar	1	Apr	1	\$ 1,144.33	\$ 2,780.38	\$ 3,924.71			25840	95.2	
Apr	1	May	1	\$ 1,075.75	\$ 2,539.36	\$ 3,615.11			23600	85.6	
May	1	June	1	\$ 1,126.51	\$ 2,330.74	\$ 3,457.25			24480	88.0	
June	1	July	1	\$ 1,978.41	\$ 2,384.06	\$ 4,362.47			25040	87.2	
July	1	Aug	1	\$ 1,490.94	\$ 1,660.46	\$ 3,151.40			17440	70.4	
Aug	1	Sept	1	\$ 1,253.23	\$ 1,767.10	\$ 3,020.33			18560	45.6	
Sept	1	Oct	1	\$ 1,838.52	\$ 1,850.88	\$ 3,689.40			19440	91.2	
Oct	1	Nov	1	\$ 1,047.21	\$ 2,048.92	\$ 3,096.13			21520	88.0	
Nov	1	Dec	1	\$ 1,023.03	\$ 2,026.07	\$ 3,049.10			21280	82.4	
Dec	1	Jan	1	\$ 1,265.43	\$ 2,681.11	\$ 3,946.54			28160	87.2	



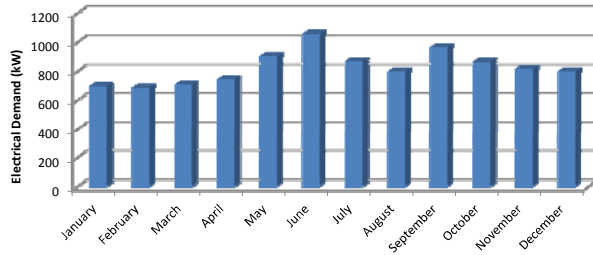
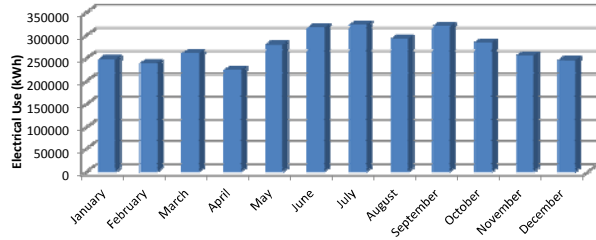
Energy Audit Building	BUILDING NAME	Washington Elementary School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	65 308 269 04
Meter Number	METER NUMBER	3166089

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1	\$ 1,969.46	\$ 2,585.88	\$4,555.34	3710
Feb	1	Mar	1	\$ 5,590.23	\$ 14,310.70	\$19,900.93	20270
Mar	1	Apr	1	\$ 2,627.18	\$ 3,640.17	\$6,267.35	5495
Apr	1	May	1	\$ 623.20	\$ 3,180.81	\$3,804.01	4804
May	1	June	1	\$ 134.53	\$ 176.61	\$311.14	261
June	1	July	1	\$ 113.99	\$ 79.16	\$193.15	0
July	1	Aug	1	\$ 103.53	\$ 29.59	\$133.12	44
Aug	1	Sept	1	\$ 106.26	\$ 31.92	\$138.18	47
Sept	1	Oct	1	\$ 110.16	\$ 46.92	\$157.08	73
Oct	1	Nov	1	\$ 125.96	\$ 111.84	\$237.80	182
Nov	1	Dec	1	\$ 2,233.79	\$ 2,137.87	\$4,371.66	3533
Dec	1	Jan	1	\$ 2,998.39	\$ 4,535.61	\$7,534.00	7555



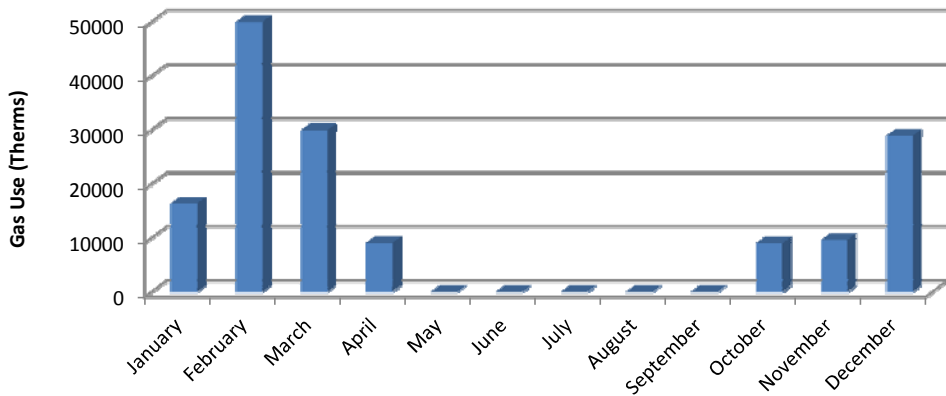
Energy Audit Building	BUILDING NAME	West Orange High School
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	42 007 115 08
Meter Number	METER NUMBER	778019346

2009										
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW
Jan	1	Feb	1			\$ -				
Feb	1	Mar	1			\$ -				
Mar	1	Apr	1			\$ -				
Apr	1	May	1			\$ -				
May	1	June	1			\$ -				
June	1	July	1			\$ -				
July	1	Aug	1			\$ -				
Aug	1	Sept	1			\$ -				
Sept	1	Oct	1			\$ -				
Oct	1	Nov	1			\$ -				
Nov	1	Dec	1			\$ -				
Dec	1	Jan	1			\$ -				
2010										
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW
Jan	1	Feb	1			\$ -				
Feb	1	Mar	1			\$ -				
Mar	1	Apr	1			\$ -				
Apr	1	May	1			\$ -				
May	1	June	1			\$ -				
June	1	July	1			\$ -				
July	1	Aug	1			\$ -				
Aug	1	Sept	1			\$ -				
Sept	1	Oct	1			\$ -				
Oct	1	Nov	1			\$ -				
Nov	1	Dec	1			\$ -				
Dec	1	Jan	1			\$ -				
2011										
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW
Jan	1	Feb	1	\$ 9,456.69	\$ 26,294.55	\$ 35,751.24			255042	697.8
Feb	1	Mar	1	\$ 9,017.35	\$ 26,896.24	\$ 35,913.59			238684	687.5
Mar	1	Apr	1	\$ 9,631.05	\$ 28,852.26	\$ 38,483.31			260004	709.0
Apr	1	May	1	\$ 9,210.80	\$ 23,604.09	\$ 32,814.89			222044	744.4
May	1	June	1	\$ 11,372.52	\$ 28,176.61	\$ 39,549.13			280558	905.0
June	1	July	1	\$ 21,494.61	\$ 31,389.06	\$ 52,883.67			317554	1057.0
July	1	Aug	1	\$ 19,496.66	\$ 32,207.18	\$ 51,703.84			321862	869.3
Aug	1	Sept	1	\$ 18,018.54	\$ 30,321.53	\$ 48,340.07			290583	798.8
Sept	1	Oct	1	\$ 20,623.36	\$ 31,873.05	\$ 52,496.41			320147	966.0
Oct	1	Nov	1	\$ 11,390.52	\$ 26,343.63	\$ 37,734.15			281798	865.3
Nov	1	Dec	1	\$ 10,588.41	\$ 24,062.85	\$ 34,651.26			253793	816.8
Dec	1	Jan	1	\$ 10,282.92	\$ 22,802.68	\$ 33,085.60			244357	800.4



Energy Audit Building	BUILDING NAME	West Orange High School
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	65 178 338 03
Meter Number	METER NUMBER	3227874&1807972

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$16,733.00	16341
Feb	1	Mar	1	\$1,922.86	\$7,198.03	\$31,496.89	49905
Mar	1	Apr	1	\$1,415.67	\$5,716.54	\$19,859.21	29885
Apr	1	May	1	\$321.30		\$5,981.30	9032
May	1	June	1			\$99.00	2
June	1	July	1			\$99.00	0
July	1	Aug	1			\$99.00	1
Aug	1	Sept	1			\$99.00	1
Sept	1	Oct	1			\$101.00	9
Oct	1	Nov	1			\$9,849.00	8999
Nov	1	Dec	1			\$9,567.00	9612
Dec	1	Jan	1	\$1,427.70	\$5,338.64	\$18,516.34	28876

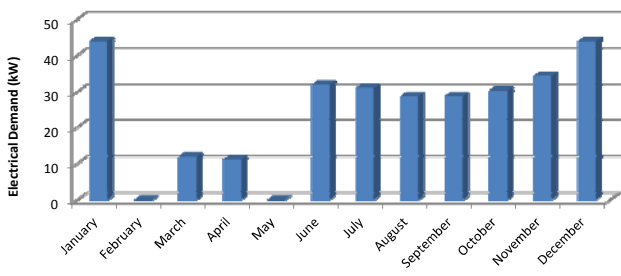
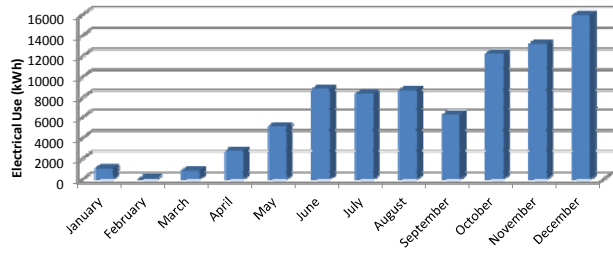


Energy Audit Building	BUILDING NAME	West Orange Bus Garage
Service Provider	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	69 382 585 03
Meter Number	METER NUMBER	9197049

2009											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

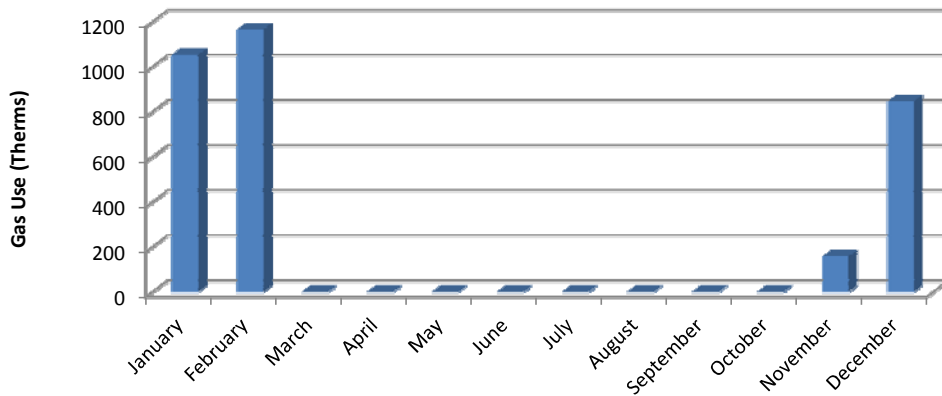
2010											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1			\$ -					
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1			\$ -					
Apr	1	May	1			\$ -					
May	1	June	1			\$ -					
June	1	July	1			\$ -					
July	1	Aug	1			\$ -					
Aug	1	Sept	1			\$ -					
Sept	1	Oct	1			\$ -					
Oct	1	Nov	1			\$ -					
Nov	1	Dec	1			\$ -					
Dec	1	Jan	1			\$ -					

2011											
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	On Peak kWh	Off Peak kWh	Total kWh	KW	
Jan	1	Feb	1	\$ 190.79	\$ 222.62	\$ 413.41			1053	44.0	
Feb	1	Mar	1			\$ -					
Mar	1	Apr	1	\$ 74.14	\$ 265.36	\$ 339.50			880	12.0	
Apr	1	May	1	\$ 137.38	\$ 450.05	\$ 587.43			2800	11.2	
May	1	June	1			\$ 1,500.00			5200		
June	1	July	1	\$ 718.02	\$ 988.50	\$ 1,706.52			8960	32.0	
July	1	Aug	1	\$ 686.90	\$ 973.75	\$ 1,660.65			8320	31.2	
Aug	1	Sept	1	\$ 680.60	\$ 1,046.68	\$ 1,727.28			8720	28.8	
Sept	1	Oct	1	\$ 584.38	\$ 770.14	\$ 1,354.52			6160	28.8	
Oct	1	Nov	1	\$ 519.25	\$ 1,201.43	\$ 1,720.68			12400	30.4	
Nov	1	Dec	1	\$ 567.02	\$ 1,253.79	\$ 1,820.81			13200	34.4	
Dec	1	Jan	1	\$ 697.40	\$ 1,470.27	\$ 2,167.67			16000	44.0	



Energy Audit Building	BUILDING NAME	West Orange Bus Garage
Account:	SERVICE PROVIDER	PSE&G
Account Number:	ACCOUNT NUMBER	69 382 585 03
Meter Number	METER NUMBER	1905296

2009							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2010							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1			\$ -	
Feb	1	Mar	1			\$ -	
Mar	1	Apr	1			\$ -	
Apr	1	May	1			\$ -	
May	1	June	1			\$ -	
June	1	July	1			\$ -	
July	1	Aug	1			\$ -	
Aug	1	Sept	1			\$ -	
Sept	1	Oct	1			\$ -	
Oct	1	Nov	1			\$ -	
Nov	1	Dec	1			\$ -	
Dec	1	Jan	1			\$ -	
2011							
Month	Day	Month	Day	Delivery Charge	Supply Charge	Total Charge	Therms
Jan	1	Feb	1	\$ 452.46	\$ 616.12	\$1,068.58	1053
Feb	1	Mar	1	\$ 497.34	\$ 681.21	\$1,178.55	1164
Mar	1	Apr	1			\$0.00	
Apr	1	May	1			\$0.00	
May	1	June	1			\$0.00	
June	1	July	1			\$0.00	
July	1	Aug	1			\$0.00	
Aug	1	Sept	1			\$0.00	
Sept	1	Oct	1			\$0.00	
Oct	1	Nov	1			\$0.00	
Nov	1	Dec	1	\$ 78.47	\$ 94.42	\$172.89	156
Dec	1	Jan	1	\$ 370.54	\$ 507.46	\$878.00	845





Appendix B



STATEMENT OF ENERGY PERFORMANCE

Administration Building

Building ID: 3230055
For 12-month Period Ending: December 31, 2011¹
Date SEP becomes ineligible: N/A

Date SEP Generated: September 27, 2012

Facility
Administration Building
179 Eagle Rock Ave.
West Orange, NJ 07052

Facility Owner
West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility
Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

Year Built: 1950
Gross Floor Area (ft²): 35,700

Energy Performance Rating² (1-100) 53

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	1,237,601
Natural Gas (kBtu) ⁴	3,361,800
Total Energy (kBtu)	4,599,401

Energy Intensity⁴

Site (kBtu/ft ² /yr)	129
Source (kBtu/ft ² /yr)	214

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	354
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	133
National Median Source EUI	222
% Difference from National Median Source EUI	-3%
Building Type	Office

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
11 British American Boulevard
Latham, NY 12110

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR[®] Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	Administration Building	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	Office	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	179 Eagle Rock Ave., West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (Office)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	35,700 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Weekly operating hours	65 Hours (Default)	Is this the total number of hours per week that the Office space is 75% occupied? This number should exclude hours when the facility is occupied only by maintenance, security, or other support personnel. For facilities with a schedule that varies during the year, "operating hours/week" refers to the total weekly hours for the schedule most often followed.		<input type="checkbox"/>
Workers on Main Shift	82 (Default)	Is this the number of employees present during the main shift? Note this is not the total number of employees or visitors who are in a building during an entire 24 hour period. For example, if there are two daily 8 hour shifts of 100 workers each, the Workers on Main Shift value is 100. The normal worker density ranges between 0.3 and 5.3 workers per 1000 square feet (92.8 square meters)		<input type="checkbox"/>
Number of PCs	79 (Default)	Is this the number of personal computers in the Office?		<input type="checkbox"/>
Percent Cooled	50% or more	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	50% or more	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>

ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	31,200.00
11/01/2011	11/30/2011	24,880.00
10/01/2011	10/31/2011	24,720.00
09/01/2011	09/30/2011	27,440.00
08/01/2011	08/31/2011	33,840.00
07/01/2011	07/31/2011	32,000.00
06/01/2011	06/30/2011	30,640.00
05/01/2011	05/31/2011	28,160.00
04/01/2011	04/30/2011	30,400.00
03/01/2011	03/31/2011	31,360.00
02/01/2011	02/28/2011	36,080.00
01/01/2011	01/31/2011	32,000.00
Electricity Consumption (kWh (thousand Watt-hours))		362,720.00
Electricity Consumption (kBtu (thousand Btu))		1,237,600.64
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		1,237,600.64
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	4,294.00
11/01/2011	11/30/2011	2,195.00
10/01/2011	10/31/2011	251.00
09/01/2011	09/30/2011	101.00
08/01/2011	08/31/2011	27.00
07/01/2011	07/31/2011	12.00
06/01/2011	06/30/2011	17.00
05/01/2011	05/31/2011	148.00
04/01/2011	04/30/2011	3,870.00
03/01/2011	03/31/2011	5,767.00

02/01/2011	02/28/2011	8,167.00
01/01/2011	01/31/2011	8,769.00
Gas Consumption (therms)		33,618.00
Gas Consumption (kBtu (thousand Btu))		3,361,800.00
Total Natural Gas Consumption (kBtu (thousand Btu))		3,361,800.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility
Administration Building
179 Eagle Rock Ave.
West Orange, NJ 07052

Facility Owner
West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility
Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

Administration Building	
Gross Floor Area Excluding Parking: (ft ²)	35,700
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	Office
Gross Floor Area (ft ²)	35,700
Weekly operating hours ^d	65
Workers on Main Shift ^d	82
Number of PCs ^d	79
Percent Cooled	50% or more
Percent Heated	50% or more

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	53	53	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	129	129	99	N/A	133
Source (kBtu/ft ²)	214	214	164	N/A	222
Energy Cost					
\$/year	\$ 91,278.00	\$ 91,278.00	\$ 69,866.67	N/A	\$ 94,466.32
\$/ft ² /year	\$ 2.56	\$ 2.56	\$ 1.96	N/A	\$ 2.65
Greenhouse Gas Emissions					
MtCO ₂ e/year	354	354	271	N/A	366
kgCO ₂ e/ft ² /year	10	10	8	N/A	10

More than 50% of your building is defined as Office. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

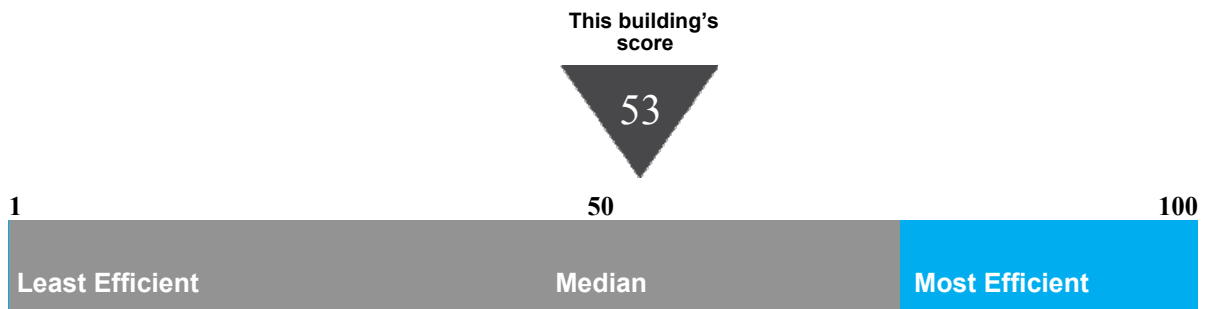
Statement of Energy Performance

2011

Administration Building
179 Eagle Rock Ave.
West Orange, NJ 07052

Portfolio Manager Building ID: 3230055

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 214 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

Edison Central Six

Building ID: 3230967

For 12-month Period Ending: December 31, 2011¹

Date SEP becomes ineligible: N/A

Date SEP Generated: September 27, 2012

Facility

Edison Central Six
75 Williams Street
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

Year Built: 1950

Gross Floor Area (ft²): 82,510

Energy Performance Rating² (1-100) 2

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	6,258,290
Natural Gas (kBtu) ⁴	2,753,000
Total Energy (kBtu)	9,011,290

Energy Intensity⁴

Site (kBtu/ft ² /yr)	109
Source (kBtu/ft ² /yr)	288

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	1,033
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	57
National Median Source EUI	150
% Difference from National Median Source EUI	92%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
11 British American Boulevard
Latham, NY 12110

Notes:

- Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
- The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
- Values represent energy consumption, annualized to a 12-month period.
- Values represent energy intensity, annualized to a 12-month period.
- Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	Edison Central Six	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	75 Williams Street, West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	82,510 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	No (Default)	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	144 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	1 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	77,400.00
11/01/2011	11/30/2011	55,200.00
10/01/2011	10/31/2011	55,800.00
09/01/2011	09/30/2011	59,100.00
08/01/2011	08/31/2011	60,000.00
07/01/2011	07/31/2011	62,100.00
06/01/2011	06/30/2011	71,700.00
05/01/2011	05/31/2011	58,500.00
04/01/2011	04/30/2011	64,200.00
03/01/2011	03/31/2011	79,200.00
02/01/2011	02/28/2011	111,000.00
01/01/2011	01/31/2011	1,080,000.00
Electricity Consumption (kWh (thousand Watt-hours))		1,834,200.00
Electricity Consumption (kBtu (thousand Btu))		6,258,290.40
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		6,258,290.40
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	4,004.00
11/01/2011	11/30/2011	4,022.00
10/01/2011	10/31/2011	0.00
09/01/2011	09/30/2011	0.00
08/01/2011	08/31/2011	0.00
07/01/2011	07/31/2011	0.00
06/01/2011	06/30/2011	0.00
05/01/2011	05/31/2011	0.00
04/01/2011	04/30/2011	3,974.00
03/01/2011	03/31/2011	5,867.00

02/01/2011	02/28/2011	9,663.00
01/01/2011	01/31/2011	0.00
Gas Consumption (therms)		27,530.00
Gas Consumption (kBtu (thousand Btu))		2,753,000.00
Total Natural Gas Consumption (kBtu (thousand Btu))		2,753,000.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility
Edison Central Six
75 Williams Street
West Orange, NJ 07052

Facility Owner
West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility
Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

Edison Central Six	
Gross Floor Area Excluding Parking: (ft ²)	82,510
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	82,510
Open Weekends? ^d	No
Number of PCs ^d	144
Number of walk-in refrigeration/freezer units ^d	1
Presence of cooking facilities	Yes
Percent Cooled ^d	100
Percent Heated	100
Months ^o	12
High School?	No
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	2	2	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	109	109	45	N/A	57
Source (kBtu/ft ²)	288	288	117	N/A	150
Energy Cost					
\$/year	\$ 170,345.34	\$ 170,345.34	\$ 69,410.93	N/A	\$ 88,752.40
\$/ft ² /year	\$ 2.06	\$ 2.06	\$ 0.84	N/A	\$ 1.07
Greenhouse Gas Emissions					
MtCO ₂ e/year	1,033	1,033	421	N/A	538
kgCO ₂ e/ft ² /year	13	13	5	N/A	7

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

Statement of Energy Performance

2011

Edison Central Six
75 Williams Street
West Orange, NJ 07052

Portfolio Manager Building ID: 3230967

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.

This building's score



1

50

100

Least Efficient

Median

Most Efficient

This building uses 288 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

Gregory Elementary School

Building ID: 3230990

For 12-month Period Ending: December 31, 2011¹

Date SEP becomes ineligible: N/A

Date SEP Generated: September 27, 2012

Facility

Gregory Elementary School
301 Gregory Ave.
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

Year Built: 1950

Gross Floor Area (ft²): 61,666Energy Performance Rating² (1-100) 37**Site Energy Use Summary³**

Electricity - Grid Purchase(kBtu)	1,584,925
Natural Gas (kBtu) ⁴	5,189,200
Total Energy (kBtu)	6,774,125

Energy Intensity⁴

Site (kBtu/ft ² /yr)	110
Source (kBtu/ft ² /yr)	174

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	501
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	98
National Median Source EUI	156
% Difference from National Median Source EUI	12%
Building Type	K-12 School

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Stamp of Certifying Professional
Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Certifying Professional

Matthew Goss
11 British American Boulevard
Latham, NY 12110

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	Gregory Elementary School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	301 Gregory Ave., West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	61,666 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	No (Default)	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	108 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	1 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes (Default)	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	43,485.00
11/01/2011	11/30/2011	32,195.00
10/01/2011	10/31/2011	30,025.00
09/01/2011	09/30/2011	57,570.00
08/01/2011	08/31/2011	12,835.00
07/01/2011	07/31/2011	25,950.00
06/01/2011	06/30/2011	37,520.00
05/01/2011	05/31/2011	34,360.00
04/01/2011	04/30/2011	38,670.00
03/01/2011	03/31/2011	45,250.00
02/01/2011	02/28/2011	54,550.00
01/01/2011	01/31/2011	52,105.00
Electricity Consumption (kWh (thousand Watt-hours))		464,515.00
Electricity Consumption (kBtu (thousand Btu))		1,584,925.18
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		1,584,925.18
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	4,848.00
11/01/2011	11/30/2011	2,002.00
10/01/2011	10/31/2011	93.00
09/01/2011	09/30/2011	16.00
08/01/2011	08/31/2011	578.00
07/01/2011	07/31/2011	700.00
06/01/2011	06/30/2011	20.00
05/01/2011	05/31/2011	3,359.00
04/01/2011	04/30/2011	2,246.00
03/01/2011	03/31/2011	8,283.00

02/01/2011	02/28/2011	16,100.00
01/01/2011	01/31/2011	13,647.00
Gas Consumption (therms)		51,892.00
Gas Consumption (kBtu (thousand Btu))		5,189,200.00
Total Natural Gas Consumption (kBtu (thousand Btu))		5,189,200.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility
Gregory Elementary School
301 Gregory Ave.
West Orange, NJ 07052

Facility Owner
West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility
Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

Gregory Elementary School	
Gross Floor Area Excluding Parking: (ft ²)	61,666
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	61,666
Open Weekends? ^d	No
Number of PCs ^d	108
Number of walk-in refrigeration/freezer units ^d	1
Presence of cooking facilities ^d	Yes
Percent Cooled ^d	100
Percent Heated	100
Months ^o	12
High School?	No
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	37	37	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	110	110	77	N/A	98
Source (kBtu/ft ²)	174	174	122	N/A	156
Energy Cost					
\$/year	\$ 135,503.48	\$ 135,503.48	\$ 94,821.60	N/A	\$ 121,243.85
\$/ft ² /year	\$ 2.20	\$ 2.20	\$ 1.54	N/A	\$ 1.97
Greenhouse Gas Emissions					
MtCO ₂ e/year	501	501	351	N/A	448
kgCO ₂ e/ft ² /year	8	8	6	N/A	7

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

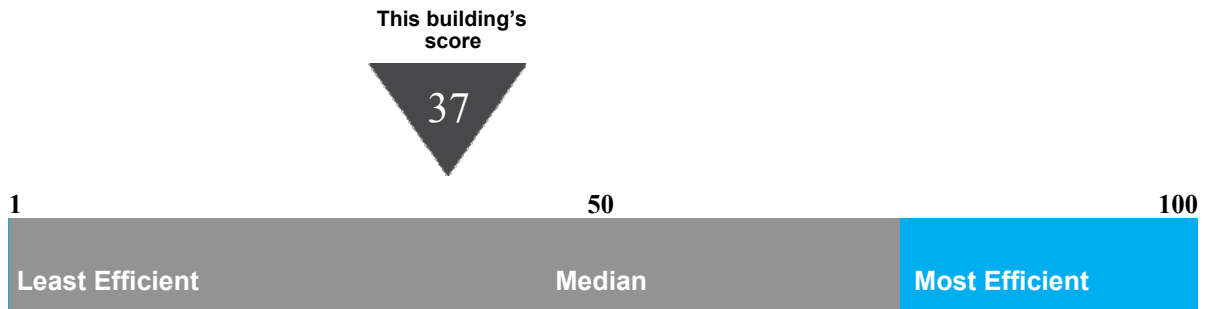
Statement of Energy Performance

2011

Gregory Elementary School
301 Gregory Ave.
West Orange, NJ 07052

Portfolio Manager Building ID: 3230990

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 174 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

Hazel Elementary School

Building ID: 3231023

For 12-month Period Ending: December 31, 2011¹

Date SEP becomes ineligible: N/A

Date SEP Generated: December 14, 2012

Facility

Hazel Elementary School
45 Hazel Avenue
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

Year Built: 1950

Gross Floor Area (ft²): 44,290

Energy Performance Rating² (1-100) 85

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	499,281
Natural Gas (kBtu) ⁴	2,019,800
Total Energy (kBtu)	2,519,081

Energy Intensity⁴

Site (kBtu/ft ² /yr)	57
Source (kBtu/ft ² /yr)	85

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	178
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	84
National Median Source EUI	125
% Difference from National Median Source EUI	-32%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
11 British American Boulevard
Latham, NY 12110

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	Hazel Elementary School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	45 Hazel Avenue, West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	44,290 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	No (Default)	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	78 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	0 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes (Default)	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	20 %	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	16,170.00
11/01/2011	11/30/2011	14,100.00
10/01/2011	10/31/2011	14,790.00
09/01/2011	09/30/2011	14,040.00
08/01/2011	08/31/2011	5,220.00
07/01/2011	07/31/2011	10,620.00
06/01/2011	06/30/2011	321.00
05/01/2011	05/31/2011	15,480.00
04/01/2011	04/30/2011	11,520.00
03/01/2011	03/31/2011	14,910.00
02/01/2011	02/28/2011	15,330.00
01/01/2011	01/31/2011	13,830.00
Electricity Consumption (kWh (thousand Watt-hours))		146,331.00
Electricity Consumption (kBtu (thousand Btu))		499,281.37
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		499,281.37
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	1,679.00
11/01/2011	11/30/2011	292.00
10/01/2011	10/31/2011	55.00
09/01/2011	09/30/2011	0.00
08/01/2011	08/31/2011	7.00
07/01/2011	07/31/2011	7.00
06/01/2011	06/30/2011	0.00
05/01/2011	05/31/2011	32.00
04/01/2011	04/30/2011	1,699.00
03/01/2011	03/31/2011	2,578.00

02/01/2011	02/28/2011	8,005.00
01/01/2011	01/31/2011	5,844.00
Gas Consumption (therms)		20,198.00
Gas Consumption (kBtu (thousand Btu))		2,019,800.00
Total Natural Gas Consumption (kBtu (thousand Btu))		2,019,800.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility
Hazel Elementary School
45 Hazel Avenue
West Orange, NJ 07052

Facility Owner
West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility
Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

Hazel Elementary School	
Gross Floor Area Excluding Parking: (ft ²)	44,290
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	44,290
Open Weekends? ^d	No
Number of PCs ^d	78
Number of walk-in refrigeration/freezer units ^d	0
Presence of cooking facilities ^d	Yes
Percent Cooled	20
Percent Heated	100
Months ^o	12
High School?	No
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	85	85	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	57	57	65	N/A	84
Source (kBtu/ft ²)	85	85	98	N/A	125
Energy Cost					
\$/year	\$ 46,633.96	\$ 46,633.96	\$ 53,545.43	N/A	\$ 68,475.18
\$/ft ² /year	\$ 1.05	\$ 1.05	\$ 1.21	N/A	\$ 1.54
Greenhouse Gas Emissions					
MtCO ₂ e/year	178	178	204	N/A	261
kgCO ₂ e/ft ² /year	4	4	5	N/A	6

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

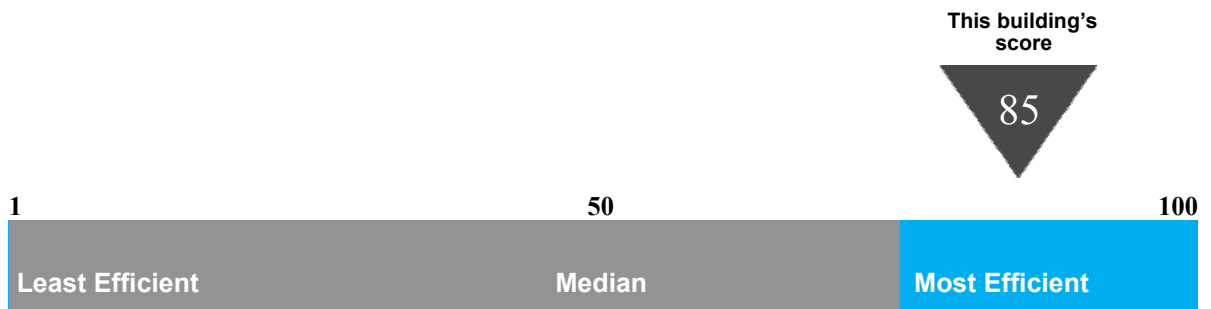
Statement of Energy Performance

2011

Hazel Elementary School
45 Hazel Avenue
West Orange, NJ 07052

Portfolio Manager Building ID: 3231023

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 85 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

Liberty Middle School

Building ID: 3231030

For 12-month Period Ending: December 31, 2011¹

Date SEP becomes ineligible: N/A

Date SEP Generated: September 27, 2012

Facility

Liberty Middle School
1 Kelly Drive
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

Year Built: 1950

Gross Floor Area (ft²): 115,741

Energy Performance Rating² (1-100) 47

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	4,169,212
Natural Gas (kBtu) ⁴	5,060,700
Total Energy (kBtu)	9,229,912

Energy Intensity⁴

Site (kBtu/ft ² /yr)	80
Source (kBtu/ft ² /yr)	166

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	860
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	78
National Median Source EUI	162
% Difference from National Median Source EUI	3%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
11 British American Boulevard
Latham, NY 12110

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR[®] Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	Liberty Middle School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	1 Kelly Drive, West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	115,741 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	Yes	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select "yes" for open weekends. The "yes" response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	203 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	1 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes (Default)	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	98,805.00
11/01/2011	11/30/2011	81,771.00
10/01/2011	10/31/2011	94,958.00
09/01/2011	09/30/2011	115,709.00
08/01/2011	08/31/2011	92,856.00
07/01/2011	07/31/2011	120,868.00
06/01/2011	06/30/2011	120,868.00
05/01/2011	05/31/2011	102,855.00
04/01/2011	04/30/2011	97,611.00
03/01/2011	03/31/2011	97,611.00
02/01/2011	02/28/2011	99,662.00
01/01/2011	01/31/2011	98,352.00
Electricity Consumption (kWh (thousand Watt-hours))		1,221,926.00
Electricity Consumption (kBtu (thousand Btu))		4,169,211.51
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		4,169,211.51
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	8,592.00
11/01/2011	11/30/2011	5,279.00
10/01/2011	10/31/2011	810.00
09/01/2011	09/30/2011	108.00
08/01/2011	08/31/2011	697.00
07/01/2011	07/31/2011	1,286.00
06/01/2011	06/30/2011	716.00
05/01/2011	05/31/2011	1,001.00
04/01/2011	04/30/2011	3,767.00
03/01/2011	03/31/2011	6,985.00

02/01/2011	02/28/2011	9,665.00
01/01/2011	01/31/2011	11,701.00
Gas Consumption (therms)		50,607.00
Gas Consumption (kBtu (thousand Btu))		5,060,700.00
Total Natural Gas Consumption (kBtu (thousand Btu))		5,060,700.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility
Liberty Middle School
1 Kelly Drive
West Orange, NJ 07052

Facility Owner
West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility
Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

Liberty Middle School	
Gross Floor Area Excluding Parking: (ft ²)	115,741
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	115,741
Open Weekends?	Yes
Number of PCs ^d	203
Number of walk-in refrigeration/freezer units ^d	1
Presence of cooking facilities ^d	Yes
Percent Cooled ^d	100
Percent Heated	100
Months ^o	12
High School?	No
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	47	47	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	80	80	61	N/A	78
Source (kBtu/ft ²)	166	166	127	N/A	162
Energy Cost					
\$/year	\$ 260,712.29	\$ 260,712.29	\$ 198,566.33	N/A	\$ 253,945.21
\$/ft ² /year	\$ 2.25	\$ 2.25	\$ 1.71	N/A	\$ 2.19
Greenhouse Gas Emissions					
MtCO ₂ e/year	860	860	655	N/A	838
kgCO ₂ e/ft ² /year	7	7	5	N/A	7

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

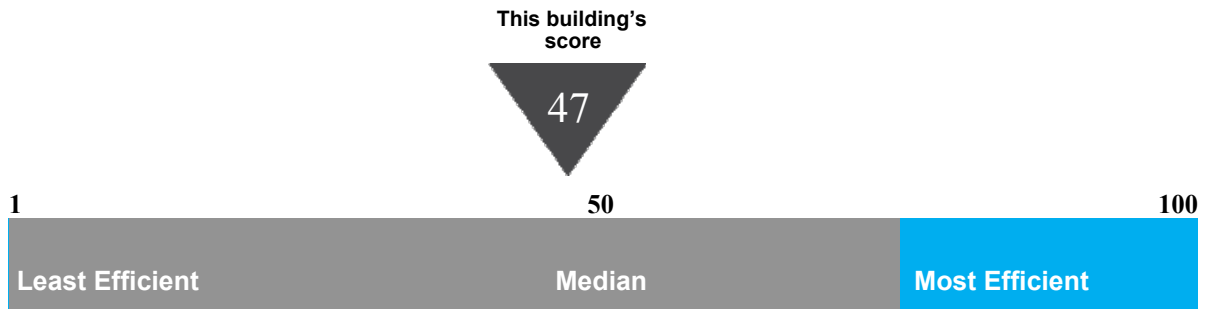
Statement of Energy Performance

2011

Liberty Middle School
1 Kelly Drive
West Orange, NJ 07052

Portfolio Manager Building ID: 3231030

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 166 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

Mt. Pleasant Elementary School

Building ID: 3231059

For 12-month Period Ending: December 31, 2011¹

Date SEP becomes ineligible: N/A

Date SEP Generated: December 14, 2012

Facility

Mt. Pleasant Elementary School
9 Manager Road
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

Year Built: 1950

Gross Floor Area (ft²): 41,992

Energy Performance Rating² (1-100) 80

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	615,525
Natural Gas (kBtu) ⁴	2,119,900
Total Energy (kBtu)	2,735,425

Energy Intensity⁴

Site (kBtu/ft ² /yr)	65
Source (kBtu/ft ² /yr)	102

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	200
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	89
National Median Source EUI	140
% Difference from National Median Source EUI	-27%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
11 British American Boulevard
Latham, NY 12110

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	Mt. Pleasant Elementary School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	9 Manager Road, West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	41,992 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	Yes	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	73 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	0 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	10 %	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	20,080.00
11/01/2011	11/30/2011	14,480.00
10/01/2011	10/31/2011	13,600.00
09/01/2011	09/30/2011	12,480.00
08/01/2011	08/31/2011	9,280.00
07/01/2011	07/31/2011	8,320.00
06/01/2011	06/30/2011	15,840.00
05/01/2011	05/31/2011	15,680.00
04/01/2011	04/30/2011	15,760.00
03/01/2011	03/31/2011	18,640.00
02/01/2011	02/28/2011	19,520.00
01/01/2011	01/31/2011	16,720.00
Electricity Consumption (kWh (thousand Watt-hours))		180,400.00
Electricity Consumption (kBtu (thousand Btu))		615,524.80
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		615,524.80
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	2,456.00
11/01/2011	11/30/2011	1,068.00
10/01/2011	10/31/2011	92.00
09/01/2011	09/30/2011	66.00
08/01/2011	08/31/2011	35.00
07/01/2011	07/31/2011	53.00
06/01/2011	06/30/2011	87.00
05/01/2011	05/31/2011	248.00
04/01/2011	04/30/2011	1,814.00
03/01/2011	03/31/2011	2,900.00

02/01/2011	02/28/2011	4,343.00
01/01/2011	01/31/2011	8,037.00
Gas Consumption (therms)		21,199.00
Gas Consumption (kBtu (thousand Btu))		2,119,900.00
Total Natural Gas Consumption (kBtu (thousand Btu))		2,119,900.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility

Mt. Pleasant Elementary School
9 Manager Road
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

Mt. Pleasant Elementary School	
Gross Floor Area Excluding Parking: (ft ²)	41,992
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	41,992
Open Weekends?	Yes
Number of PCs ^d	73
Number of walk-in refrigeration/freezer units ^d	0
Presence of cooking facilities	Yes
Percent Cooled	10
Percent Heated	100
Months ^o	12
High School?	No
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	80	80	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	65	65	70	N/A	89
Source (kBtu/ft ²)	102	102	109	N/A	140
Energy Cost					
\$/year	\$ 53,497.66	\$ 53,497.66	\$ 57,423.34	N/A	\$ 73,429.93
\$/ft ² /year	\$ 1.27	\$ 1.27	\$ 1.36	N/A	\$ 1.74
Greenhouse Gas Emissions					
MtCO ₂ e/year	200	200	215	N/A	275
kgCO ₂ e/ft ² /year	5	5	5	N/A	7

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

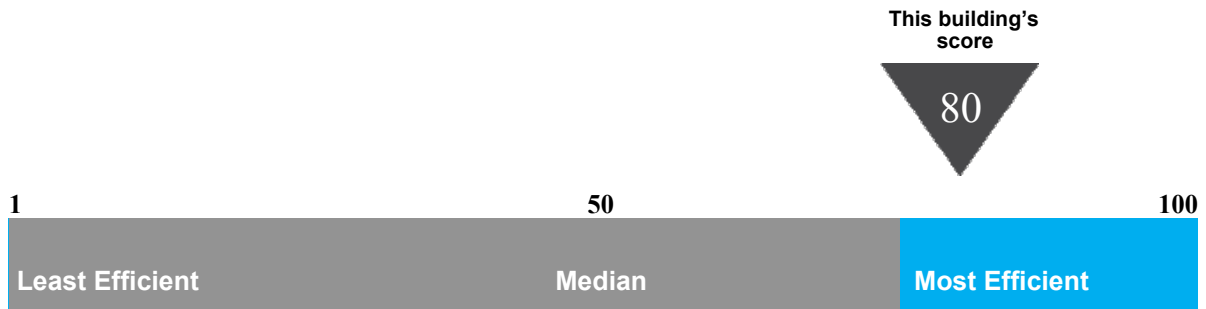
Statement of Energy Performance

2011

Mt. Pleasant Elementary School
9 Manager Road
West Orange, NJ 07052

Portfolio Manager Building ID: 3231059

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 102 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

Pleasantdale Elementary School

Building ID: 3231067

For 12-month Period Ending: December 31, 2011¹

Date SEP becomes ineligible: N/A

Date SEP Generated: December 14, 2012

Facility

Pleasantdale Elementary School
555 Pleasant Valley Way
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

Year Built: 1950

Gross Floor Area (ft²): 76,071Energy Performance Rating² (1-100) 86**Site Energy Use Summary³**

Electricity - Grid Purchase(kBtu)	1,267,654
Natural Gas (kBtu) ⁴	2,426,000
Total Energy (kBtu)	3,693,654

Energy Intensity⁴

Site (kBtu/ft ² /yr)	49
Source (kBtu/ft ² /yr)	89

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	309
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	73
National Median Source EUI	133
% Difference from National Median Source EUI	-33%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the
time of my visit to this building, I certify that
the information contained within this
statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
11 British American Boulevard
Latham, NY 12110

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	Pleasantdale Elementary School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	555 Pleasant Valley Way, West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	76,071 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	Yes	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	133 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	1 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	20 %	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	30,567.00
11/01/2011	11/30/2011	26,815.00
10/01/2011	10/31/2011	28,603.00
09/01/2011	09/30/2011	30,201.00
08/01/2011	08/31/2011	24,842.00
07/01/2011	07/31/2011	29,449.00
06/01/2011	06/30/2011	34,696.00
05/01/2011	05/31/2011	31,092.00
04/01/2011	04/30/2011	31,736.00
03/01/2011	03/31/2011	34,147.00
02/01/2011	02/28/2011	34,790.00
01/01/2011	01/31/2011	34,590.00
Electricity Consumption (kWh (thousand Watt-hours))		371,528.00
Electricity Consumption (kBtu (thousand Btu))		1,267,653.54
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		1,267,653.54
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>

Fuel Type: Natural Gas		
Meter: Natural Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	4,957.00
11/01/2011	11/30/2011	2,103.00
10/01/2011	10/31/2011	43.00
09/01/2011	09/30/2011	0.00
08/01/2011	08/31/2011	0.00
07/01/2011	07/31/2011	0.00
06/01/2011	06/30/2011	0.00
05/01/2011	05/31/2011	0.00
04/01/2011	04/30/2011	2,996.00
03/01/2011	03/31/2011	4,917.00

02/01/2011	02/28/2011	9,244.00
01/01/2011	01/31/2011	0.00
Natural Gas Consumption (therms)		24,260.00
Natural Gas Consumption (kBtu (thousand Btu))		2,426,000.00
Total Natural Gas Consumption (kBtu (thousand Btu))		2,426,000.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility

Pleasantdale Elementary School
555 Pleasant Valley Way
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

Pleasantdale Elementary School	
Gross Floor Area Excluding Parking: (ft ²)	76,071
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	76,071
Open Weekends?	Yes
Number of PCs ^d	133
Number of walk-in refrigeration/freezer units ^d	1
Presence of cooking facilities	Yes
Percent Cooled	20
Percent Heated	100
Months ^o	12
High School?	No
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	86	86	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	49	49	57	N/A	73
Source (kBtu/ft ²)	89	89	104	N/A	133
Energy Cost					
\$/year	\$ 71,137.44	\$ 71,137.44	\$ 83,208.54	N/A	\$ 106,398.52
\$/ft ² /year	\$ 0.94	\$ 0.94	\$ 1.10	N/A	\$ 1.41
Greenhouse Gas Emissions					
MtCO ₂ e/year	309	309	361	N/A	462
kgCO ₂ e/ft ² /year	4	4	5	N/A	6

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

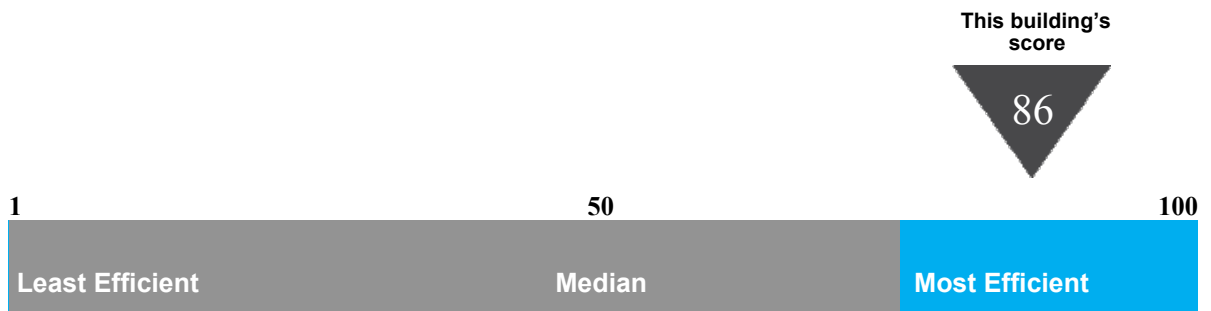
Statement of Energy Performance

2011

Pleasantdale Elementary School
555 Pleasant Valley Way
West Orange, NJ 07052

Portfolio Manager Building ID: 3231067

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 89 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

Redwood Elementary School

Building ID: 3231813

For 12-month Period Ending: December 31, 2011¹

Date SEP becomes ineligible: N/A

Date SEP Generated: September 27, 2012

Facility

Redwood Elementary School
75 Redwood Avenue
West Orange, NY 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

Year Built: 1950

Gross Floor Area (ft²): 53,176

Energy Performance Rating² (1-100) 75

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	1,116,236
Natural Gas (kBtu) ⁴	3,389,200
Total Energy (kBtu)	4,505,436

Energy Intensity⁴

Site (kBtu/ft ² /yr)	85
Source (kBtu/ft ² /yr)	137

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	338
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	109
National Median Source EUI	176
% Difference from National Median Source EUI	-22%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
11 British American Boulevard
Latham, NY 12110

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	Redwood Elementary School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	75 Redwood Avenue, West Orange, NY 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	53,176 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	Yes	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	93 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	1 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	32,085.00
11/01/2011	11/30/2011	25,335.00
10/01/2011	10/31/2011	17,685.00
09/01/2011	09/30/2011	26,460.00
08/01/2011	08/31/2011	18,675.00
07/01/2011	07/31/2011	18,630.00
06/01/2011	06/30/2011	29,430.00
05/01/2011	05/31/2011	30,915.00
04/01/2011	04/30/2011	27,360.00
03/01/2011	03/31/2011	32,625.00
02/01/2011	02/28/2011	35,370.00
01/01/2011	01/31/2011	32,580.00
Electricity Consumption (kWh (thousand Watt-hours))		327,150.00
Electricity Consumption (kBtu (thousand Btu))		1,116,235.80
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		1,116,235.80
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Natural Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	120.00
11/01/2011	11/30/2011	5,424.00
10/01/2011	10/31/2011	2,254.00
09/01/2011	09/30/2011	5,449.00
08/01/2011	08/31/2011	115.00
07/01/2011	07/31/2011	7.00
06/01/2011	06/30/2011	35.00
05/01/2011	05/31/2011	122.00
04/01/2011	04/30/2011	147.00
03/01/2011	03/31/2011	121.00

02/01/2011	02/28/2011	7,756.00
01/01/2011	01/31/2011	12,342.00
Natural Gas Consumption (therms)		33,892.00
Natural Gas Consumption (kBtu (thousand Btu))		3,389,200.00
Total Natural Gas Consumption (kBtu (thousand Btu))		3,389,200.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility

Redwood Elementary School
75 Redwood Avenue
West Orange, NY 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

Redwood Elementary School	
Gross Floor Area Excluding Parking: (ft ²)	53,176
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	53,176
Open Weekends?	Yes
Number of PCs ^d	93
Number of walk-in refrigeration/freezer units ^d	1
Presence of cooking facilities	Yes
Percent Cooled ^d	100
Percent Heated	100
Months ^o	12
High School?	No
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	75	75	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	85	85	85	N/A	109
Source (kBtu/ft ²)	137	137	138	N/A	176
Energy Cost					
\$/year	\$ 70,968.24	\$ 70,968.24	\$ 71,512.67	N/A	\$ 91,447.10
\$/ft ² /year	\$ 1.33	\$ 1.33	\$ 1.34	N/A	\$ 1.71
Greenhouse Gas Emissions					
MtCO ₂ e/year	338	338	341	N/A	436
kgCO ₂ e/ft ² /year	6	6	6	N/A	8

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

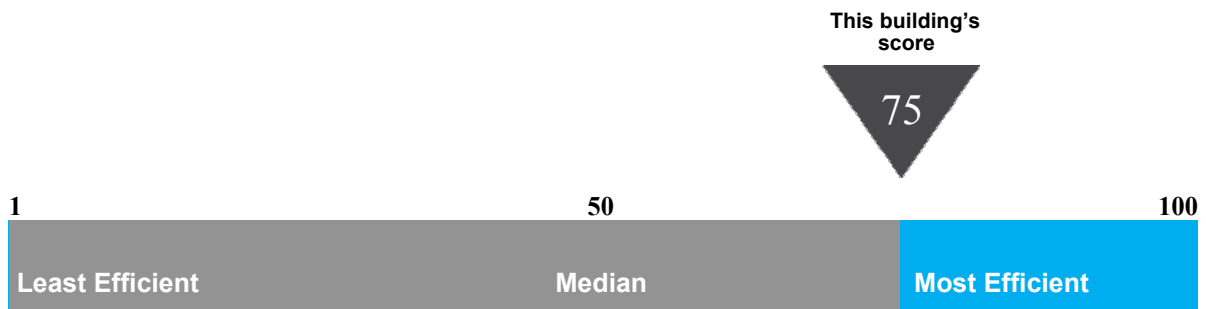
Statement of Energy Performance

2011

Redwood Elementary School
75 Redwood Avenue
West Orange, NY 07052

Portfolio Manager Building ID: 3231813

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 137 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

Roosevelt Middle School

Building ID: 3231816

For 12-month Period Ending: December 31, 2011¹

Date SEP becomes ineligible: N/A

Date SEP Generated: September 27, 2012

Facility

Roosevelt Middle School
36 Gilbert Place
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

Year Built: 1950

Gross Floor Area (ft²): 111,738

Energy Performance Rating² (1-100) 65

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	3,304,181
Natural Gas (kBtu) ⁴	4,484,400
Total Energy (kBtu)	7,788,581

Energy Intensity⁴

Site (kBtu/ft ² /yr)	70
Source (kBtu/ft ² /yr)	141

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	706
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	80
National Median Source EUI	162
% Difference from National Median Source EUI	-13%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
11 British American Boulevard
Latham, NY 12110

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	Roosevelt Middle School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	36 Gilbert Place, West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	111,738 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	Yes	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	196 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	1 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	45,900.00
11/01/2011	11/30/2011	71,100.00
10/01/2011	10/31/2011	60,000.00
09/01/2011	09/30/2011	58,200.00
08/01/2011	08/31/2011	110,100.00
07/01/2011	07/31/2011	56,400.00
06/01/2011	06/30/2011	71,400.00
05/01/2011	05/31/2011	69,900.00
04/01/2011	04/30/2011	81,300.00
03/01/2011	03/31/2011	94,200.00
02/01/2011	02/28/2011	127,800.00
01/01/2011	01/31/2011	122,100.00
Electricity Consumption (kWh (thousand Watt-hours))		968,400.00
Electricity Consumption (kBtu (thousand Btu))		3,304,180.80
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		3,304,180.80
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Natural Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	7,816.00
11/01/2011	11/30/2011	3,742.00
10/01/2011	10/31/2011	1,372.00
09/01/2011	09/30/2011	68.00
08/01/2011	08/31/2011	46.00
07/01/2011	07/31/2011	54.00
06/01/2011	06/30/2011	62.00
05/01/2011	05/31/2011	13.00
04/01/2011	04/30/2011	5,489.00
03/01/2011	03/31/2011	7,602.00

02/01/2011	02/28/2011	18,508.00
01/01/2011	01/31/2011	72.00
Natural Gas Consumption (therms)		44,844.00
Natural Gas Consumption (kBtu (thousand Btu))		4,484,400.00
Total Natural Gas Consumption (kBtu (thousand Btu))		4,484,400.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility

Roosevelt Middle School
36 Gilbert Place
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

Roosevelt Middle School	
Gross Floor Area Excluding Parking: (ft ²)	111,738
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	111,738
Open Weekends?	Yes
Number of PCs ^d	196
Number of walk-in refrigeration/freezer units ^d	1
Presence of cooking facilities	Yes
Percent Cooled ^d	100
Percent Heated	100
Months ^o	12
High School?	No
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	65	65	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	70	70	63	N/A	80
Source (kBtu/ft ²)	141	141	127	N/A	162
Energy Cost					
\$/year	\$ 172,957.44	\$ 172,957.44	\$ 156,058.73	N/A	\$ 199,558.64
\$/ft ² /year	\$ 1.55	\$ 1.55	\$ 1.40	N/A	\$ 1.79
Greenhouse Gas Emissions					
MtCO ₂ e/year	706	706	637	N/A	815
kgCO ₂ e/ft ² /year	6	6	5	N/A	7

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

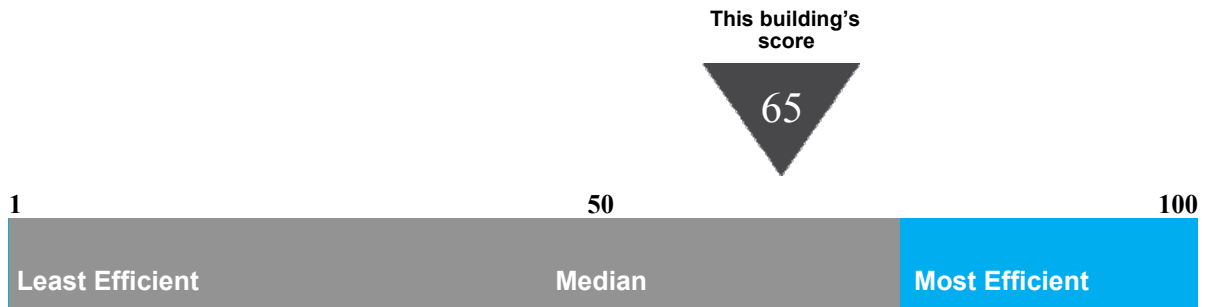
Statement of Energy Performance

2011

Roosevelt Middle School
36 Gilbert Place
West Orange, NJ 07052

Portfolio Manager Building ID: 3231816

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 141 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

St. Cloud Elementary School

Building ID: 3231817

For 12-month Period Ending: December 31, 2011¹

Date SEP becomes ineligible: N/A

Date SEP Generated: December 14, 2012

Facility

St. Cloud Elementary School
71 Sheridan Avenue
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

Year Built: 1950

Gross Floor Area (ft²): 42,186

Energy Performance Rating² (1-100) 75

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	947,444
Natural Gas (kBtu) ⁴	325,000
Total Energy (kBtu)	1,272,444

Energy Intensity⁴

Site (kBtu/ft ² /yr)	30
Source (kBtu/ft ² /yr)	83

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	151
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	39
National Median Source EUI	107
% Difference from National Median Source EUI	-22%
Building Type	K-12 School

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

Stamp of Certifying Professional
Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Certifying Professional

Matthew Goss
11 British American Boulevard
Latham, NY 12110

ENERGY STAR[®] Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	St. Cloud Elementary School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	71 Sheridan Avenue, West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	42,186 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	No	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select ?yes? for open weekends. The ?yes? response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	74 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	0 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	10 %	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	80 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	10(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	28,160.00
11/01/2011	11/30/2011	21,280.00
10/01/2011	10/31/2011	21,520.00
09/01/2011	09/30/2011	19,440.00
08/01/2011	08/31/2011	18,560.00
07/01/2011	07/31/2011	17,440.00
06/01/2011	06/30/2011	25,040.00
05/01/2011	05/31/2011	24,480.00
04/01/2011	04/30/2011	23,600.00
03/01/2011	03/31/2011	25,840.00
02/01/2011	02/28/2011	27,040.00
01/01/2011	01/31/2011	25,280.00
Electricity Consumption (kWh (thousand Watt-hours))		277,680.00
Electricity Consumption (kBtu (thousand Btu))		947,444.16
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		947,444.16
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	356.00
11/01/2011	11/30/2011	318.00
10/01/2011	10/31/2011	344.00
09/01/2011	09/30/2011	194.00
08/01/2011	08/31/2011	72.00
07/01/2011	07/31/2011	82.00
06/01/2011	06/30/2011	317.00
05/01/2011	05/31/2011	419.00
04/01/2011	04/30/2011	295.00
03/01/2011	03/31/2011	351.00

02/01/2011	02/28/2011	326.00
01/01/2011	01/31/2011	176.00
Gas Consumption (therms)		3,250.00
Gas Consumption (kBtu (thousand Btu))		325,000.00
Total Natural Gas Consumption (kBtu (thousand Btu))		325,000.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility

St. Cloud Elementary School
71 Sheridan Avenue
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

St. Cloud Elementary School	
Gross Floor Area Excluding Parking: (ft ²)	42,186
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	42,186
Open Weekends?	No
Number of PCs ^d	74
Number of walk-in refrigeration/freezer units ^d	0
Presence of cooking facilities	Yes
Percent Cooled	10
Percent Heated	80
Months ^o	10
High School?	No
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	75	75	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	30	30	30	N/A	39
Source (kBtu/ft ²)	83	83	84	N/A	107
Energy Cost					
\$/year	\$ 46,596.71	\$ 46,596.71	\$ 46,998.41	N/A	\$ 60,099.87
\$/ft ² /year	\$ 1.10	\$ 1.10	\$ 1.11	N/A	\$ 1.42
Greenhouse Gas Emissions					
MtCO ₂ e/year	151	151	152	N/A	195
kgCO ₂ e/ft ² /year	4	4	4	N/A	5

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

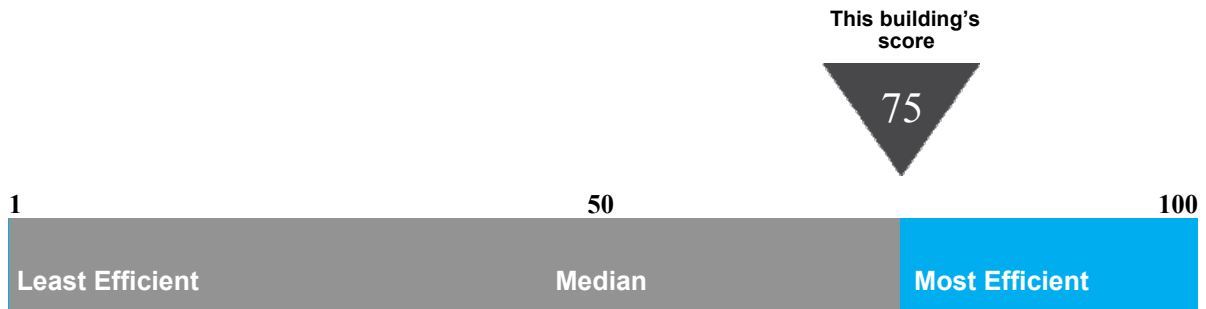
Statement of Energy Performance

2011

St. Cloud Elementary School
71 Sheridan Avenue
West Orange, NJ 07052

Portfolio Manager Building ID: 3231817

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 83 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

Washington Elementary School

Building ID: 3231805
For 12-month Period Ending: December 31, 2011¹
Date SEP becomes ineligible: N/A

Date SEP Generated: September 27, 2012

Facility
 Washington Elementary School
 289 Main Street
 West Orange, NJ 07052

Facility Owner
 West Orange Board of Education
 179 Eagle Rock Ave.
 West Orange, NJ 07052

Primary Contact for this Facility
 Robert Csigi
 179 Eagle Rock Ave.
 West Orange, NJ 07052

Year Built: 1950
Gross Floor Area (ft²): 57,588

Energy Performance Rating² (1-100) 73

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	947,444
Natural Gas (kBtu) ⁴	4,597,400
Total Energy (kBtu)	5,544,844

Energy Intensity⁴

Site (kBtu/ft ² /yr)	96
Source (kBtu/ft ² /yr)	139

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	379
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	122
National Median Source EUI	175
% Difference from National Median Source EUI	-21%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
 11 British American Boulevard
 Latham, NY 12110

Notes:

- Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
- The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
- Values represent energy consumption, annualized to a 12-month period.
- Values represent energy intensity, annualized to a 12-month period.
- Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	Washington Elementary School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	289 Main Street, West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	57,588 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	Yes	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select "yes" for open weekends. The "yes" response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	101 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	1 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	No	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	28,160.00
11/01/2011	11/30/2011	21,280.00
10/01/2011	10/31/2011	21,520.00
09/01/2011	09/30/2011	19,440.00
08/01/2011	08/31/2011	18,560.00
07/01/2011	07/31/2011	17,440.00
06/01/2011	06/30/2011	25,040.00
05/01/2011	05/31/2011	24,480.00
04/01/2011	04/30/2011	23,600.00
03/01/2011	03/31/2011	25,840.00
02/01/2011	02/28/2011	27,040.00
01/01/2011	01/31/2011	25,280.00
Electricity Consumption (kWh (thousand Watt-hours))		277,680.00
Electricity Consumption (kBtu (thousand Btu))		947,444.16
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		947,444.16
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	7,555.00
11/01/2011	11/30/2011	3,533.00
10/01/2011	10/31/2011	182.00
09/01/2011	09/30/2011	73.00
08/01/2011	08/31/2011	47.00
07/01/2011	07/31/2011	44.00
06/01/2011	06/30/2011	0.00
05/01/2011	05/31/2011	261.00
04/01/2011	04/30/2011	4,804.00
03/01/2011	03/31/2011	5,495.00

02/01/2011	02/28/2011	20,270.00
01/01/2011	01/31/2011	3,710.00
Gas Consumption (therms)		45,974.00
Gas Consumption (kBtu (thousand Btu))		4,597,400.00
Total Natural Gas Consumption (kBtu (thousand Btu))		4,597,400.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility

Washington Elementary School
289 Main Street
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

Washington Elementary School	
Gross Floor Area Excluding Parking: (ft ²)	57,588
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	57,588
Open Weekends?	Yes
Number of PCs ^d	101
Number of walk-in refrigeration/freezer units ^d	1
Presence of cooking facilities	Yes
Percent Cooled ^d	100
Percent Heated	100
Months ^o	12
High School?	No
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	73	73	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	96	96	95	N/A	122
Source (kBtu/ft ²)	139	139	137	N/A	175
Energy Cost					
\$/year	\$ 90,810.21	\$ 90,810.21	\$ 89,621.79	N/A	\$ 114,616.29
\$/ft ² /year	\$ 1.58	\$ 1.58	\$ 1.56	N/A	\$ 1.99
Greenhouse Gas Emissions					
MtCO ₂ e/year	379	379	374	N/A	478
kgCO ₂ e/ft ² /year	7	7	7	N/A	9

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

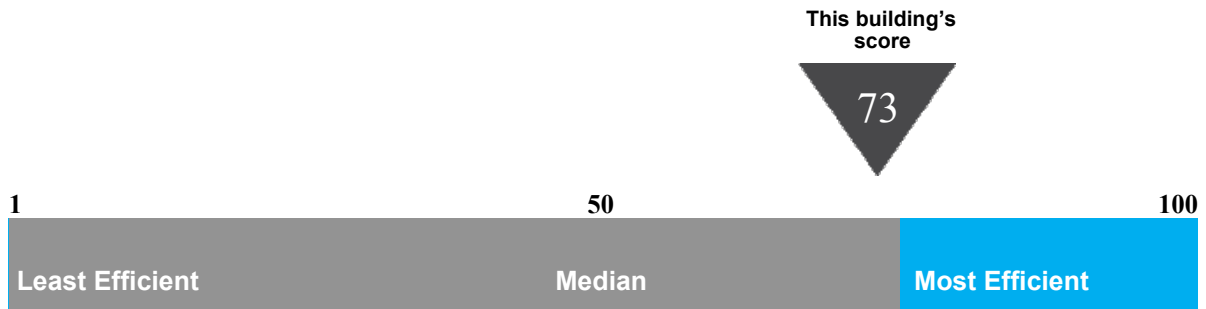
Statement of Energy Performance

2011

Washington Elementary School
289 Main Street
West Orange, NJ 07052

Portfolio Manager Building ID: 3231805

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 139 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

West Orange High School

Building ID: 3231819
For 12-month Period Ending: December 31, 2011¹
Date SEP becomes ineligible: N/A

Date SEP Generated: September 27, 2012

Facility
 West Orange High School
 51 Conforti Avenue
 West Orange, NJ 07052

Facility Owner
 West Orange Board of Education
 179 Eagle Rock Ave.
 West Orange, NJ 07052

Primary Contact for this Facility
 Robert Csigi
 179 Eagle Rock Ave.
 West Orange, NJ 07052

Year Built: 1950
Gross Floor Area (ft²): 381,668

Energy Performance Rating² (1-100) 79

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	11,213,286
Natural Gas (kBtu) ⁴	15,266,300
Total Energy (kBtu)	26,479,586

Energy Intensity⁴

Site (kBtu/ft ² /yr)	69
Source (kBtu/ft ² /yr)	140

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	2,400
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Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	93
National Median Source EUI	189
% Difference from National Median Source EUI	-26%
Building Type	K-12 School

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
 11 British American Boulevard
 Latham, NY 12110

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	West Orange High School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	K-12 School	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	51 Conforti Avenue, West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (K-12 School)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	381,668 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Open Weekends?	Yes	Is this building normally open at all on the weekends? This includes activities beyond the work conducted by maintenance, cleaning, and security personnel. Weekend activity could include any time when the space is used for classes, performances or other school or community activities. If the building is open on the weekend as part of the standard schedule during one or more seasons, the building should select "yes" for open weekends. The "yes" response should apply whether the building is open for one or both of the weekend days.		<input type="checkbox"/>
Number of PCs	668 (Default)	Is this the number of personal computers in the K12 School?		<input type="checkbox"/>
Number of walk-in refrigeration/freezer units	4 (Default)	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		<input type="checkbox"/>
Presence of cooking facilities	Yes	Does this school have a dedicated space in which food is prepared and served to students? If the school has space in which food for students is only kept warm and/or served to students, or has only a galley that is used by teachers and staff then the answer is "no".		<input type="checkbox"/>
Percent Cooled	100 % (Default)	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		<input type="checkbox"/>
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		<input type="checkbox"/>
Months	12(Optional)	Is this school in operation for at least 8 months of the year?		<input type="checkbox"/>

High School?	Yes	Is this building a high school (teaching grades 10, 11, and/or 12)? If the building teaches to high school students at all, the user should check 'yes' to 'high school'. For example, if the school teaches to grades K-12 (elementary/middle and high school), the user should check 'yes' to 'high school'.		<input type="checkbox"/>
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ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	244,357.00
11/01/2011	11/30/2011	253,793.00
10/01/2011	10/31/2011	281,798.00
09/01/2011	09/30/2011	320,147.00
08/01/2011	08/31/2011	290,583.00
07/01/2011	07/31/2011	321,862.00
06/01/2011	06/30/2011	317,554.00
05/01/2011	05/31/2011	280,558.00
04/01/2011	04/30/2011	222,044.00
03/01/2011	03/31/2011	260,004.00
02/01/2011	02/28/2011	238,684.00
01/01/2011	01/31/2011	255,042.00
Electricity Consumption (kWh (thousand Watt-hours))		3,286,426.00
Electricity Consumption (kBtu (thousand Btu))		11,213,285.51
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		11,213,285.51
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Natural Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	28,876.00
11/01/2011	11/30/2011	9,612.00
10/01/2011	10/31/2011	8,999.00
09/01/2011	09/30/2011	9.00
08/01/2011	08/31/2011	1.00
07/01/2011	07/31/2011	1.00
06/01/2011	06/30/2011	0.00
05/01/2011	05/31/2011	2.00
04/01/2011	04/30/2011	9,032.00
03/01/2011	03/31/2011	29,885.00

02/01/2011	02/28/2011	49,905.00
01/01/2011	01/31/2011	16,341.00
Natural Gas Consumption (therms)		152,663.00
Natural Gas Consumption (kBtu (thousand Btu))		15,266,300.00
Total Natural Gas Consumption (kBtu (thousand Btu))		15,266,300.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility

West Orange High School
51 Conforti Avenue
West Orange, NJ 07052

Facility Owner

West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

West Orange High School	
Gross Floor Area Excluding Parking: (ft ²)	381,668
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	K-12 School
Gross Floor Area (ft ²)	381,668
Open Weekends?	Yes
Number of PCs ^d	668
Number of walk-in refrigeration/freezer units ^d	4
Presence of cooking facilities	Yes
Percent Cooled ^d	100
Percent Heated	100
Months ^o	12
High School?	Yes
School District ^o	West Orange Township

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	79	79	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	69	69	73	N/A	93
Source (kBtu/ft ²)	140	140	148	N/A	189
Energy Cost					
\$/year	\$ 605,906.46	\$ 605,906.46	\$ 638,306.47	N/A	\$ 816,288.22
\$/ft ² /year	\$ 1.59	\$ 1.59	\$ 1.68	N/A	\$ 2.14
Greenhouse Gas Emissions					
MtCO ₂ e/year	2,400	2,400	2,528	N/A	3,233
kgCO ₂ e/ft ² /year	6	6	6	N/A	8

More than 50% of your building is defined as K-12 School. Please note that your rating accounts for all of the spaces listed. The National Median column presents energy performance data your building would have if your building had a median rating of 50.

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.

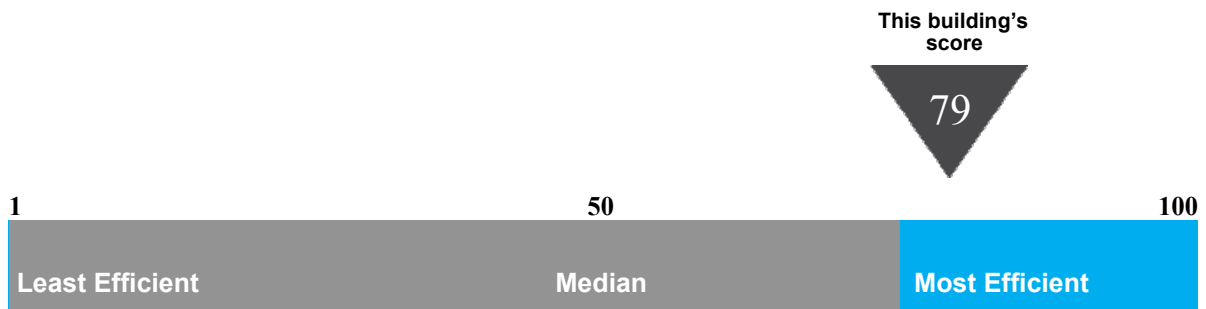
Statement of Energy Performance

2011

West Orange High School
51 Conforti Avenue
West Orange, NJ 07052

Portfolio Manager Building ID: 3231819

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses 140 kBtu per square foot per year.*

*Based on source energy intensity for the 12 month period ending December 2011

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.

I certify that the information contained within this statement is accurate and in accordance with U.S. Environmental Protection Agency's measurement standards, found at energystar.gov

Date of certification





STATEMENT OF ENERGY PERFORMANCE

West Orange Bus Garage

Building ID: 3231820
For 12-month Period Ending: December 31, 2011¹
Date SEP becomes ineligible: N/A

Date SEP Generated: September 27, 2012

Facility

West Orange Bus Garage
 27-41 Standish Avenue
 West Orange, NJ 07052

Facility Owner

West Orange Board of Education
 179 Eagle Rock Ave.
 West Orange, NJ 07052

Primary Contact for this Facility

Robert Csigi
 179 Eagle Rock Ave.
 West Orange, NJ 07052

Year Built: 1950

Gross Floor Area (ft²): 42,201

Energy Performance Rating² (1-100) N/A

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	285,561
Natural Gas (kBtu) ⁴	321,800
Total Energy (kBtu)	607,361

Energy Intensity⁴

Site (kBtu/ft ² /yr)	14
Source (kBtu/ft ² /yr)	31

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	58
---	----

Electric Distribution Utility

Public Service Electric & Gas Co

National Median Comparison

National Median Site EUI	45
National Median Source EUI	96
% Difference from National Median Source EUI	-68%
Building Type	Service (Vehicle Repair/Service, Postal Service)

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional

Matthew Goss
 11 British American Boulevard
 Latham, NY 12110

Notes:

- Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
- The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
- Values represent energy consumption, annualized to a 12-month period.
- Values represent energy intensity, annualized to a 12-month period.
- Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.

NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Building Name	West Orange Bus Garage	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		<input type="checkbox"/>
Type	Service (Vehicle Repair/Service, Postal Service)	Is this an accurate description of the space in question?		<input type="checkbox"/>
Location	27-41 Standish Avenue, West Orange, NJ 07052	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		<input type="checkbox"/>
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of a hospital, k-12 school, hotel and senior care facility) nor can they be submitted as representing only a portion of a building.		<input type="checkbox"/>
Building (Other)				
CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	<input checked="" type="checkbox"/>
Gross Floor Area	42,201 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		<input type="checkbox"/>
Number of PCs	4(Optional)	Is this the number of personal computers in the space?		<input type="checkbox"/>
Weekly operating hours	50Hours(Optional)	Is this the total number of hours per week that the space is 75% occupied? This number should exclude hours when the facility is occupied only by maintenance, security, or other support personnel. For facilities with a schedule that varies during the year, "operating hours/week" refers to the total weekly hours for the schedule most often followed.		<input type="checkbox"/>
Workers on Main Shift	5(Optional)	Is this the number of employees present during the main shift? Note this is not the total number of employees or visitors who are in a building during an entire 24 hour period. For example, if there are two daily 8 hour shifts of 100 workers each, the Workers on Main Shift value is 100.		<input type="checkbox"/>

ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Public Service Electric & Gas Co

Fuel Type: Electricity		
Meter: Electricity (kWh (thousand Watt-hours)) Space(s): Entire Facility Generation Method: Grid Purchase		
Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
12/01/2011	12/31/2011	16,000.00
11/01/2011	11/30/2011	13,200.00
10/01/2011	10/31/2011	12,400.00
09/01/2011	09/30/2011	6,160.00
08/01/2011	08/31/2011	8,720.00
07/01/2011	07/31/2011	8,320.00
06/01/2011	06/30/2011	8,960.00
05/01/2011	05/31/2011	5,200.00
04/01/2011	04/30/2011	2,800.00
03/01/2011	03/31/2011	880.00
02/01/2011	02/28/2011	0.00
01/01/2011	01/31/2011	1,053.00
Electricity Consumption (kWh (thousand Watt-hours))		83,693.00
Electricity Consumption (kBtu (thousand Btu))		285,560.52
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		285,560.52
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?		<input type="checkbox"/>
Fuel Type: Natural Gas		
Meter: Natural Gas (therms) Space(s): Entire Facility		
Start Date	End Date	Energy Use (therms)
12/01/2011	12/31/2011	845.00
11/01/2011	11/30/2011	156.00
10/01/2011	10/31/2011	0.00
09/01/2011	09/30/2011	0.00
08/01/2011	08/31/2011	0.00
07/01/2011	07/31/2011	0.00
06/01/2011	06/30/2011	0.00
05/01/2011	05/31/2011	0.00
04/01/2011	04/30/2011	0.00
03/01/2011	03/31/2011	0.00

02/01/2011	02/28/2011	1,164.00
01/01/2011	01/31/2011	1,053.00
Natural Gas Consumption (therms)		3,218.00
Natural Gas Consumption (kBtu (thousand Btu))		321,800.00
Total Natural Gas Consumption (kBtu (thousand Btu))		321,800.00
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		<input type="checkbox"/>

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	<input type="checkbox"/>

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	<input type="checkbox"/>

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: _____ Date: _____

Signature: _____

Signature is required when applying for the ENERGY STAR.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility
West Orange Bus Garage
27-41 Standish Avenue
West Orange, NJ 07052

Facility Owner
West Orange Board of Education
179 Eagle Rock Ave.
West Orange, NJ 07052

Primary Contact for this Facility
Robert Csigi
179 Eagle Rock Ave.
West Orange, NJ 07052

General Information

West Orange Bus Garage	
Gross Floor Area Excluding Parking: (ft ²)	42,201
Year Built	1950
For 12-month Evaluation Period Ending Date:	December 31, 2011

Facility Space Use Summary

Building	
Space Type	Other - Service (Vehicle Repair/Service, Postal Service)
Gross Floor Area (ft ²)	42,201
Number of PCs °	4
Weekly operating hours °	50
Workers on Main Shift °	5

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 12/31/2011)	Baseline (Ending Date 12/31/2011)	Rating of 75	Target	National Median
Energy Performance Rating	N/A	N/A	75	N/A	N/A
Energy Intensity					
Site (kBtu/ft ²)	14	14	0	N/A	45
Source (kBtu/ft ²)	31	31	0	N/A	96
Energy Cost					
\$/year	\$ 18,296.49	\$ 18,296.49	N/A	N/A	\$ 57,216.26
\$/ft ² /year	\$ 0.43	\$ 0.43	N/A	N/A	\$ 1.34
Greenhouse Gas Emissions					
MtCO ₂ e/year	58	58	0	N/A	181
kgCO ₂ e/ft ² /year	1	1	0	N/A	3

More than 50% of your building is defined as Service (Vehicle Repair/Service, Postal Service). This building is currently ineligible for a rating. Please note the National Median column represents the CBECS national median data for Service (Vehicle Repair/Service, Postal Service). This building uses 68% less energy per square foot than the CBECS national median for Service (Vehicle Repair/Service, Postal Service).

Notes:

o - This attribute is optional.

d - A default value has been supplied by Portfolio Manager.



Appendix C

Building	Bus Garage
Address	27-41 Standish Ave
Heating Fuel	gas
Cooling System	DX
	100000

Existing Building Envelope		
Wall Area	2400	sqft
Wall Conductivity	0.33	u Value
Window Area	40	sqft
Window Conductivity	0.5	u Value
Roof Area	4000	sqft
Roof Conductivity	0.2	u Value
Floor Area	4000	sqft
Volume	32000	cuft

Set Points		
Heating Set Point	72	deg F
Cooling Set Point	75	deg F

Internal Loads		
Lighting Density	1.00	w/sqft
Equipment Density	1.00	w/sqft
Occupancy	8	people
Occupant Sensible Load	250	btu/person
Infiltration	266.7	cfm
Exhaust	25	cfm
Equipment Density	0.00	therms
Building Equipment		
Heating System	200,000	Btuh
Heating Efficiency	70	%
Cooling System	60,000	Btuh
Cooling Efficiency	10.0	SEER
Vent Cooling	0	CFM
Vent Power	0	kW

Existing Load Summaries							
Bin Temp	Bin	Heating	Cooling	Shell Load	Internal Load	Ventilation Load	Combined Load
deg F	Hours			btuh	btuh	btuh	btuh
102.5	2	0	1	-44,330	-29,304	-8,663	-82,297
97.5	23	0	1	-36,270	-29,304	-7,088	-72,662
92.5	93	0	1	-28,210	-29,304	-5,513	-63,027
87.5	237	0	1	-20,150	-29,304	-3,938	-53,392
82.5	452	0	1	-12,090	-29,304	-2,363	-43,757
77.5	692	0	1	-4,030	-29,304	-788	-34,122
72.5	858	0	1	4,030	-29,304	788	-24,487
67.5	753	1	0	7,254	-29,304	1,418	0
62.5	735	1	0	15,314	-29,304	2,993	0
57.5	671	1	0	23,374	-29,304	4,568	0
52.5	736	1	0	31,434	-29,304	6,143	8,273
47.5	708	1	0	39,494	-29,304	7,718	17,908
42.5	756	1	0	47,554	-29,304	9,293	27,543
37.5	705	1	0	55,614	-29,304	10,868	37,178
32.5	546	1	0	63,674	-29,304	12,443	46,813
27.5	340	1	0	71,734	-29,304	14,018	56,448
22.5	229	1	0	79,794	-29,304	15,593	66,083
17.5	134	1	0	87,854	-29,304	17,168	75,718
12.5	57	1	0	95,914	-29,304	18,743	85,353
7.5	22	1	0	103,974	-29,304	20,318	94,988
2.5	9	1	0	112,034	-29,304	21,893	104,623
-2.5	2	1	0	120,094	-29,304	23,468	114,258
-7.5	0	1	0	128,154	-29,304	25,043	123,893
Total	8,760	6,403	2,357				

Existing Heating System			Existing Cooling System			Existing Ventilation Cooling		
Output	Usage	Usage	Output	Usage	Usage	Cooling	On Time	Usage
Btuh	Btu	therms	Btuh	Btu	kWh	Btuh	%	kWh
0	0	0	-72,000	-169,412	14	0	100	0
0	0	0	-72,000	-1,840,000	153	0	100	0
0	0	0	-72,000	-7,048,421	587	0	100	0
0	0	0	-64,070	-15,184,543	1,265	0	100	0
0	0	0	-52,508	-21,575,932	1,798	0	100	0
0	0	0	-40,946	-23,612,078	1,968	0	100	0
0	0	0	-29,384	-19,393,308	1,616	0	100	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
11,818	8,697,943	87	0	0	0	0	0	0
25,582	18,112,157	181	0	0	0	0	0	0
39,346	29,745,900	297	0	0	0	0	0	0
53,111	37,443,054	374	0	0	0	0	0	0
66,875	36,513,750	365	0	0	0	0	0	0
80,639	27,417,357	274	0	0	0	0	0	0
94,404	21,618,418	216	0	0	0	0	0	0
108,168	14,494,493	145	0	0	0	0	0	0
121,932	6,950,132	70	0	0	0	0	0	0
135,696	2,985,321	30	0	0	0	0	0	0
149,461	1,345,146	13	0	0	0	0	0	0
163,225	326,450	3	0	0	0	0	0	0
176,989	0	0	0	0	0	0	0	0
	205,650,121	2,057		-88,823,694	7,402		235,700	0

System Summary		
Existing System	Usage	
	kWh	therms
Heating	0	2,057
Cooling	7,402	0
Vent Cooling	0	0
Lighting	35,040	0
Equipment	35,040	0
Total	77,482	2,057

76,940 kWh
-1%
2055 therms
0%

Proposed Building Envelope		
Wall Area	2400	sqft
Wall Conductivity	0.33	u Value
Window Area	40	sqft
Window Conductivity	0.5	u Value
Roof Area	4000	sqft
Roof Conductivity	0.2	u Value
Floor Area	4000	sqft
Volume	32000	cuft

Set Points		
Heating Set Point	72	deg F
Cooling Set Point	75	deg F

Internal Loads		
Lighting Density	1.00	w/sqft
Equipment Density	1.00	w/sqft
Occupancy	8	people
Occupant Sensible Load	250	btu/person
Infiltration	266.7	cfm
Exhaust	25	cfm
Equipment Density	0.00	therms/sqft
Building Equipment		
Heating System	200,000	Btuh
Heating Efficiency	70	%
Cooling System	60,000	Btuh
Cooling Efficiency	10.0	SEER
Vent Cooling	0	CFM
Vent Power	0	kW

Proposed Load Summaries							
Bin Temp	Bin	Heating	Cooling	Shell Load	Internal Load	Ventilation Load	Combined Load
deg F	Hours			btuh	btuh	btuh	btuh
102.5	2	0	1	-44,330	-29,304	-8,663	-82,297
97.5	23	0	1	-36,270	-29,304	-7,088	-72,662
92.5	93	0	1	-28,210	-29,304	-5,513	-63,027
87.5	237	0	1	-20,150	-29,304	-3,938	-53,392
82.5	452	0	1	-12,090	-29,304	-2,363	-43,757
77.5	692	0	1	-4,030	-29,304	-788	-34,122
72.5	858	0	1	4,030	-29,304	788	-24,487
67.5	753	1	0	7,254	-29,304	1,418	0
62.5	735	1	0	15,314	-29,304	2,993	0
57.5	671	1	0	23,374	-29,304	4,568	0
52.5	736	1	0	31,434	-29,304	6,143	8,273
47.5	708	1	0	39,494	-29,304	7,718	17,908
42.5	756	1	0	47,554	-29,304	9,293	27,543
37.5	705	1	0	55,614	-29,304	10,868	37,178
32.5	546	1	0	63,674	-29,304	12,443	46,813
27.5	340	1	0	71,734	-29,304	14,018	56,448
22.5	229	1	0	79,794	-29,304	15,593	66,083
17.5	134	1	0	87,854	-29,304	17,168	75,718
12.5	57	1	0	95,914	-29,304	18,743	85,353
7.5	22	1	0	103,974	-29,304	20,318	94,988
2.5	9	1	0	112,034	-29,304	21,893	104,623
-2.5	2	1	0	120,094	-29,304	23,468	114,258
-7.5	0	1	0	128,154	-29,304	25,043	123,893
Total	8,760	6,403	2,357				

Proposed Heating System			Proposed Cooling System			Proposed Ventilation Cooling		
Output	Usage	Usage	Output	Usage	Usage	Cooling	On Time	Usage
Btuh	Btu	therms	Btuh	Btu	kWh	Btuh	%	kWh
0	0	0	-72,000	-169,412	14	0	100	0
0	0	0	-72,000	-1,840,000	153	0	100	0
0	0	0	-72,000	-7,048,421	587	0	100	0
0	0	0	-64,070	-15,184,543	1,265	0	100	0
0	0	0	-52,508	-21,575,932	1,798	0	100	0
0	0	0	-40,946	-23,612,078	1,968	0	100	0
0	0	0	-29,384	-19,393,308	1,616	0	100	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
11,818	8,697,943	87	0	0	0	0	0	0
25,582	18,112,157	181	0	0	0	0	0	0
39,346	29,745,900	297	0	0	0	0	0	0
53,111	37,443,054	374	0	0	0	0	0	0
66,875	36,513,750	365	0	0	0	0	0	0
80,639	27,417,357	274	0	0	0	0	0	0
94,404	21,618,418	216	0	0	0	0	0	0
108,168	14,494,493	145	0	0	0	0	0	0
121,932	6,950,132	70	0	0	0	0	0	0
135,696	2,985,321	30	0	0	0	0	0	0
149,461	1,345,146	13	0	0	0	0	0	0
163,225	326,450	3	0	0	0	0	0	0
176,989	0	0	0	0	0	0	0	0
	205,650,121	2,057		-88,823,694	7,402		235,700	0

System Summary		
Proposed System	Usage	
	kWh	therms
Heating	0	2,057
Cooling	7,402	0
Vent Cooling	0	0
Lighting	35,040	0
Equipment	35,040	0
Total	77,482	2,057

Proposed Savings		
Estimated Savings	kWh	therms
	0	0

- Notes:
1. Negative Numbers indicate heat needs to be removed from the space
 2. Heating and Cooling columns determine if the building should be heating or cooling
 3. Vent Power is the ventilation fan motor horse power.

Newark, NJ		Day Time Hours		
Deg F	Hours	01 to 08	09 to 16	17 to 00
102.5	2		2	0
97.5	23		19	4
92.5	93	1	68	24
87.5	237	5	160	72
82.5	452	41	252	159
77.5	692	163	274	255
72.5	858	306	254	298
67.5	753	285	227	241
62.5	735	258	225	252
57.5	671	232	214	225
52.5	736	259	225	252
47.5	708	245	225	238
42.5	756	266	230	260
37.5	705	273	199	233
32.5	546	229	144	173
27.5	340	139	93	108
22.5	229	104	55	70
17.5	134	69	25	40
12.5	57	34	9	14
7.5	22	13	4	5
2.5	9	5	2	2
-2.5	2	2	0	0
-7.5	0	0	0	0
	8760			

This page is for ease of changing weather data. If building scheduling is a factor the bin hours by day time have been included for reference.

Existing Building Equipment		
Cooling System	60,000	Btuh
Cooling Efficiency	10.0	SEER
Cooling Set Point	75	deg F

Existing Load Summaries							
Bin Temp	Bin	Heating	Cooling	Shell Load	Internal Load	Ventilation Load	Combined Load
deg F	Hours			btuh	btuh	btuh	btuh
102.5	2	0	1	-44,330	-29,304	-8,663	-82,297
97.5	23	0	1	-36,270	-29,304	-7,088	-72,662
92.5	93	0	1	-28,210	-29,304	-5,513	-63,027
87.5	237	0	1	-20,150	-29,304	-3,938	-53,392
82.5	452	0	1	-12,090	-29,304	-2,363	-43,757
77.5	692	0	1	-4,030	-29,304	-788	-34,122
72.5	858	0	1	4,030	-29,304	788	-24,487
67.5	753	1	0	7,254	-29,304	1,418	0
62.5	735	1	0	15,314	-29,304	2,993	0
57.5	671	1	0	23,374	-29,304	4,568	0

Existing Cooling System			
System	Output	Usage	Usage
EER	Btuh	Btu	kWh
8.5	-84,706	-169,412	14
9.0	-80,000	-1,840,000	153
9.5	-75,789	-7,048,421	587
10.0	-64,070	-15,184,543	1,265
11.0	-47,734	-21,575,932	1,798
12.0	-34,122	-23,612,078	1,968
13.0	-22,603	-19,393,308	1,616
14.0	0	0	0
15.0	0	0	0
16.0	0	0	0
Existing Totals	-88,823,694		7,402

Proposed Building Equipment		
Cooling System	60,000	Btuh
Cooling Efficiency	10.0	SEER
Cooling Set Point	75	deg F

Existing Load Summaries							
Bin Temp	Bin	Heating	Cooling	Shell Load	Internal Load	Ventilation Load	Combined Load
deg F	Hours			btuh	btuh	btuh	btuh
102.5	2	0	1	-44,330	-29,304	-8,663	-82,297
97.5	23	0	1	-36,270	-29,304	-7,088	-72,662
92.5	93	0	1	-28,210	-29,304	-5,513	-63,027
87.5	237	0	1	-20,150	-29,304	-3,938	-53,392
82.5	452	0	1	-12,090	-29,304	-2,363	-43,757
77.5	692	0	1	-4,030	-29,304	-788	-34,122
72.5	858	0	1	4,030	-29,304	788	-24,487
67.5	753	1	0	7,254	-29,304	1,418	0
62.5	735	1	0	15,314	-29,304	2,993	0
57.5	671	1	0	23,374	-29,304	4,568	0

Proposed Cooling System			
System	Output	Usage	Usage
EER	Btuh	Btu	kWh
8.5	-84,706	-169,412	14
9.0	-80,000	-1,840,000	153
9.5	-75,789	-7,048,421	587
10.0	-64,070	-15,184,543	1,265
11.0	-47,734	-21,575,932	1,798
12.0	-34,122	-23,612,078	1,968
13.0	-22,603	-19,393,308	1,616
14.0	0	0	0
15.0	0	0	0
16.0	0	0	0
Proposed Totals	-88,823,694		7,402

Building	Bus Garage
Address	27-41 Standish Ave
Heating Fuel	gas
Cooling System	DX
	100000

Existing Building Envelope		
Wall Area	2400	sqft
Wall Conductivity	0.33	u Value
Window Area	40	sqft
Window Conductivity	0.5	u Value
Roof Area	4000	sqft
Roof Conductivity	0.2	u Value
Floor Area	4000	sqft
Volume	32000	cuft

Set Points		
Heating Set Point	72	deg F
Cooling Set Point	75	deg F

Internal Loads		
Lighting Density	1.00	w/sqft
Equipment Density	1.00	w/sqft
Occupancy	8	people
Occupant Sensible Load	250	btu/person
Infiltration	266.7	cfm
Exhaust	25	cfm
Equipment Density	0.00	therms
Building Equipment		
Heating System	200,000	Btuh
Heating Efficiency	70	%
Cooling System	60,000	Btuh
Cooling Efficiency	10.0	SEER
Vent Cooling	0	CFM
Vent Power	0	kW

Existing Load Summaries								
Bin Temp	Bin	Heating	Cooling	Shell Load	Internal Load	Ventilation Load	Combined Load	
deg F	Hours			btuh	btuh	btuh	btuh	
102.5	2	0	1	-44,330	-29,304	-8,663	-82,297	
97.5	23	0	1	-36,270	-29,304	-7,088	-72,662	
92.5	93	0	1	-28,210	-29,304	-5,513	-63,027	
87.5	237	0	1	-20,150	-29,304	-3,938	-53,392	
82.5	452	0	1	-12,090	-29,304	-2,363	-43,757	
77.5	692	0	1	-4,030	-29,304	-788	-34,122	
72.5	858	0	1	4,030	-29,304	788	-24,487	
67.5	753	1	0	7,254	-29,304	1,418	0	
62.5	735	1	0	15,314	-29,304	2,993	0	
57.5	671	1	0	23,374	-29,304	4,568	0	
52.5	736	1	0	31,434	-29,304	6,143	8,273	
47.5	708	1	0	39,494	-29,304	7,718	17,908	
42.5	756	1	0	47,554	-29,304	9,293	27,543	
37.5	705	1	0	55,614	-29,304	10,868	37,178	
32.5	546	1	0	63,674	-29,304	12,443	46,813	
27.5	340	1	0	71,734	-29,304	14,018	56,448	
22.5	229	1	0	79,794	-29,304	15,593	66,083	
17.5	134	1	0	87,854	-29,304	17,168	75,718	
12.5	57	1	0	95,914	-29,304	18,743	85,353	
7.5	22	1	0	103,974	-29,304	20,318	94,988	
2.5	9	1	0	112,034	-29,304	21,893	104,623	
-2.5	2	1	0	120,094	-29,304	23,468	114,258	
-7.5	0	1	0	128,154	-29,304	25,043	123,893	
Total	8,760	6,403	2,357					

Existing Heating System			Existing Cooling System			Existing Ventilation Cooling		
Output	Usage	Usage	Output	Usage	Usage	Cooling	On Time	Usage
Btuh	Btu	therms	Btuh	Btu	kWh	Btuh	%	kWh
0	0	0	-72,000	-169,412	14	0	100	0
0	0	0	-72,000	-1,840,000	153	0	100	0
0	0	0	-72,000	-7,048,421	587	0	100	0
0	0	0	-64,070	-15,184,543	1,265	0	100	0
0	0	0	-52,508	-21,575,932	1,798	0	100	0
0	0	0	-40,946	-23,612,078	1,968	0	100	0
0	0	0	-29,384	-19,393,308	1,616	0	100	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
11,818	8,697,943	87	0	0	0	0	0	0
25,582	18,112,157	181	0	0	0	0	0	0
39,346	29,745,900	297	0	0	0	0	0	0
53,111	37,443,054	374	0	0	0	0	0	0
66,875	36,513,750	365	0	0	0	0	0	0
80,639	27,417,357	274	0	0	0	0	0	0
94,404	21,618,418	216	0	0	0	0	0	0
108,168	14,494,493	145	0	0	0	0	0	0
121,932	6,950,132	70	0	0	0	0	0	0
135,696	2,985,321	30	0	0	0	0	0	0
149,461	1,345,146	13	0	0	0	0	0	0
163,225	326,450	3	0	0	0	0	0	0
176,989	0	0	0	0	0	0	0	0
	205,650,121	2,057		-88,823,694	7,402		235,700	0

System Summary		
Existing	Usage	
System	kWh	therms
Heating	0	2,057
Cooling	7,402	0
Vent Cooling	0	0
Lighting	35,040	0
Equipment	35,040	0
Total	77,482	2,057

76,940 2055
-1% 0%

Proposed Building Envelope		
Wall Area	2400	sqft
Wall Conductivity	0.33	u Value
Window Area	40	sqft
Window Conductivity	0.5	u Value
Roof Area	4000	sqft
Roof Conductivity	0.2	u Value
Floor Area	4000	sqft
Volume	32000	cuft

Set Points		
Heating Set Point	72	deg F
Cooling Set Point	75	deg F

Internal Loads		
Lighting Density	1.00	w/sqft
Equipment Density	1.00	w/sqft
Occupancy	8	people
Occupant Sensible Load	250	btu/person
Infiltration	266.7	cfm
Exhaust	25	cfm
Equipment Density	0.00	therms/sqft
Building Equipment		
Heating System	200,000	Btuh
Heating Efficiency	90	%
Cooling System	60,000	Btuh
Cooling Efficiency	10.0	SEER
Vent Cooling	0	CFM
Vent Power	0	kW

Proposed Load Summaries								
Bin Temp	Bin	Heating	Cooling	Shell Load	Internal Load	Ventilation Load	Combined Load	
deg F	Hours			btuh	btuh	btuh	btuh	
102.5	2	0	1	-44,330	-29,304	-8,663	-82,297	
97.5	23	0	1	-36,270	-29,304	-7,088	-72,662	
92.5	93	0	1	-28,210	-29,304	-5,513	-63,027	
87.5	237	0	1	-20,150	-29,304	-3,938	-53,392	
82.5	452	0	1	-12,090	-29,304	-2,363	-43,757	
77.5	692	0	1	-4,030	-29,304	-788	-34,122	
72.5	858	0	1	4,030	-29,304	788	-24,487	
67.5	753	1	0	7,254	-29,304	1,418	0	
62.5	735	1	0	15,314	-29,304	2,993	0	
57.5	671	1	0	23,374	-29,304	4,568	0	
52.5	736	1	0	31,434	-29,304	6,143	8,273	
47.5	708	1	0	39,494	-29,304	7,718	17,908	
42.5	756	1	0	47,554	-29,304	9,293	27,543	
37.5	705	1	0	55,614	-29,304	10,868	37,178	
32.5	546	1	0	63,674	-29,304	12,443	46,813	
27.5	340	1	0	71,734	-29,304	14,018	56,448	
22.5	229	1	0	79,794	-29,304	15,593	66,083	
17.5	134	1	0	87,854	-29,304	17,168	75,718	
12.5	57	1	0	95,914	-29,304	18,743	85,353	
7.5	22	1	0	103,974	-29,304	20,318	94,988	
2.5	9	1	0	112,034	-29,304	21,893	104,623	
-2.5	2	1	0	120,094	-29,304	23,468	114,258	
-7.5	0	1	0	128,154	-29,304	25,043	123,893	
Total	8,760	6,403	2,357					

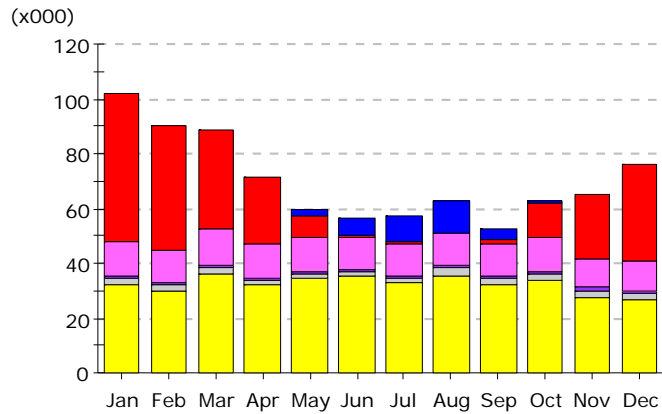
Proposed Heating System			Proposed Cooling System			Proposed Ventilation Cooling		
Output	Usage	Usage	Output	Usage	Usage	Cooling	On Time	Usage
Btuh	Btu	therms	Btuh	Btu	kWh	Btuh	%	kWh
0	0	0	-72,000	-169,412	14	0	100	0
0	0	0	-72,000	-1,840,000	153	0	100	0
0	0	0	-72,000	-7,048,421	587	0	100	0
0	0	0	-64,070	-15,184,543	1,265	0	100	0
0	0	0	-52,508	-21,575,932	1,798	0	100	0
0	0	0	-40,946	-23,612,078	1,968	0	100	0
0	0	0	-29,384	-19,393,308	1,616	0	100	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
9,192	6,765,067	68	0	0	0	0	0	0
19,897	14,087,233	141	0	0	0	0	0	0
30,603	23,135,700	231	0	0	0	0	0	0
41,308	29,122,375	291	0	0	0	0	0	0
52,014	28,399,583	284	0	0	0	0	0	0
62,719	21,324,611	213	0	0	0	0	0	0
73,425	16,814,325	168	0	0	0	0	0	0
84,131	11,273,494	113	0	0	0	0	0	0
94,836	5,405,658	54	0	0	0	0	0	0
105,542	2,321,917	23	0	0	0	0	0	0
116,247	1,046,225	10	0	0	0	0	0	0
126,953	253,906	3	0	0	0	0	0	0
137,658	0	0	0	0	0	0	0	0
	159,950,094	1,600		-88,823,694	7,402		235,700	0

System Summary		
Proposed	Usage	
System	kWh	therms
Heating	0	1,600
Cooling	7,402	0
Vent Cooling	0	0
Lighting	35,040	0
Equipment	35,040	0
Total	77,482	1,600

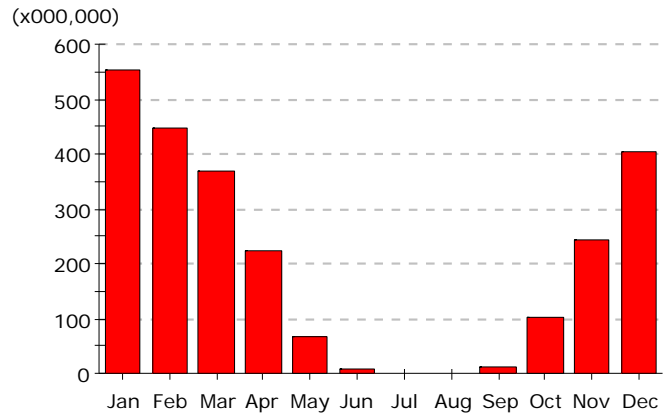
Proposed Savings		
Estimated	kWh	therms
Savings	0	457

- Notes:
1. Negative Numbers indicate heat needs to be removed from the space
 2. Heating and Cooling columns determine if the building should be heating or cooling
 3. Vent Power is the ventilation fan motor horse power.

Electric Consumption (kWh)



Gas Consumption (Btu)



- Area Lighting
- Task Lighting
- Misc. Equipment
- Exterior Usage
- Pumps & Aux.
- Ventilation Fans
- Water Heating
- Ht Pump Supp.
- Space Heating
- Refrigeration
- Heat Rejection
- Space Cooling

Electric Consumption (kWh x000)

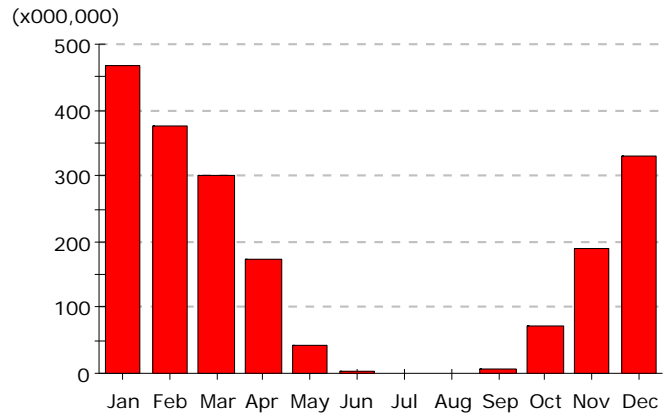
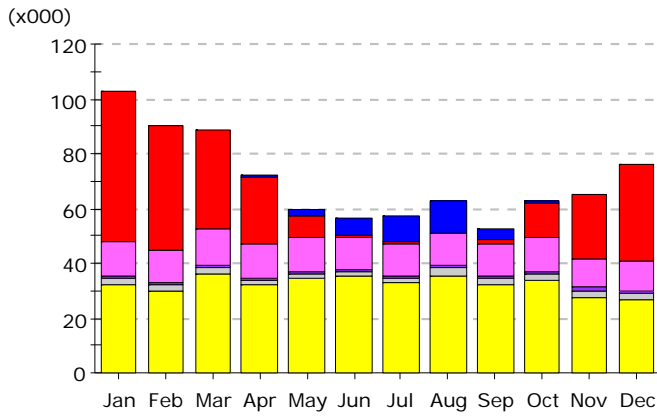
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	0.01	0.25	2.46	5.97	9.44	11.62	3.85	0.91	0.02	-	34.54
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	54.55	45.41	36.61	24.16	7.63	0.36	0.03	-	1.68	12.80	23.51	35.42	242.15
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	12.05	11.40	12.92	12.51	12.55	12.38	12.08	11.83	12.13	12.55	10.26	10.63	143.30
Pumps & Aux.	1.00	0.90	0.97	0.90	0.83	0.82	0.82	0.79	0.79	0.85	0.90	0.99	10.56
Ext. Usage	2.57	1.97	2.18	2.11	1.51	1.46	1.51	2.46	2.38	2.46	2.49	2.57	25.66
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	31.95	30.16	36.13	31.83	34.74	35.12	33.04	35.66	31.80	33.36	27.61	26.36	387.77
Total	102.11	89.84	88.83	71.76	59.71	56.12	56.92	62.37	52.64	62.93	64.79	75.97	843.98

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	553.5	447.6	368.8	224.4	66.3	6.6	0.8	-	12.0	101.7	245.0	403.5	2,430.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	553.5	447.6	368.8	224.4	66.3	6.6	0.8	-	12.0	101.7	245.0	403.5	2,430.2

Electric Consumption (kWh)

Gas Consumption (Btu)



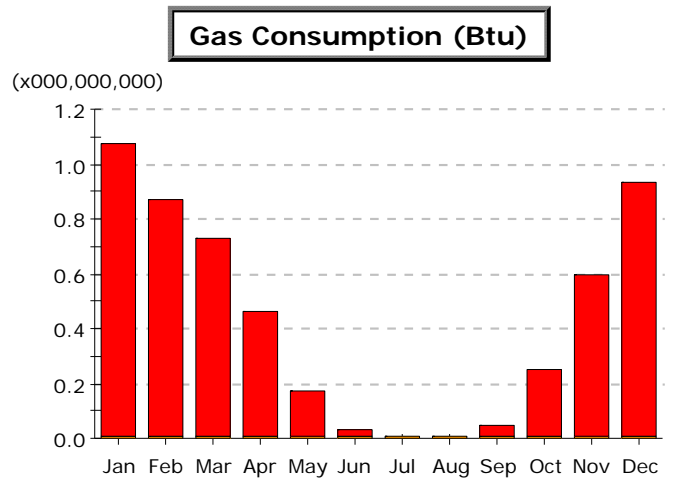
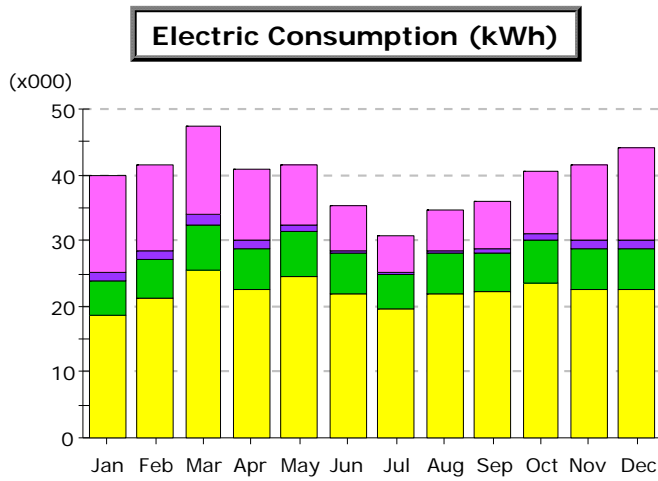
- Area Lighting
- Exterior Usage
- Water Heating
- Refrigeration
- Task Lighting
- Pumps & Aux.
- Ht Pump Supp.
- Heat Rejection
- Misc. Equipment
- Ventilation Fans
- Space Heating
- Space Cooling

Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	0.01	0.25	2.46	5.97	9.44	11.62	3.85	0.91	0.02	-	34.54
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	54.81	45.62	36.79	24.28	7.66	0.37	0.03	-	1.69	12.85	23.64	35.62	243.34
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	12.05	11.40	12.92	12.51	12.55	12.38	12.08	11.83	12.13	12.55	10.26	10.63	143.30
Pumps & Aux.	1.00	0.90	0.97	0.90	0.83	0.82	0.82	0.79	0.79	0.85	0.90	0.99	10.56
Ext. Usage	2.57	1.97	2.18	2.11	1.51	1.46	1.51	2.46	2.38	2.46	2.49	2.57	25.66
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	31.95	30.16	36.13	31.83	34.74	35.12	33.04	35.66	31.80	33.36	27.61	26.36	387.77
Total	102.37	90.05	89.01	71.88	59.74	56.12	56.92	62.37	52.64	62.98	64.91	76.17	845.16

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	468.0	374.5	299.3	173.7	43.9	2.6	0.4	-	6.2	71.7	189.9	329.4	1,959.5
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	468.0	374.5	299.3	173.7	43.9	2.6	0.4	-	6.2	71.7	189.9	329.4	1,959.5



- Area Lighting
- Exterior Usage
- Water Heating
- Refrigeration
- Task Lighting
- Pumps & Aux.
- Ht Pump Supp.
- Heat Rejection
- Misc. Equipment
- Ventilation Fans
- Space Heating
- Space Cooling

Electric Consumption (kWh x000)

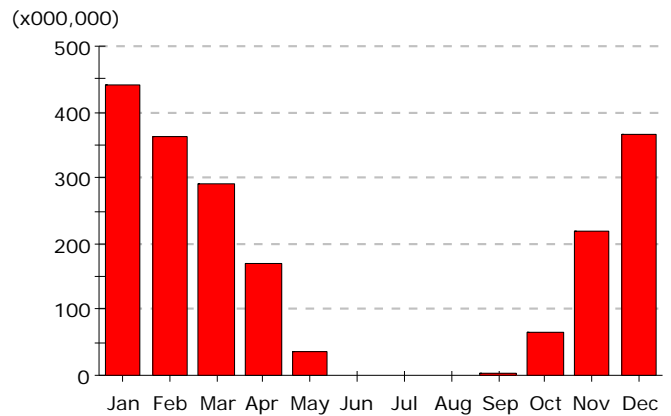
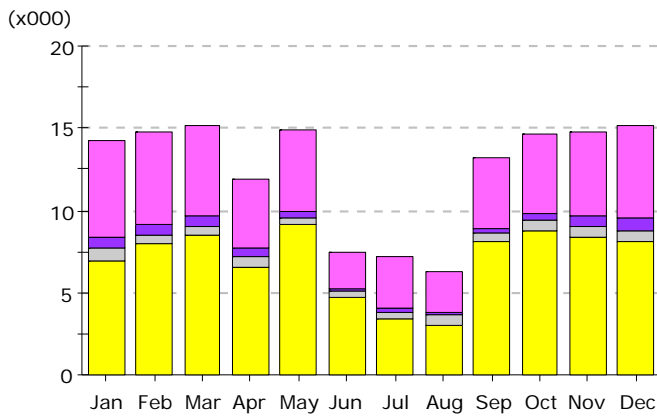
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	14.56	13.19	13.55	10.89	9.22	6.65	5.47	6.27	7.26	9.38	11.62	14.04	122.10
Pumps & Aux.	1.34	1.21	1.34	1.26	1.08	0.49	0.35	0.37	0.60	1.11	1.30	1.34	11.81
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	5.07	5.78	6.91	6.10	6.65	5.97	5.31	5.97	5.97	6.39	6.09	6.12	72.33
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	18.77	21.38	25.58	22.56	24.61	22.05	19.59	22.05	22.10	23.64	22.56	22.66	267.57
Total	39.75	41.56	47.39	40.81	41.56	35.16	30.72	34.67	35.94	40.52	41.57	44.17	473.81

Gas Consumption (Btu x000,000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.07	0.86	0.72	0.46	0.16	0.02	0.00	-	0.04	0.24	0.58	0.92	5.08
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.10
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.08	0.87	0.73	0.47	0.17	0.03	0.01	0.01	0.05	0.25	0.59	0.93	5.18

Electric Consumption (kWh)

Gas Consumption (Btu)



- Area Lighting
- Exterior Usage
- Water Heating
- Refrigeration
- Task Lighting
- Pumps & Aux.
- Ht Pump Supp.
- Heat Rejection
- Misc. Equipment
- Ventilation Fans
- Space Heating
- Space Cooling

Electric Consumption (kWh x000)

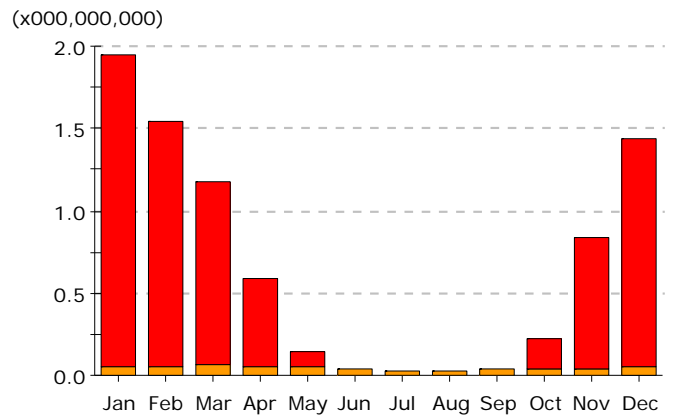
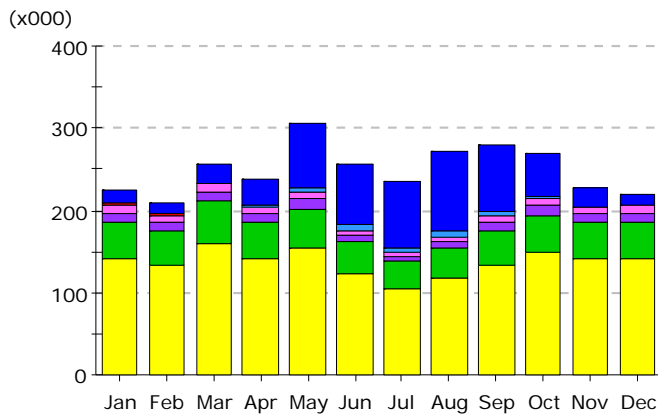
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	5.82	5.59	5.47	4.22	4.97	2.24	3.20	2.56	4.25	4.75	5.10	5.70	53.86
Pumps & Aux.	0.74	0.66	0.68	0.56	0.35	0.14	0.20	0.16	0.26	0.37	0.63	0.72	5.47
Ext. Usage	0.69	0.53	0.58	0.56	0.40	0.39	0.40	0.66	0.64	0.66	0.66	0.69	6.85
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	6.98	7.97	8.44	6.58	9.18	4.74	3.43	2.97	8.04	8.81	8.41	8.08	83.63
Total	14.22	14.75	15.18	11.92	14.90	7.51	7.23	6.34	13.19	14.59	14.80	15.19	149.81

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	442.2	362.9	290.9	168.5	36.2	0.8	-	-	2.9	64.0	219.5	366.8	1,954.6
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	442.2	362.9	290.9	168.5	36.2	0.8	-	-	2.9	64.0	219.5	366.8	1,954.6

Electric Consumption (kWh)

Gas Consumption (Btu)



- Area Lighting
- Exterior Usage
- Water Heating
- Refrigeration
- Task Lighting
- Pumps & Aux.
- Ht Pump Supp.
- Heat Rejection
- Misc. Equipment
- Ventilation Fans
- Space Heating
- Space Cooling

Electric Consumption (kWh x000)

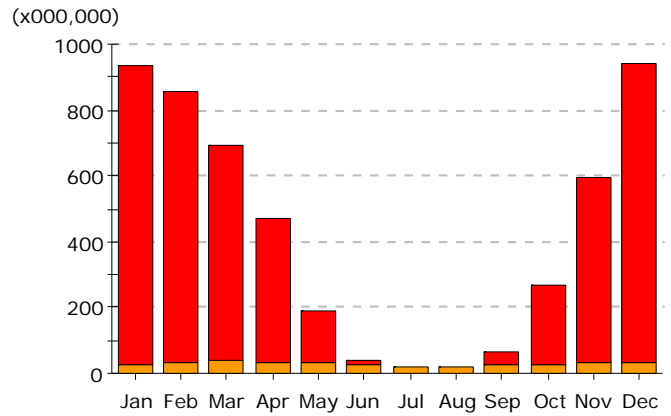
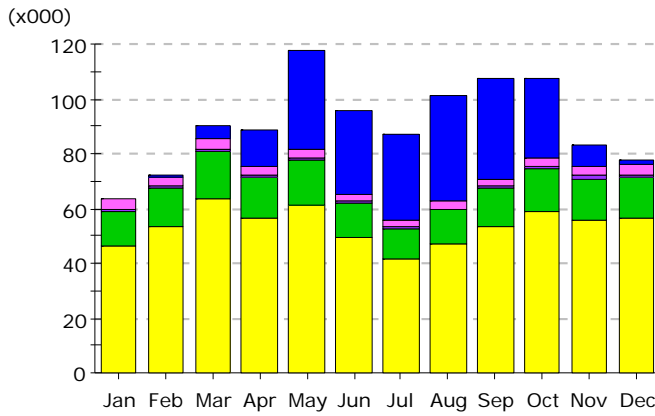
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	15.4	13.2	22.1	32.9	78.3	75.1	79.6	96.4	81.1	54.2	22.4	13.1	583.8
Heat Reject.	0.5	0.4	0.6	0.8	4.2	5.6	6.2	7.5	5.5	2.2	0.6	0.5	34.6
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.0	0.8	0.6	0.3	0.1	0.0	-	-	0.0	0.1	0.4	0.7	3.9
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	9.8	8.6	9.3	7.7	8.9	6.4	5.6	6.7	7.7	8.2	7.9	8.6	95.4
Pumps & Aux.	11.1	10.6	12.8	11.1	11.5	7.3	5.4	6.2	8.8	11.2	11.1	11.2	118.1
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	44.6	42.1	50.5	44.5	48.5	39.1	33.2	37.4	42.2	46.7	44.4	44.6	517.9
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	141.4	133.5	160.0	141.1	153.8	123.6	104.6	117.7	133.4	147.8	140.6	141.4	1,638.7
Total	223.7	209.2	255.8	238.4	305.3	257.1	234.6	271.8	278.7	270.4	227.3	220.1	2,992.3

Gas Consumption (Btu x000,000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.89	1.49	1.11	0.53	0.09	0.00	-	-	0.00	0.18	0.79	1.38	7.46
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	0.05	0.05	0.06	0.05	0.05	0.04	0.03	0.03	0.04	0.04	0.05	0.05	0.55
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.94	1.54	1.17	0.58	0.14	0.04	0.03	0.03	0.04	0.22	0.84	1.43	8.01

Electric Consumption (kWh)

Gas Consumption (Btu)



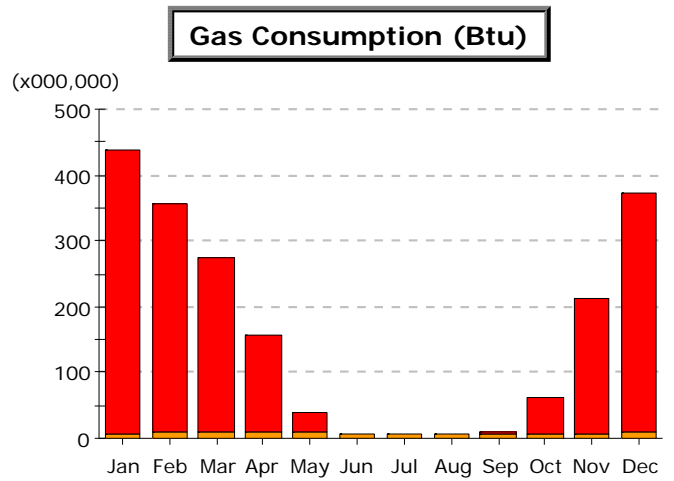
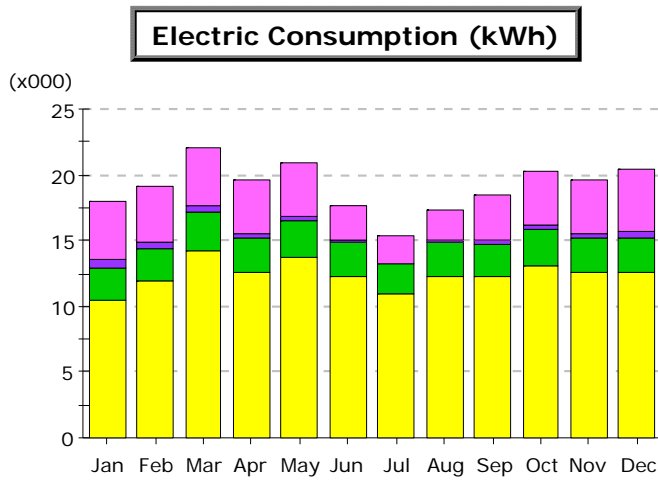
- Area Lighting
- Exterior Usage
- Water Heating
- Refrigeration
- Task Lighting
- Pumps & Aux.
- Ht Pump Supp.
- Heat Rejection
- Misc. Equipment
- Ventilation Fans
- Space Heating
- Space Cooling

Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.0	0.7	4.9	13.7	36.3	30.9	31.8	38.9	36.8	28.6	8.4	1.7	232.6
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	3.7	3.5	3.5	3.2	3.3	2.1	2.4	2.8	2.8	3.2	3.2	3.9	37.6
Pumps & Aux.	0.9	0.9	1.0	0.9	0.7	0.4	0.3	0.3	0.6	0.8	0.9	1.0	8.7
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	12.4	14.2	17.0	15.0	16.3	13.2	11.2	12.6	14.2	15.7	14.9	15.0	171.7
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	46.4	53.1	63.7	56.1	61.2	49.2	41.6	46.8	53.1	58.8	55.9	56.3	642.2
Total	63.4	72.5	90.0	88.9	117.8	95.7	87.2	101.4	107.5	107.2	83.4	77.9	1,092.8

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	904.4	820.6	650.1	436.2	154.0	11.8	-	-	39.4	238.0	564.5	906.3	4,725.4
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	28.5	33.4	40.0	34.7	35.1	24.9	19.2	20.5	24.6	28.7	29.4	32.0	351.0
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	932.9	854.0	690.2	470.9	189.1	36.7	19.2	20.5	64.0	266.7	593.9	938.3	5,076.4



- Area Lighting
- Misc. Equipment
- Pumps & Aux.
- Ventilation Fans
- Water Heating
- Ht Pump Supp.
- Refrigeration
- Space Cooling

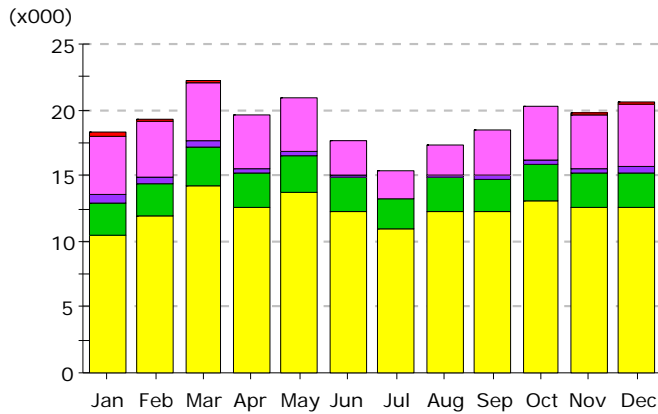
Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	4.47	4.28	4.42	4.05	4.10	2.64	1.98	2.28	3.44	4.10	4.13	4.67	44.55
Pumps & Aux.	0.56	0.48	0.45	0.33	0.29	0.19	0.14	0.16	0.25	0.29	0.38	0.53	4.08
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	2.54	2.47	2.95	2.60	2.84	2.55	2.27	2.55	2.53	2.73	2.60	2.61	31.24
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	10.43	11.88	14.22	12.54	13.68	12.25	10.89	12.25	12.20	13.14	12.54	12.60	148.61
Total	18.01	19.11	22.04	19.53	20.91	17.63	15.28	17.25	18.41	20.26	19.66	20.40	228.48

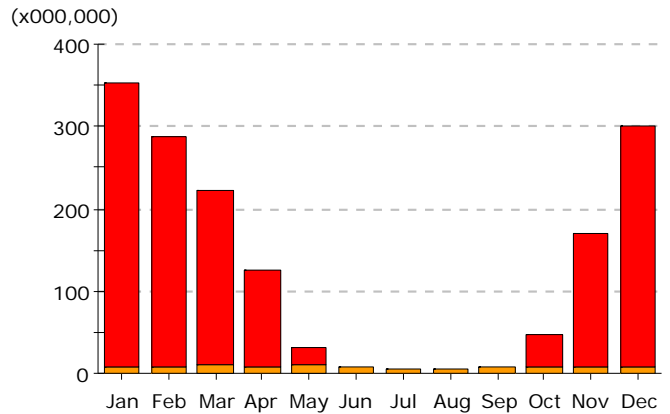
Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	431.1	346.1	264.7	148.0	30.1	0.3	-	-	3.4	53.9	206.0	362.8	1,846.4
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	7.4	8.7	10.5	9.1	9.2	7.4	6.0	6.5	6.6	7.5	7.7	8.4	94.9
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	438.5	354.8	275.1	157.1	39.3	7.7	6.0	6.5	10.1	61.4	213.7	371.1	1,941.3

Electric Consumption (kWh)



Gas Consumption (Btu)



- Area Lighting
- Exterior Usage
- Water Heating
- Refrigeration
- Task Lighting
- Pumps & Aux.
- Ht Pump Supp.
- Heat Rejection
- Misc. Equipment
- Ventilation Fans
- Space Heating
- Space Cooling

Electric Consumption (kWh x000)

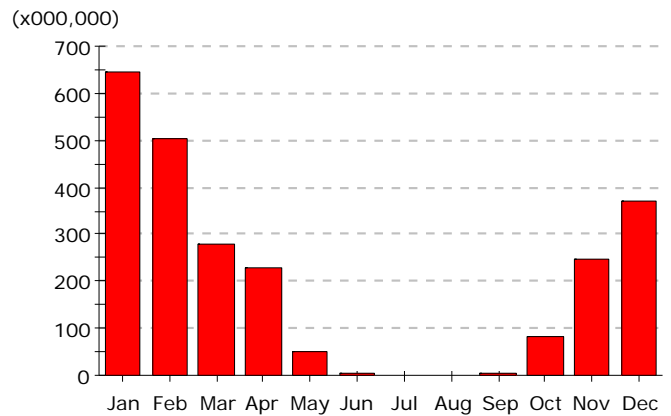
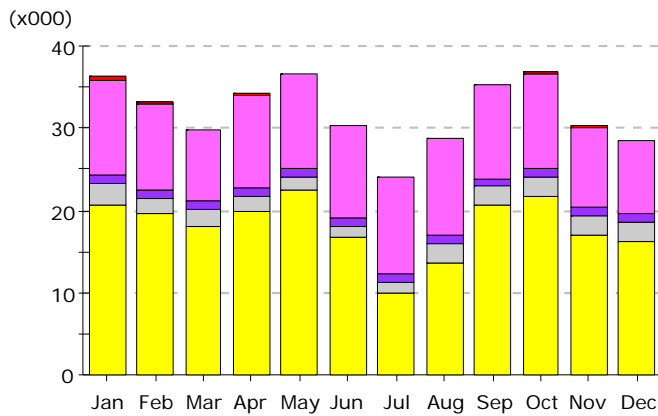
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.23	0.18	0.15	0.09	0.02	0.00	-	-	0.00	0.03	0.12	0.19	1.01
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	4.47	4.28	4.42	4.05	4.10	2.64	1.98	2.28	3.44	4.10	4.13	4.67	44.55
Pumps & Aux.	0.56	0.48	0.45	0.33	0.29	0.19	0.14	0.16	0.25	0.29	0.38	0.53	4.08
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	2.54	2.47	2.95	2.60	2.84	2.55	2.27	2.55	2.53	2.73	2.60	2.61	31.24
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	10.43	11.88	14.22	12.54	13.68	12.25	10.89	12.25	12.20	13.14	12.54	12.60	148.61
Total	18.23	19.29	22.19	19.62	20.93	17.63	15.28	17.25	18.41	20.29	19.78	20.60	229.49

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	346.2	278.3	211.3	116.3	22.3	0.1	-	-	1.9	40.4	162.5	293.4	1,472.8
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	7.4	8.7	10.5	9.1	9.2	7.4	6.0	6.5	6.6	7.5	7.7	8.4	94.9
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	353.6	287.0	221.8	125.3	31.5	7.6	6.0	6.5	8.5	47.9	170.2	301.8	1,567.7

Electric Consumption (kWh)

Gas Consumption (Btu)



- Area Lighting
- Exterior Usage
- Water Heating
- Refrigeration
- Task Lighting
- Pumps & Aux.
- Ht Pump Supp.
- Heat Rejection
- Misc. Equipment
- Ventilation Fans
- Space Heating
- Space Cooling

Electric Consumption (kWh x000)

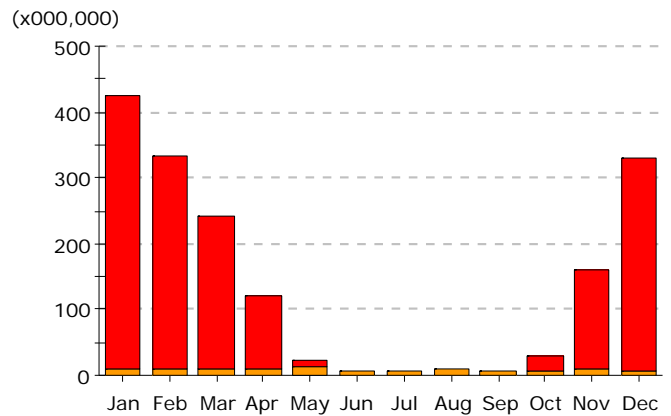
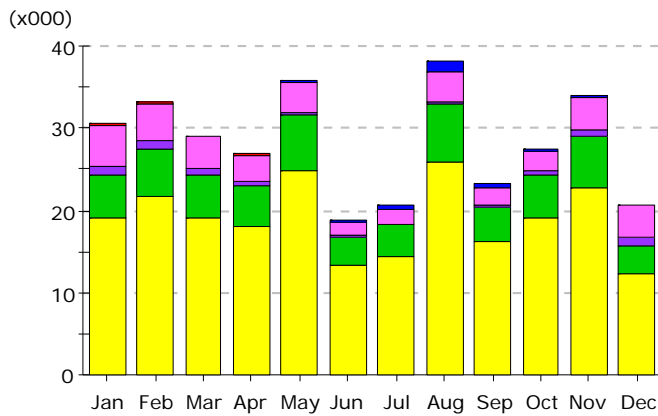
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.35	0.28	0.18	0.15	0.04	0.00	0.00	-	0.00	0.06	0.16	0.23	1.45
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	11.67	10.54	8.55	11.29	11.67	11.29	11.67	11.67	11.29	11.67	9.64	8.67	129.62
Pumps & Aux.	1.04	0.94	1.04	1.01	1.04	1.01	1.04	1.04	1.01	1.04	0.98	1.04	12.25
Ext. Usage	2.45	1.88	2.08	2.01	1.44	1.39	1.44	2.34	2.27	2.34	2.37	2.45	24.46
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	20.74	19.57	18.04	19.75	22.54	16.67	9.89	13.68	20.65	21.64	17.05	16.24	216.44
Total	36.25	33.21	29.89	34.21	36.72	30.36	24.05	28.73	35.22	36.75	30.20	28.63	384.22

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	646.4	503.1	278.0	228.5	50.3	2.5	0.6	-	5.5	80.9	246.9	371.3	2,414.1
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	646.4	503.1	278.0	228.5	50.3	2.5	0.6	-	5.5	80.9	246.9	371.3	2,414.1

Electric Consumption (kWh)

Gas Consumption (Btu)



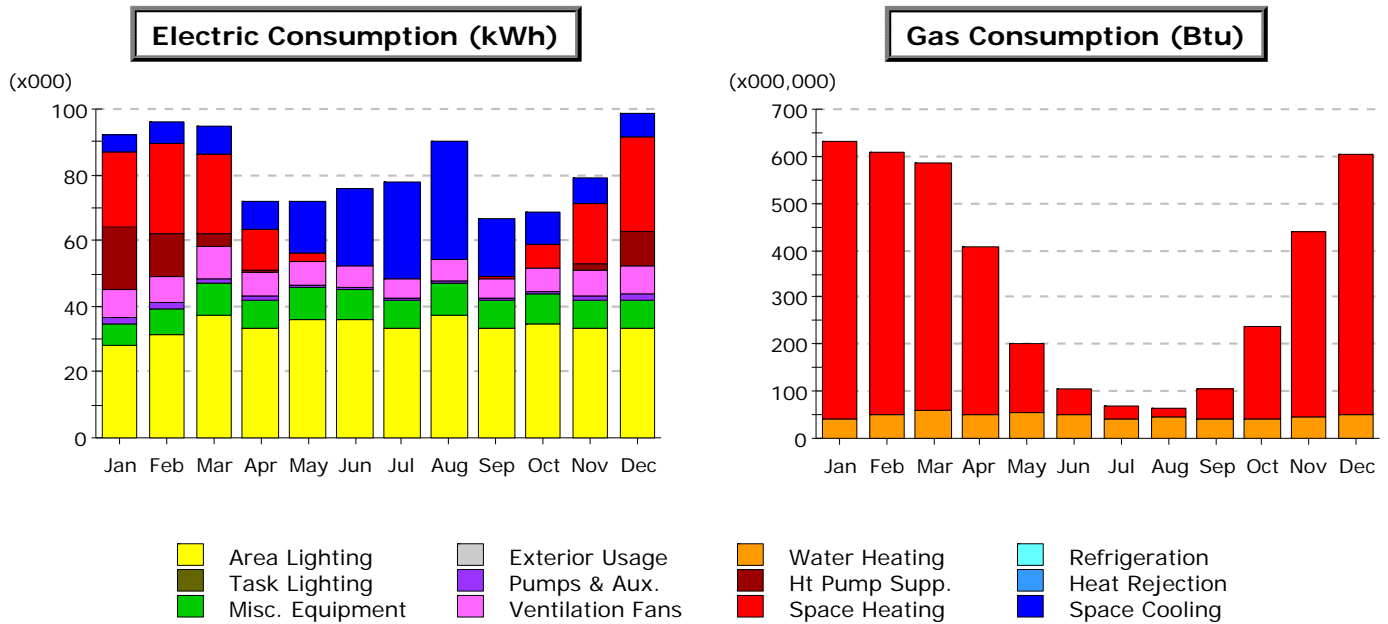
- Area Lighting
- Task Lighting
- Misc. Equipment
- Exterior Usage
- Pumps & Aux.
- Ventilation Fans
- Water Heating
- Ht Pump Supp.
- Refrigeration
- Space Heating
- Heat Rejection
- Space Cooling

Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	0.00	0.15	0.26	0.44	1.32	0.43	0.02	0.01	-	2.64
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.24	0.19	0.15	0.07	0.01	-	-	-	0.00	0.02	0.10	0.20	0.97
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	5.04	4.63	3.76	3.09	3.53	1.59	1.75	3.65	2.07	2.58	3.89	3.79	39.35
Pumps & Aux.	1.01	0.89	0.86	0.68	0.35	0.12	0.13	0.27	0.15	0.37	0.78	0.97	6.58
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	5.19	5.87	5.19	4.89	6.75	3.59	3.88	7.01	4.37	5.19	6.20	3.36	61.49
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	19.15	21.67	19.15	18.06	24.92	13.25	14.34	25.88	16.14	19.15	22.87	12.41	227.00
Total	30.62	33.24	29.10	26.81	35.71	18.81	20.54	38.14	23.17	27.32	33.86	20.73	338.04

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	416.7	321.7	231.8	111.0	11.0	0.0	0.0	-	0.3	22.8	151.0	324.3	1,590.8
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	9.5	11.1	9.9	9.1	11.6	5.7	5.7	9.8	6.1	7.7	9.8	5.8	101.9
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	426.2	332.9	241.7	120.2	22.6	5.7	5.7	9.8	6.5	30.5	160.9	330.1	1,692.7



Electric Consumption (kWh x000)

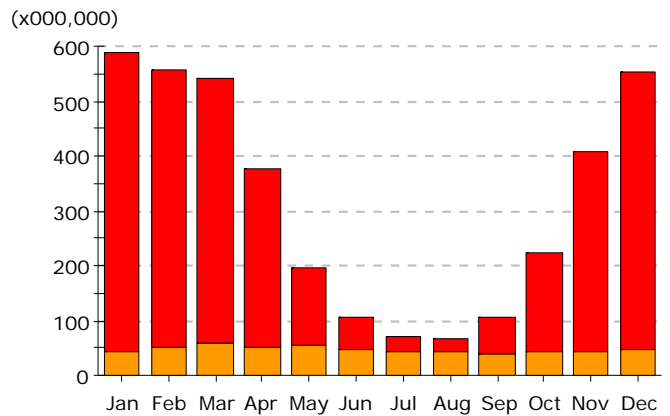
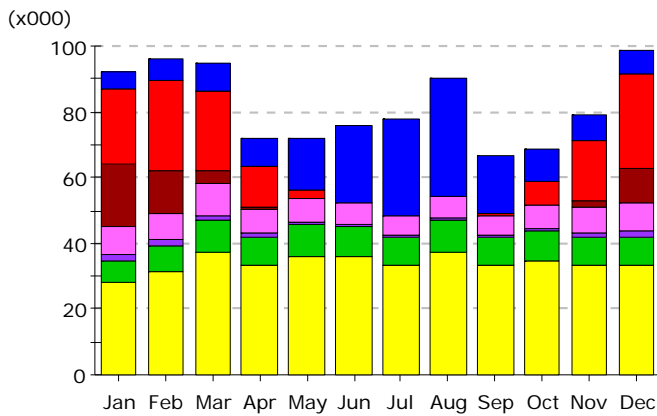
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	5.30	6.64	8.74	8.13	16.14	23.65	29.67	35.93	17.68	10.23	7.66	7.24	177.00
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	22.73	27.35	23.79	12.41	2.53	0.13	0.04	0.02	0.60	7.07	18.49	28.18	143.34
HP Supp.	19.46	12.62	4.33	0.59	-	-	-	-	-	0.04	2.16	10.89	50.10
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	8.38	8.37	9.17	7.57	7.09	6.58	6.01	6.89	6.01	6.74	7.61	8.67	89.09
Pumps & Aux.	1.58	1.38	1.47	1.32	0.92	0.44	0.31	0.31	0.48	1.01	1.35	1.52	12.09
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	7.15	8.09	9.66	8.54	9.30	9.26	8.59	9.66	8.54	8.95	8.54	8.59	104.87
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	27.78	31.44	37.56	33.19	36.16	35.98	33.37	37.56	33.19	34.76	33.19	33.37	407.56
Total	92.38	95.90	94.71	71.75	72.14	76.05	77.98	90.37	66.51	68.79	79.01	98.44	984.04

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	587.3	559.2	527.0	354.8	150.3	58.3	27.7	20.6	66.7	196.3	395.6	556.3	3,500.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	43.4	50.6	60.5	52.5	53.1	48.7	41.9	44.8	39.6	43.4	44.7	48.6	571.8
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	630.6	609.8	587.6	407.4	203.4	107.0	69.6	65.4	106.3	239.7	440.2	604.9	4,072.0

Electric Consumption (kWh)

Gas Consumption (Btu)



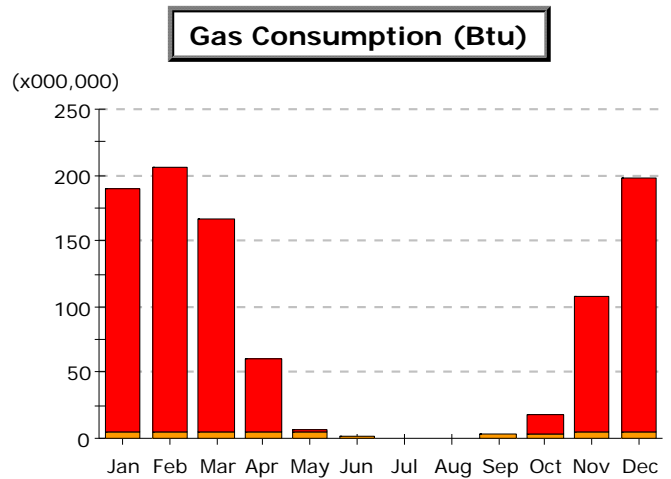
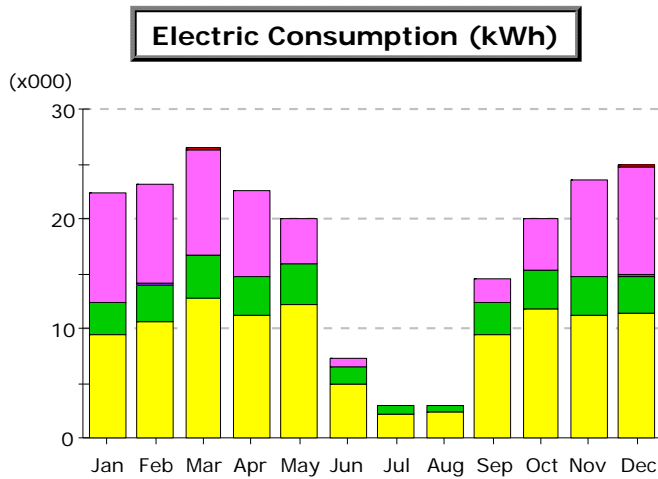
- Area Lighting
- Task Lighting
- Misc. Equipment
- Exterior Usage
- Pumps & Aux.
- Ventilation Fans
- Water Heating
- Ht Pump Supp.
- Space Heating
- Refrigeration
- Heat Rejection
- Space Cooling

Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	5.30	6.64	8.74	8.13	16.14	23.65	29.67	35.93	17.68	10.23	7.66	7.24	177.00
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	22.73	27.35	23.79	12.41	2.53	0.13	0.04	0.02	0.60	7.07	18.49	28.18	143.34
HP Supp.	19.46	12.62	4.33	0.59	-	-	-	-	-	0.04	2.16	10.89	50.10
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	8.38	8.37	9.17	7.57	7.09	6.58	6.01	6.89	6.01	6.74	7.61	8.67	89.09
Pumps & Aux.	1.58	1.38	1.47	1.32	0.92	0.44	0.31	0.31	0.48	1.01	1.35	1.52	12.09
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	7.15	8.09	9.66	8.54	9.30	9.26	8.59	9.66	8.54	8.95	8.54	8.59	104.87
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	27.78	31.44	37.56	33.19	36.16	35.98	33.37	37.56	33.19	34.76	33.19	33.37	407.56
Total	92.38	95.90	94.71	71.75	72.14	76.05	77.98	90.37	66.51	68.79	79.01	98.44	984.04

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	543.8	505.9	479.7	323.3	143.7	58.3	27.7	20.6	66.7	181.6	361.3	503.3	3,215.9
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	43.4	50.6	60.5	52.5	53.1	48.7	41.9	44.8	39.6	43.4	44.7	48.6	571.8
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	587.1	556.5	540.3	375.9	196.8	107.0	69.6	65.4	106.3	225.0	406.0	551.9	3,787.7



- Area Lighting
- Misc. Equipment
- Exterior Usage
- Pumps & Aux.
- Water Heating
- Refrigeration
- Task Lighting
- Ventilation Fans
- Ht Pump Supp.
- Space Cooling
- Space Heating

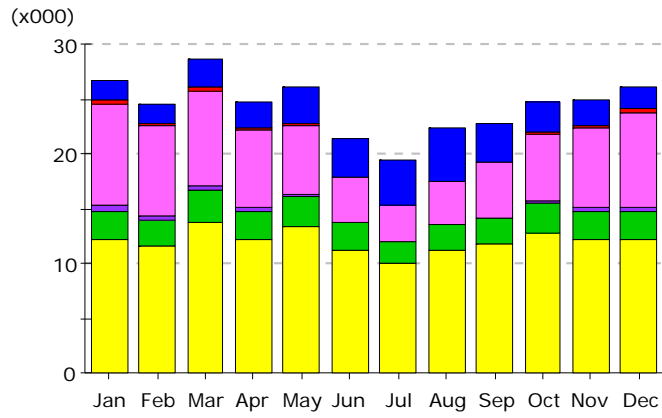
Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.10	0.11	0.09	0.03	0.00	-	-	-	-	0.01	0.05	0.10	0.49
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	9.92	9.03	9.56	7.77	4.09	0.86	0.01	-	2.26	4.65	8.81	9.89	66.85
Pumps & Aux.	0.13	0.16	0.16	0.06	0.00	-	-	-	-	0.03	0.12	0.16	0.81
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	2.86	3.23	3.86	3.41	3.72	1.51	0.69	0.71	2.86	3.57	3.41	3.43	33.26
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	9.41	10.64	12.71	11.24	12.24	4.91	2.21	2.26	9.42	11.77	11.24	11.30	109.33
Total	22.42	23.17	26.38	22.51	20.05	7.27	2.91	2.97	14.54	20.02	23.63	24.88	210.74

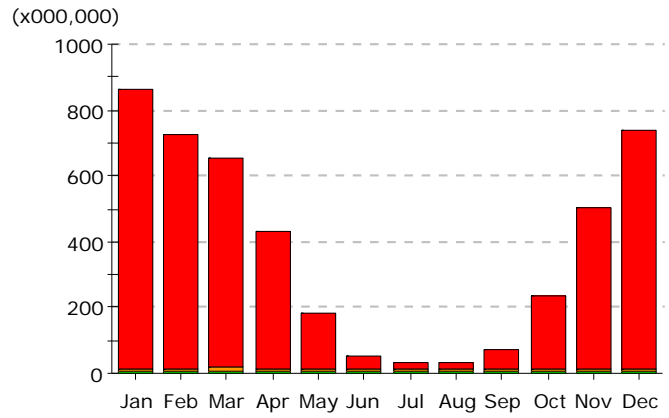
Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	186.01	201.15	160.62	55.84	1.20	-	-	-	-	13.83	104.19	193.24	916.08
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	4.14	4.80	5.71	4.95	4.96	1.74	0.66	0.63	3.09	4.08	4.22	4.62	43.61
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	190.16	205.95	166.34	60.78	6.16	1.74	0.66	0.63	3.09	17.91	108.42	197.86	959.70

Electric Consumption (kWh)



Gas Consumption (Btu)



- Area Lighting
- Exterior Usage
- Water Heating
- Refrigeration
- Task Lighting
- Pumps & Aux.
- Ht Pump Supp.
- Heat Rejection
- Misc. Equipment
- Ventilation Fans
- Space Heating
- Space Cooling

Electric Consumption (kWh x000)

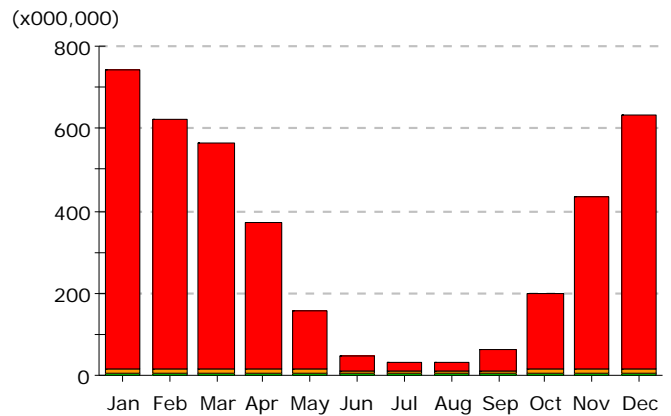
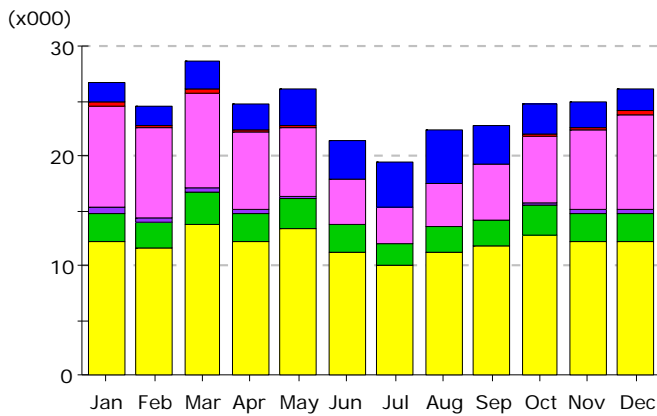
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.65	1.69	2.57	2.47	3.42	3.48	4.05	4.99	3.54	2.82	2.35	1.94	34.95
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.36	0.31	0.28	0.20	0.10	0.03	0.02	0.01	0.04	0.12	0.23	0.32	2.01
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	9.36	8.15	8.65	7.09	6.39	4.14	3.34	3.86	5.03	6.23	7.27	8.57	78.07
Pumps & Aux.	0.43	0.37	0.38	0.29	0.12	0.04	0.02	0.02	0.05	0.18	0.31	0.40	2.60
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	2.57	2.42	2.90	2.56	2.79	2.37	2.09	2.35	2.46	2.68	2.55	2.57	30.31
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	12.22	11.53	13.81	12.18	13.28	11.26	9.92	11.16	11.71	12.76	12.16	12.22	144.20
Total	26.58	24.48	28.58	24.79	26.10	21.31	19.44	22.39	22.81	24.78	24.87	26.01	292.15

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	847.7	710.0	639.2	417.1	164.0	42.6	23.8	21.4	57.6	221.0	489.9	725.6	4,360.0
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	10.4	10.1	12.0	10.4	10.4	7.8	6.3	6.8	7.4	8.6	8.9	9.7	108.8
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.9	4.6	5.6	4.9	5.3	4.6	4.1	4.6	4.7	5.1	4.9	4.9	58.4
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	863.0	724.7	656.8	432.4	179.8	55.1	34.2	32.8	69.8	234.7	503.7	740.2	4,527.1

Electric Consumption (kWh)

Gas Consumption (Btu)



- Area Lighting
- Exterior Usage
- Water Heating
- Refrigeration
- Task Lighting
- Pumps & Aux.
- Ht Pump Supp.
- Heat Rejection
- Misc. Equipment
- Ventilation Fans
- Space Heating
- Space Cooling

Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.65	1.69	2.57	2.47	3.42	3.48	4.05	4.99	3.54	2.82	2.35	1.94	34.95
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.36	0.31	0.28	0.20	0.10	0.03	0.02	0.01	0.04	0.12	0.23	0.32	2.01
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	9.36	8.15	8.65	7.09	6.39	4.14	3.34	3.86	5.03	6.23	7.27	8.57	78.07
Pumps & Aux.	0.43	0.37	0.38	0.29	0.12	0.04	0.02	0.02	0.05	0.18	0.31	0.40	2.60
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	2.57	2.42	2.90	2.56	2.79	2.37	2.09	2.35	2.46	2.68	2.55	2.57	30.31
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	12.22	11.53	13.81	12.18	13.28	11.26	9.92	11.16	11.71	12.76	12.16	12.22	144.20
Total	26.58	24.48	28.58	24.79	26.10	21.31	19.44	22.39	22.81	24.78	24.87	26.01	292.15

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	725.7	607.8	546.5	355.6	138.9	36.0	20.1	18.1	48.6	187.4	418.2	620.2	3,723.1
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	10.4	10.1	12.0	10.4	10.4	7.8	6.3	6.8	7.4	8.6	8.9	9.7	108.8
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.9	4.6	5.6	4.9	5.3	4.6	4.1	4.6	4.7	5.1	4.9	4.9	58.4
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	741.0	622.5	564.1	370.8	154.7	48.5	30.5	29.4	60.8	201.2	432.0	634.8	3,890.3

Combined heat and power Analysis	- (system usage) + (system production)					
	kwh	Therms	Kbtuh	\$ Cost	\$ Produced	\$ Net
Hourly Generator Production*	65	-8	275	-\$8.84	\$13.60	\$4.76
Hourly Boiler Production **	0	-5	408	-\$5.36	\$5.71	\$0.36

Annual Hours of Generator operation	4320	-\$38,193
Electrical used	100%	\$42,120
Thermal used	50%	\$8,316
Annual Generator Savings		\$12,243
Estimate Cost of 65 kW Generator		\$143,000
Incentive		\$42,900
Final Cost		\$100,100
Annual Maintenance***		\$2,527
Simple Payback		10.3

Utility Cost		
Therm	\$1.05	from Central Plant billing records
kWh	\$0.15	
kBtuh	\$0.01	

* Based upon 65 kW generator

** Based upon existing plant running on Natural Gas at the plant measured 80% efficient

*** \$0.009/kWh operation and maintenance cost (National Renewable Energy Laboratory 2003 data for 1 Mw system)

School	Electric			Gas		
	kWh	kW (avg)	\$	Therms	MBH (avg)	\$
Adminstration Building	362,720	41	\$55,855	33,618	384	\$35,423
Gregory Elementary	464,515	53	\$79,885	51,892	592	\$55,612
Hazel Elementary	146,331	17	\$23,820	20,198	231	\$22,814
Liberty Middle School	1,003,447	115	\$171,092	48,909	558	\$48,471
West Orange High School	3,286,426	375	\$493,407	152,664	1,743	\$112,500
Edison Central Six	862,200	98	\$144,260	27,530	314	\$26,085
Mt. Pleasant Elementary	180,400	21	\$30,211	21,199	242	\$23,287
Pleasantdale Elementary	371,528	42	\$60,546	24,260	277	\$10,591
Redwood Elementary	327,150	37	\$51,891	33,894	387	\$19,077
Roosevelt Middle School	968,400	111	\$152,734	44,843	512	\$20,223
St Cloud Elementary	196,650	22	\$30,672	3,250	37	\$3,391
Washington Elementary	277,680	32	\$43,206	45,973	525	\$47,604
West Orange Bus Garage	83,693	10	\$14,998	3,219	37	\$3,298

Schools that appear to be CHP candidates



Appendix D

Facility	Interior/Exterior	Existing Quantity	Existing Fixture	Replacement Quantity	Replacement Fixture
Administration Building	79 Occupancy Sensors Proposed				
Administration Building	Interior	116	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	116	Replace T8 Fixture with 36W Linear Panel LED Fixture
Administration Building	Interior	6	1x8 Fixture w/ 2-T8 Lamps w/ Electronic Ballasts	6	Replace T8 Fixture with (2) 36W Linear Panel LED Fixtures
Administration Building	Interior	149	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	149	Replace T8 Fixture with 35W Linear Panel LED Fixture
Administration Building	Interior	8	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	Replace T8 Fixture with 36W Linear Panel LED Fixture
Administration Building	Interior	11	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	11	Replace T8 Fixture with 50W Linear Panel LED Fixture
Administration Building	Interior	129	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	129	Replace T8 Fixture with 50W Linear Panel LED Fixture
Administration Building	Interior	1	65W Incandescent Fixture	1	Replace 65W Incandescent Fixture with 13W CFL
Administration Building	Interior	16	150W Incandescent Fixture	16	Replace 150W Incandescent Fixture with 25W CFL
Administration Building	Interior	2	70W Metal Halide Wallpack	2	Replace 70W Fixture with 44W LED Fixture
Administration Building	Exterior	6	Exterior Wall Packs (Assume 70w)	6	Replace 70W Fixture with 44W LED Fixture
Edison Middle School	93 Occupancy Sensors Proposed				
Edison Middle School	Interior	2	1x4 Fixtures w/ 2-T12 Lamp Fixture w/ Magnetic Ballast	2	Replace T8 Fixture with 36W Linear Panel LED Fixture
Edison Middle School	Interior	197	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	197	Replace T8 Fixture with 36W Linear Panel LED Fixture
Edison Middle School	Interior	98	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	98	Replace T8 Fixture with 35W Linear Panel LED Fixture
Edison Middle School	Interior	107	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	107	Replace T8 Fixture with 36W Linear Panel LED Fixture
Edison Middle School	Interior	282	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	282	Replace T8 Fixture with 50W Linear Panel LED Fixture
Edison Middle School	Interior	66	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	66	Replace T8 Fixture with 50W Linear Panel LED Fixture
Edison Middle School	Interior	23	1X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	23	Replace T8 Fixture with 50W Linear Panel LED Fixture
Edison Middle School	Interior	4	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	4	Replace T8 Fixture with 22W Linear Panel LED Fixture
Edison Middle School	Interior	9	60W Incandescent Fixture	9	Replace 60W Incandescent Fixture with 13W CFL
Edison Middle School	Interior	6	150W Incandescent Fixture	6	Replace 150W Incandescent Fixture with 25W CFL
Edison Middle School	Exterior	1	Flood Lights (Assume 400W MH)	1	Replace 400W Fixture with 215W LED Fixture
Gregory School	80 Occupancy Sensors Proposed				
Gregory School	Interior	218	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	218	Replace T8 Fixture with 36W Linear Panel LED Fixture
Gregory School	Interior	30	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	30	Replace T8 Fixture with 36W Linear Panel LED Fixture
Gregory School	Interior	46	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	46	Replace T8 Fixture with 50W Linear Panel LED Fixture
Gregory School	Interior	449	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	449	Replace T8 Fixture with 50W Linear Panel LED Fixture
Gregory School	Interior	12	1X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	Replace T8 Fixture with 50W Linear Panel LED Fixture
Gregory School	Interior	12	400W High Bay Fixture	12	Replace 400W Fixture with 204W LED High Bay Fixture
Gregory School	Exterior	16	Exterior Wall Packs (Assume 70w)	16	Replace 70W Fixture with 44W LED Fixture
Gregory School	Exterior	2	60W Incandescent Fixture	2	Replace 60W Incandescent Fixture with 13W CFL
Gregory School	Exterior	8	Pole Mounted Luminaire - 1 Head (Assume 400W MH)	8	Replace 400W Fixture With A Single Head 215W LED Fixture
Hazel School	66 Occupancy Sensors Proposed				
Hazel School	Interior	7	1x4 Fixtures w/ 2-T12 Lamp Fixture w/ Magnetic Ballast	7	Replace T12 Fixture with 36W Linear Panel LED Fixture
Hazel School	Interior	334	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	334	Replace T8 Fixture with 36W Linear Panel LED Fixture
Hazel School	Interior	21	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	21	Replace T8 Fixture with 35W Linear Panel LED Fixture
Hazel School	Interior	24	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	24	Replace T8 Fixture with 50W Linear Panel LED Fixture
Hazel School	Interior	56	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	56	Replace T8 Fixture with 50W Linear Panel LED Fixture
Hazel School	Interior	18	150W Incandescent Fixture	18	Replace 150W Incandescent Fixture with 25W CFL
Hazel School	Interior	5	60W Incandescent Fixture	5	Replace 60W Incandescent Fixture with 13W CFL
Hazel School	Interior	10	400W High Bay Fixture	10	Replace 400W Fixture with 204W LED High Bay Fixture
Hazel School	Exterior	4	Exterior Wall Packs (Assume 70w)	4	Replace 70W Fixture with 44W LED Fixture
Hazel School	Exterior	4	Flood Lights (Assume 400W MH)	4	Replace 400W Fixture with 215W LED Fixture
Liberty Middle School	0 Occupancy Sensors Proposed				
Liberty Middle School	Interior	132	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	132	Replace T8 Fixture with 36W Linear Panel LED Fixture
Liberty Middle School	Interior	38	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	38	Replace T8 Fixture with 35W Linear Panel LED Fixture
Liberty Middle School	Interior	988	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	988	Replace T8 Fixture with 50W Linear Panel LED Fixture
Liberty Middle School	Interior	162	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	162	Replace T8 Fixture with 22W Linear Panel LED Fixture
Liberty Middle School	Interior	4	1X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	Replace T8 Fixture with 50W Linear Panel LED Fixture
Liberty Middle School	Interior	16	1000W High Bay Fixture	16	Replace 1000W Fixture with Dual 264W LED High Bay Fixtures
Liberty Middle School	Interior	8	400W High Bay Fixture	8	Replace 400W Fixture with 204W LED High Bay Fixture
Liberty Middle School	Exterior	60	150W Metal Halide Wall Pack	60	Replace 150W Fixture with 90W LED Fixture
Liberty Middle School	Exterior	33	Exterior Wall Packs (Assume 70w)	33	Replace 70W Fixture with 44W LED Fixture
Liberty Middle School	Exterior	14	Pole Mounted Luminaire - 1 Head (Assume 400W MH)	14	Replace 400W Fixture With A Single Head 215W LED Fixture
Liberty Middle School	Exterior	2	Pole Mounted Luminaire - 2 Head (Assume 400W MH)	2	Replace 400W Fixture With A Dual Head 430W LED Fixture
Liberty Middle School	Exterior	69	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	69	Replace T8 Fixture with 50W Linear Panel LED Fixture
Mt. Pleasant School	56 Occupancy Sensors Proposed				
Mt. Pleasant School	Interior	446	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	446	Replace T8 Fixture with 36W Linear Panel LED Fixture
Mt. Pleasant School	Interior	1	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	Replace T8 Fixture with 36W Linear Panel LED Fixture
Mt. Pleasant School	Interior	34	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	34	Replace T8 Fixture with 22W Linear Panel LED Fixture
Mt. Pleasant School	Interior	4	1X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	Replace T8 Fixture with 50W Linear Panel LED Fixture
Mt. Pleasant School	Exterior	14	Exterior Wall Packs (Assume 70w)	14	Replace 70W Fixture with 44W LED Fixture
Mt. Pleasant School	Exterior	1	Pole Mounted Luminaire - 2 Head (Assume 400W MH)	1	Replace 400W Fixture With A Dual Head 430W LED Fixture
Pleasantdale School	87 Occupancy Sensors Proposed				
Pleasantdale School	Interior	495	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	495	Replace T8 Fixture with 36W Linear Panel LED Fixture
Pleasantdale School	Interior	1	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	Replace T8 Fixture with 35W Linear Panel LED Fixture
Pleasantdale School	Interior	20	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	20	Replace T8 Fixture with 36W Linear Panel LED Fixture
Pleasantdale School	Interior	117	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	117	Replace T8 Fixture with 50W Linear Panel LED Fixture
Pleasantdale School	Interior	56	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	56	Replace T8 Fixture with 50W Linear Panel LED Fixture
Pleasantdale School	Interior	22	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	22	Replace T8 Fixture with 22W Linear Panel LED Fixture
Pleasantdale School	Interior	16	400W High Bay Fixture	16	Replace 400W Fixture with 204W LED High Bay Fixture
Pleasantdale School	Interior	1	70W Metal Halide	1	Replace 70W Fixture with 44W LED Fixture
Pleasantdale School	Exterior	11	Exterior Wall Packs (Assume 70w)	11	Replace 70W Fixture with 44W LED Fixture
Pleasantdale School	Exterior	1	Pole Mounted Luminaire - 1 Head (Assume 400W MH)	1	Replace 400W Fixture With A Single Head 215W LED Fixture

Facility	Interior/Exterior	Existing Quantity	Existing Fixture	Replacement Quantity	Replacement Fixture
Redwood School	76 Occupancy Sensors Proposed				
Redwood School	Interior	479	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	479	Replace T8 Fixture with 36W Linear Panel LED Fixture
Redwood School	Interior	68	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	68	Replace T8 Fixture with 35W Linear Panel LED Fixture
Redwood School	Interior	115	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	115	Replace T8 Fixture with 50W Linear Panel LED Fixture
Redwood School	Interior	42	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	42	Replace T8 Fixture with 50W Linear Panel LED Fixture
Redwood School	Interior	1	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	1	Replace T8 Fixture with 22W Linear Panel LED Fixture
Redwood School	Interior	12	400W High Bay Fixture	12	Replace 400W Fixture with 204W LED High Bay Fixture
Redwood School	Interior	2	70W Metal Halide	2	Replace 70W Fixture with 44W LED Fixture
Redwood School	Exterior	40	Exterior Wall Packs (Assume 70w)	40	Replace 70W Fixture with 44W LED Fixture
Redwood School	Exterior	1	150W Metal Halide Wall Pack	1	Replace 150W Fixture with 90W LED Fixture
Redwood School	Exterior	5	60W Incandescent Fixture	5	Replace 60W Incandescent Fixture with 13W CFL
Redwood School	Exterior	1	Pole Mounted Luminaire - 1 Head (Assume 400W MH)	1	Replace 400W Fixture With A Single Head 215W LED Fixture
Roosevelt Middle School	153 Occupancy Sensors Proposed				
Roosevelt Middle School	Interior	388	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	388	Replace T8 Fixture with 36W Linear Panel LED Fixture
Roosevelt Middle School	Interior	10	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	10	Replace T8 Fixture with 22W Linear Panel LED Fixture
Roosevelt Middle School	Interior	131	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	131	Replace T8 Fixture with 35W Linear Panel LED Fixture
Roosevelt Middle School	Interior	42	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	42	Replace T8 Fixture with 35W Linear Panel LED Fixture
Roosevelt Middle School	Interior	371	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	371	Replace T8 Fixture with 50W Linear Panel LED Fixture
Roosevelt Middle School	Interior	15	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	15	Replace T8 Fixture with 50W Linear Panel LED Fixture
Roosevelt Middle School	Interior	196	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	196	Replace T8 Fixture with 22W Linear Panel LED Fixture
Roosevelt Middle School	Interior	88	1X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	88	Replace T8 Fixture with 50W Linear Panel LED Fixture
Roosevelt Middle School	Interior	202	60W Incandescent Fixture	202	Replace 60W Incandescent Fixture with 13W CFL
Roosevelt Middle School	Interior	24	400W High Bay Fixture	24	Replace 400W Fixture with 204W LED High Bay Fixture
Roosevelt Middle School	Exterior	11	Exterior Wall Packs (Assume 70w)	11	Replace 70W Fixture with 44W LED Fixture
Roosevelt Middle School	Exterior	2	Pole Mounted Luminaire - 2 Head (Assume 400W MH)	2	Replace 400W Fixture With A Dual Head 430W LED Fixture
St. Cloud School	57 Occupancy Sensors Proposed				
St. Cloud School	Interior	414	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	414	Replace T8 Fixture with 36W Linear Panel LED Fixture
St. Cloud School	Interior	8	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	Replace T8 Fixture with 36W Linear Panel LED Fixture
St. Cloud School	Interior	4	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	Replace T8 Fixture with 50W Linear Panel LED Fixture
St. Cloud School	Interior	62	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	62	Replace T8 Fixture with 50W Linear Panel LED Fixture
St. Cloud School	Interior	77	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	77	Replace T8 Fixture with 22W Linear Panel LED Fixture
St. Cloud School	Interior	15	400W High Bay Fixture	15	Replace 400W Fixture with 204W LED High Bay Fixture
St. Cloud School	Interior	1	65W Incandescent Fixture	1	Replace 65W Incandescent Fixture with 13W CFL
St. Cloud School	Exterior	8	150W Metal Halide Wall Pack	8	Replace 150W Fixture with 90W LED Fixture
Washington School	61 Occupancy Sensors Proposed				
Washington School	Interior	93	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	93	Replace T8 Fixture with 36W Linear Panel LED Fixture
Washington School	Interior	3	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	Replace T8 Fixture with 35W Linear Panel LED Fixture
Washington School	Interior	1	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	Replace T8 Fixture with 36W Linear Panel LED Fixture
Washington School	Interior	110	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	110	Replace T8 Fixture with 50W Linear Panel LED Fixture
Washington School	Interior	274	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	274	Replace T8 Fixture with 50W Linear Panel LED Fixture
Washington School	Interior	18	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	18	Replace T8 Fixture with 22W Linear Panel LED Fixture
Washington School	Interior	12	400W High Bay Fixture	12	Replace 400W Fixture with 204W LED High Bay Fixture
Washington School	Exterior	1	Exterior Wall Packs (Assume 70w)	1	Replace 70W Fixture with 44W LED Fixture
West Orange HS	No Occupancy Sensors Proposed				
West Orange HS	Interior	408	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	408	Replace T8 Fixture with 36W Linear Panel LED Fixture
West Orange HS	Interior	156	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	156	Replace T8 Fixture with 35W Linear Panel LED Fixture
West Orange HS	Interior	1741	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1741	Replace T8 Fixture with 50W Linear Panel LED Fixture
West Orange HS	Interior	425	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	425	Replace T8 Fixture with 50W Linear Panel LED Fixture
West Orange HS	Interior	34	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	34	Replace T8 Fixture with 22W Linear Panel LED Fixture
West Orange HS	Interior	5	1X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	5	Replace T8 Fixture with 50W Linear Panel LED Fixture
West Orange HS	Interior	20	150W Incandescent Fixture	20	Replace 150W Incandescent Fixture with 25W CFL
West Orange HS	Interior	11	60W Incandescent Fixture	11	Replace 60W Incandescent Fixture with 13W CFL
West Orange HS	Interior	64	400W High Bay Fixture	64	Replace 400W Fixture with 204W LED High Bay Fixture
West Orange HS	Exterior	10	Exterior Wall Packs (Assume 70w)	10	Replace 70W Fixture with 44W LED Fixture
Bus Garage	19 Occupancy Sensors Proposed				
Bus Garage	Interior	5	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	5	Replace T8 Fixture with 36W Linear Panel LED Fixture
Bus Garage	Interior	17	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	17	Replace T8 Fixture with 35W Linear Panel LED Fixture
Bus Garage	Interior	1	2X4 Fixtures w/ 2-T12 Lamps w/ Electronic Ballasts	1	Replace T12 Fixture with 36W Linear Panel LED Fixture
Bus Garage	Interior	1	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	Replace T8 Fixture with 36W Linear Panel LED Fixture
Bus Garage	Interior	21	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	21	Replace T8 Fixture with 50W Linear Panel LED Fixture
Bus Garage	Interior	85	8' T12 Fixture w/2-T12 Lamps	85	Replace T12 Fixture With (2) 36W Linear Panel LED Fixture
Bus Garage	Interior	1	60W Incandescent Fixture	1	Replace 60W Incandescent Fixture with 13W CFL
Bus Garage	Interior	6	70W Metal Halide	6	Replace 70W Fixture with 44W LED Fixture
Bus Garage	Exterior	4	Exterior Wall Packs (Assume 70w)	4	Replace 70W Fixture with 44W LED Fixture

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Administration Building - Exterior	000	EXTERIOR	Exterior Wall Packs (Assume 70w)	6	540	3380	1625.2	\$273.8	Replace 70W Fixture with 44W LED Fixture	6	264	3380	3380	892.32	892.32	None Proposed	0	0.276	932.88	139.9	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$822.0	\$2,280.0	\$3,102.0	\$600
Administration Building - Interior	000	BOILER ROOM	26W CFL Fixture	5	130	500	65	\$9.8	None Proposed	5	130	500	350	65	45.5	Ceiling Mounted Occupancy Sensor	1	0	18.5	2.9	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Administration Building - Interior	000	BOILER ROOM	13W CFL Fixture	2	26	3380	87.88	\$13.2	None Proposed	2	26	3380	2366	87.88	61.516	Ceiling Mounted Occupancy Sensor	1	0	26.364	4.0	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Administration Building - Interior	000	BOILER ROOM	Exterior Wall Packs (Assume 70w)	1	90	3380	304.2	\$45.6	Replace 70W Fixture with 44W LED Fixture	1	44	3380	2366	148.72	104.104	Ceiling Mounted Occupancy Sensor	1	0.046	200.096	30.0	\$0.0	\$380.0	\$137.0	\$103.0	\$73.5	\$210.5	\$483.0	\$693.5	\$135
Administration Building - Interior	000	FOULD SCREW	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Administration Building - Interior	000	GYM/STORAGE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	16	1792	3380	6056.96	\$908.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	16	800	3380	2366	2704	1892.8	Ceiling Mounted Occupancy Sensor	1	0.992	4164.16	624.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$4,263.0	\$5,376.5	\$835
Administration Building - Interior	000	KEY ROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$154.2	Replace T8 Fixture with 35W Linear Panel LED Fixture	6	210	3380	2366	709.8	496.86	Ceiling Mounted Occupancy Sensor	1	0.0942	531.336	79.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Administration Building - Interior	000	KEY ROOM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	3	336	500	168	\$25.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	500	350	75	52.5	Ceiling Mounted Occupancy Sensor	1	0.186	115.5	17.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Administration Building - Interior	000	KEY ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Administration Building - Interior	000	MAINTENANCE SHOP	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	13	659.1	3380	2227.758	\$334.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	13	468	3380	2366	1581.84	1107.288	Ceiling Mounted Occupancy Sensor	1	0.1911	1120.47	168.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$918.5	\$3,093.0	\$4,011.5	\$685
Administration Building - Interior	000	MAINTENANCE SHOP	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Administration Building - Interior	000	MAINTENANCE SHOP	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	15	760.5	3380	2570.49	\$385.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	15	540	3380	2366	1825.2	1277.64	Ceiling Mounted Occupancy Sensor	1	0.2205	1292.85	193.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,553.0	\$4,601.5	\$785
Administration Building - Interior	000	MAINTENANCE STORAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	500	101.4	\$15.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	500	350	72	50.4	Ceiling Mounted Occupancy Sensor	1	0.0588	51	7.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Administration Building - Interior	000	MENS BATHROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Administration Building - Interior	000	STAIRWELL	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Administration Building - Interior	000	STORAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	500	152.1	\$22.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	216	500	350	108	75.6	Ceiling Mounted Occupancy Sensor	1	0.0882	76.5	11.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Administration Building - Interior	000	STORAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	500	76.05	\$11.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	500	350	54	37.8	Ceiling Mounted Occupancy Sensor	1	0.0441	38.25	5.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Administration Building - Interior	000	STORAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$7.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	500	350	36	25.2	Ceiling Mounted Occupancy Sensor	1	0.0294	25.5	3.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Administration Building - Interior	000	STORAGE	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	5	253.5	500	126.75	\$19.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	5	180	500	350	90	63	Ceiling Mounted Occupancy Sensor	1	0.0735	63.75	9.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,253.0	\$1,651.5	\$285
Administration Building - Interior	000	STORAGE	Exterior Wall Packs (Assume 70w)	1	90	3380	304.2	\$45.6	Replace 70W Fixture with 44W LED Fixture	1	44	3380	2366	148.72	104.104	Ceiling Mounted Occupancy Sensor	1	0.046	200.096	30.0	\$0.0	\$380.0	\$137.0	\$103.0	\$73.5	\$210.5	\$483.0	\$693.5	\$135
Administration Building - Interior	000	STORAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Administration Building - Interior	000	STORAGE	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Administration Building - Interior	000	STORAGE	42W CFL Fixture	1	49	3380	165.62	\$24.8	None Proposed	1	49	3380	2366	165.62	115.934	Ceiling Mounted Occupancy Sensor	1	0	49.686	7.5	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Administration Building - Interior	000	WOMENS BATHROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	500	350	17.5	12.25	Ceiling Mounted Occupancy Sensor	1	0.0157	13.1	2.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Administration Building - Interior	001	101	2X2 Fixtures w/ 4-17W T8 Lamps w/ Electronic Ballasts	4	252	3380	851.76	\$127.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	4	140	3380	2366	473.2	331.24	Ceiling Mounted Occupancy Sensor	1	0.112	520.52	78.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Administration Building - Interior	001	101	150W Incandescent Fixture	6	900	500	450	\$67.5	Replace 150W Incandescent Fixture with 25W CFL	6	150	500	350	75	52.5	Ceiling Mounted Occupancy Sensor	1	0.75	397.5	59.6	\$0.0	\$7.0	\$4.0	\$103.0	\$73.5	\$97.5	\$145.0	\$242.5	\$35
Administration Building - Interior	001	101	150W Incandescent Fixture	10	1500	500	750	\$112.5	Replace 150W Incandescent Fixture with 25W CFL	10	250	500	350	125	87.5	Ceiling Mounted Occupancy Sensor	1	1.25	622.5	99.4	\$0.0	\$7.0	\$4.0	\$103.0	\$73.5	\$113.5	\$173.0	\$286.5	\$35
Administration Building - Interior	001	101	1x8 Fixture w/ 2-T8 Lamps w/ Electronic Ballasts	6	608.4	500	304.2	\$45.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	432	500	350	216	151.2	Ceiling Mounted Occupancy Sensor	1	0.1764	153	23.0	\$450.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$2,803.0	\$3,266.5	\$335
Administration Building - Interior	001	102	2X2 Fixtures w/ 4-17W T8 Lamps w/ Electronic Ballasts	4	252	3380	851.76	\$127.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	4	140	3380	2366	473.2	331.24	Ceiling Mounted Occupancy Sensor	1	0.112	520.52	78.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Administration Building - Interior	001	102	2X2 Fixtures w/ 4-17W T8 Lamps w/ Electronic Ballasts	6	378	3380	1277.64	\$191.6	Replace T8 Fixture with 35W Linear Panel LED Fixture	6	210	3380	2366	709.8	496.86	Ceiling Mounted Occupancy Sensor	1	0.168	780.78	117.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Administration Building - Interior	001	105	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	33	1673.1	3380	5655.078	\$848.3	Replace T8 Fixture with 35W Linear Panel LED Fixture	33	1155	3380	2366	3903.9	2732.73	Ceiling Mounted Occupancy Sensor	1	0.5181	2922.348	438.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$2,218.5	\$7,693.0	\$9,911.5	\$1,685
Administration Building - Interior	001	105	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	6	672	3380	2271.36	\$340.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	300	3380	2366	1014	709.8	Ceiling Mounted Occupancy Sensor	1	0.372	1561.56	234.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,663.0	\$2,126.5	\$335
Administration Building - Interior	001	105	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	10	1120	3380	3786.6	\$567.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	10	500	3380	2366	1690	1183	Ceiling Mounted Occupancy Sensor	1	0.62	2602.6	390.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,703.0	\$3,426.5	\$635
Administration Building - Interior	001	105	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$205.6	Replace T8 Fixture with 35W Linear Panel LED Fixture	8	280	3380	2366	946.4	662.48	Ceiling Mounted Occupancy Sensor	1	0.1256	708.448	106.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
Administration Building - Interior	001	105	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Administration Building - Interior	001	105	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Administration Building - Interior	001	106	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$154.2	Replace T8 Fixture with 35W Linear Panel LED Fixture	6	210	3380	2366	709.8	496.														

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Administration Building - Interior	001	HALLWAY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	500	253.5	\$38.0	Replace T8 Fixture with 35W Linear Panel LED Fixture	10	350	500	350	175	122.5	Ceiling Mounted Occupancy Sensor	1	0.157	131	19.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,403.0	\$3,126.5	\$535
Administration Building - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Administration Building - Interior	001	HALLWAY	26W CFL Fixture	2	52	3380	175.76	\$26.4	None Proposed	2	52	3380	2366	175.76	123.032	Ceiling Mounted Occupancy Sensor	1	0	52.728	7.9	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Administration Building - Interior	001	HALLWAY	2X2 Fixtures w/ 4-17W T8 Lamps w/ Electronic Ballasts	2	126	3380	425.88	\$63.9	Replace T8 Fixture with 35W Linear Panel LED Fixture	2	70	3380	2366	236.6	165.62	Ceiling Mounted Occupancy Sensor	1	0.056	260.26	39.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Administration Building - Interior	001	SPECIAL SERVICES	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	22	2464	3380	8328.32	\$1,249.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	22	1100	3380	2366	3718	2602.6	Ceiling Mounted Occupancy Sensor	1	1.364	5725.72	858.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,503.5	\$5,823.0	\$7,326.5	\$1,135
Administration Building - Interior	001	SPECIAL SERVICES	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Administration Building - Interior	001	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Administration Building - Interior	002	201	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Administration Building - Interior	002	202	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Administration Building - Interior	002	203	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	21	1064.7	3380	3598.686	\$539.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	21	735	3380	2366	2484.3	1739.01	Ceiling Mounted Occupancy Sensor	1	0.3297	1859.676	279.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,438.5	\$4,933.0	\$6,371.5	\$1,085
Administration Building - Interior	002	203	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	24	1216.8	3380	4112.784	\$616.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	24	864	3380	2366	2920.32	2044.224	Ceiling Mounted Occupancy Sensor	1	0.3528	2068.56	310.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,633.5	\$5,623.0	\$7,256.5	\$1,235
Administration Building - Interior	002	203	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Administration Building - Interior	002	203	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Administration Building - Interior	002	204	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	11	968	3380	3271.84	\$490.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	11	550	3380	2366	1859	1301.3	Ceiling Mounted Occupancy Sensor	1	0.418	1970.54	295.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$788.5	\$2,963.0	\$3,751.5	\$585
Administration Building - Interior	002	206	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	8	896	500	448	\$67.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	400	500	350	200	140	Ceiling Mounted Occupancy Sensor	1	0.496	308	46.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$2,183.0	\$2,776.5	\$435
Administration Building - Interior	002	206	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	1	112	3380	378.56	\$56.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	2366	169	118.3	Ceiling Mounted Occupancy Sensor	1	0.062	260.26	39.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85
Administration Building - Interior	002	209	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	7	784	3380	2649.92	\$397.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	350	3380	2366	1183	828.1	Ceiling Mounted Occupancy Sensor	1	0.434	1821.82	273.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,923.0	\$2,451.5	\$385
Administration Building - Interior	002	209	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$227.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	156.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Administration Building - Interior	002	212	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	3380	3407.04	\$511.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.558	2342.34	351.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Administration Building - Interior	002	212	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	3	336	3380	1135.68	\$170.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	2366	507	354.9	Ceiling Mounted Occupancy Sensor	1	0.186	780.78	117.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Administration Building - Interior	002	CLOSET	26W CFL Fixture	1	26	3380	87.88	\$13.2	None Proposed	1	26	3380	2366	87.88	61.516	Ceiling Mounted Occupancy Sensor	1	0	26.364	4.0	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Administration Building - Interior	002	CLOSET	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	500	350	18	12.6	Ceiling Mounted Occupancy Sensor	1	0.0147	12.75	1.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Administration Building - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	7	784	3380	2649.92	\$397.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	350	3380	2366	1183	828.1	Ceiling Mounted Occupancy Sensor	1	0.434	1821.82	273.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,923.0	\$2,451.5	\$385
Administration Building - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Administration Building - Interior	002	MENS ROOM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$227.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	156.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Administration Building - Interior	002	STAIRWELL	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	38.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Administration Building - Interior	002	TECHNOLOGY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	7	784	3380	2649.92	\$397.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	350	3380	2366	1183	828.1	Ceiling Mounted Occupancy Sensor	1	0.434	1821.82	273.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,923.0	\$2,451.5	\$385
Administration Building - Interior	002	TECHNOLOGY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Administration Building - Interior	002	TECHNOLOGY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	500	350	17.5	12.25	Ceiling Mounted Occupancy Sensor	1	0.0157	13.1	2.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Administration Building - Interior	002	TECHNOLOGY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	500	224	\$33.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	500	350	100	70	Ceiling Mounted Occupancy Sensor	1	0.248	154	23.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Administration Building - Interior	002	WOMENS ROOM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$227.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	156.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Administration Building Subtotal				456	33,925		94,536	14,180		456	18,185			52,471	36,997		79	16	57,538	8,631						34,206	113,185	147,391	24,515
Edison Middle School - Exterior	001	EXTERIOR	Flood Lights (Assume 400W MH)	1	458	500	229	\$38.9	Replace 400W Fixture with 215W LED Fixture	1	215	500	500	107.5	107.5	None Proposed	0	0.243	121.5	20.7	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$137.0	\$485.0	\$622.0	\$100
Edison Middle School - Interior	000	B3	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	500	228.15	\$38.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	324	500	350	162	113.4	Ceiling Mounted Occupancy Sensor	1	0.1323	114.75	19.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,173.0	\$2,831.5	\$485
Edison Middle School - Interior	000	B30	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	3	336	500	168	\$28.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	500	350	75	52.5	Ceiling Mounted Occupancy Sensor	1	0.186	115.5	19.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Edison Middle School - Interior	000	BOILER	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$87.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	44.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Edison Middle School - Interior	000	BOILER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$87.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3																			

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Edison Middle School - Interior	001	103	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$303.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	300	3380	2366	1014	709.8	Ceiling Mounted Occupancy Sensor	1	0.228	1074.84	182.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,663.0	\$2,126.5	\$335
Edison Middle School - Interior	001	103	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$303.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	300	3380	2366	1014	709.8	Ceiling Mounted Occupancy Sensor	1	0.228	1074.84	182.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,663.0	\$2,126.5	\$335
Edison Middle School - Interior	001	104	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	001	105	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$772.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.744	3123.12	530.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	001	106	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	50	39.6	\$6.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	50	35	22.5	15.75	Ceiling Mounted Occupancy Sensor	1	0.342	23.85	4.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Edison Middle School - Interior	001	107	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	7	616	3380	2082.08	\$354.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	350	3380	2366	1183	828.1	Ceiling Mounted Occupancy Sensor	1	0.266	1253.98	213.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,923.0	\$2,451.5	\$385
Edison Middle School - Interior	001	108	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	500	396	\$67.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	500	350	225	157.5	Ceiling Mounted Occupancy Sensor	1	0.342	238.5	40.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Edison Middle School - Interior	001	109	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	001	110	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	001	110	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 35W Linear Panel LED Fixture	2	70	3380	2366	236.6	165.62	Ceiling Mounted Occupancy Sensor	1	0.0314	177.112	30.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Edison Middle School - Interior	001	111	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	001	112	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	001	113	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	001	114	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	001	115	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	20	1014	3380	3427.32	\$582.6	Replace T8 Fixture with 35W Linear Panel LED Fixture	20	720	3380	2366	2433.6	1703.52	Ceiling Mounted Occupancy Sensor	1	0.294	1723.8	293.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,373.5	\$4,703.0	\$6,076.5	\$1,035
Edison Middle School - Interior	001	116	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	13	1456	3380	4921.28	\$836.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	13	650	3380	2366	2197	1537.9	Ceiling Mounted Occupancy Sensor	1	0.806	3383.38	575.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$918.5	\$3,483.0	\$4,401.5	\$685
Edison Middle School - Interior	001	208	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	13	1144	500	572	\$97.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	13	650	500	350	325	227.5	Ceiling Mounted Occupancy Sensor	1	0.494	344.5	58.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$918.5	\$3,483.0	\$4,401.5	\$685
Edison Middle School - Interior	001	209	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$174.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	6	216	3380	2366	730.08	511.056	Ceiling Mounted Occupancy Sensor	1	0.0882	517.14	87.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Edison Middle School - Interior	001	209	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 35W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Edison Middle School - Interior	001	210	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	001	211	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	001	212	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	10	880	3380	2974.4	\$505.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	10	500	3380	2366	1690	1183	Ceiling Mounted Occupancy Sensor	1	0.38	1791.4	304.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,703.0	\$3,426.5	\$535
Edison Middle School - Interior	001	213	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	11	966	3380	3271.94	\$556.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	11	550	3380	2366	1859	1301.3	Ceiling Mounted Occupancy Sensor	1	0.418	1970.54	335.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$788.5	\$2,963.0	\$3,751.5	\$585
Edison Middle School - Interior	001	214	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$455.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	274.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Edison Middle School - Interior	001	215	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$524.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	263.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
Edison Middle School - Interior	001	216	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	24	1216.8	3380	4112.784	\$699.2	Replace T8 Fixture with 35W Linear Panel LED Fixture	24	864	3380	2366	2920.32	2044.224	Ceiling Mounted Occupancy Sensor	1	0.3528	2068.56	351.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,633.5	\$5,623.0	\$7,256.5	\$1,235
Edison Middle School - Interior	001	AUDITORIUM	60W Incandescent Fixture	7	420	3380	1419.6	\$241.3	Replace 60W Incandescent Fixture with 13W CFL	7	91	3380	3380	307.58	307.58	None Proposed	0	0.329	1112.02	189.0	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$28.0	\$43.8	\$71.8	\$0
Edison Middle School - Interior	001	AUDITORIUM	150W Incandescent Fixture	4	600	3380	2028	\$344.8	Replace 150W Incandescent Fixture with 25W CFL	4	100	3380	3380	338	338	None Proposed	0	0.5	1690	287.3	\$0.0	\$7.0	\$4.0	\$0.0	\$0.0	\$16.0	\$28.0	\$44.0	\$0
Edison Middle School - Interior	001	BOYS BATHROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$233.1	Replace T8 Fixture with 35W Linear Panel LED Fixture	8	280	3380	2366	946.4	662.48	Ceiling Mounted Occupancy Sensor	1	0.1256	708.448	120.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
Edison Middle School - Interior	001	BOYS GYM	42W CFL Fixture	24	1176	3380	3974.88	\$675.7	None Proposed	24	1176	3380	2366	3974.88	2782.416	Ceiling Mounted Occupancy Sensor	1	0	1192.464	202.7	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Edison Middle School - Interior	001	BOYS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$29.1	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	14.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Edison Middle School - Interior	001	BOYS ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$50.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	2366	169	118.3	Ceiling Mounted Occupancy Sensor	1	0.038	179.14	30.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85
Edison Middle School - Interior	001	C-2	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	2366	507	354.9	Ceiling Mounted Occupancy Sensor	1	0.114	537.42	91.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$288.5	\$883.0	\$1,151.5	\$185
Edison Middle School - Interior	001	C-3	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	2366	507	354.9	Ceiling Mounted Occupancy Sensor	1	0.114	537.42	91.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$288.5	\$883.0	\$1,151.5	\$185
Edison Middle School - Interior	001	CHILD STUDY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$29.1	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	36	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	15.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Edison Middle School - Interior	001	ELECTRICAL ROOM	60W Incandescent Fixture	2	120	3380	405.6	\$69.0	Replace 60W Incandescent Fixture with 13W CFL	2	26	3380	2366	87.88	61.516	Ceiling Mounted Occupancy Sensor	1	0.094	344.										

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Edison Middle School - Interior	001	LIBRARY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	3380	1713.66	\$291.3	Replace T8 Fixture with 35W Linear Panel LED Fixture	10	350	3380	2366	1183	828.1	Ceiling Mounted Occupancy Sensor	1	0.157	885.96	150.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,403.0	\$3,126.5	\$535
Edison Middle School - Interior	001	LIBRARY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	46	2332.2	3380	7882.836	\$1,340.1	Replace T8 Fixture with 35W Linear Panel LED Fixture	46	1610	3380	2366	5441.8	3809.26	Ceiling Mounted Occupancy Sensor	1	0.7222	4073.576	692.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$3,063.5	\$10,683.0	\$13,746.5	\$2,335
Edison Middle School - Interior	001	LOBBY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Edison Middle School - Interior	001	LOCKER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	3380	1542.294	\$262.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	324	3380	2366	1095.12	766.584	Ceiling Mounted Occupancy Sensor	1	0.1323	775.71	131.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,173.0	\$2,831.5	\$485
Edison Middle School - Interior	001	MAIN OFFICE	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$233.1	Replace T8 Fixture with 35W Linear Panel LED Fixture	8	280	3380	2366	946.4	662.48	Ceiling Mounted Occupancy Sensor	1	0.1256	708.448	120.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
Edison Middle School - Interior	001	MAIN OFFICE	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$87.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	3	105	3380	2366	354.9	248.43	Ceiling Mounted Occupancy Sensor	1	0.0471	265.868	45.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Edison Middle School - Interior	001	MAIN OFFICE	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$101.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.076	358.28	60.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Edison Middle School - Interior	001	MAIN OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Edison Middle School - Interior	001	MENS ROOM	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	2	50.8	3380	171.704	\$29.2	Replace T8 Fixture with 22W Linear Panel LED Fixture	2	44	3380	2366	148.72	104.104	Ceiling Mounted Occupancy Sensor	1	0.0068	67.6	11.5	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$553.0	\$756.5	\$135
Edison Middle School - Interior	001	MENS ROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$174.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	6	210	3380	2366	709.8	496.86	Ceiling Mounted Occupancy Sensor	1	0.0942	531.336	90.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Edison Middle School - Interior	001	MENS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$29.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	14.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Edison Middle School - Interior	001	NURSE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$233.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	8	288	3380	2366	973.44	681.408	Ceiling Mounted Occupancy Sensor	1	0.1176	689.52	117.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
Edison Middle School - Interior	001	NURSE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	500	202.8	\$34.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	8	288	500	350	144	100.8	Ceiling Mounted Occupancy Sensor	1	0.1176	102	17.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
Edison Middle School - Interior	001	STAGE	1x4 Fixtures w/ 2-T12 Lamp Fixture w/ Magnetic Ballast	2	171.2	3380	578.656	\$98.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0992	408.304	69.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Edison Middle School - Interior	001	WOMENS ROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$174.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	6	210	3380	2366	709.8	496.86	Ceiling Mounted Occupancy Sensor	1	0.0942	531.336	90.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Edison Middle School - Interior	001	WOMENS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$29.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	14.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Edison Middle School - Interior	002	200	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	20	1014	3380	3427.32	\$582.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	20	720	3380	2366	2433.6	1703.52	Ceiling Mounted Occupancy Sensor	1	0.294	1723.8	293.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,373.5	\$4,703.0	\$6,076.5	\$1,035
Edison Middle School - Interior	002	201	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	21	1064.7	3380	3598.686	\$611.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	21	756	3380	2366	2555.28	1788.696	Ceiling Mounted Occupancy Sensor	1	0.3087	1809.99	307.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,438.5	\$4,933.0	\$6,371.5	\$1,085
Edison Middle School - Interior	002	202	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$116.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	58.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Edison Middle School - Interior	002	203	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$349.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	175.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Edison Middle School - Interior	002	204	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$349.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	175.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Edison Middle School - Interior	002	205	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	002	206	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$606.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	365.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Edison Middle School - Interior	002	207	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$524.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	263.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
Edison Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$303.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	300	3380	2366	1014	709.8	Ceiling Mounted Occupancy Sensor	1	0.228	1074.84	182.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,663.0	\$2,126.5	\$335
Edison Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	7	616	3380	2082.09	\$354.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	350	3380	2366	1183	828.1	Ceiling Mounted Occupancy Sensor	1	0.266	1253.98	213.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$628.5	\$1,923.0	\$2,451.5	\$385
Edison Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	5	440	3380	1487.2	\$252.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	250	3380	2366	845	591.5	Ceiling Mounted Occupancy Sensor	1	0.19	895.7	152.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,403.0	\$1,801.5	\$285
Edison Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$455.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	274.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Edison Middle School - Interior	002	LADIES ROOM	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	2	50.8	3380	171.704	\$29.2	Replace T8 Fixture with 22W Linear Panel LED Fixture	2	44	3380	2366	148.72	104.104	Ceiling Mounted Occupancy Sensor	1	0.0068	67.6	11.5	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$553.0	\$756.5	\$135
Edison Middle School - Interior	002	STAIRWELL	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$101.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.076	358.28	60.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Edison Middle School Subtotal				819	57,860		178,521	\$30,349		819	34,742			107,425	75,423		93	23	103,098	17,527						57,668	200,442	258,110	42,305
Gregory School - Exterior	001	EXTERIOR	Exterior Wall Packs (Assume 70w)	6	540	3380	1825.2	\$328.5	Replace 70W Fixture with 44W LED Fixture	6	264	3380	3380	892.32	892.32	None Proposed	0	0.276	932.88	167.9	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$822.0	\$2,280.0	\$3,102.0	\$600
Gregory School - Exterior	001	EXTERIOR	60W Incandescent Fixture	2	120	500	60	\$10.8	Replace 60W Incandescent Fixture with 13W CFL	2	26	500	500	13	13	None Proposed	0	0.094	47	8.5	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$8.0	\$12.5	\$20.5	\$0
Gregory School - Exterior	001	EXTERIOR	Exterior Wall Packs (Assume 70w)	10	900	3380	3042	\$547.6	Replace 70W Fixture with 44W LED Fixture	10	440	3380	3380	1487.2	1487.2	None Proposed	0	0.46	1554.8	279.9	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$1,370.0	\$3,800.0	\$5,170.0	\$1,000
Gregory School - Exterior	001	EXTERIOR	Pole Mounted Luminaire - 1 Head (Assume 400W MH)	8	3664	3380	12384.32	\$2,229.2	Replace 400W Fixture With A Single Head 215W LED Fixture	8	1720	3380	3380	5813.6	5813.6	None Proposed	0	1.944	6570.72	1,182.7	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$1,096.0	\$3,880.0	\$4,976.0	\$1,400
Gregory School - Interior	000	ART	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	16	811.2	3380	2741.856	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	16	576	3380	2366	1946.88	1362.816	Ceiling Mounted Occupancy Sensor	1	0.											

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Gregory School - Interior	001	107	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	4368	5870.592	\$1,056.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	4368	3057.6	2620.8	1834.56	Ceiling Mounted Occupancy Sensor	1	0.744	4036.032	726.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Gregory School - Interior	001	108	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	4368	5870.592	\$1,056.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	4368	3057.6	2620.8	1834.56	Ceiling Mounted Occupancy Sensor	1	0.744	4036.032	726.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Gregory School - Interior	001	BATHROOM 1	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$92.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	46.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Gregory School - Interior	001	BATHROOM 2	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$92.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	46.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Gregory School - Interior	001	BOYS	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	1	112	3380	378.56	\$68.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	2366	169	118.3	Ceiling Mounted Occupancy Sensor	1	0.062	260.26	46.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85
Gregory School - Interior	001	BOYS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$30.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	15.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Gregory School - Interior	001	CAFETERIA	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	30	3360	3380	11356.8	\$2,044.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	30	1500	3380	2366	5070	3549	Ceiling Mounted Occupancy Sensor	1	1.86	7807.8	1,405.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$2,023.5	\$7,903.0	\$9,926.5	\$1,535
Gregory School - Interior	001	CLASSROOM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$272.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	187.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Gregory School - Interior	001	GIRLS	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$136.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	93.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Gregory School - Interior	001	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	16	1792	3380	6056.96	\$1,090.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	16	800	3380	2366	2704	1892.8	Ceiling Mounted Occupancy Sensor	1	0.992	4164.16	749.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$4,263.0	\$5,376.5	\$835
Gregory School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	500	88	\$15.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	500	350	50	35	Ceiling Mounted Occupancy Sensor	1	0.076	53	9.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Gregory School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$107.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.076	358.28	64.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Gregory School - Interior	001	KITCHEN	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	11	1232	3380	4164.16	\$749.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	11	550	3380	2366	1859	1301.3	Ceiling Mounted Occupancy Sensor	1	0.682	2862.86	515.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$788.5	\$2,963.0	\$3,751.5	\$585
Gregory School - Interior	001	OFFICE	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	25	1267.5	3380	4284.15	\$771.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	25	900	3380	2366	3042	2129.4	Ceiling Mounted Occupancy Sensor	1	0.3675	2154.75	387.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,696.5	\$6,853.0	\$7,551.5	\$1,285
Gregory School - Interior	001	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$4.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	500	350	18	12.8	Ceiling Mounted Occupancy Sensor	1	0.0147	12.75	2.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Gregory School - Interior	001	STOCK ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$30.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	15.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Gregory School - Interior	001	TRAILER 1	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	54	2737.8	500	1368.9	\$246.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	54	1944	500	350	972	680.4	Ceiling Mounted Occupancy Sensor	1	0.7938	688.5	123.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$3,583.5	\$12,523.0	\$16,106.5	\$2,735
Gregory School - Interior	001	TRAILER 1	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	54	2737.8	3380	9253.764	\$1,665.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	54	1944	3380	2366	6570.72	4599.504	Ceiling Mounted Occupancy Sensor	1	0.7938	4654.26	837.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$3,583.5	\$12,523.0	\$16,106.5	\$2,735
Gregory School - Interior	001	WALKWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$185.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	216	3380	2366	730.08	511.056	Ceiling Mounted Occupancy Sensor	1	0.0882	517.14	93.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Gregory School - Interior	002	6	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$817.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.744	3123.12	562.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Gregory School - Interior	002	7	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$817.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.744	3123.12	562.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Gregory School - Interior	002	8	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	14	1568	3380	5299.84	\$954.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	700	3380	2366	2366	1656.2	Ceiling Mounted Occupancy Sensor	1	0.868	3643.64	655.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,743.0	\$4,726.5	\$735
Gregory School - Interior	002	19	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	16	1792	3380	6056.96	\$1,090.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	16	800	3380	2366	2704	1892.8	Ceiling Mounted Occupancy Sensor	1	0.992	4164.16	749.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$4,263.0	\$5,376.5	\$835
Gregory School - Interior	002	20	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	14	1568	3380	5299.84	\$954.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	700	3380	2366	2366	1656.2	Ceiling Mounted Occupancy Sensor	1	0.868	3643.64	655.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,743.0	\$4,726.5	\$735
Gregory School - Interior	002	21	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	14	1568	3380	5299.84	\$954.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	700	3380	2366	2366	1656.2	Ceiling Mounted Occupancy Sensor	1	0.868	3643.64	655.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,743.0	\$4,726.5	\$735
Gregory School - Interior	002	22	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	14	1568	3380	5299.84	\$954.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	700	3380	2366	2366	1656.2	Ceiling Mounted Occupancy Sensor	1	0.868	3643.64	655.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,743.0	\$4,726.5	\$735
Gregory School - Interior	002	23	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	14	1568	3380	5299.84	\$954.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	700	3380	2366	2366	1656.2	Ceiling Mounted Occupancy Sensor	1	0.868	3643.64	655.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,743.0	\$4,726.5	\$735
Gregory School - Interior	002	24	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	14	1568	3380	5299.84	\$954.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	700	3380	2366	2366	1656.2	Ceiling Mounted Occupancy Sensor	1	0.868	3643.64	655.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,743.0	\$4,726.5	\$735
Gregory School - Interior	002	25	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	14	1568	3380	5299.84	\$954.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	700	3380	2366	2366	1656.2	Ceiling Mounted Occupancy Sensor	1	0.868	3643.64	655.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,743.0	\$4,726.5	\$735
Gregory School - Interior	002	26	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	8	896	3380	3028.48	\$545.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	400	3380	2366	1352	946.4	Ceiling Mounted Occupancy Sensor	1	0.496	2082.08	374.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$2,183.0	\$2,776.5	\$435
Gregory School - Interior	002	27	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	14	1568	3380	5299.84	\$954.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	700	3380	2366	2366	1656.2	Ceiling Mounted Occupancy Sensor	1	0.868	3643.64	655.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,743.0	\$4,726.5	\$735
Gregory School - Interior	002	27	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$61.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	31.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Gregory School - Interior	002	29	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$817.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.744	3123.12	562.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Gregory School - Interior	002	30	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$817.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.744	3123.12	562.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Gregory School - Interior	002	31	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$817.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.744	3123.12	562.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Gregory School - Interior	002	32	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$817.7	Replace T8 Fixture with 50W Linear Panel LED Fixture																				

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Gregory School - Interior	002	CLOSET	13W CFL Fixture	1	13	3380	43.94	\$7.9	None Proposed	1	13	3380	2366	43.94	30.758	Ceiling Mounted Occupancy Sensor	1	0	13,182	2.4	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Gregory School - Interior	002	GIRLS	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	1	112	500	56	\$10.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	500	350	25	17.5	Ceiling Mounted Occupancy Sensor	1	0.062	38.5	6.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85
Gregory School - Interior	002	GYM	400W High Bay Fixture	12	5496	3380	18576.48	\$3,343.8	Replace 400W Fixture with 204W LED High Bay Fixture	12	2448	3380	3380	8274.24	8274.24	None Proposed	0	3.048	10302.24	1,854.4	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$1,644.0	\$5,820.0	\$7,464.0	\$0
Gregory School - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$136.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	93.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Gregory School - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	3380	3407.04	\$613.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.558	2342.34	421.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Gregory School - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	6	672	3380	2271.36	\$408.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	300	3380	2366	1014	709.8	Ceiling Mounted Occupancy Sensor	1	0.372	1561.56	281.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,663.0	\$2,126.5	\$335
Gregory School - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	23	2576	3380	8706.88	\$1,567.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	23	1150	3380	2366	3887	2720.9	Ceiling Mounted Occupancy Sensor	1	1.426	5985.98	1,077.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,568.5	\$6,083.0	\$7,651.5	\$1,185
Gregory School - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	5	560	3380	1892.8	\$340.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	250	3380	2366	845	591.5	Ceiling Mounted Occupancy Sensor	1	0.31	1301.3	234.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,403.0	\$1,801.5	\$285
Gregory School - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	7	784	500	392	\$70.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	350	500	350	175	122.5	Ceiling Mounted Occupancy Sensor	1	0.434	269.5	48.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,923.0	\$2,451.5	\$385
Gregory School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	8	704	3380	2379.52	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	400	3380	2366	1352	946.4	Ceiling Mounted Occupancy Sensor	1	0.304	1433.12	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$2,183.0	\$2,776.5	\$435
Gregory School - Interior	002	MEDIA CENTER	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	32	1622.4	3380	5483.712	\$987.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	32	1152	3380	2366	3893.76	2725.632	Ceiling Mounted Occupancy Sensor	1	0.4704	2758.08	496.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$2,153.5	\$7,463.0	\$9,616.5	\$1,635
Gregory School - Interior	002	MUSIC	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	3380	1542.294	\$277.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	324	3380	2366	1095.12	766.584	Ceiling Mounted Occupancy Sensor	1	0.1323	775.71	139.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,173.0	\$2,831.5	\$485
Gregory School - Interior	002	OFFICE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	14	1568	3380	5299.84	\$954.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	700	3380	2366	2366	1656.2	Ceiling Mounted Occupancy Sensor	1	0.868	3643.64	655.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,743.0	\$4,726.5	\$735
Gregory School - Interior	002	OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$61.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	31.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Gregory School - Interior	002	STAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$9.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	500	350	36	25.2	Ceiling Mounted Occupancy Sensor	1	0.0294	25.5	4.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Gregory School - Interior	002	STAIRWELL	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	3	336	3380	1135.68	\$204.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	2366	507	354.9	Ceiling Mounted Occupancy Sensor	1	0.186	780.78	140.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$288.5	\$883.0	\$1,151.5	\$185
Gregory School - Interior	002	STAIRWELL	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$160.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	2366	507	354.9	Ceiling Mounted Occupancy Sensor	1	0.114	537.42	96.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$288.5	\$883.0	\$1,151.5	\$185
Gregory School - Interior	002	STAIRWELL	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$107.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.076	358.28	64.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Gregory School Subtotal				798	79,101		259,157	46,648		798	39,303			127,094	93,910		80	40	165,247	29,744						59,885	212,893	272,788	43,550
Hazel School - Exterior	001	EXTERIOR	Exterior Wall Packs (Assume 70w)	4	360	3380	1216.8	\$206.9	Replace 70W Fixture with 44W LED Fixture	4	176	3380	3380	594.88	594.88	None Proposed	0	0.164	621.92	105.7	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$548.0	\$1,520.0	\$2,068.0	\$400
Hazel School - Exterior	001	EXTERIOR	Flood Lights (Assume 400W MH)	4	1832	3380	6192.16	\$1,052.7	Replace 400W Fixture with 215W LED Fixture	4	860	3380	3380	2906.8	2906.8	None Proposed	0	0.972	3285.36	558.5	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$548.0	\$1,940.0	\$2,488.0	\$400
Hazel School - Interior	000	11	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$116.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	58.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Hazel School - Interior	000	3A	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$233.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	8	288	3380	2366	973.44	681.408	Ceiling Mounted Occupancy Sensor	1	0.1176	689.52	117.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
Hazel School - Interior	000	3A	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	000	ART	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$524.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	263.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
Hazel School - Interior	000	B-1	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$349.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	175.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Hazel School - Interior	000	B-2	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$116.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	58.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Hazel School - Interior	000	B-2	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	16	811.2	3380	2741.856	\$466.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	16	576	3380	2366	1946.88	1362.816	Ceiling Mounted Occupancy Sensor	1	0.2352	1379.04	234.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$3,783.0	\$4,896.5	\$835
Hazel School - Interior	000	B-3	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$174.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	216	3380	2366	730.08	511.056	Ceiling Mounted Occupancy Sensor	1	0.0882	517.14	87.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Hazel School - Interior	000	BOILER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$174.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	216	3380	2366	730.08	511.056	Ceiling Mounted Occupancy Sensor	1	0.0882	517.14	87.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Hazel School - Interior	000	CLASSROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$349.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	175.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Hazel School - Interior	000	ELECTRICAL ROOM	1x4 Fixtures w/ 2-T12 Lamp Fixture w/ Magnetic Ballast	3	256.8	500	128.4	\$21.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	500	350	54	37.8	Ceiling Mounted Occupancy Sensor	1	0.1488	90.6	15.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Hazel School - Interior	000	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$349.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	175.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Hazel School - Interior	000	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	16	811.2	3380	2741.856	\$466.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	16	576	3380	2366	1946.88	1362.816	Ceiling Mounted Occupancy Sensor	1	0.2352	1379.04	234.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$3,783.0	\$4,896.5	\$835
Hazel School - Interior	000	OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$87.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	44.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Hazel School - Interior	000	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	5	253.5	3380	856.83	\$145.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	5	180	3380	2366	608.4	425.88	Ceiling Mounted Occupancy Sensor	1	0.0735	430.95	73.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$		

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Hazel School - Interior	001	CLASSROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	001	GIRLS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$87.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	44.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Hazel School - Interior	001	GYM	400W High Bay Fixture	10	4580	3380	15480.4	\$2,631.7	Replace 400W Fixture with 204W LED High Bay Fixture	10	2040	3380	3380	6895.2	6895.2	None Proposed	0	2.54	8585.2	1,459.5	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$1,370.0	\$4,850.0	\$6,220.0	\$0
Hazel School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$116.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	58.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Hazel School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$349.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	175.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Hazel School - Interior	001	JANITOR	60W Incandescent Fixture	1	60	3380	202.8	\$34.5	Replace 60W Incandescent Fixture with 13W CFL	1	13	3380	2366	43.94	30.758	Ceiling Mounted Occupancy Sensor	1	0.047	172.042	29.2	\$0.0	\$6.3	\$4.0	\$103.0	\$73.5	\$77.5	\$109.3	\$186.8	\$35
Hazel School - Interior	001	LIBRARY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	15	760.5	3380	2570.49	\$437.0	Replace T8 Fixture with 35W Linear Panel LED Fixture	15	525	3380	2366	1774.5	1242.15	Ceiling Mounted Occupancy Sensor	1	0.2355	1328.34	225.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,553.0	\$4,601.5	\$785
Hazel School - Interior	001	LIBRARY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$8.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	500	350	36	25.2	Ceiling Mounted Occupancy Sensor	1	0.0294	25.5	4.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	001	LIBRARY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	28	1419.6	500	709.8	\$120.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	28	1008	500	350	504	352.8	Ceiling Mounted Occupancy Sensor	1	0.4116	357	60.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,893.5	\$6,543.0	\$8,436.5	\$1,435
Hazel School - Interior	001	LIBRARY	150W Incandescent Fixture	18	2700	3380	9126	\$1,551.4	Replace 150W Incandescent Fixture with 25W CFL	18	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	2.25	8061.3	1,370.4	\$0.0	\$7.0	\$4.0	\$103.0	\$73.5	\$145.5	\$229.0	\$374.5	\$35
Hazel School - Interior	001	LIBRARY	60W Incandescent Fixture	1	60	500	30	\$5.1	Replace 60W Incandescent Fixture with 13W CFL	1	13	500	350	6.5	4.55	Ceiling Mounted Occupancy Sensor	1	0.047	25.45	4.3	\$0.0	\$6.3	\$4.0	\$103.0	\$73.5	\$77.5	\$109.3	\$186.8	\$35
Hazel School - Interior	001	LIBRARY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$174.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	216	3380	2366	730.08	511.056	Ceiling Mounted Occupancy Sensor	1	0.0882	517.14	87.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Hazel School - Interior	001	LIBRARY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	5	253.5	3380	856.83	\$145.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	5	175	3380	2366	591.5	414.05	Ceiling Mounted Occupancy Sensor	1	0.0785	442.78	75.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,253.0	\$1,651.5	\$285
Hazel School - Interior	001	LIBRARY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	001	LIBRARY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$29.1	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	15.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Hazel School - Interior	001	LIBRARY	60W Incandescent Fixture	3	180	3380	608.4	\$103.4	Replace 60W Incandescent Fixture with 13W CFL	3	39	3380	2366	131.82	92.274	Ceiling Mounted Occupancy Sensor	1	0.141	516.126	87.7	\$0.0	\$6.3	\$4.0	\$103.0	\$73.5	\$85.5	\$121.8	\$207.3	\$35
Hazel School - Interior	001	NURSE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	001	OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	500	152.1	\$25.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	216	500	350	108	75.6	Ceiling Mounted Occupancy Sensor	1	0.0882	76.5	13.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Hazel School - Interior	001	OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	001	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$116.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	58.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Hazel School - Interior	001	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$8.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	500	350	36	25.2	Ceiling Mounted Occupancy Sensor	1	0.0294	25.5	4.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	001	STORAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	002	202	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	500	672	\$114.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	500	350	300	210	Ceiling Mounted Occupancy Sensor	1	0.744	462	78.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Hazel School - Interior	002	203	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$349.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	175.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Hazel School - Interior	002	203	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	500	112	\$19.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	500	350	50	35	Ceiling Mounted Occupancy Sensor	1	0.124	77	13.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Hazel School - Interior	002	204	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	13	659.1	500	329.55	\$56.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	13	468	500	350	234	163.8	Ceiling Mounted Occupancy Sensor	1	0.1911	165.75	28.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$918.5	\$3,093.0	\$4,011.5	\$685
Hazel School - Interior	002	204	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$8.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	500	350	36	25.2	Ceiling Mounted Occupancy Sensor	1	0.0294	25.5	4.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	002	205	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	500	672	\$114.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	500	350	300	210	Ceiling Mounted Occupancy Sensor	1	0.744	462	78.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Hazel School - Interior	002	206	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	500	528	\$89.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	500	350	300	210	Ceiling Mounted Occupancy Sensor	1	0.456	318	54.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Hazel School - Interior	002	207	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	500	528	\$89.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	500	350	300	210	Ceiling Mounted Occupancy Sensor	1	0.456	318	54.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Hazel School - Interior	002	208	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	3380	3407.04	\$579.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.558	2342.34	398.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Hazel School - Interior	002	BOYS ROOM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	3	336	500	168	\$28.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	500	350	75	52.5	Ceiling Mounted Occupancy Sensor	1	0.186	115.5	19.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Hazel School - Interior	002	GIRLS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	500	76.05	\$12.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	500	350	54	37.8	Ceiling Mounted Occupancy Sensor	1	0.0441	38.25	6.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Hazel School - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	10	1120	3380	3785.6	\$643.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	10	500	3380	2366	1690	1183	Ceiling Mounted Occupancy Sensor	1	0.62	2602.6	442.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,703.0	\$3,426.5	\$535
Hazel School - Interior	002	MISS SHISMAN	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Hazel School - Interior	002	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	500	152.1	\$25.9	Replace T8 Fixture with 36W																				

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive	
Liberty Middle School - Interior	001	104	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	20	1760	3380	5948.8	\$1,011.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	20	1000	3380	3380	3380	3380	None Proposed	0	0.76	2568.8	436.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,300.0	\$5,200.0	\$6,500.0	\$1,000	
Liberty Middle School - Interior	001	105	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	106	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	107	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	108	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	109	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	24	2112	3380	7138.56	\$1,213.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	24	1200	3380	3380	4056	4056	None Proposed	0	0.912	3082.56	524.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,560.0	\$6,240.0	\$7,800.0	\$1,200	
Liberty Middle School - Interior	001	111	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	24	2112	3380	7138.56	\$1,213.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	24	1200	3380	3380	4056	4056	None Proposed	0	0.912	3082.56	524.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,560.0	\$6,240.0	\$7,800.0	\$1,200	
Liberty Middle School - Interior	001	112	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	500	660	\$112.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	500	500	375	375	None Proposed	0	0.57	285	48.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	113	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	114	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	115	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	500	660	\$112.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	500	500	375	375	None Proposed	0	0.57	285	48.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	116	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	5	440	3380	1487.2	\$252.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	250	3380	3380	845	845	None Proposed	0	0.19	642.2	109.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$325.0	\$1,300.0	\$1,625.0	\$250	
Liberty Middle School - Interior	001	117	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	500	660	\$112.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	500	500	375	375	None Proposed	0	0.57	285	48.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	118	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	22	1936	3380	6543.68	\$1,112.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	22	1100	3380	3380	3718	3718	None Proposed	0	0.836	2825.68	480.4	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,430.0	\$5,720.0	\$7,150.0	\$1,100	
Liberty Middle School - Interior	001	118	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	119	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	120	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	001	121	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	20	1760	3380	5948.8	\$1,011.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	20	1000	3380	3380	3380	3380	None Proposed	0	0.76	2568.8	436.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,300.0	\$5,200.0	\$6,500.0	\$1,000	
Liberty Middle School - Interior	001	ART 1	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	20	1760	3380	5948.8	\$1,011.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	20	1000	3380	3380	3380	3380	None Proposed	0	0.76	2568.8	436.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,300.0	\$5,200.0	\$6,500.0	\$1,000	
Liberty Middle School - Interior	001	ART 2	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	20	1760	3380	5948.8	\$1,011.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	20	1000	3380	3380	3380	3380	None Proposed	0	0.76	2568.8	436.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,300.0	\$5,200.0	\$6,500.0	\$1,000	
Liberty Middle School - Interior	001	AUDIO	26W CFL Fixture	2	52	3380	175.76	\$29.9	None Proposed	2	52	3380	3380	175.76	175.76	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	001	AUDITORIUM	42W CFL Fixture	138	6762	3380	22855.56	\$3,885.4	None Proposed	138	6762	3380	3380	22855.56	22855.56	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	001	AUDITORIUM	42W CFL Fixture	24	1176	3380	3974.88	\$675.7	None Proposed	24	1176	3380	3380	3974.88	3974.88	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	001	BATHROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$50.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	3380	169	169	None Proposed	0	0.038	128.44	21.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50	
Liberty Middle School - Interior	001	BATHROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$50.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	3380	169	169	None Proposed	0	0.038	128.44	21.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50	
Liberty Middle School - Interior	001	BOYS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	3380	507	507	None Proposed	0	0.114	385.32	65.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150	
Liberty Middle School - Interior	001	BOYS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	500	132	\$22.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	500	500	75	75	None Proposed	0	0.114	57	9.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150	
Liberty Middle School - Interior	001	BOYS BATHROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	500	132	\$22.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	500	500	75	75	None Proposed	0	0.114	57	9.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150	
Liberty Middle School - Interior	001	BOYS BATHROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	3380	507	507	None Proposed	0	0.114	385.32	65.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150	
Liberty Middle School - Interior	001	BOYS BATHROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	500	132	\$22.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	500	500	75	75	None Proposed	0	0.114	57	9.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150	
Liberty Middle School - Interior	001	BOYS LOCKER	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	3380	1542.294	\$262.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	324	3380	3380	1095.12	1095.12	None Proposed	0	0.1323	447.174	76.0	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,070.0	\$2,655.0	\$450	
Liberty Middle School - Interior	001	BOYS LOCKER	26W CFL Fixture	3	78	3380	263.64	\$44.8	None Proposed	3	78	3380	3380	263.64	263.64	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0	
Liberty Middle School - Interior	001	BOYS LOCKER	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$8.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	500	500	36	36	None Proposed	0	0.0294	14.7	2.5	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100	
Liberty Middle School - Interior	001	BOYS LOCKER	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$87.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	3380	365.04	365.04	None Proposed	0	0.0441	149.058	25.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150	
Liberty Middle School - Interior	001	BOYS LOCKER	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$101.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	3380	338	338	None Proposed	0	0.076	256.88	43.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100	
Liberty Middle School - Interior	001	CAFETERIA	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	60	3042	500	1521	\$258.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	60	2160	500	500	1080	1080	None Proposed	0	0.882	441	75.0	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$3,900.0	\$13,800.0	\$17,700.0	\$3,000	
Liberty Middle School - Interior	001	CAFETERIA	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$101.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	3380	338	338	None Proposed	0	0.076	256.88	43.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100	
Liberty Middle School - Interior	001	CAFETERIA	2X																											

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Liberty Middle School - Interior	001	GIRLS LOCKER	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	500	76.05	\$12.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	500	500	54	54	None Proposed	0	0.0441	22.05	3.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150
Liberty Middle School - Interior	001	GIRLS LOCKER	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	500	88	\$15.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	500	500	50	50	None Proposed	0	0.076	38	6.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
Liberty Middle School - Interior	001	GUIDANCE	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	17	1496	3380	5056.48	\$859.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	17	850	3380	3380	2873	2873	None Proposed	0	0.646	2183.48	371.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,105.0	\$4,420.0	\$5,525.0	\$850
Liberty Middle School - Interior	001	GYM	1000W High Bay Fixture	16	7328	3380	24768.64	\$4,210.7	Replace 1000W Fixture with Dual 254W LED High Bay Fixtures	16	8448	3380	3380	28554.24	28554.24	None Proposed	0	-1.12	-3785.6	-643.6	\$0.0	\$970.0	\$274.0	\$0.0	\$0.0	\$4,384.0	\$15,520.0	\$19,904.0	\$0
Liberty Middle School - Interior	001	GYM	400W High Bay Fixture	8	3664	3380	12384.32	\$2,105.3	Replace 400W Fixture with 204W LED High Bay Fixture	8	1632	3380	3380	5516.16	5516.16	None Proposed	0	2.032	6888.16	1,167.6	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$1,096.0	\$3,880.0	\$4,976.0	\$0
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	10	880	3380	2974.4	\$505.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	10	500	3380	3380	1690	1690	None Proposed	0	0.38	1284.4	218.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$650.0	\$2,600.0	\$3,250.0	\$500
Liberty Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	12	304.8	3380	1030.224	\$175.1	Replace T8 Fixture with 22W Linear Panel LED Fixture	12	264	3380	3380	892.32	892.32	None Proposed	0	0.0408	137.904	23.4	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,700.0	\$3,480.0	\$600
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	3380	507	507	None Proposed	0	0.114	385.32	65.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$50.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	3380	169	169	None Proposed	0	0.038	128.44	21.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	7	616	3380	2082.08	\$354.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	350	3380	3380	1183	1183	None Proposed	0	0.266	899.08	152.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$455.0	\$1,820.0	\$2,275.0	\$350
Liberty Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	4	101.6	3380	343.408	\$58.4	Replace T8 Fixture with 22W Linear Panel LED Fixture	4	88	3380	3380	297.44	297.44	None Proposed	0	0.0136	45.968	7.8	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$900.0	\$1,160.0	\$200
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	7	616	500	308	\$52.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	350	500	500	175	175	None Proposed	0	0.266	133	22.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$455.0	\$1,820.0	\$2,275.0	\$350
Liberty Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	4	101.6	3380	343.408	\$58.4	Replace T8 Fixture with 22W Linear Panel LED Fixture	4	88	3380	3380	297.44	297.44	None Proposed	0	0.0136	45.968	7.8	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$900.0	\$1,160.0	\$200
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	8	704	3380	2379.52	\$404.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	400	3380	3380	1352	1352	None Proposed	0	0.304	1027.52	174.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$2,080.0	\$2,600.0	\$400
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	3380	507	507	None Proposed	0	0.114	385.32	65.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
Liberty Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	15	381	3380	1287.78	\$218.9	Replace T8 Fixture with 22W Linear Panel LED Fixture	15	330	3380	3380	1115.4	1115.4	None Proposed	0	0.051	172.38	29.3	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,375.0	\$4,350.0	\$750
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	500	88	\$15.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	500	500	50	50	None Proposed	0	0.076	38	6.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$303.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	300	3380	3380	1014	1014	None Proposed	0	0.228	770.64	131.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
Liberty Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	4	101.6	3380	343.408	\$58.4	Replace T8 Fixture with 22W Linear Panel LED Fixture	4	88	3380	3380	297.44	297.44	None Proposed	0	0.0136	45.968	7.8	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$900.0	\$1,160.0	\$200
Liberty Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	8	203.2	4368	687.5776	\$150.9	Replace T8 Fixture with 22W Linear Panel LED Fixture	8	176	4368	4368	768.768	768.768	None Proposed	0	0.0272	118.8096	20.2	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$1,800.0	\$2,320.0	\$400
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	4368	768.768	\$130.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	4368	4368	436.8	436.8	None Proposed	0	0.076	331.968	56.4	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
Liberty Middle School - Interior	001	HALLWAY	26W CFL Fixture	3	78	4368	340.704	\$57.9	None Proposed	3	78	4368	4368	340.704	340.704	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	5	440	500	220	\$37.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	250	500	500	125	125	None Proposed	0	0.19	95	16.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$325.0	\$1,300.0	\$1,625.0	\$250
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$50.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	3380	169	169	None Proposed	0	0.038	128.44	21.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$202.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	3380	676	676	None Proposed	0	0.152	513.76	87.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200
Liberty Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	4	101.6	3380	343.408	\$58.4	Replace T8 Fixture with 22W Linear Panel LED Fixture	4	88	3380	3380	297.44	297.44	None Proposed	0	0.0136	45.968	7.8	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$900.0	\$1,160.0	\$200
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$202.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	3380	676	676	None Proposed	0	0.152	513.76	87.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200
Liberty Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	8	203.2	3380	686.816	\$116.8	Replace T8 Fixture with 22W Linear Panel LED Fixture	8	176	3380	3380	594.88	594.88	None Proposed	0	0.0272	91.936	15.6	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$1,800.0	\$2,320.0	\$400
Liberty Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$101.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	3380	338	338	None Proposed	0	0.076	256.88	43.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
Liberty Middle School - Interior	001	JANITOR	26W CFL Fixture	2	52	3380	175.76	\$29.9	None Proposed	2	52	3380	3380	175.76	175.76	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	001	KITCHEN	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	29	2552	3380	8625.76	\$1,466.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	29	1450	3380	3380	4901	4901	None Proposed	0	1.102	3724.76	633.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,885.0	\$7,540.0	\$9,425.0	\$1,450
Liberty Middle School - Interior	001	KITCHEN	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.096	\$87.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	3380	365.04	365.04	None Proposed	0	0.0441	149.058	25.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150
Liberty Middle School - Interior	001	KITCHEN	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	500	44	\$7.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	500	500	25	25	None Proposed	0	0.038	19	3.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
Liberty Middle School - Interior	001	LOBBY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	15	381	3380	1287.78	\$218.9	Replace T8 Fixture with 22W Linear Panel LED Fixture	15	330	3380	3380	1115.4	1115.4	None Proposed	0	0.051	172.38	29.3	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,375.0	\$4,350.0	\$750
Liberty Middle School - Interior	001	LOBBY	26W CFL Fixture	3	78	3380	263.64	\$44.8	None Proposed	3	78	3380	3380	263.64	263.64	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	001	LOBBY	1X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$128.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	3380	338	338	None Proposed	0	0.124	419.12	71.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
Liberty Middle School - Interior	001	LOBBY	26W CFL Fixture	30	780	3380	2636.4	\$448.2	None Proposed	30	780	3380	3380	2636.4	2636.4	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	001	LOBBY	26W CFL Fixture	4	104	3380	351.52	\$59.8	None Proposed	4	104	3380																	

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive	
Liberty Middle School - Interior	001	NURSE	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	11	968	3380	3271.84	\$556.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	11	550	3380	3380	1859	1859	None Proposed	0	0.418	1412.84	240.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$715.0	\$2,860.0	\$3,575.0	\$50	
Liberty Middle School - Interior	001	PREP ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$101.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	3380	338	338	None Proposed	0	0.076	256.88	43.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100	
Liberty Middle School - Interior	001	STAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$349.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	3380	1460.16	1460.16	None Proposed	0	0.1764	596.232	101.4	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,760.0	\$3,540.0	\$600	
Liberty Middle School - Interior	001	STAIRWELL	13W CFL Fixture	8	104	3380	351.52	\$59.8	None Proposed	8	104	3380	3380	351.52	351.52	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0	
Liberty Middle School - Interior	001	STAIRWELL	26W CFL Fixture	8	208	500	104	\$17.7	None Proposed	8	208	500	500	104	104	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	001	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	001	STORAGE	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$101.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	3380	338	338	None Proposed	0	0.076	256.88	43.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100	
Liberty Middle School - Interior	001	STORAGE	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$101.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	3380	338	338	None Proposed	0	0.076	256.88	43.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100	
Liberty Middle School - Interior	001	STORAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$116.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	3380	486.72	486.72	None Proposed	0	0.0588	198.744	33.8	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200	
Liberty Middle School - Interior	001	STORAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$87.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	3380	365.04	365.04	None Proposed	0	0.0441	149.058	25.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150	
Liberty Middle School - Interior	001	WOMENS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	3380	507	507	None Proposed	0	0.114	385.32	65.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150	
Liberty Middle School - Interior	002	201	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	8	704	3380	2379.52	\$404.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	400	3380	3380	1352	1352	None Proposed	0	0.304	1027.52	174.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$2,080.0	\$2,600.0	\$400	
Liberty Middle School - Interior	002	202	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	10	880	3380	2974.4	\$505.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	10	500	3380	3380	1690	1690	None Proposed	0	0.38	1284.4	218.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$650.0	\$2,600.0	\$3,250.0	\$500	
Liberty Middle School - Interior	002	203	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	20	1760	3380	5948.8	\$1,011.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	20	1000	3380	3380	3380	3380	None Proposed	0	0.76	2568.8	436.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,300.0	\$5,200.0	\$6,500.0	\$1,000	
Liberty Middle School - Interior	002	204	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	24	2112	3380	7138.56	\$1,213.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	24	1200	3380	3380	4056	4056	None Proposed	0	0.912	3082.56	524.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,560.0	\$6,240.0	\$7,800.0	\$1,200	
Liberty Middle School - Interior	002	205	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	206	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	207	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	208	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	209	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	24	2112	500	1056	\$179.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	24	1200	500	500	600	600	None Proposed	0	0.912	456	77.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,560.0	\$6,240.0	\$7,800.0	\$1,200	
Liberty Middle School - Interior	002	210	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	22	1936	3380	6543.68	\$1,112.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	22	1100	3380	3380	3718	3718	None Proposed	0	0.836	2825.68	480.4	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,430.0	\$5,720.0	\$7,150.0	\$1,100	
Liberty Middle School - Interior	002	211	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	24	2112	3380	7138.56	\$1,213.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	24	1200	3380	3380	4056	4056	None Proposed	0	0.912	3082.56	524.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,560.0	\$6,240.0	\$7,800.0	\$1,200	
Liberty Middle School - Interior	002	213	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	214	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	215	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	216	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	5	440	3380	1487.2	\$252.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	250	3380	3380	845	845	None Proposed	0	0.19	642.2	109.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$325.0	\$1,300.0	\$1,625.0	\$250	
Liberty Middle School - Interior	002	217	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	217	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	218	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	500	660	\$112.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	500	500	375	375	None Proposed	0	0.57	285	48.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	219	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	220	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$758.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	3380	2535	2535	None Proposed	0	0.57	1926.6	327.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750	
Liberty Middle School - Interior	002	221	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	500	88	\$15.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	500	500	50	50	None Proposed	0	0.076	38	6.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100	
Liberty Middle School - Interior	002	222	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$101.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	3380	338	338	None Proposed	0	0.076	256.88	43.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100	
Liberty Middle School - Interior	002	BATHROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	3380	507	507	None Proposed	0	0.114	385.32	65.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150	
Liberty Middle School - Interior	002	BATHROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	3380	507	507	None Proposed	0	0.114	385.32	65.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150	
Liberty Middle School - Interior	002	BOYS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	3380	507	507	None Proposed	0	0.114	385.32	65.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150	
Liberty Middle School - Interior	002	BOYS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	3380	507	507	None Proposed	0	0.114	385.32	65.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0		

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive		
Liberty Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	5	440	3380	1487.2	\$252.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	250	3380	3380	845	845	None Proposed	0	0.19	642.2	109.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$325.0	\$1,300.0	\$1,625.0	\$250		
Liberty Middle School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	16	406.4	3380	1373.632	\$233.5	Replace T8 Fixture with 22W Linear Panel LED Fixture	16	352	3380	3380	1189.76	1189.76	None Proposed	0	0.0544	183.872	31.3	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,040.0	\$3,600.0	\$4,640.0	\$800		
Liberty Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	5	440	3380	1487.2	\$252.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	250	3380	3380	845	845	None Proposed	0	0.19	642.2	109.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$325.0	\$1,300.0	\$1,625.0	\$250		
Liberty Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$202.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	3380	676	676	None Proposed	0	0.152	513.76	87.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200		
Liberty Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$202.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	3380	676	676	None Proposed	0	0.152	513.76	87.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200		
Liberty Middle School - Interior	002	HALLWAY	1X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	1	112	500	56	\$9.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	500	500	25	25	None Proposed	0	0.062	31	5.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50		
Liberty Middle School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	4	101.6	3380	343.408	\$58.4	Replace T8 Fixture with 22W Linear Panel LED Fixture	4	88	3380	3380	297.44	297.44	None Proposed	0	0.0136	45.968	7.8	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$900.0	\$1,160.0	\$200		
Liberty Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$101.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	3380	338	338	None Proposed	0	0.076	256.88	43.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100		
Liberty Middle School - Interior	002	HALLWAY	26W CFL Fixture	36	936	3380	3163.68	\$537.8	None Proposed	36	936	3380	3380	3163.68	3163.68	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0		
Liberty Middle School - Interior	002	HALLWAY	26W CFL Fixture	12	312	3380	1054.56	\$179.3	None Proposed	12	312	3380	3380	1054.56	1054.56	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0	
Liberty Middle School - Interior	002	PREP ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$151.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	3380	507	507	None Proposed	0	0.114	385.32	65.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150		
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0	
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	500	104	\$17.7	None Proposed	8	208	500	500	104	104	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04	\$119.5	None Proposed	8	208	3380	3380	703.04	703.04	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Liberty Middle School - Interior	002	STAIRWELL	26W CFL Fixture	8	208	3380	703.04																								

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive	
Mt. Pleasant School - Interior	001	222	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	500	456.3	\$77.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	500	350	324	226.8	Ceiling Mounted Occupancy Sensor	1	0.2646	229.5	39.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935	
Mt. Pleasant School - Interior	001	223	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	15	760.5	500	380.25	\$64.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	15	540	500	350	270	189	Ceiling Mounted Occupancy Sensor	1	0.2205	191.25	32.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,553.0	\$4,601.5	\$785	
Mt. Pleasant School - Interior	001	224	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	15	760.5	3380	2570.49	\$437.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	15	540	3380	2366	1825.2	1277.64	Ceiling Mounted Occupancy Sensor	1	0.2205	1292.85	219.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,553.0	\$4,601.5	\$785	
Mt. Pleasant School - Interior	001	225	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	24	1216.8	3380	4112.784	\$699.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	24	864	3380	2366	2920.32	2044.224	Ceiling Mounted Occupancy Sensor	1	0.3528	2068.56	351.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,633.5	\$5,623.0	\$7,256.5	\$1,235	
Mt. Pleasant School - Interior	001	226	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	15	760.5	3380	2570.49	\$437.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	15	540	3380	2366	1825.2	1277.64	Ceiling Mounted Occupancy Sensor	1	0.2205	1292.85	219.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,553.0	\$4,601.5	\$785	
Mt. Pleasant School - Interior	001	227	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	15	760.5	3380	2570.49	\$437.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	15	540	3380	2366	1825.2	1277.64	Ceiling Mounted Occupancy Sensor	1	0.2205	1292.85	219.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,553.0	\$4,601.5	\$785	
Mt. Pleasant School - Interior	001	228	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	1	112	500	56	\$9.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	500	350	25	17.5	Ceiling Mounted Occupancy Sensor	1	0.062	38.5	6.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85	
Mt. Pleasant School - Interior	001	228	26W CFL Fixture	6	156	500	78	\$13.3	None Proposed	6	156	500	350	78	54.6	Ceiling Mounted Occupancy Sensor	1	0	23.4	4.0	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35	
Mt. Pleasant School - Interior	001	229	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	5	253.5	3380	856.83	\$145.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	5	180	3380	2366	608.4	425.88	Ceiling Mounted Occupancy Sensor	1	0.0735	430.95	73.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,253.0	\$1,651.5	\$285	
Mt. Pleasant School - Interior	001	BOILER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$116.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	58.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235	
Mt. Pleasant School - Interior	001	CLOSET	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135	
Mt. Pleasant School - Interior	001	CLOSET	26W CFL Fixture	3	78	3380	263.64	\$44.8	None Proposed	3	78	3380	2366	263.64	184.548	Ceiling Mounted Occupancy Sensor	1	0	79.092	13.4	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35	
Mt. Pleasant School - Interior	001	GYM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	22	2464	3380	8328.32	\$1,415.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	22	1100	3380	3380	3718	3718	None Proposed	0	1.364	4610.32	783.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,430.0	\$5,720.0	\$7,150.0	\$1,100	
Mt. Pleasant School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	13	659.1	3380	2227.758	\$378.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	13	468	3380	2366	1581.84	1107.288	Ceiling Mounted Occupancy Sensor	1	0.1911	1120.47	190.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$918.5	\$3,093.0	\$4,011.5	\$685	
Mt. Pleasant School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	16	811.2	3380	2741.856	\$466.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	16	576	3380	2366	1946.88	1362.816	Ceiling Mounted Occupancy Sensor	1	0.2352	1379.04	234.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$3,783.0	\$4,896.5	\$835	
Mt. Pleasant School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	10	254	500	127	\$21.6	Replace T8 Fixture with 22W Linear Panel LED Fixture	10	220	500	350	110	77	Ceiling Mounted Occupancy Sensor	1	0.034	50	8.5	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,353.0	\$3,076.5	\$535	
Mt. Pleasant School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$524.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	263.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935	
Mt. Pleasant School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	24	609.6	3380	2060.448	\$350.3	Replace T8 Fixture with 22W Linear Panel LED Fixture	24	528	3380	2366	1784.64	1249.248	Ceiling Mounted Occupancy Sensor	1	0.0816	811.2	137.9	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,633.5	\$5,503.0	\$7,136.5	\$1,235	
Mt. Pleasant School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135	
Mt. Pleasant School - Interior	001	KITCHEN	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	20	1014	3380	3427.32	\$582.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	20	720	3380	2366	2433.6	1703.52	Ceiling Mounted Occupancy Sensor	1	0.294	1723.8	293.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,373.5	\$4,703.0	\$6,076.5	\$1,035	
Mt. Pleasant School - Interior	001	LIBRARY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	29	3248	3380	10978.24	\$1,866.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	29	1450	3380	2366	4901	3430.7	Ceiling Mounted Occupancy Sensor	1	1.798	7547.54	1,283.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,958.5	\$7,943.0	\$9,901.5	\$1,485	
Mt. Pleasant School - Interior	001	LIBRARY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$128.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	88.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135	
Mt. Pleasant School - Interior	001	MAIN OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	3380	1542.294	\$262.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	324	3380	2366	1095.12	766.584	Ceiling Mounted Occupancy Sensor	1	0.1323	775.71	131.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,173.0	\$2,831.5	\$485	
Mt. Pleasant School - Interior	001	MAIN OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	3380	1542.294	\$262.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	324	3380	2366	1095.12	766.584	Ceiling Mounted Occupancy Sensor	1	0.1323	775.71	131.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,173.0	\$2,831.5	\$485	
Mt. Pleasant School - Interior	001	MAIN OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$8.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	500	350	36	25.2	Ceiling Mounted Occupancy Sensor	1	0.0294	25.5	4.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135	
Mt. Pleasant School - Interior	001	MENS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135	
Mt. Pleasant School - Interior	001	OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$58.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	29.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135	
Mt. Pleasant School - Interior	001	STAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$116.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	58.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235	
Mt. Pleasant School - Interior	001	STORAGE	26W CFL Fixture	1	26	3380	87.88	\$14.9	None Proposed	1	26	3380	2366	87.88	61.516	Ceiling Mounted Occupancy Sensor	1	0	26.364	4.5	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35	
Mt. Pleasant School - Interior	001	WOMENS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	15	760.5	3380	2570.49	\$437.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	15	540	3380	2366	1825.2	1277.64	Ceiling Mounted Occupancy Sensor	1	0.2205	1292.85	219.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,553.0	\$4,601.5	\$785	
Mt. Pleasant School Subtotal				608	34,893		104,409	17,750		608	22,550			66,611	48,471		56	12	55,938	9,509						42,318	141,498	183,816	31,235	
Pleasantdale School - Exterior	001	EXTERIOR	26W CFL Fixture	28	728	3380	2460.64	\$393.7	None Proposed	28	728	3380		2460.64	2460.64	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Pleasantdale School - Exterior	001	EXTERIOR	Exterior Wall Packs (Assume 70w)	11	990	3380	3346.2	\$535.4	Replace 70W Fixture with 44W LED Fixture	11	484	3380		1635.92	1635.92	None Proposed	0	0.506	1710.28	273.6	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$1,507.0	\$4,180.0	\$5,687.0	\$1,100	
Pleasantdale School - Exterior	001	EXTERIOR	Pole Mounted Luminaire - 1 Head (Assume 400W MH)	1	458	3380	1548.04	\$247.7	Replace 400W Fixture With A Single Head 215W LED Fixture	1	215	3380	3380	726.7	726.7	None Proposed	0	0.243	821.34	131.4	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$137.0	\$485.0	\$622.0	\$175	
Pleasantdale School - Interior	000	108	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	15	760.5	3380	2570.49	\$411.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	15	540	3380	2366	1825.2	1277.64	Ceiling Mounted Occupancy Sensor	1	0.2205	1292.85	206.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,553.0	\$4,601.5	\$785	
Pleasantdale School - Interior	000	111	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$164.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	216	3380	2366	730.08	511.056	Ceiling Mounted Occupancy Sensor	1	0.0882	517.14	82.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946		

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Pleasantdale School - Interior	000	121	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	500	396	\$63.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	500	350	225	157.5	Ceiling Mounted Occupancy Sensor	1	0.342	238.5	38.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Pleasantdale School - Interior	000	110A	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	3380	1542.294	\$246.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	324	3380	2366	1095.12	766.584	Ceiling Mounted Occupancy Sensor	1	0.1323	775.71	124.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,173.0	\$2,831.5	\$485
Pleasantdale School - Interior	000	110B	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
Pleasantdale School - Interior	000	111A	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	7	354.9	3380	1199.562	\$191.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	7	252	3380	2366	851.76	596.232	Ceiling Mounted Occupancy Sensor	1	0.1029	603.33	96.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,713.0	\$2,241.5	\$385
Pleasantdale School - Interior	000	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	5	253.5	3380	856.83	\$137.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	5	180	3380	2366	608.4	425.88	Ceiling Mounted Occupancy Sensor	1	0.0735	430.95	69.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,253.0	\$1,651.5	\$285
Pleasantdale School - Interior	000	BOILER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	5	253.5	3380	856.83	\$137.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	5	180	3380	2366	608.4	425.88	Ceiling Mounted Occupancy Sensor	1	0.0735	430.95	69.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,253.0	\$1,651.5	\$285
Pleasantdale School - Interior	000	BOILER ROOM	Exterior Wall Packs (Assume 70w)	1	90	3380	304.2	\$48.7	Replace 70W Fixture with 44W LED Fixture	1	44	3380	2366	148.72	104.104	Ceiling Mounted Occupancy Sensor	1	0.046	200.096	32.0	\$0.0	\$380.0	\$137.0	\$103.0	\$73.5	\$210.5	\$483.0	\$693.5	\$135
Pleasantdale School - Interior	000	BOYS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$109.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	55.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Pleasantdale School - Interior	000	CAFETERIA	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	72	3650.4	500	1825.2	\$292.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	72	2592	500	350	1296	907.2	Ceiling Mounted Occupancy Sensor	1	1.0584	918	146.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$4,753.5	\$16,663.0	\$21,416.5	\$3,635
Pleasantdale School - Interior	000	FACULTY RESTROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$27.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	13.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Pleasantdale School - Interior	000	GIRLS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Pleasantdale School - Interior	000	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Pleasantdale School - Interior	000	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	11	279.4	3380	944.372	\$151.1	Replace T8 Fixture with 22W Linear Panel LED Fixture	11	242	3380	2366	817.96	572.572	Ceiling Mounted Occupancy Sensor	1	0.0374	371.8	59.5	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$788.5	\$2,578.0	\$3,366.5	\$585
Pleasantdale School - Interior	000	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	11	279.4	3380	944.372	\$151.1	Replace T8 Fixture with 22W Linear Panel LED Fixture	11	242	3380	2366	817.96	572.572	Ceiling Mounted Occupancy Sensor	1	0.0374	371.8	59.5	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$788.5	\$2,578.0	\$3,366.5	\$585
Pleasantdale School - Interior	000	HALLWAY	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	7	354.9	3380	1199.562	\$191.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	7	252	3380	2366	851.76	596.232	Ceiling Mounted Occupancy Sensor	1	0.1029	603.33	96.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,713.0	\$2,241.5	\$385
Pleasantdale School - Interior	000	HALLWAY	26W CFL Fixture	8	208	3380	703.04	\$112.5	None Proposed	8	208	3380	2366	703.04	492.128	Ceiling Mounted Occupancy Sensor	1	0	210.912	33.7	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Pleasantdale School - Interior	000	KITCHEN	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	13	659.1	500	329.55	\$52.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	13	468	500	350	234	163.8	Ceiling Mounted Occupancy Sensor	1	0.1911	165.75	26.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$918.5	\$3,093.0	\$4,011.5	\$685
Pleasantdale School - Interior	000	STAIRWELL	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$121.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	83.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Pleasantdale School - Interior	000	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$54.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	27.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Pleasantdale School - Interior	000	STAIRWELL	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$54.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	27.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Pleasantdale School - Interior	000	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Pleasantdale School - Interior	000	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$54.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	27.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Pleasantdale School - Interior	000	STAIRWELL	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$54.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	27.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Pleasantdale School - Interior	000	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$54.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	27.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Pleasantdale School - Interior	000	STAIRWELL	26W CFL Fixture	1	26	500	13	\$2.1	None Proposed	1	26	500	350	13	9.1	Ceiling Mounted Occupancy Sensor	1	0	3.9	0.6	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Pleasantdale School - Interior	000	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	000	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	001	106	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	001	107	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	001	122	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	13	1144	3380	3866.72	\$618.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	13	650	3380	2366	2197	1537.9	Ceiling Mounted Occupancy Sensor	1	0.494	2328.82	372.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$918.5	\$3,483.0	\$4,401.5	\$685
Pleasantdale School - Interior	001	122	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$27.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	14.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Pleasantdale School - Interior	001	123	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Pleasantdale School - Interior	001	124	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Pleasantdale School - Interior	001	125	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Pleasantdale School - Interior	001	126	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Pleasantdale School - Interior	001	127	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366																

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Pleasantdale School - Interior	002	202	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	203	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	204	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	205	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	205.5	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	3	336	3380	1135.68	\$181.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	2366	507	354.9	Ceiling Mounted Occupancy Sensor	1	0.186	780.78	124.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Pleasantdale School - Interior	002	206	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	206.5	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Pleasantdale School - Interior	002	207	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	208	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	209	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	209.5	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Pleasantdale School - Interior	002	210	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	211	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	212	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Pleasantdale School - Interior	002	BOYS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$109.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	55.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Pleasantdale School - Interior	002	BOYS ROOM	26W CFL Fixture	1	26	500	13	\$2.1	None Proposed	1	26	500	350	13	9.1	Ceiling Mounted Occupancy Sensor	1	0	3.9	0.6	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Pleasantdale School - Interior	002	GIRLS	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$121.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	83.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Pleasantdale School - Interior	002	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
Pleasantdale School - Interior	002	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	14	709.8	500	354.9	\$56.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	14	504	500	350	252	176.4	Ceiling Mounted Occupancy Sensor	1	0.2058	178.5	28.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,323.0	\$4,306.5	\$735
Pleasantdale School - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$242.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	166.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Pleasantdale School - Interior	002	STAIRWELL	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$95.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.076	358.28	57.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Pleasantdale School - Interior	002	STAIRWELL	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$54.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	27.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Pleasantdale School - Interior	002	STAIRWELL	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	500	112	\$17.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	500	350	50	35	Ceiling Mounted Occupancy Sensor	1	0.124	77	12.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Pleasantdale School - Interior	002	STORAGE	26W CFL Fixture	1	26	3380	87.88	\$14.1	None Proposed	1	26	3380	2366	87.88	61.516	Ceiling Mounted Occupancy Sensor	1	0	26.364	4.2	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Pleasantdale School Subtotal				784	53,298		162,032	25,925		784	32,860			98,654	73,814		87	20	88,217	14,115					56,583	190,376	246,959	39,970	
Redwood School - Exterior	001	EXTERIOR	60W Incandescent Fixture	5	300	3380	1014	\$162.2	Replace 60W Incandescent Fixture with 13W CFL	5	65	3380	3380	219.7	219.7	None Proposed	0	0.235	794.3	127.1	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$20.0	\$31.3	\$51.3	\$0
Redwood School - Exterior	001	EXTERIOR	Exterior Wall Packs (Assume 70w)	40	3600	3380	12168	\$1,946.9	Replace 70W Fixture with 44W LED Fixture	40	1760	3380	3380	5948.8	5948.8	None Proposed	0	1.84	6219.2	995.1	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$5,480.0	\$15,200.0	\$20,680.0	\$4,000
Redwood School - Exterior	001	EXTERIOR	150W Metal Halide Wall Pack	1	189	3380	638.82	\$102.2	Replace 150W Fixture with 90W LED Fixture	1	90	3380	3380	304.2	304.2	None Proposed	0	0.099	334.62	53.5	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$137.0	\$380.0	\$517.0	\$100
Redwood School - Exterior	001	EXTERIOR	26W CFL Fixture	10	260	3380	878.8	\$140.6	None Proposed	10	260	3380	3380	878.8	878.8	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Redwood School - Exterior	001	EXTERIOR	Pole Mounted Luminaire - 1 Head (Assume 400W MH)	1	458	3380	1548.04	\$247.7	Replace 400W Fixture With A Single Head 215W LED Fixture	1	215	3380	3380	726.7	726.7	None Proposed	0	0.243	821.34	131.4	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$137.0	\$485.0	\$622.0	\$175
Redwood School - Interior	000	2A	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$726.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.744	3123.12	499.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,078.5	\$635
Redwood School - Interior	000	2B	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$726.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.744	3123.12	499.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,078.5	\$635
Redwood School - Interior	000	B3	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$242.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	166.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Redwood School - Interior	000	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$27.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	13.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Redwood School - Interior	000	BOILER	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$109.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	55.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Redwood School - Interior	000	BOILER	Exterior Wall Packs (Assume 70w)	2	180	3380	608.4	\$97.3	Replace 70W Fixture with 44W LED Fixture	2	88	3380	2366	297.44	208.208	Ceiling Mounted Occupancy Sensor	1	0.092	400.192	64.0	\$0.0	\$380.0	\$137.0	\$103.0	\$73.5	\$347.5			

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Redwood School - Interior	001	119	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Redwood School - Interior	001	120	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	4368	3459.456	\$553.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	4368	3057.6	1965.6	1375.92	Ceiling Mounted Occupancy Sensor	1	0.342	2083.536	333.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Redwood School - Interior	001	123	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	4368	4612.608	\$738.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	4368	3057.6	2620.8	1834.56	Ceiling Mounted Occupancy Sensor	1	0.456	2778.048	444.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Redwood School - Interior	001	151	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Redwood School - Interior	001	152	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	500	396	\$63.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	500	350	225	157.5	Ceiling Mounted Occupancy Sensor	1	0.342	238.5	38.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Redwood School - Interior	001	153	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Redwood School - Interior	001	154	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Redwood School - Interior	001	155	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Redwood School - Interior	001	156	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Redwood School - Interior	001	161	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Redwood School - Interior	001	162	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	20	1014	500	507	\$81.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	20	720	500	350	360	252	Ceiling Mounted Occupancy Sensor	1	0.294	255	40.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,373.5	\$4,703.0	\$6,076.5	\$1,035
Redwood School - Interior	001	165	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	38	1926.6	500	963.3	\$154.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	38	1368	500	350	684	478.8	Ceiling Mounted Occupancy Sensor	1	0.5586	484.5	77.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$2,543.5	\$8,843.0	\$11,386.5	\$1,935
Redwood School - Interior	001	173	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$47.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	2366	169	118.3	Ceiling Mounted Occupancy Sensor	1	0.038	179.14	28.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85
Redwood School - Interior	001	175	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$47.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	2366	169	118.3	Ceiling Mounted Occupancy Sensor	1	0.038	179.14	28.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85
Redwood School - Interior	001	1-C	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
Redwood School - Interior	001	1-D	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
Redwood School - Interior	001	2B	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	3380	1542.294	\$246.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	324	3380	2366	1095.12	766.584	Ceiling Mounted Occupancy Sensor	1	0.1323	775.71	124.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,173.0	\$2,831.5	\$485
Redwood School - Interior	001	BOYS	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$242.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	166.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Redwood School - Interior	001	BOYS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$142.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	2366	507	354.9	Ceiling Mounted Occupancy Sensor	1	0.114	537.42	86.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Redwood School - Interior	001	BOYS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$27.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	14.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Redwood School - Interior	001	BOYS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$8.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	500	350	36	25.2	Ceiling Mounted Occupancy Sensor	1	0.0294	25.5	4.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Redwood School - Interior	001	CLASSROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
Redwood School - Interior	001	CLASSROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
Redwood School - Interior	001	CLASSROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
Redwood School - Interior	001	CLASSROOM 174	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$47.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	2366	169	118.3	Ceiling Mounted Occupancy Sensor	1	0.038	179.14	28.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85
Redwood School - Interior	001	CLOSET	26W CFL Fixture	1	26	3380	87.88	\$14.1	None Proposed	1	26	3380	2366	87.88	61.516	Ceiling Mounted Occupancy Sensor	1	0	26.364	4.2	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Redwood School - Interior	001	CLOSET	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	1	25.4	4368	110.9472	\$17.8	Replace T8 Fixture with 22W Linear Panel LED Fixture	1	22	4368	3057.6	96.096	67.2672	Ceiling Mounted Occupancy Sensor	1	0.0034	43.68	7.0	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$328.0	\$466.5	\$85
Redwood School - Interior	001	COMPUTER LAB	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	500	304.2	\$48.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	500	350	216	151.2	Ceiling Mounted Occupancy Sensor	1	0.1764	153	24.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Redwood School - Interior	001	FACULTY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$27.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	14.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Redwood School - Interior	001	FSC	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$190.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.152	716.56	114.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Redwood School - Interior	001	GIRLS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$142.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	2366	507	354.9	Ceiling Mounted Occupancy Sensor	1	0.114	537.42	86.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Redwood School - Interior	001	GIRLS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Redwood School - Interior	001	GIRLS BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Redwood School - Interior	001	GYM	400W High Bay Fixture	12	5496	3380	18576.48	\$2,972.2	Replace 400W Fixture with 204W LED High Bay Fixture	12	2448	3380	3380	8274.24	8274.24	None Proposed	0	3.048	10302.24	1,648.4	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$1,644.0	\$5,820.0	\$7,464.0	\$0
Redwood School - Interior	001	GYM	42W CFL Fixture	15	735	3380	2484.3	\$397.5	None Proposed	15	735	3380	3380	2484.3	2484.3	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Redwood School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	7	354.9	3380	1199.562	\$191.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	7	252	3380	2366	851.76	596.232	Ceiling Mounted Occupancy Sensor	1	0.1029	603.33	96.5	\$230.0	\$0.0	\$65.0	\$					

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Redwood School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$219.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	8	288	3380	2366	973.44	681.408	Ceiling Mounted Occupancy Sensor	1	0.1176	689.52	110.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
Redwood School - Interior	001	JANITOR	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$27.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	13.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Redwood School - Interior	001	KITCHEN	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	11	557.7	500	278.85	\$44.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	11	396	500	350	198	138.6	Ceiling Mounted Occupancy Sensor	1	0.1617	140.25	22.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$788.5	\$2,633.0	\$3,421.5	\$585
Redwood School - Interior	001	KITCHEN	42W CFL Fixture	1	49	3380	165.62	\$26.5	None Proposed	1	49	3380	2366	165.62	115.934	Ceiling Mounted Occupancy Sensor	1	0	49.686	7.9	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Redwood School - Interior	001	MEDIA CENTER	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	45	2281.5	3380	7711.47	\$1,233.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	45	1620	3380	2366	5475.6	3832.92	Ceiling Mounted Occupancy Sensor	1	0.6615	3878.55	620.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$2,998.5	\$10,453.0	\$13,451.5	\$2,285
Redwood School - Interior	001	NURSE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$242.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	166.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Redwood School - Interior	001	OFFICE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$242.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	166.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Redwood School - Interior	001	PRINCIPAL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$109.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	55.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Redwood School - Interior	001	STAIRWELL	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$121.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	100	3380	2366	338	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	83.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Redwood School - Interior	001	TEACHERS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Redwood School Subtotal				793	53,875		164,293	26,287		793	33,232			99,810	75,518		76	21	88,775	14,204						59,103	197,359	256,462	42,385
Roosevelt Middle School - Exterior	001	EXTERIOR	Exterior Wall Packs (Assume 70w)	11	990	3380	3346.2	\$501.9	Replace 70W Fixture with 44W LED Fixture	11	484	3380	3380	1635.92	1635.92	None Proposed	0	0.506	1710.28	256.5	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$1,507.0	\$4,180.0	\$5,687.0	\$1,100
Roosevelt Middle School - Exterior	001	EXTERIOR	Pole Mounted Luminaire - 2 Head (Assume 400W MH)	2	1832	3380	6192.16	\$928.8	Replace 400W Fixture With A Dual Head 430W LED Fixture	2	860	3380	3380	2906.8	2906.8	None Proposed	0	0.972	3285.36	492.8	\$0.0	\$970.0	\$274.0	\$0.0	\$0.0	\$548.0	\$1,940.0	\$2,488.0	\$350
Roosevelt Middle School - Interior	000	BOYS LOCKER	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	19	963.3	3380	3255.954	\$488.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	19	684	3380	2366	2311.92	1618.344	Ceiling Mounted Occupancy Sensor	1	0.2793	1637.61	245.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,308.5	\$4,473.0	\$5,781.5	\$985
Roosevelt Middle School - Interior	000	BOYS ROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 35W Linear Panel LED Fixture	3	105	3380	2366	354.9	248.43	Ceiling Mounted Occupancy Sensor	1	0.0471	265.668	39.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Roosevelt Middle School - Interior	000	FIRE ALARM ROOM	13W CFL Fixture	3	39	3380	131.82	\$19.8	None Proposed	3	39	3380	2366	131.82	92.274	Ceiling Mounted Occupancy Sensor	1	0	39.546	5.9	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Roosevelt Middle School - Interior	000	GIRLS LOCKER	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Roosevelt Middle School - Interior	000	GIRLS LOCKER	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	3380	1713.66	\$257.0	Replace T8 Fixture with 35W Linear Panel LED Fixture	10	350	3380	2366	1183	828.1	Ceiling Mounted Occupancy Sensor	1	0.157	885.56	132.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,403.0	\$3,126.5	\$535
Roosevelt Middle School - Interior	000	GIRLS LOCKER	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	4	140	3380	2366	473.2	331.24	Ceiling Mounted Occupancy Sensor	1	0.0628	354.224	53.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Roosevelt Middle School - Interior	000	GIRLS ROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	4368	664.3728	\$99.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	3	105	4368	3057.6	458.64	321.048	Ceiling Mounted Occupancy Sensor	1	0.0471	343.3248	51.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Roosevelt Middle School - Interior	000	GYM	400W High Bay Fixture	24	10992	3380	37152.96	\$5,572.9	Replace 400W Fixture with 204W LED High Bay Fixture	24	4896	3380	3380	16548.48	16548.48	None Proposed	0	6.096	20604.48	3,090.7	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$3,288.0	\$11,640.0	\$14,928.0	\$0
Roosevelt Middle School - Interior	000	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Roosevelt Middle School - Interior	000	HALLWAY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	3380	1713.66	\$257.0	Replace T8 Fixture with 35W Linear Panel LED Fixture	10	350	3380	2366	1183	828.1	Ceiling Mounted Occupancy Sensor	1	0.157	885.56	132.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,403.0	\$3,126.5	\$535
Roosevelt Middle School - Interior	000	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Roosevelt Middle School - Interior	000	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$205.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	8	288	3380	2366	973.44	681.408	Ceiling Mounted Occupancy Sensor	1	0.1176	689.52	103.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
Roosevelt Middle School - Interior	000	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	3	76.2	3380	257.556	\$38.6	Replace T8 Fixture with 22W Linear Panel LED Fixture	3	66	3380	2366	223.08	156.156	Ceiling Mounted Occupancy Sensor	1	0.0102	101.4	15.2	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$778.0	\$1,046.5	\$185
Roosevelt Middle School - Interior	000	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	2	50.8	500	25.4	\$3.8	Replace T8 Fixture with 22W Linear Panel LED Fixture	2	44	500	350	22	15.4	Ceiling Mounted Occupancy Sensor	1	0.0068	10	1.5	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$553.0	\$756.5	\$135
Roosevelt Middle School - Interior	000	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	1	25.4	3380	85.852	\$12.9	Replace T8 Fixture with 22W Linear Panel LED Fixture	1	22	3380	2366	74.36	52.052	Ceiling Mounted Occupancy Sensor	1	0.0034	33.8	5.1	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$328.0	\$466.5	\$85
Roosevelt Middle School - Interior	000	HVAC	60W Incandescent Fixture	2	120	4368	524.16	\$78.6	Replace 60W Incandescent Fixture with 13W CFL	2	26	4368	3057.6	113.568	79.4976	Ceiling Mounted Occupancy Sensor	1	0.094	444.6624	66.7	\$0.0	\$6.3	\$4.0	\$103.0	\$73.5	\$81.5	\$115.5	\$197.0	\$35
Roosevelt Middle School - Interior	000	LOUNGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	4368	2214.576	\$332.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	10	360	4368	3057.6	1572.48	1100.736	Ceiling Mounted Occupancy Sensor	1	0.147	1113.84	167.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,403.0	\$3,126.5	\$535
Roosevelt Middle School - Interior	000	OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Roosevelt Middle School - Interior	000	POTTERY	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$205.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	8	288	3380	2366	973.44	681.408	Ceiling Mounted Occupancy Sensor	1	0.1176	689.52	103.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
Roosevelt Middle School - Interior	000	STORAGE	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	12.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Roosevelt Middle School - Interior	000	STORAGE	13W CFL Fixture	4	52	3380	175.76	\$26.4	None Proposed	4	52	3380	2366	175.76	123.032	Ceiling Mounted Occupancy Sensor	1	0	52.728	7.9	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Roosevelt Middle School - Interior	000	STORAGE	13W CFL Fixture	4	52	500	26	\$3.9	None Proposed	4	52	500	350	26	18.2	Ceiling Mounted Occupancy Sensor	1	0	7.8	1.2	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Roosevelt Middle School - Interior	000	WEIGHT ROOM	1X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0		

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive	
Roosevelt Middle School - Interior	001	ART	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	27	1368.9	3380	4626.882	\$694.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	27	972	3380	2366	3285.36	2299.752	Ceiling Mounted Occupancy Sensor	1	0.3969	2327.13	349.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,828.5	\$6,313.0	\$8,141.5	\$1,385	
Roosevelt Middle School - Interior	001	ASSISTANT PRINCIPAL	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.088	\$77.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	38.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185	
Roosevelt Middle School - Interior	001	AUDITORIUM	60W Incandescent Fixture	40	2400	500	1200	\$180.0	Replace 60W Incandescent Fixture with 13W CFL	40	520	500	500	260	260	None Proposed	0	1.88	940	141.0	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$160.0	\$250.0	\$410.0	\$0	
Roosevelt Middle School - Interior	001	AUDITORIUM	26W CFL Fixture	12	312	500	156	\$23.4	None Proposed	12	312	500	500	156	156	None Proposed	0	0	0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
Roosevelt Middle School - Interior	001	AUDITORIUM	60W Incandescent Fixture	156	9360	500	4680	\$702.0	Replace 60W Incandescent Fixture with 13W CFL	156	2028	500	500	1014	1014	None Proposed	0	7.332	3666	549.9	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$624.0	\$975.0	\$1,599.0	\$0	
Roosevelt Middle School - Interior	001	BATHROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85	
Roosevelt Middle School - Interior	001	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	500	350	18	12.6	Ceiling Mounted Occupancy Sensor	1	0.0147	12.75	1.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85	
Roosevelt Middle School - Interior	001	BOILER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	3380	1542.294	\$231.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	324	3380	2366	1095.12	766.584	Ceiling Mounted Occupancy Sensor	1	0.1323	775.71	116.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,173.0	\$2,831.5	\$485	
Roosevelt Middle School - Interior	001	BOILER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	500	76.05	\$11.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	500	350	54	37.8	Ceiling Mounted Occupancy Sensor	1	0.0441	38.25	5.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185	
Roosevelt Middle School - Interior	001	BOILER ROOM	26W CFL Fixture	8	208	500	104	\$15.6	None Proposed	8	208	500	350	104	72.8	Ceiling Mounted Occupancy Sensor	1	0	31.2	4.7	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35	
Roosevelt Middle School - Interior	001	BOYS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	24	1216.8	3380	4112.784	\$616.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	24	864	3380	2366	2920.32	2044.224	Ceiling Mounted Occupancy Sensor	1	0.3528	2068.56	310.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,633.5	\$5,623.0	\$7,256.5	\$1,235	
Roosevelt Middle School - Interior	001	CAWL SPACE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135	
Roosevelt Middle School - Interior	001	CLOSET	60W Incandescent Fixture	1	60	3380	202.8	\$30.4	Replace 60W Incandescent Fixture with 13W CFL	1	13	3380	2366	43.94	30.758	Ceiling Mounted Occupancy Sensor	1	0.047	172.042	25.8	\$0.0	\$6.3	\$4.0	\$103.0	\$73.5	\$77.5	\$109.3	\$186.8	\$35	
Roosevelt Middle School - Interior	001	CST	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	500	101.4	\$15.2	Replace T8 Fixture with 35W Linear Panel LED Fixture	4	140	500	350	70	49	Ceiling Mounted Occupancy Sensor	1	0.0628	52.4	7.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235	
Roosevelt Middle School - Interior	001	DOCK	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135	
Roosevelt Middle School - Interior	001	GIRLS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	24	1216.8	500	608.4	\$91.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	24	864	500	350	432	302.4	Ceiling Mounted Occupancy Sensor	1	0.3528	306	45.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,633.5	\$5,623.0	\$7,256.5	\$1,235	
Roosevelt Middle School - Interior	001	GUIDANCE	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	14	1232	500	616	\$92.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	700	500	350	350	245	Ceiling Mounted Occupancy Sensor	1	0.532	371	55.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,743.0	\$4,726.5	\$735	
Roosevelt Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485	
Roosevelt Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	2366	507	354.9	Ceiling Mounted Occupancy Sensor	1	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185	
Roosevelt Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	16	457.2	3380	1545.336	\$231.8	Replace T8 Fixture with 22W Linear Panel LED Fixture	16	396	3380	2366	1338.48	936.936	Ceiling Mounted Occupancy Sensor	1	0.0612	608.4	91.3	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,153.0	\$5,396.5	\$935	
Roosevelt Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	4	101.6	500	50.8	\$7.6	Replace T8 Fixture with 22W Linear Panel LED Fixture	4	88	500	350	44	30.8	Ceiling Mounted Occupancy Sensor	1	0.0136	20	3.0	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,003.0	\$1,336.5	\$235	
Roosevelt Middle School - Interior	001	HALLWAY	26W CFL Fixture	3	78	500	39	\$5.9	None Proposed	3	78	500	350	39	27.3	Ceiling Mounted Occupancy Sensor	1	0	11.7	1.8	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35	
Roosevelt Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	15	381	3380	1287.78	\$193.2	Replace T8 Fixture with 22W Linear Panel LED Fixture	15	330	3380	2366	1115.4	780.78	Ceiling Mounted Occupancy Sensor	1	0.051	507	76.1	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,478.0	\$4,526.5	\$785	
Roosevelt Middle School - Interior	001	HALLWAY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	500	101.4	\$15.2	Replace T8 Fixture with 35W Linear Panel LED Fixture	4	140	500	350	70	49	Ceiling Mounted Occupancy Sensor	1	0.0628	52.4	7.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235	
Roosevelt Middle School - Interior	001	HALLWAY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$205.6	Replace T8 Fixture with 35W Linear Panel LED Fixture	8	280	3380	2366	946.4	662.48	Ceiling Mounted Occupancy Sensor	1	0.1256	708.448	106.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435	
Roosevelt Middle School - Interior	001	HALLWAY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	7	354.9	3380	1199.562	\$179.9	Replace T8 Fixture with 35W Linear Panel LED Fixture	7	245	3380	2366	828.1	579.67	Ceiling Mounted Occupancy Sensor	1	0.1099	619.892	93.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,713.0	\$2,241.5	\$385	
Roosevelt Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	144	3380	2366	486.72	340.704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235	
Roosevelt Middle School - Interior	001	HALLWAY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	3380	1542.294	\$231.3	Replace T8 Fixture with 35W Linear Panel LED Fixture	9	315	3380	2366	1064.7	745.29	Ceiling Mounted Occupancy Sensor	1	0.1413	797.004	119.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,173.0	\$2,831.5	\$485	
Roosevelt Middle School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$44.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	2366	169	118.3	Ceiling Mounted Occupancy Sensor	1	0.038	179.14	26.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85	
Roosevelt Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$7.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	500	350	36	25.2	Ceiling Mounted Occupancy Sensor	1	0.0294	25.5	3.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135	
Roosevelt Middle School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	5	253.5	3380	856.83	\$128.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	5	180	3380	2366	608.4	425.88	Ceiling Mounted Occupancy Sensor	1	0.0735	430.95	64.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,253.0	\$1,651.5	\$285	
Roosevelt Middle School - Interior	001	JANITOR	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85	
Roosevelt Middle School - Interior	001	LIBRARY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	50	2535	3380	8568.3	\$1,285.2	Replace T8 Fixture with 35W Linear Panel LED Fixture	50	1750	3380	2366	5915	4140.5	Ceiling Mounted Occupancy Sensor	1	0.785	4427.8	664.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$3,323.5	\$11,603.0	\$14,926.5	\$2,535	
Roosevelt Middle School - Interior	001	LIBRARY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	11	557.7	3380	1885.026	\$282.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	11	385	3380	2366	1301.3	910.91	Ceiling Mounted Occupancy Sensor	1	0.1727	974.116	146.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$788.5	\$2,633.0	\$3,421.5	\$585	
Roosevelt Middle School - Interior	001	MAIN OFFICE	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	7	616	3380	2082.06	\$312.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	350	3380	2366	1183	828.1	Ceiling Mounted Occupancy Sensor	1	0.266	1253.98	188.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,923.0	\$2,451.5	\$385	
Roosevelt Middle School - Interior	001	MAIN OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	500	350	18	12.6	Ceiling Mounted Occupancy Sensor	1	0.0147	12.75	1.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85	
Roosevelt Middle School - Interior	001	MENS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$7.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72																			

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Roosevelt Middle School - Interior	002	201	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Roosevelt Middle School - Interior	002	202	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	16	1408	3380	4759.04	\$713.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	16	800	3380	2366	2704	1892.8	Ceiling Mounted Occupancy Sensor	1	0.608	2866.24	429.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$4,263.0	\$5,376.5	\$835
Roosevelt Middle School - Interior	002	202	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	3380	1713.66	\$257.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	10	360	3380	2366	1216.8	851.76	Ceiling Mounted Occupancy Sensor	1	0.147	861.9	129.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,403.0	\$3,126.5	\$535
Roosevelt Middle School - Interior	002	203	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Roosevelt Middle School - Interior	002	204	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	4368	4612.608	\$691.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	4368	3057.6	2620.8	1834.56	Ceiling Mounted Occupancy Sensor	1	0.456	2778.048	416.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Roosevelt Middle School - Interior	002	205	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	3380	1713.66	\$257.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	10	360	3380	2366	1216.8	851.76	Ceiling Mounted Occupancy Sensor	1	0.147	861.9	129.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,403.0	\$3,126.5	\$535
Roosevelt Middle School - Interior	002	206	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	450	3380	2366	1521	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Roosevelt Middle School - Interior	002	206	60W Incandescent Fixture	2	120	500	60	\$9.0	Replace 60W Incandescent Fixture with 13W CFL	2	26	500	350	13	9.1	Ceiling Mounted Occupancy Sensor	1	0.094	50.9	7.6	\$0.0	\$6.3	\$4.0	\$103.0	\$73.5	\$81.5	\$115.5	\$197.0	\$35
Roosevelt Middle School - Interior	002	208	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Roosevelt Middle School - Interior	002	208	60W Incandescent Fixture	1	60	3380	202.8	\$30.4	Replace 60W Incandescent Fixture with 13W CFL	1	13	3380	2366	43.94	30.758	Ceiling Mounted Occupancy Sensor	1	0.047	172.042	25.8	\$0.0	\$6.3	\$4.0	\$103.0	\$73.5	\$77.5	\$109.3	\$186.8	\$35
Roosevelt Middle School - Interior	002	209	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	4368	1537.536	\$230.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	4368	3057.6	873.6	611.52	Ceiling Mounted Occupancy Sensor	1	0.152	926.016	138.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Roosevelt Middle School - Interior	002	209	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	4368	221.4576	\$33.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	4368	3057.6	157.248	110.0736	Ceiling Mounted Occupancy Sensor	1	0.0147	111.384	16.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Roosevelt Middle School - Interior	002	210	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	3380	1713.66	\$257.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	10	360	3380	2366	1216.8	851.76	Ceiling Mounted Occupancy Sensor	1	0.147	861.9	129.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,403.0	\$3,126.5	\$535
Roosevelt Middle School - Interior	002	212	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Roosevelt Middle School - Interior	002	214	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Roosevelt Middle School - Interior	002	216	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	16	1408	3380	4759.04	\$713.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	16	800	3380	2366	2704	1892.8	Ceiling Mounted Occupancy Sensor	1	0.608	2866.24	429.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$4,263.0	\$5,376.5	\$835
Roosevelt Middle School - Interior	002	218	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	16	1408	3380	4759.04	\$713.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	16	800	3380	2366	2704	1892.8	Ceiling Mounted Occupancy Sensor	1	0.608	2866.24	429.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$4,263.0	\$5,376.5	\$835
Roosevelt Middle School - Interior	002	BIRLS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	500	132	\$19.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	500	350	75	52.5	Ceiling Mounted Occupancy Sensor	1	0.114	79.5	11.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Roosevelt Middle School - Interior	002	BOYS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Roosevelt Middle School - Interior	002	BOYS	1X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	3380	2366	507	354.9	Ceiling Mounted Occupancy Sensor	1	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Roosevelt Middle School - Interior	002	BOYS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Roosevelt Middle School - Interior	002	BOYS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	500	132	\$19.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	500	350	75	52.5	Ceiling Mounted Occupancy Sensor	1	0.114	79.5	11.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Roosevelt Middle School - Interior	002	CLOSET	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	4368	221.4576	\$33.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	4368	3057.6	157.248	110.0736	Ceiling Mounted Occupancy Sensor	1	0.0147	111.384	16.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Roosevelt Middle School - Interior	002	GIRLS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	4368	1153.152	\$173.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	4368	3057.6	655.2	458.64	Ceiling Mounted Occupancy Sensor	1	0.114	694.512	104.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Roosevelt Middle School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	15	381	3380	1287.78	\$193.2	Replace T8 Fixture with 22W Linear Panel LED Fixture	15	330	3380	2366	1115.4	780.78	Ceiling Mounted Occupancy Sensor	1	0.051	507	76.1	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,478.0	\$4,526.5	\$785
Roosevelt Middle School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	12	304.8	500	152.4	\$22.9	Replace T8 Fixture with 22W Linear Panel LED Fixture	12	264	500	350	132	92.4	Ceiling Mounted Occupancy Sensor	1	0.0408	60	9.0	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,803.0	\$3,656.5	\$635
Roosevelt Middle School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	18	457.2	3380	1545.336	\$231.8	Replace T8 Fixture with 22W Linear Panel LED Fixture	18	396	3380	2366	1338.48	936.936	Ceiling Mounted Occupancy Sensor	1	0.0612	608.4	91.3	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,153.0	\$5,396.5	\$935
Roosevelt Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	4368	1153.152	\$173.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	4368	3057.6	655.2	458.64	Ceiling Mounted Occupancy Sensor	1	0.114	694.512	104.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Roosevelt Middle School - Interior	002	HALLWAY	26W CFL Fixture	8	208	3380	703.04	\$105.5	None Proposed	8	208	3380	2366	703.04	492.128	Ceiling Mounted Occupancy Sensor	1	0	210.912	31.6	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Roosevelt Middle School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	8	704	3380	2379.52	\$356.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	400	3380	2366	1352	946.4	Ceiling Mounted Occupancy Sensor	1	0.304	1433.12	215.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$2,183.0	\$2,776.5	\$435
Roosevelt Middle School - Interior	002	STAIRWELL	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	2	50.8	3380	171.704	\$25.8	Replace T8 Fixture with 22W Linear Panel LED Fixture	2	44	3380	2366	148.72	104.104	Ceiling Mounted Occupancy Sensor	1	0.0068	67.6	10.1	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$553.0	\$756.5	\$135
Roosevelt Middle School - Interior	002	STAIRWELL	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	4	101.6	3380	343.408	\$51.5	Replace T8 Fixture with 22W Linear Panel LED Fixture	4	88	3380	2366	297.44	208.208	Ceiling Mounted Occupancy Sensor	1	0.0136	135.2	20.3	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,003.0	\$1,336.5	\$235
Roosevelt Middle School - Interior	002	STAIRWELL	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$44.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	2366	169	118.3	Ceiling Mounted Occupancy Sensor	1	0.038	179.14	26.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85
Roosevelt Middle School - Interior	003	300	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$669.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	750	3380	2366	2535	1774.5	Ceiling Mounted Occupancy Sensor	1	0.57	2687.1	403.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$4,003.0	\$5,051.5	\$785
Roosevelt Middle School - Interior	003	301	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	10	880	3380	2974.4	\$446.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	10	500	3380	2366	1690	1183	Ceiling Mounted Occupancy Sensor	1	0.38	1791.4	268.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,703.0	\$3,426.5	\$535
Roosevelt Middle School - Interior	003	302	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	600	3380	2366	2028	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456											

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Roosevelt Middle School - Interior	003	BOYS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	500	76.05	\$11.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	500	350	54	37.8	Ceiling Mounted Occupancy Sensor	1	0.0441	38.25	5.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Roosevelt Middle School - Interior	003	BOYS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	3380	2366	118.3	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Roosevelt Middle School - Interior	003	BOYS	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	38.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Roosevelt Middle School - Interior	003	CAFETERIA	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	75	1905	3380	6438.9	\$965.8	Replace T8 Fixture with 22W Linear Panel LED Fixture	75	1650	3380	2366	5577	3903.9	Ceiling Mounted Occupancy Sensor	1	0.255	2535	380.3	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$4,948.5	\$16,978.0	\$21,926.5	\$3,785
Roosevelt Middle School - Interior	003	CAFETERIA	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	5	127	3380	429.26	\$64.4	Replace T8 Fixture with 22W Linear Panel LED Fixture	5	110	3380	2366	371.8	260.26	Ceiling Mounted Occupancy Sensor	1	0.017	169	25.4	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,228.0	\$1,626.5	\$285
Roosevelt Middle School - Interior	003	GIRLS	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	38.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Roosevelt Middle School - Interior	003	GIRLS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	38.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Roosevelt Middle School - Interior	003	GIRLS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	35	500	350	17.5	12.25	Ceiling Mounted Occupancy Sensor	1	0.0157	13.1	2.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Roosevelt Middle School - Interior	003	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	11	1232	3380	4164.16	\$624.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	11	550	3380	2366	1859	1301.3	Ceiling Mounted Occupancy Sensor	1	0.682	2862.86	429.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$788.5	\$2,963.0	\$3,751.5	\$585
Roosevelt Middle School - Interior	003	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	12.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Roosevelt Middle School - Interior	003	HALLWAY	1X4 Suspended Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	10	254	3380	858.52	\$128.8	Replace T8 Fixture with 22W Linear Panel LED Fixture	10	220	3380	2366	743.6	520.52	Ceiling Mounted Occupancy Sensor	1	0.034	338	50.7	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,353.0	\$3,076.5	\$535
Roosevelt Middle School - Interior	003	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	2	50.8	500	25.4	\$3.8	Replace T8 Fixture with 22W Linear Panel LED Fixture	2	44	500	350	22	15.4	Ceiling Mounted Occupancy Sensor	1	0.0068	10	1.5	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$553.0	\$756.5	\$135
Roosevelt Middle School - Interior	003	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	6	152.4	500	76.2	\$11.4	Replace T8 Fixture with 22W Linear Panel LED Fixture	6	132	500	350	66	46.2	Ceiling Mounted Occupancy Sensor	1	0.0204	30	4.5	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,453.0	\$1,916.5	\$335
Roosevelt Middle School - Interior	003	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	10	254	500	127	\$19.1	Replace T8 Fixture with 22W Linear Panel LED Fixture	10	220	500	350	110	77	Ceiling Mounted Occupancy Sensor	1	0.034	50	7.5	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$723.5	\$2,353.0	\$3,076.5	\$535
Roosevelt Middle School - Interior	003	KITCHEN	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	30	1521	500	760.5	\$114.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	30	1080	500	350	540	378	Ceiling Mounted Occupancy Sensor	1	0.441	382.5	57.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$2,023.5	\$7,003.0	\$9,026.5	\$1,535
Roosevelt Middle School - Interior	003	KITCHEN	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Roosevelt Middle School - Interior	003	KITCHEN	26W CFL Fixture	2	52	3380	175.76	\$26.4	None Proposed	2	52	3380	2366	175.76	123.032	Ceiling Mounted Occupancy Sensor	1	0	52.728	7.9	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Roosevelt Middle School - Interior	003	SERVER ROOM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$227.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	156.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Roosevelt Middle School - Interior	003	SERVER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	12.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Roosevelt Middle School - Interior	003	STAIRWELL	1X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$178.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	200	3380	2366	676	473.2	Ceiling Mounted Occupancy Sensor	1	0.152	716.56	107.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Roosevelt Middle School - Interior	003	STAIRWELL	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	4	101.6	3380	343.408	\$51.5	Replace T8 Fixture with 22W Linear Panel LED Fixture	4	88	3380	2366	297.44	208.208	Ceiling Mounted Occupancy Sensor	1	0.0136	135.2	20.3	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,003.0	\$1,336.5	\$235
Roosevelt Middle School - Interior	003	TEACHERS LOUNGE	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	12.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Roosevelt Middle School - Interior	003	TEACHERS LOUNGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Roosevelt Middle School Subtotal				1,535	103,037		282,819	\$42,423		1,535	58,519			169,173	125,178		153	45	157,641	\$23,646						\$98,062	\$333,402	\$431,463	\$68,855
St. Cloud School - Exterior	001	EXTERIOR	150W Metal Halide Wall Pack	8	1512	3380	5110.56	\$817.7	Replace 150W Fixture with 90W LED Fixture	8	720	3380	3380	2433.6	2433.6	None Proposed	0	0.792	2676.96	428.3	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$1,096.0	\$3,040.0	\$4,136.0	\$800
St. Cloud School - Interior	000	GARAGE	42W CFL Fixture	17	833	500	416.5	\$66.6	None Proposed	17	833	500	350	416.5	291.55	Ceiling Mounted Occupancy Sensor	1	0	124.95	20.0	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
St. Cloud School - Interior	000	GARAGE	65W Incandescent Fixture	1	65	3380	219.7	\$35.2	Replace 65W Incandescent Fixture with 13W CFL	1	13	3380	2366	43.94	30.758	Ceiling Mounted Occupancy Sensor	1	0.052	188.942	30.2	\$0.0	\$6.3	\$4.0	\$103.0	\$73.5	\$77.5	\$109.3	\$186.8	\$35
St. Cloud School - Interior	000	STAIRWELL	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	500	202.8	\$32.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	8	288	500	350	144	100.8	Ceiling Mounted Occupancy Sensor	1	0.1176	102	16.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
St. Cloud School - Interior	001	2	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	500	456.3	\$73.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	500	350	324	226.8	Ceiling Mounted Occupancy Sensor	1	0.2646	229.5	36.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
St. Cloud School - Interior	001	3	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
St. Cloud School - Interior	001	4	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
St. Cloud School - Interior	001	7	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
St. Cloud School - Interior	001	8	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
St. Cloud School - Interior	001	9	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
St. Cloud School - Interior	001	10	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	500	304.2	\$48.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	500	350	216	151.2	Ceiling Mounted Occupancy Sensor	1	0.1764	153	24.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
St. Cloud School - Interior	001	ART	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	20	1014	3380	3427.32	\$548.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	20	720	3380	2366	2433.6	1703.52	Ceiling Mounted Occupancy Sensor	1	0.294	1723.8	275.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,373.5	\$4,703.0	\$6,076.5	\$1,035
St. Cloud School - Interior	001	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps																										

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Fixture Watts	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
St. Cloud School - Interior	001	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	3	76.2	3380	257.556	\$41.2	Replace T8 Fixture with 22W Linear Panel LED Fixture	3	66	3380	2366	223.08	156.156	Ceiling Mounted Occupancy Sensor	1	0.0102	101.4	16.2	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$778.0	\$1,046.5	\$185
St. Cloud School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	7	354.9	3380	1199.562	\$191.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	7	252	3380	2366	851.76	596.232	Ceiling Mounted Occupancy Sensor	1	0.1029	603.33	96.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,713.0	\$2,241.5	\$385
St. Cloud School - Interior	001	JANITORS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$54.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	27.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
St. Cloud School - Interior	001	KITCHEN	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	14	709.8	3380	2399.124	\$383.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	14	504	3380	2366	1703.52	1192.464	Ceiling Mounted Occupancy Sensor	1	0.2058	1206.66	193.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,323.0	\$4,306.5	\$735
St. Cloud School - Interior	001	LIBRARY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	28	3136	3380	10599.68	\$1,695.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	28	1400	3380	2366	4732	3312.4	Ceiling Mounted Occupancy Sensor	1	1.736	7287.28	1,166.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,893.5	\$7,383.0	\$9,276.5	\$1,435
St. Cloud School - Interior	001	LIBRARY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	6	672	3380	2271.36	\$363.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	300	3380	2366	1014	709.8	Ceiling Mounted Occupancy Sensor	1	0.372	1561.56	249.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,663.0	\$2,126.5	\$335
St. Cloud School - Interior	001	MRS ROCKINSON	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	16	811.2	3380	2741.856	\$438.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	16	576	3380	2366	1946.88	1362.816	Ceiling Mounted Occupancy Sensor	1	0.2352	1379.04	220.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$3,783.0	\$4,896.5	\$835
St. Cloud School - Interior	001	STAIRWELL	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	500	132	\$21.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	150	500	350	75	52.5	Ceiling Mounted Occupancy Sensor	1	0.114	79.5	12.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
St. Cloud School - Interior	001	STAIRWELL	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	2	50.8	3380	171.704	\$27.5	Replace T8 Fixture with 22W Linear Panel LED Fixture	2	44	3380	2366	148.72	104.104	Ceiling Mounted Occupancy Sensor	1	0.0068	67.6	10.8	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$553.0	\$756.5	\$135
St. Cloud School - Interior	001	STORAGE	42W CFL Fixture	2	98	3380	331.24	\$53.0	None Proposed	2	98	3380	2366	331.24	231.868	Ceiling Mounted Occupancy Sensor	1	0	99.372	15.9	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
St. Cloud School - Interior	002	11	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
St. Cloud School - Interior	002	12	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
St. Cloud School - Interior	002	13	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	18	912.6	3380	3084.588	\$493.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	18	648	3380	2366	2190.24	1533.168	Ceiling Mounted Occupancy Sensor	1	0.2646	1551.42	248.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,243.5	\$4,243.0	\$5,486.5	\$935
St. Cloud School - Interior	002	14	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	16	811.2	3380	2741.856	\$438.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	16	576	3380	2366	1946.88	1362.816	Ceiling Mounted Occupancy Sensor	1	0.2352	1379.04	220.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$3,783.0	\$4,896.5	\$835
St. Cloud School - Interior	002	15	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	16	811.2	3380	2741.856	\$438.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	16	576	3380	2366	1946.88	1362.816	Ceiling Mounted Occupancy Sensor	1	0.2352	1379.04	220.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,113.5	\$3,783.0	\$4,896.5	\$835
St. Cloud School - Interior	002	BOYS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$27.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	36	3380	2366	121.68	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	13.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
St. Cloud School - Interior	002	CLASSROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	500	304.2	\$48.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	500	350	216	151.2	Ceiling Mounted Occupancy Sensor	1	0.1764	153	24.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
St. Cloud School - Interior	002	CLASSROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
St. Cloud School - Interior	002	CLASSROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
St. Cloud School - Interior	002	CLASSROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
St. Cloud School - Interior	002	CLASSROOM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	1	112	3380	378.56	\$60.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	50	3380	2366	169	118.3	Ceiling Mounted Occupancy Sensor	1	0.062	260.26	41.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85
St. Cloud School - Interior	002	COMPUTER LAB	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	432	3380	2366	1460.16	1022.112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
St. Cloud School - Interior	002	GIRLS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$8.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	500	350	36	25.2	Ceiling Mounted Occupancy Sensor	1	0.0294	25.5	4.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
St. Cloud School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	11	279.4	3380	944.372	\$151.1	Replace T8 Fixture with 22W Linear Panel LED Fixture	11	242	3380	2366	817.96	572.572	Ceiling Mounted Occupancy Sensor	1	0.0374	371.8	59.5	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$788.5	\$2,578.0	\$3,366.5	\$585
St. Cloud School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	14	355.6	3380	1201.928	\$192.3	Replace T8 Fixture with 22W Linear Panel LED Fixture	14	308	3380	2366	1041.04	728.728	Ceiling Mounted Occupancy Sensor	1	0.0476	473.2	75.7	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$983.5	\$3,253.0	\$4,236.5	\$735
St. Cloud School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	13	330.2	3380	1116.076	\$178.6	Replace T8 Fixture with 22W Linear Panel LED Fixture	13	286	3380	2366	966.68	676.676	Ceiling Mounted Occupancy Sensor	1	0.0442	439.4	70.3	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$918.5	\$3,028.0	\$3,946.5	\$685
St. Cloud School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	3	76.2	500	38.1	\$6.1	Replace T8 Fixture with 22W Linear Panel LED Fixture	3	66	500	350	33	23.1	Ceiling Mounted Occupancy Sensor	1	0.0102	15	2.4	\$225.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$778.0	\$1,046.5	\$185
St. Cloud School - Interior	002	OFFICE/NURSE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	7	784	3380	2649.92	\$424.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	350	3380	2366	1183	828.1	Ceiling Mounted Occupancy Sensor	1	0.434	1821.82	291.5	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$528.5	\$1,923.0	\$2,451.5	\$385
St. Cloud School - Interior	002	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	24	1216.8	3380	4112.784	\$658.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	24	864	3380	2366	2920.32	2044.224	Ceiling Mounted Occupancy Sensor	1	0.3528	2068.56	331.0	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,633.5	\$5,623.0	\$7,256.5	\$1,235
St. Cloud School - Interior	002	TEACHERS	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$164.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	216	3380	2366	730.08	511.056	Ceiling Mounted Occupancy Sensor	1	0.0882	517.14	82.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
St. Cloud School - Interior	002	TEACHERS BATHROOM	26W CFL Fixture	1	26	3380	87.88	\$14.1	None Proposed	1	26	3380	2366	87.88	61.516	Ceiling Mounted Occupancy Sensor	1	0	26.364	4.2	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
St. Cloud School - Interior	002	WOMENS FACULTY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$54.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	72	3380	2366	243.36	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	27.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
St. Cloud School - Interior	002	WORK ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	108	3380	2366	365.04	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
St. Cloud Subtotal				609	40,051		122,211	\$19,554		609	24,936			74,316	55,854		57	15	66,357	\$10,617						\$44,070	\$147,737	\$191,807	\$31,045

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Washington School - Exterior	001	EXTERIOR	26W CFL Fixture	6	156	3380	527.28	\$84.4	None Proposed	6	3380	2366	2366	369,096	None Proposed	0	0	158,184	25.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Washington School - Exterior	001	EXTERIOR	Exterior Wall Packs (Assume 70w)	1	90	3380	304.2	\$48.7	Replace 70W Fixture with 44W LED Fixture	1	3380	2366	2366	104,104	None Proposed	0	0.046	200,096	32.0	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$137.0	\$380.0	\$517.0	\$100
Washington School - Interior	001	BOILER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	3380	1542.294	\$246.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	3380	2366	1656.2	766,564	Ceiling Mounted Occupancy Sensor	1	0.1323	775.71	124.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,173.0	\$2,831.5	\$485
Washington School - Interior	001	STAIRWELL	26W CFL Fixture	4	104	3380	351.52	\$56.2	None Proposed	4	3380	2366	1656.2	246,064	Ceiling Mounted Occupancy Sensor	1	0	105,456	16.9	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Washington School - Interior	000	BASEMENT	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	28	1419.6	3380	4798.248	\$767.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	28	3380	2366	1656.2	2384,928	Ceiling Mounted Occupancy Sensor	1	0.4116	2413.32	386.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,893.5	\$6,543.0	\$8,436.5	\$1,435
Washington School - Interior	000	BASEMENT	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$329.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	3380	2366	1656.2	1022,112	Ceiling Mounted Occupancy Sensor	1	0.1764	1034.28	165.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$2,863.0	\$3,716.5	\$635
Washington School - Interior	000	GYM	400W High Bay Fixture	12	5496	3380	18576.48	\$2,972.2	Replace 400W Fixture with 204W LED High Bay Fixture	12	3380	2366	2366	5791,968	None Proposed	0	3.048	12784,512	2,045.5	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$1,644.0	\$5,820.0	\$7,464.0	\$2,100
Washington School - Interior	000	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514,098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	3380	2366	1656.2	255,528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Washington School - Interior	000	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	500	76.05	\$12.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	500	350	245	37.8	Ceiling Mounted Occupancy Sensor	1	0.0441	38.25	6.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Washington School - Interior	000	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685,464	\$109.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	3380	2366	1656.2	340,704	Ceiling Mounted Occupancy Sensor	1	0.0588	344.76	55.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,023.0	\$1,356.5	\$235
Washington School - Interior	000	B1	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	3380	3407,04	\$545.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	1656.2	1064.7	Ceiling Mounted Occupancy Sensor	1	0.558	2342.34	374.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	000	B4	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	5	960	3380	1892.8	\$302.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	3380	2366	1656.2	591.5	Ceiling Mounted Occupancy Sensor	1	0.31	1301.3	208.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,403.0	\$1,801.5	\$285
Washington School - Interior	000	B4	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171,366	\$27.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	3380	2366	1656.2	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	14.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Washington School - Interior	000	B2	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	3380	3407,04	\$545.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	1656.2	1064.7	Ceiling Mounted Occupancy Sensor	1	0.558	2342.34	374.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	000	B3	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	500	672	\$107.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	500	350	245	210	Ceiling Mounted Occupancy Sensor	1	0.744	462	73.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Washington School - Interior	000	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514,24	\$242.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	1656.2	473.2	Ceiling Mounted Occupancy Sensor	1	0.248	1041.04	166.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$333.5	\$1,143.0	\$1,476.5	\$235
Washington School - Interior	000	CAFETERIA	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	36	4032	3380	13628,16	\$2,180.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	36	3380	2366	1656.2	4258.8	Ceiling Mounted Occupancy Sensor	1	2.232	9369.36	1,499.1	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$2,413.5	\$9,463.0	\$11,876.5	\$1,835
Washington School - Interior	000	FACULTY BATHROOM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	1	112	3380	378,56	\$60.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	3380	2366	1656.2	118.3	Ceiling Mounted Occupancy Sensor	1	0.062	260.26	41.6	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$363.0	\$501.5	\$85
Washington School - Interior	000	KITCHEN	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	11	1232	3380	4164,16	\$666.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	11	3380	2366	2366	1301.3	None Proposed	0	0.682	2862,86	458.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$715.0	\$2,860.0	\$3,575.0	\$550
Washington School - Interior	000	HALLWAY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171,366	\$27.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	3380	2366	1656.2	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	14.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Washington School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676,96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	1656.2	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612,26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	001	116	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784,64	\$285.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	1656.2	709.8	Ceiling Mounted Occupancy Sensor	1	0.228	1074,84	172.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,663.0	\$2,126.5	\$335
Washington School - Interior	001	115	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569,28	\$571.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	1656.2	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149,68	343.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Washington School - Interior	001	STAIRWELL	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892,32	\$142.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	1656.2	354.9	Ceiling Mounted Occupancy Sensor	1	0.114	537,42	86.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Washington School - Interior	001	STAIRWELL	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171,366	\$27.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	3380	2366	1656.2	82.81	Ceiling Mounted Occupancy Sensor	1	0.0157	88.556	14.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Washington School - Interior	001	114	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569,28	\$571.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	1656.2	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149,68	343.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Washington School - Interior	001	113	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569,28	\$571.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	1656.2	1419.6	Ceiling Mounted Occupancy Sensor	1	0.456	2149,68	343.9	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Washington School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594,88	\$95.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	1656.2	236.6	Ceiling Mounted Occupancy Sensor	1	0.076	358,28	57.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Washington School - Interior	001	FACULTY BATHROOM	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171,366	\$27.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	3380	2366	1656.2	85,176	Ceiling Mounted Occupancy Sensor	1	0.0147	86,19	13.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Washington School - Interior	001	110	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542,72	\$726.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	1656.2	1419.6	Ceiling Mounted Occupancy Sensor	1	0.744	3123,12	499.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,223.0	\$4,076.5	\$635
Washington School - Interior	001	109	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	500	504	\$80.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	245	157.5	Ceiling Mounted Occupancy Sensor	1	0.558	346.5	55.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	001	HALLWAY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	15	760.5	3380	2570,49	\$411.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	15	3380	2366	1656.2	1277,64	Ceiling Mounted Occupancy Sensor	1	0.2205	1292,85	206.9	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$1,048.5	\$3,553.0	\$4,601.5	\$785
Washington School - Interior	001	111	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	500	504	\$80.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	245	157.5	Ceiling Mounted Occupancy Sensor	1	0.558	346.5	55.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	001	112	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	3380	3407,04	\$545.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	1656.2	1064.7	Ceiling Mounted Occupancy Sensor	1	0.558	2342,34	374.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	001	BOYS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514,098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	3380	2366	1656.2	255,528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Washington School - Interior	001	WOMENS BATH	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757,12	\$121.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	1656.2	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520,52	83.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Washington School - Interior	001	101	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542,72	\$726.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	1656.2	1419.6	Ceiling Mounted Occupancy Sensor	1	0.744	3123,12	499.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$853.5	\$3,		

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
Washington School - Interior	001	LIBRARY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$121.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	1656.2	236.6	Ceiling Mounted Occupancy Sensor	1	0.124	520.52	83.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$623.0	\$826.5	\$135
Washington School - Interior	002	TEACHERS ROOM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	6	672	3380	2271.36	\$363.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	1656.2	709.8	Ceiling Mounted Occupancy Sensor	1	0.372	1561.56	249.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,663.0	\$2,126.5	\$335
Washington School - Interior	002	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$8.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	500	350	245	25.2	Ceiling Mounted Occupancy Sensor	1	0.0294	25.5	4.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Washington School - Interior	002	202	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	500	504	\$80.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	245	157.5	Ceiling Mounted Occupancy Sensor	1	0.558	346.5	55.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	204	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	500	504	\$80.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	245	157.5	Ceiling Mounted Occupancy Sensor	1	0.558	346.5	55.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	201	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	500	504	\$80.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	245	157.5	Ceiling Mounted Occupancy Sensor	1	0.558	346.5	55.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	205	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	500	504	\$80.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	245	157.5	Ceiling Mounted Occupancy Sensor	1	0.558	346.5	55.4	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$82.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	3380	2366	1656.2	255.528	Ceiling Mounted Occupancy Sensor	1	0.0441	258.57	41.4	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Washington School - Interior	002	206	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	3380	3407.04	\$545.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	1656.2	1064.7	Ceiling Mounted Occupancy Sensor	1	0.558	2342.34	374.8	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	500	76.05	\$12.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	500	350	245	37.8	Ceiling Mounted Occupancy Sensor	1	0.0441	38.25	6.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Washington School - Interior	002	207	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	500	396	\$63.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	245	157.5	Ceiling Mounted Occupancy Sensor	1	0.342	238.5	38.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	209	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	1656.2	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	211	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	500	396	\$63.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	245	157.5	Ceiling Mounted Occupancy Sensor	1	0.342	238.5	38.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	212	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	1656.2	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	210	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	1656.2	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	209	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$428.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	1656.2	1064.7	Ceiling Mounted Occupancy Sensor	1	0.342	1612.26	258.0	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$658.5	\$2,443.0	\$3,101.5	\$485
Washington School - Interior	002	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$54.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	1656.2	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	27.6	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Washington School Subtotal				528	51,745		138,763	22,202		528			85,091	48,996		61	26	89,767	14,363						38,700	138,683	177,383	29,285
Bus Garage - Interior	001	GARAGE	8' T12 Fixture w/ 2-T12 Lamps	45	10215	500	5107.5	\$1,021.5	Replace T12 Fixture With (2) 36W Linear Panel LED Fixtures	45	500	350	245	1134	Ceiling Mounted Occupancy Sensor	1	6.975	3973.5	794.7	\$460.0	\$0.0	\$130.0	\$103.0	\$73.5	\$5,923.5	\$20,803.0	\$26,726.5	\$2,285
Bus Garage - Interior	001	BATHROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$102.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	3	3380	2366	1656.2	248.43	Ceiling Mounted Occupancy Sensor	1	0.0471	265.668	53.1	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$793.0	\$1,061.5	\$185
Bus Garage - Interior	001	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$68.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	1656.2	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	34.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Bus Garage - Interior	001	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$34.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	3380	2366	1656.2	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	17.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Bus Garage - Interior	001	PIPE ROOM	60W Incandescent Fixture	1	60	3380	202.8	\$40.6	Replace 60W Incandescent Fixture with 13W CFL	1	3380	2366	1656.2	30.758	Ceiling Mounted Occupancy Sensor	1	0.047	172.042	34.4	\$0.0	\$6.3	\$4.0	\$103.0	\$73.5	\$77.5	\$109.3	\$186.8	\$35
Bus Garage - Interior	001	OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$68.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	1656.2	170.352	Ceiling Mounted Occupancy Sensor	1	0.0294	172.38	34.5	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$203.5	\$563.0	\$766.5	\$135
Bus Garage - Interior	001	OFFICE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	13	1456	3380	4921.28	\$984.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	13	3380	2366	1656.2	1537.9	Ceiling Mounted Occupancy Sensor	1	0.806	3383.38	676.7	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$918.5	\$3,483.0	\$4,401.5	\$685
Bus Garage - Interior	001	OFFICE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	5	560	3380	1892.8	\$378.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	3380	2366	1656.2	591.5	Ceiling Mounted Occupancy Sensor	1	0.31	1301.3	260.3	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$398.5	\$1,403.0	\$1,801.5	\$285
Bus Garage - Interior	001	OFFICE	8' T12 Fixture w/ 2-T12 Lamps	3	681	3380	2301.78	\$460.4	Replace T12 Fixture With (2) 36W Linear Panel LED Fixtures	3	3380	2366	1656.2	511.056	Ceiling Mounted Occupancy Sensor	1	0.465	1790.724	358.1	\$460.0	\$0.0	\$130.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$185
Bus Garage - Interior	001	OFFICE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	3	336	3380	1135.68	\$227.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	1656.2	354.9	Ceiling Mounted Occupancy Sensor	1	0.186	780.78	156.2	\$260.0	\$0.0	\$65.0	\$103.0	\$73.5	\$268.5	\$883.0	\$1,151.5	\$185
Bus Garage - Interior	001	GARAGE	8' T12 Fixture w/ 2-T12 Lamps	26	5902	3380	19948.76	\$3,989.8	Replace T12 Fixture With (2) 36W Linear Panel LED Fixtures	26	3380	2366	1656.2	4429.152	Ceiling Mounted Occupancy Sensor	1	4.03	15519.608	3,103.9	\$460.0	\$0.0	\$130.0	\$103.0	\$73.5	\$3,453.5	\$12,063.0	\$15,516.5	\$1,335
Bus Garage - Interior	001	BREAK ROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$205.6	Replace T8 Fixture with 35W Linear Panel LED Fixture	6	3380	2366	1656.2	496.86	Ceiling Mounted Occupancy Sensor	1	0.0942	531.336	106.3	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$463.5	\$1,483.0	\$1,946.5	\$335
Bus Garage - Interior	001	STORAGE	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$34.3	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	3380	2366	1656.2	85.176	Ceiling Mounted Occupancy Sensor	1	0.0147	86.19	17.2	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Bus Garage - Interior	001	GARAGE	8' T12 Fixture w/ 2-T12 Lamps	11	2497	3380	8439.86	\$1,688.0	Replace T12 Fixture With (2) 36W Linear Panel LED Fixtures	11	3380	2366	1656.2	1873.872	Ceiling Mounted Occupancy Sensor	1	1.705	6565.988	1,313.2	\$460.0	\$0.0	\$130.0	\$103.0	\$73.5	\$1,503.5	\$5,163.0	\$6,666.5	\$585
Bus Garage - Interior	001	GARAGE	2x4 Fixtures w/ 2-T12 Lamp Fixture w/ Magnetic Ballast	1	85.6	3380	289.328	\$57.9	Replace T12 Fixture With 36W Linear Panel LED Fixture	1	3380	2366	1656.2	85.176	Ceiling Mounted Occupancy Sensor	1	0.0496	204.152	40.8	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$138.5	\$333.0	\$471.5	\$85
Bus Garage - Interior	001	HVAC	26W CFL Fixture	3	78	3380	263.64	\$52.7	None Proposed	3	3380	2366	1656.2	184.548	Ceiling Mounted Occupancy Sensor	1	0	79.092	15.8	\$0.0	\$0.0	\$0.0	\$103.0	\$73.5	\$73.5	\$103.0	\$176.5	\$35
Bus Garage - Interior	001	GARAGE	Exterior Wall Packs (Assume 70w)	6	540	3380	1825.2	\$365.0	Replace 70W Fixture with 44W LED Fixture	6	3380	2366	1656.2	624.624	Ceiling Mounted Occupancy Sensor	1	0.276	1200.576	240.1	\$0.0	\$380.0	\$137.0	\$103.0	\$73.5	\$895.5	\$2,383.0	\$3,278.5	\$635
Bus Garage - Interior	001	OFFICE	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$274.2	Replace T8 Fixture with 35W Linear Panel LED Fixture	8	3380	2366	1656.2	662.48	Ceiling Mounted Occupancy Sensor	1	0.1256	708.448	141.7	\$230.0	\$0.0	\$65.0	\$103.0	\$73.5	\$593.5	\$1,943.0	\$2,536.5	\$435
Bus Garage - Exterior	001	EXTERIOR	Exterior Wall Packs (Assume 70w)	4	360	3380	1216.8	\$243.4	Replace 70W Fixture with 44W LED Fixture	4	3380	2366	1656.2	416.416	Ceiling Mounted Occupancy Sensor	1	0.184	800.384	160.1	\$0.0	\$380.0	\$137.0	\$103.0	\$73.5	\$621.5	\$1,623.0	\$2,244.5	\$435
Bus Garage Subtotal				144	23,937																							

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
West Orange High School - Interior	003	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	29	2552	3380	8625.76	\$1,293.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	29	3380	2366	2366	3430.7	None Proposed	0	1.102	5195.06	779.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,885.0	\$7,540.0	\$9,425.0	\$1,450
West Orange High School - Interior	003	3205	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3206	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3204	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3203	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3201	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3200	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$44.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	3380	2366	2366	118.3	None Proposed	0	0.038	179.14	26.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
West Orange High School - Interior	003	3202	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	003	3219	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	18	1584	3380	5353.92	\$803.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	18	3380	2366	2366	2129.4	None Proposed	0	0.684	3224.52	483.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,170.0	\$4,680.0	\$5,850.0	\$900
West Orange High School - Interior	003	3212	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3222	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	5	440	500	220	\$33.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	500	350	350	87.5	None Proposed	0	0.19	132.5	19.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$325.0	\$1,300.0	\$1,625.0	\$250
West Orange High School - Interior	003	3225	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	10	880	500	440	\$66.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	10	500	350	350	175	None Proposed	0	0.38	265	39.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$650.0	\$2,600.0	\$3,250.0	\$500
West Orange High School - Interior	003	3223	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	18	1584	3380	5353.92	\$803.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	18	3380	2366	2366	2129.4	None Proposed	0	0.684	3224.52	483.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,170.0	\$4,680.0	\$5,850.0	\$900
West Orange High School - Interior	003	3225	26W CFL Fixture	12	312	3380	1054.56	\$158.2	None Proposed	12	3380	2366	2366	738.192	None Proposed	0	0	316.368	47.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	003	3214	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3216	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3217	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3218	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3229	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3231	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$178.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	2366	473.2	None Proposed	0	0.152	716.56	107.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200
West Orange High School - Interior	003	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	14	1232	3380	4164.16	\$624.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	3380	2366	2366	1656.2	None Proposed	0	0.532	2507.96	376.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$910.0	\$3,640.0	\$4,550.0	\$700
West Orange High School - Interior	003	3222	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$89.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.076	358.28	53.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	003	3223	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3226	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3228	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3230	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3233	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	003	3223	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	500	528	\$79.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	500	350	350	210	None Proposed	0	0.456	318	47.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	MENS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	003	MENS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	50	2.535	\$0.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	50	35	35	1.225	None Proposed	0	0.0157	1.31	0.2	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	003	BOYS ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	003	BOYS ROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	500	350	350	12.25	None Proposed	0	0.0157	13.1	2.0	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	003	CLOSET	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	3380	2366	2366	82.81	None Proposed	0	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	003	GIRLS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	003	GIRLS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	3380	2366	2366	82.81	None Proposed	0	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	003	3234	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 35W Linear Panel LED Fixture	12	3380	2366	2366	993.72	None Proposed	0	0.1884	1062.672	159.4	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,760.0	\$3,540.0	\$600
West Orange High School - Interior	003	3236	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450
West Orange High School - Interior	003	ELECTRICAL	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	003	STAIRWELL	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	8	704	3380	2379.52	\$356.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	3380	2366	2366	946.4	None Proposed	0	0.304	1433.12	215.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$2,080.0	\$2,600.0	\$400
West Orange High School - Interior	003	STAIRWELL	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	5	440	3380	1487.2	\$223.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	5																		

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
West Orange High School - Interior	002	GIRLS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	500	350	350	12.25	None Proposed	0	0.0157	13.1	2.0	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	002	2208	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2207	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	29	2552	3380	8625.76	\$1,293.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	29	3380	2366	2366	3430.7	None Proposed	0	1.102	5195.06	779.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,885.0	\$7,540.0	\$9,425.0	\$1,450
West Orange High School - Interior	002	2205	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2206	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2204	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2203	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2201	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2200	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$44.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	3380	2366	2366	118.3	None Proposed	0	0.038	179.14	26.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
West Orange High School - Interior	002	2202	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	002	2219	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	18	1584	3380	5353.92	\$803.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	18	3380	2366	2366	2129.4	None Proposed	0	0.684	3224.52	483.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,170.0	\$4,680.0	\$5,850.0	\$900
West Orange High School - Interior	002	2212	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2222	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	5	440	500	220	\$33.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	500	350	350	87.5	None Proposed	0	0.19	132.5	19.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$325.0	\$1,300.0	\$1,625.0	\$250
West Orange High School - Interior	002	2225	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	10	880	500	440	\$66.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	10	500	350	350	175	None Proposed	0	0.38	265	39.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$650.0	\$2,600.0	\$3,250.0	\$500
West Orange High School - Interior	002	2223	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	18	1584	3380	5353.92	\$803.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	18	3380	2366	2366	2129.4	None Proposed	0	0.684	3224.52	483.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,170.0	\$4,680.0	\$5,850.0	\$900
West Orange High School - Interior	002	2225	26W CFL Fixture	12	312	3380	1054.56	\$158.2	None Proposed	12	3380	2366	2366	738.192	None Proposed	0	0	316.368	47.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
West Orange High School - Interior	002	2214	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2216	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2217	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2218	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2229	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2231	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$178.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	2366	473.2	None Proposed	0	0.152	716.56	107.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200
West Orange High School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	14	1232	3380	4164.16	\$624.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	3380	2366	2366	1656.2	None Proposed	0	0.532	2507.96	376.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$910.0	\$3,640.0	\$4,550.0	\$700
West Orange High School - Interior	002	2222	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$89.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.076	358.28	53.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	002	2223	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2226	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2228	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2230	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2233	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	002	2223	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	500	528	\$79.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	500	350	350	210	None Proposed	0	0.456	318	47.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	MENS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	002	MENS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	50	2.535	\$0.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	50	35	35	1.225	None Proposed	0	0.0157	1.31	0.2	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	002	BOYS ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	002	BOYS ROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	500	350	350	12.25	None Proposed	0	0.0157	13.1	2.0	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	002	CLOSET	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	3380	2366	2366	82.81	None Proposed	0	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	002	GIRLS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3																		

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
West Orange High School - Interior	004	4319	26W CFL Fixture	2	52	3380	175.76	\$26.4	None Proposed	2	3380	2366	2366	123.032	None Proposed	0	0	52.728	7.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	004	BOYS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	3380	2366	2366	340.704	None Proposed	0	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	004	4314	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	3380	2366	2366	1022.112	None Proposed	0	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,760.0	\$3,540.0	\$600
West Orange High School - Interior	004	GIRLS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	3380	2366	2366	340.704	None Proposed	0	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	004	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	7	784	3380	2649.92	\$397.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	3380	2366	2366	828.1	None Proposed	0	0.434	1821.82	273.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$455.0	\$1,820.0	\$2,275.0	\$350
West Orange High School - Interior	004	4303	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	3380	2366	2366	1022.112	None Proposed	0	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,760.0	\$3,540.0	\$600
West Orange High School - Interior	004	4312	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$205.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	8	3380	2366	2366	681.408	None Proposed	0	0.1176	689.52	103.4	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$1,840.0	\$2,360.0	\$400
West Orange High School - Interior	004	4310	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$154.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	3380	2366	2366	511.056	None Proposed	0	0.0882	517.14	77.6	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,380.0	\$1,770.0	\$300
West Orange High School - Interior	004	4307	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	3380	1370.928	\$205.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	8	3380	2366	2366	681.408	None Proposed	0	0.1176	689.52	103.4	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$1,840.0	\$2,360.0	\$400
West Orange High School - Interior	004	4308	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	500	304.2	\$45.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	500	350	350	151.2	None Proposed	0	0.1764	153	23.0	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,760.0	\$3,540.0	\$600
West Orange High School - Interior	004	4305	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	500	304.2	\$45.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	500	350	350	151.2	None Proposed	0	0.1764	153	23.0	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,760.0	\$3,540.0	\$600
West Orange High School - Interior	004	4303	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$89.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.076	358.28	53.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	004	4306	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	2366	170.352	None Proposed	0	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100
West Orange High School - Interior	004	4304	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	3380	2366	2366	1022.112	None Proposed	0	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,760.0	\$3,540.0	\$600
West Orange High School - Interior	004	4302	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	3380	2366	2366	1022.112	None Proposed	0	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,760.0	\$3,540.0	\$600
West Orange High School - Interior	004	4380	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	2366	170.352	None Proposed	0	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100
West Orange High School - Interior	003	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	3380	2366	2366	340.704	None Proposed	0	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	003	MENS ROOM	26W CFL Fixture	1	26	3380	87.88	\$13.2	None Proposed	1	3380	2366	2366	61.516	None Proposed	0	0	26.364	4.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	003	CLOSET	65W Incandescent Fixture	1	65	3380	219.7	\$33.0	Replace 65W Incandescent Fixture with 13W CFL	1	3380	2366	2366	30.758	None Proposed	0	0.052	188.942	28.3	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$4.0	\$6.3	\$10.3	\$0
West Orange High School - Interior	003	HALLWAY	26W CFL Fixture	12	312	3380	1054.56	\$158.2	None Proposed	12	3380	2366	2366	738.192	None Proposed	0	0	316.368	47.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	003	OFFICE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	3380	2366	2366	340.704	None Proposed	0	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	003	AUDITORIUM	26W CFL Fixture	7	182	3380	615.16	\$92.3	None Proposed	7	3380	2366	2366	430.612	None Proposed	0	0	184.548	27.7	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	003	AUDITORIUM	150W Incandescent Fixture	20	3000	500	1500	\$225.0	Replace 150W Incandescent Fixture with 25W CFL	20	500	350	350	175	None Proposed	0	2.5	1325	198.8	\$0.0	\$7.0	\$4.0	\$0.0	\$0.0	\$80.0	\$140.0	\$220.0	\$0
West Orange High School - Interior	003	STAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	8	405.6	500	202.8	\$30.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	8	500	350	350	100.8	None Proposed	0	0.1176	102	15.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$1,840.0	\$2,360.0	\$400
West Orange High School - Interior	003	3304	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	500	76.05	\$11.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	500	350	350	37.8	None Proposed	0	0.0441	38.25	5.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150
West Orange High School - Interior	003	3303	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	3380	2366	2366	85.176	None Proposed	0	0.0147	86.19	12.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	003	BATHROOM	26W CFL Fixture	1	26	3380	87.88	\$13.2	None Proposed	1	3380	2366	2366	61.516	None Proposed	0	0	26.364	4.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	003	BATHROOM	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	1	25.4	3380	85.852	\$12.9	Replace T8 Fixture with 22W Linear Panel LED Fixture	1	3380	2366	2366	52.052	None Proposed	0	0.0034	33.8	5.1	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$225.0	\$290.0	\$50
West Orange High School - Interior	003	HALLWAY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	2366	165.62	None Proposed	0	0.0314	177.112	26.6	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100
West Orange High School - Interior	003	3305	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	003	3307	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3308	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3309	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3310	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	500	528	\$79.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	500	350	350	210	None Proposed	0	0.456	318	47.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3311	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	500	528	\$79.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	500	350	350	210	None Proposed	0	0.456	318	47.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	003	3312	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	500	101.4	\$15.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	500	350	350	50.4	None Proposed	0	0.0588	51	7.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	003	GIRLS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	500	101.4	\$15.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	500	350	350	50.4	None Proposed	0	0.0588	51	7.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	003	BOYS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	3380	2366	2366	340.704	None Proposed	0	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	003	CLOSET	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7																							

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive	
West Orange High School - Interior	002	CAFETERIA	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600	
West Orange High School - Interior	002	CAFETERIA	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	54	4752	3380	16061.76	\$2,409.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	54	3380	2366	2366	6388.2	None Proposed	0	2.052	9673.56	1,451.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$3,510.0	\$14,040.0	\$17,550.0	\$2,700	
West Orange High School - Interior	002	CAFETERIA	26W CFL Fixture	22	572	500	286	\$42.9	None Proposed	22	500	350	350	200.2	None Proposed	0	0	85.8	12.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	002	CAFETERIA	26W CFL Fixture	18	468	3380	1581.84	\$237.3	None Proposed	18	3380	2366	2366	1107.288	None Proposed	0	0	474.552	71.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	002	CAFETERIA	26W CFL Fixture	22	572	3380	1933.36	\$290.0	None Proposed	22	3380	2366	2366	1353.352	None Proposed	0	0	580.008	87.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	002	CAFETERIA	13W CFL Fixture	18	234	500	117	\$17.6	None Proposed	18	500	350	350	81.9	None Proposed	0	0	35.1	5.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	002	CAFETERIA	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	54	4752	3380	16061.76	\$2,409.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	54	3380	2366	2366	6388.2	None Proposed	0	2.052	9673.56	1,451.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$3,510.0	\$14,040.0	\$17,550.0	\$2,700	
West Orange High School - Interior	002	CAFETERIA	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	8	704	3380	2379.52	\$356.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	3380	2366	2366	946.4	None Proposed	0	0.304	1433.12	215.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$2,080.0	\$2,600.0	\$400	
West Orange High School - Interior	002	MENS ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$178.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	2366	473.2	None Proposed	0	0.152	716.56	107.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200	
West Orange High School - Interior	002	WOMENS ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$178.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	2366	473.2	None Proposed	0	0.152	716.56	107.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200	
West Orange High School - Interior	002	KITCHEN	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	18	1584	3380	5353.92	\$803.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	18	3380	2366	2366	2129.4	None Proposed	0	0.684	3224.52	483.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,170.0	\$4,680.0	\$5,850.0	\$900	
West Orange High School - Interior	002	KITCHEN	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$89.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.076	358.28	53.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100	
West Orange High School - Interior	002	MENS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$44.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	3380	2366	2366	118.3	None Proposed	0	0.038	179.14	26.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50	
West Orange High School - Interior	002	WOMENS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$44.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	3380	2366	2366	118.3	None Proposed	0	0.038	179.14	26.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50	
West Orange High School - Interior	002	HALLWAY	26W CFL Fixture	21	546	3380	1845.48	\$276.8	None Proposed	21	3380	2366	2366	1291.836	None Proposed	0	0	553.644	83.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	8	704	3380	2379.52	\$356.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	3380	2366	2366	946.4	None Proposed	0	0.304	1433.12	215.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$2,080.0	\$2,600.0	\$400	
West Orange High School - Interior	002	2102	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	500	396	\$59.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	350	157.5	None Proposed	0	0.342	238.5	35.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450	
West Orange High School - Interior	002	2100	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	500	396	\$59.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	350	157.5	None Proposed	0	0.342	238.5	35.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450	
West Orange High School - Interior	002	2101	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450	
West Orange High School - Interior	002	STAIRWELL	13W CFL Fixture	8	104	500	52	\$7.8	None Proposed	8	500	350	350	36.4	None Proposed	0	0	15.6	2.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	002	2103	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600	
West Orange High School - Interior	002	2105	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600	
West Orange High School - Interior	002	2104	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450	
West Orange High School - Interior	002	2106	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$178.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	2366	473.2	None Proposed	0	0.152	716.56	107.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200	
West Orange High School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	14	1232	3380	4164.16	\$624.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	3380	2366	2366	1656.2	None Proposed	0	0.532	2507.96	376.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$910.0	\$3,640.0	\$4,550.0	\$700	
West Orange High School - Interior	002	GIRLS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	3380	2366	2366	340.704	None Proposed	0	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200	
West Orange High School - Interior	002	FACULTY	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	500	350	350	12.6	None Proposed	0	0.0147	12.75	1.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50	
West Orange High School - Interior	002	2112	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	17	1496	500	748	\$112.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	17	500	350	350	297.5	None Proposed	0	0.646	450.5	67.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,105.0	\$4,420.0	\$5,525.0	\$850	
West Orange High School - Interior	002	CLOSET	13W CFL Fixture	1	13	500	6.5	\$1.0	None Proposed	1	500	350	350	4.55	None Proposed	0	0	1.95	0.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	002	2107	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	500	396	\$59.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	500	350	350	157.5	None Proposed	0	0.342	238.5	35.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450	
West Orange High School - Interior	002	CLOSET	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$7.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	500	350	350	25.2	None Proposed	0	0.0294	25.5	3.8	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100	
West Orange High School - Interior	002	2111	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	500	528	\$79.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	500	350	350	210	None Proposed	0	0.456	318	47.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600	
West Orange High School - Interior	002	2116	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600	
West Orange High School - Interior	002	2113	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	14	1232	3380	4164.16	\$624.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	14	3380	2366	2366	1656.2	None Proposed	0	0.532	2507.96	376.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$910.0	\$3,640.0	\$4,550.0	\$700	
West Orange High School - Interior	002	CLOSET	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	2366	170.352	None Proposed	0	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100	
West Orange High School - Interior	002	2115	60W Incandescent Fixture	1	60	3380	202.8	\$30.4	Replace 60W Incandescent Fixture with 13W CFL	1	3380	2366	2366	30.756	None Proposed	0	0.047	172.042	25.8	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$4.0	\$6.3	\$10.3	\$0	
West Orange High School - Interior	002	2117	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600	
West Orange High School - Interior	002	STORAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	3380	2366	2366	255.528	None Proposed	0	0.0441	258.57	38.8	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150	
West Orange High School - Interior	002	2121	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture																				

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
West Orange High School - Interior	002	2126	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	18	1584	3380	5353.92	\$803.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	18	3380	2366	2366	2129.4	None Proposed	0	0.684	3224.52	483.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,170.0	\$4,680.0	\$5,850.0	\$900
West Orange High School - Interior	002	2126	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	2	3380	2366	2366	165.62	None Proposed	0	0.0314	177.112	26.6	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100
West Orange High School - Interior	002	CLOSET	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	002	2126	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	3380	1514.24	\$227.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	2366	473.2	None Proposed	0	0.248	1041.04	156.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200
West Orange High School - Interior	002	CLOSET	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	002	2130	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	19	1672	3380	5651.36	\$847.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	19	3380	2366	2366	2247.7	None Proposed	0	0.722	3403.66	510.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,235.0	\$4,940.0	\$6,175.0	\$950
West Orange High School - Interior	002	2132	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	002	HALLWAY	26W CFL Fixture	12	312	3380	1054.56	\$158.2	None Proposed	12	3380	2366	2366	738.192	None Proposed	0	0	316.368	47.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$178.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	2366	473.2	None Proposed	0	0.152	716.56	107.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200
West Orange High School - Interior	002	2205	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	002	2344	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	16	1408	3380	4759.04	\$713.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	16	3380	2366	2366	1892.8	None Proposed	0	0.608	2866.24	429.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,040.0	\$4,160.0	\$5,200.0	\$800
West Orange High School - Interior	002	2344	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	3380	2366	2366	340.704	None Proposed	0	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	002	2344	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$44.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	3380	2366	2366	118.3	None Proposed	0	0.038	179.14	26.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
West Orange High School - Interior	002	2344	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$178.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	2366	473.2	None Proposed	0	0.152	716.56	107.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200
West Orange High School - Interior	002	2344	60W Incandescent Fixture	2	120	3380	405.6	\$60.8	Replace 60W Incandescent Fixture with 13W CFL	2	3380	2366	2366	61.516	None Proposed	0	0.094	344.084	51.6	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$8.0	\$12.5	\$20.5	\$0
West Orange High School - Interior	002	GYM	400W High Bay Fixture	24	10992	3380	37152.96	\$5,572.9	Replace 400W Fixture with 204W LED High Bay Fixture	24	3380	2366	2366	11583.936	None Proposed	0	6.096	25569.024	3,835.4	\$0.0	\$485.0	\$137.0	\$0.0	\$0.0	\$3,288.0	\$11,640.0	\$14,928.0	\$4,200
West Orange High School - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	9	1008	3380	3407.04	\$511.1	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.558	2342.34	351.4	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450
West Orange High School - Interior	002	BOYS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	3380	2366	2366	255.528	None Proposed	0	0.0441	258.57	38.8	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150
West Orange High School - Interior	002	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	500	350	350	12.6	None Proposed	0	0.0147	12.75	1.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	002	CLOSET	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	500	350	350	12.6	None Proposed	0	0.0147	12.75	1.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	002	GIRLS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	2366	170.352	None Proposed	0	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100
West Orange High School - Interior	002	GIRLS LOCKER	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	9	456.3	4368	1993.184	\$299.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	9	4368	3057.6	3057.6	990.6624	None Proposed	0	0.1323	1002.456	150.4	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,070.0	\$2,655.0	\$450
West Orange High School - Interior	002	GIRLS LOCKER	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	4368	384.384	\$57.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	4368	3057.6	3057.6	152.88	None Proposed	0	0.038	231.504	34.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
West Orange High School - Interior	002	GIRLS LOCKER	60W Incandescent Fixture	2	120	500	60	\$9.0	Replace 60W Incandescent Fixture with 13W CFL	2	500	350	350	9.1	None Proposed	0	0.094	50.9	7.6	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$8.0	\$12.5	\$20.5	\$0
West Orange High School - Interior	002	GIRLS LOCKER	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	4368	885.8304	\$132.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	4368	3057.6	3057.6	440.2944	None Proposed	0	0.0588	445.536	66.8	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	002	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	8	896	3380	3028.48	\$454.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	3380	2366	2366	946.4	None Proposed	0	0.496	2082.08	312.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$2,080.0	\$2,600.0	\$400
West Orange High School - Interior	002	2343	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450
West Orange High School - Interior	002	2341	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$669.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	3380	2366	2366	1774.5	None Proposed	0	0.57	2687.1	403.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750
West Orange High School - Interior	002	2339	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450
West Orange High School - Interior	002	2338	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	13	651.1	3380	2227.758	\$334.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	13	3380	2366	2366	1107.288	None Proposed	0	0.1911	1120.47	168.1	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$845.0	\$2,990.0	\$3,835.0	\$650
West Orange High School - Interior	002	2338	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	3380	2366	2366	340.704	None Proposed	0	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	002	2337	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	3380	2366	2366	1022.112	None Proposed	0	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,760.0	\$3,540.0	\$600
West Orange High School - Interior	002	2336	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	21	1064.7	3380	3598.686	\$539.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	21	3380	2366	2366	1788.696	None Proposed	0	0.3087	1809.99	271.5	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,365.0	\$4,830.0	\$6,195.0	\$1,050
West Orange High School - Interior	002	2337	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	13	1144	3380	3866.72	\$580.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	13	3380	2366	2366	1537.9	None Proposed	0	0.494	2328.82	349.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$845.0	\$3,380.0	\$4,225.0	\$650
West Orange High School - Interior	002	STAIRWELL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	2366	170.352	None Proposed	0	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100
West Orange High School - Interior	002	2328	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	3380	1713.66	\$257.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	10	3380	2366	2366	851.76	None Proposed	0	0.147	861.9	129.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$650.0	\$2,300.0	\$2,950.0	\$500
West Orange High School - Interior	002	2339	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	32	2816	3380	9518.08	\$1,427.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	32	3380	2366	2366	3785.6	None Proposed	0	1.216	5732.48	859.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$2,080.0	\$8,320.0	\$10,400.0	\$1,600
West Orange High School - Interior	002	2329	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	5	440	3380	1487.2	\$223.1	Replace T8 Fixture with 50W Linear Panel LED Fixture</																			

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
West Orange High School - Interior	002	STORAGE	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$178.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	2366	473.2	None Proposed	0	0.152	716.56	107.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200
West Orange High School - Interior	002	STORAGE	26W CFL Fixture	5	130	3380	439.4	\$65.9	None Proposed	5	3380	2366	2366	307.58	None Proposed	0	0	131.82	19.8	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	002	KITCHEN	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	8	704	3380	2379.52	\$356.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	3380	2366	2366	946.4	None Proposed	0	0.304	1433.12	215.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$2,080.0	\$2,600.0	\$400
West Orange High School - Interior	002	KITCHEN	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	26	2912	500	1456	\$218.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	26	500	350	350	455	None Proposed	0	1.612	1001	150.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,690.0	\$6,760.0	\$8,450.0	\$1,300
West Orange High School - Interior	002	STAIRWELL	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 35W Linear Panel LED Fixture	2	3380	2366	2366	165.62	None Proposed	0	0.0314	177.112	26.6	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100
West Orange High School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	20	508	3380	1717.04	\$257.6	Replace T8 Fixture with 22W Linear Panel LED Fixture	20	3380	2366	2366	1041.04	None Proposed	0	0.068	676	101.4	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,300.0	\$4,500.0	\$5,800.0	\$1,000
West Orange High School - Interior	002	2316	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$681.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.744	3123.12	468.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2321	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	002	2319	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	002	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	3380	2366	2366	85.176	None Proposed	0	0.0147	86.19	12.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	002	HALLWAY	13W CFL Fixture	2	26	3380	87.88	\$13.2	None Proposed	2	3380	2366	2366	61.516	None Proposed	0	0	26.364	4.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	002	BATHROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	3380	2366	2366	85.176	None Proposed	0	0.0147	86.19	12.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	002	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	4	352	3380	1189.76	\$178.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	3380	2366	2366	473.2	None Proposed	0	0.152	716.56	107.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200
West Orange High School - Interior	002	2317	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	002	STORAGE	60W Incandescent Fixture	1	60	3380	202.8	\$30.4	Replace 60W Incandescent Fixture with 13W CFL	1	3380	2366	2366	30.758	None Proposed	0	0.047	172.042	25.8	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$4.0	\$6.3	\$10.3	\$0
West Orange High School - Interior	002	2310	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450
West Orange High School - Interior	002	2313	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	10	880	3380	2974.4	\$446.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	10	3380	2366	2366	1183	None Proposed	0	0.38	1791.4	268.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$650.0	\$2,600.0	\$3,250.0	\$500
West Orange High School - Interior	002	2308	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	15	1320	3380	4461.6	\$669.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	15	3380	2366	2366	1774.5	None Proposed	0	0.57	2687.1	403.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$975.0	\$3,900.0	\$4,875.0	\$750
West Orange High School - Interior	002	2306	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450
West Orange High School - Interior	002	2309	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2305	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	2366	170.352	None Proposed	0	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100
West Orange High School - Interior	002	MENS ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	500	76.05	\$11.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	500	350	350	37.8	None Proposed	0	0.0441	38.25	5.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150
West Orange High School - Interior	002	2304	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450
West Orange High School - Interior	002	GIRLS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	002	HALLWAY	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	11	279.4	3380	944.372	\$141.7	Replace T8 Fixture with 22W Linear Panel LED Fixture	11	3380	2366	2366	572.572	None Proposed	0	0.0374	371.8	55.8	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$715.0	\$2,475.0	\$3,190.0	\$550
West Orange High School - Interior	002	2301	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	12	1056	3380	3569.28	\$535.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.456	2149.68	322.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	002	2302	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450
West Orange High School - Interior	002	2300	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$89.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.076	358.28	53.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	002	2228	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	36	3168	500	1584	\$237.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	36	500	350	350	630	None Proposed	0	1.368	954	143.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$2,340.0	\$9,360.0	\$11,700.0	\$1,800
West Orange High School - Interior	002	BATHROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	2	176	3380	594.88	\$89.2	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.076	358.28	53.7	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	002	STORAGE	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	3380	342.732	\$51.4	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	3380	2366	2366	170.352	None Proposed	0	0.0294	172.38	25.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100
West Orange High School - Interior	002	2226	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	24	2112	3380	7138.56	\$1,070.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	24	3380	2366	2366	2839.2	None Proposed	0	0.912	4299.36	644.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,560.0	\$6,240.0	\$7,800.0	\$1,200
West Orange High School - Interior	002	2282	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	21	1848	3380	6246.24	\$936.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	21	3380	2366	2366	2484.3	None Proposed	0	0.798	3761.94	564.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,365.0	\$5,460.0	\$6,825.0	\$1,050
West Orange High School - Interior	002	GIRLS	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	002	GIRLS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	3380	2366	2366	82.81	None Proposed	0	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	002	BOYS ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	002	BOYS ROOM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	3380	2366	2366	82.81	None Proposed	0	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	001	1236	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	21	1064.7	3380	3598.686	\$539.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	21	3380	2366	2366	1739.01	None Proposed	0	0.3297	1859.676	279.0	\$230.0								

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
West Orange High School - Interior	001	1238	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	2	101.4	500	50.7	\$7.6	Replace T8 Fixture with 36W Linear Panel LED Fixture	2	500	350	350	25.2	None Proposed	0	0.0294	25.5	3.8	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$460.0	\$590.0	\$100
West Orange High School - Interior	001	1238	13W CFL Fixture	4	52	500	26	\$3.9	None Proposed	4	500	350	350	18.2	None Proposed	0	0	7.8	1.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	001	1238	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 35W Linear Panel LED Fixture	3	3380	2366	2366	248.43	None Proposed	0	0.0471	265.668	39.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150
West Orange High School - Interior	001	OFFICE	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 35W Linear Panel LED Fixture	3	3380	2366	2366	248.43	None Proposed	0	0.0471	265.668	39.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150
West Orange High School - Interior	001	STORAGE	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	4	3380	2366	2366	340.704	None Proposed	0	0.0588	344.76	51.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	001	HALLWAY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$154.2	Replace T8 Fixture with 35W Linear Panel LED Fixture	6	3380	2366	2366	496.86	None Proposed	0	0.0942	531.336	79.7	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,380.0	\$1,770.0	\$300
West Orange High School - Interior	001	GIRLS TEAM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	7	354.9	3380	1199.562	\$179.9	Replace T8 Fixture with 35W Linear Panel LED Fixture	7	3380	2366	2366	579.67	None Proposed	0	0.1099	619.892	93.0	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$455.0	\$1,610.0	\$2,065.0	\$350
West Orange High School - Interior	001	GIRLS TEAM	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	4	202.8	3380	685.464	\$102.8	Replace T8 Fixture with 35W Linear Panel LED Fixture	4	3380	2366	2366	331.24	None Proposed	0	0.0628	354.224	53.1	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$920.0	\$1,180.0	\$200
West Orange High School - Interior	001	TEACHERS ROOM	13W CFL Fixture	6	78	3380	263.64	\$39.5	None Proposed	6	3380	2366	2366	184.548	None Proposed	0	0	79.092	11.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	001	TEACHERS ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	7	616	3380	2082.08	\$312.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	7	3380	2366	2366	828.1	None Proposed	0	0.266	1253.98	188.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$455.0	\$1,820.0	\$2,275.0	\$350
West Orange High School - Interior	001	TEACHERS ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$44.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	3380	2366	2366	118.3	None Proposed	0	0.038	179.14	26.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
West Orange High School - Interior	001	TEACHERS ROOM	13W CFL Fixture	4	52	3380	175.76	\$26.4	None Proposed	4	3380	2366	2366	123.032	None Proposed	0	0	52.728	7.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	001	TEACHERS ROOM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	1	88	3380	297.44	\$44.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	3380	2366	2366	118.3	None Proposed	0	0.038	179.14	26.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
West Orange High School - Interior	001	HALLWAY	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	500	264	\$39.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	500	350	350	105	None Proposed	0	0.228	159	23.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	001	TEACHERS ROOM	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	3380	1713.66	\$257.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	10	3380	2366	2366	851.76	None Proposed	0	0.147	861.9	129.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$650.0	\$2,300.0	\$2,950.0	\$500
West Orange High School - Interior	001	TEACHERS ROOM	13W CFL Fixture	3	39	3380	131.82	\$19.8	None Proposed	3	3380	2366	2366	92.274	None Proposed	0	0	39.546	5.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	001	OFFICE	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	3	264	3380	892.32	\$133.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.114	537.42	80.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	001	MENS TEAM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	6	528	3380	1784.64	\$267.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.228	1074.84	161.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	001	MENS TEAM	13W CFL Fixture	3	39	3380	131.82	\$19.8	None Proposed	3	3380	2366	2366	92.274	None Proposed	0	0	39.546	5.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	001	MENS TEAM	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	19	1672	3380	5651.36	\$847.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	19	3380	2366	2366	2247.7	None Proposed	0	0.722	3403.66	510.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,235.0	\$4,940.0	\$6,175.0	\$950
West Orange High School - Interior	001	1315	2X4 Fixtures w/ 3-T8 Lamps w/ Electronic Ballasts	9	792	3380	2676.96	\$401.5	Replace T8 Fixture with 50W Linear Panel LED Fixture	9	3380	2366	2366	1064.7	None Proposed	0	0.342	1612.26	241.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$585.0	\$2,340.0	\$2,925.0	\$450
West Orange High School - Interior	001	1313	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$681.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.744	3123.12	468.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Exterior	001	EXTERIOR	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	6	304.2	3380	1028.196	\$154.2	Replace T8 Fixture with 36W Linear Panel LED Fixture	6	3380	2366	2366	511.056	None Proposed	0	0.0882	517.14	77.6	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,380.0	\$1,770.0	\$300
West Orange High School - Exterior	001	EXTERIOR	Exterior Wall Packs (Assume 70w)	4	360	3380	1216.8	\$182.5	Replace 70W Fixture with 44W LED Fixture	4	3380	2366	2366	416.416	None Proposed	0	0.184	800.384	120.1	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$548.0	\$1,520.0	\$2,068.0	\$400
West Orange High School - Interior	001	ELECTRICAL	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	3380	2366	2366	255.528	None Proposed	0	0.0441	258.57	38.8	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150
West Orange High School - Interior	001	BOILER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	12	608.4	3380	2056.392	\$308.5	Replace T8 Fixture with 36W Linear Panel LED Fixture	12	3380	2366	2366	1022.112	None Proposed	0	0.1764	1034.28	155.1	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$2,760.0	\$3,540.0	\$600
West Orange High School - Interior	001	LOBBY	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	16	811.2	3380	2741.856	\$411.3	Replace T8 Fixture with 35W Linear Panel LED Fixture	16	3380	2366	2366	1324.96	None Proposed	0	0.2512	1416.896	212.5	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,040.0	\$3,680.0	\$4,720.0	\$800
West Orange High School - Interior	001	LOBBY	13W CFL Fixture	21	273	3380	922.74	\$138.4	None Proposed	21	3380	2366	2366	645.918	None Proposed	0	0	276.822	41.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0
West Orange High School - Interior	001	CONCESSIONS	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	6	672	3380	2271.36	\$340.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	6	3380	2366	2366	709.8	None Proposed	0	0.372	1561.56	234.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$390.0	\$1,560.0	\$1,950.0	\$300
West Orange High School - Interior	001	WOMENS	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	5	560	3380	1892.8	\$283.9	Replace T8 Fixture with 50W Linear Panel LED Fixture	5	3380	2366	2366	591.5	None Proposed	0	0.31	1301.3	195.2	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$325.0	\$1,300.0	\$1,625.0	\$250
West Orange High School - Interior	001	1234	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	500	25.35	\$3.8	Replace T8 Fixture with 36W Linear Panel LED Fixture	1	500	350	350	12.6	None Proposed	0	0.0147	12.75	1.9	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	001	MENS	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	4	448	500	224	\$33.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	4	500	350	350	70	None Proposed	0	0.248	154	23.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$260.0	\$1,040.0	\$1,300.0	\$200
West Orange High School - Interior	001	1230	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	1	112	3380	378.56	\$56.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	3380	2366	2366	118.3	None Proposed	0	0.062	260.26	39.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
West Orange High School - Exterior	001	EXTERIOR	Exterior Wall Packs (Assume 70w)	6	540	3380	1825.2	\$273.8	Replace 70W Fixture with 44W LED Fixture	6	3380	2366	2366	624.624	None Proposed	0	0.276	1200.576	180.1	\$0.0	\$380.0	\$137.0	\$0.0	\$0.0	\$822.0	\$2,280.0	\$3,102.0	\$600
West Orange High School - Interior	001	GARAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	10	507	3380	1713.66	\$257.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	10	3380	2366	2366	851.76	None Proposed	0	0.147	861.9	129.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$650.0	\$2,300.0	\$2,950.0	\$500
West Orange High School - Interior	001	CHILLER ROOM	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	14	709.8	3380	2399.124	\$359.9	Replace T8 Fixture with 36W Linear Panel LED Fixture	14	3380	2366	2366	1192.464	None Proposed	0	0.2058	1206.66	181.0	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$910.0	\$3,220.0	\$4,130.0	\$700
West Orange High School - Interior	001	STORAGE	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	34	1723.8	3380	5826.444	\$874.0	Replace T8 Fixture with 36W Linear Panel LED Fixture	34	3380	2366	2366	2895.984	None Proposed	0	0.4998	2930.46	439.6	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$2,210.0	\$7,820.0	\$10,030.0	\$1,700
West Orange High School - Interior	001	ELECTRONICS	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	23	2576	3380	8706.88	\$1,306.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	23	3380	2366	2366	2720.9	None Proposed	0	1.426	5985.98	897.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,495.0	\$5,980.0	\$7,475.0	\$1,150
West Orange High School - Interior	001	CLOSET	1X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	338																						

Appendix D - Lighting Upgrades

Building	Floor	Location/Room #	Existing Fixture/Lamp & Ballast Description	Qty of Existing Fixtures	Existing Fixture Watts	Operating Hours	Existing kWh	Existing Annual Energy Cost	Proposed Replacement Solution	Qty of Proposed Fixtures	Proposed Operational Hours Without Sensors	Proposed Operational Hours With Sensors	Proposed kWh Without Sensors	Proposed kWh With Sensors	Proposed Occupancy Sensor Type	Occupancy Sensor Quantity	Total kW Saved	Total kWh Saved	Energy Cost Savings	Ballast/Fixture/Reflector Per Unit Price	Bulb (Per Unit Price)	Labor (Per Unit Price)	Occupancy Sensor (Per Unit Price)	Occupancy Sensor (Per Unit Labor Price)	Labor Total	Materials Total	Labor & Materials Total	Total Incentive
West Orange High School - Interior	001	GIRLS ROOM	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	3380	2366	2366	255.528	None Proposed	0	0.0441	258.57	38.8	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150
West Orange High School - Interior	001	BOYS ROOM	2X4 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	3	152.1	3380	514.098	\$77.1	Replace T8 Fixture with 36W Linear Panel LED Fixture	3	3380	2366	2366	255.528	None Proposed	0	0.0441	258.57	38.8	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$690.0	\$885.0	\$150
West Orange High School - Interior	001	1204	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	20	2240	500	1120	\$168.0	Replace T8 Fixture with 50W Linear Panel LED Fixture	20	500	350	350	350	None Proposed	0	1.24	770	115.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,300.0	\$5,200.0	\$6,500.0	\$1,000
West Orange High School - Interior	001	MUSIC	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	3	336	3380	1135.68	\$170.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	3	3380	2366	2366	354.9	None Proposed	0	0.186	780.78	117.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$195.0	\$780.0	\$975.0	\$150
West Orange High School - Interior	001	MUSIC	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	24	2688	3380	9085.44	\$1,362.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	24	3380	2366	2366	2839.2	None Proposed	0	1.488	6246.24	936.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,560.0	\$6,240.0	\$7,800.0	\$1,200
West Orange High School - Interior	001	1201	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	48	5376	3380	18170.88	\$2,725.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	48	3380	2366	2366	5678.4	None Proposed	0	2.976	12492.48	1,873.9	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$3,120.0	\$12,480.0	\$15,600.0	\$2,400
West Orange High School - Interior	001	OFFICE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	001	STORAGE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	001	PRACTICAL ROOM	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	500	112	\$16.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	500	350	350	35	None Proposed	0	0.124	77	11.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	001	STORAGE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	500	112	\$16.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	500	350	350	35	None Proposed	0	0.124	77	11.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	001	ELECTRICAL	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	001	HALLWAY	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	8	896	3380	3028.48	\$454.3	Replace T8 Fixture with 50W Linear Panel LED Fixture	8	3380	2366	2366	946.4	None Proposed	0	0.496	2082.08	312.3	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$520.0	\$2,080.0	\$2,600.0	\$400
West Orange High School - Interior	001	1117	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	1	112	3380	378.56	\$56.8	Replace T8 Fixture with 50W Linear Panel LED Fixture	1	3380	2366	2366	118.3	None Proposed	0	0.062	260.26	39.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$260.0	\$325.0	\$50
West Orange High School - Interior	001	WOMENS	1X4 Fixtures w/ 1-T8 Lamps w/ Electronic Ballasts	2	50.8	3380	171.704	\$25.8	Replace T8 Fixture with 22W Linear Panel LED Fixture	2	3380	2366	2366	104.104	None Proposed	0	0.0068	67.6	10.1	\$225.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$450.0	\$580.0	\$100
West Orange High School - Interior	001	WOMENS	2X2 Fixtures w/ 2-T8 Lamps w/ Electronic Ballasts	1	50.7	3380	171.366	\$25.7	Replace T8 Fixture with 35W Linear Panel LED Fixture	1	3380	2366	2366	82.81	None Proposed	0	0.0157	88.556	13.3	\$230.0	\$0.0	\$65.0	\$0.0	\$0.0	\$65.0	\$230.0	\$295.0	\$50
West Orange High School - Interior	001	1174	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$681.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.744	3123.12	468.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	001	1172	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$681.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.744	3123.12	468.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	001	1170	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	24	2688	500	1344	\$201.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	24	500	350	350	420	None Proposed	0	1.488	924	138.6	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,560.0	\$6,240.0	\$7,800.0	\$1,200
West Orange High School - Interior	001	1173	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	20	2240	3380	7571.2	\$1,135.7	Replace T8 Fixture with 50W Linear Panel LED Fixture	20	3380	2366	2366	2366	None Proposed	0	1.24	5205.2	780.8	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,300.0	\$5,200.0	\$6,500.0	\$1,000
West Orange High School - Interior	001	1171	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	25	2800	3380	9464	\$1,419.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	25	3380	2366	2366	2957.5	None Proposed	0	1.55	6506.5	976.0	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$1,625.0	\$6,500.0	\$8,125.0	\$1,250
West Orange High School - Interior	001	STORAGE	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	2	224	3380	757.12	\$113.6	Replace T8 Fixture with 50W Linear Panel LED Fixture	2	3380	2366	2366	236.6	None Proposed	0	0.124	520.52	78.1	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$130.0	\$520.0	\$650.0	\$100
West Orange High School - Interior	001	1108	2X4 Fixtures w/ 4-T8 Lamps w/ Electronic Ballasts	12	1344	3380	4542.72	\$681.4	Replace T8 Fixture with 50W Linear Panel LED Fixture	12	3380	2366	2366	1419.6	None Proposed	0	0.744	3123.12	468.5	\$260.0	\$0.0	\$65.0	\$0.0	\$0.0	\$780.0	\$3,120.0	\$3,900.0	\$600
West Orange High School - Interior	001	CLOSET	60W Incandescent Fixture	1	60	3380	202.8	\$30.4	Replace 60W Incandescent Fixture with 13W CFL	1	3380	2366	2366	30.758	None Proposed	0	0.047	172.042	25.8	\$0.0	\$6.3	\$4.0	\$0.0	\$0.0	\$4.0	\$6.3	\$10.3	\$0
West Orange High School Subtotal				3,154	271,924		809,253	121,388		3,154			763,619	315,044		0	122	494,209	74,131					192,912	746,309	939,221	152,700	



Appendix E

Administration Building

Existing Conditions

Current Utility Price (\$/kWh) 0.15
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 07052 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 43.04
 Roof Space Needed (sq-ft) 4,304.00
 Annual Solar kWh (PV Watts) 52,767
 Net System installation Cost (\$9/kWh) \$387,360
 Electrical Service Modification Cost \$100,000
 Total System Installation Cost **\$487,360**
 Materials \$341,152
 Labor \$146,208
 Engineers Opinion of Probable Cost \$609,200

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1500	52,767.0	\$7,915.1	\$15,830	(\$1,055)	\$22,689.8	\$22,689.8	\$0.300	
2	0.1545	52,503.2	\$8,111.7	\$15,751	(\$1,050)	\$22,812.6	\$45,502.5	\$0.300	
3	0.1591	52,240.7	\$8,313.3	\$15,672	(\$1,045)	\$22,940.7	\$68,443.2	\$0.300	
4	0.1639	51,979.5	\$8,519.9	\$15,594	(\$1,040)	\$23,074.2	\$91,517.3	\$0.300	
5	0.1688	51,719.6	\$8,731.6	\$15,516	(\$1,034)	\$23,213.1	\$114,730.5	\$0.300	
6	0.1739	51,461.0	\$8,948.6	\$15,438	(\$1,029)	\$23,357.7	\$138,088.1	\$0.300	
7	0.1791	51,203.7	\$9,171.0	\$15,361	(\$1,024)	\$23,508.0	\$161,596.2	\$0.300	
8	0.1845	50,947.7	\$9,398.9	\$15,284	(\$1,019)	\$23,664.2	\$185,260.4	\$0.300	
9	0.1900	50,692.9	\$9,632.4	\$15,208	(\$1,014)	\$23,826.5	\$209,086.9	\$0.300	
10	0.1957	50,439.5	\$9,871.8	\$15,132	(\$1,009)	\$23,994.9	\$233,081.7	\$0.300	
11	0.2016	50,187.3	\$10,117.1	\$15,056	(\$1,004)	\$24,169.6	\$257,251.3	\$0.300	
12	0.2076	49,936.3	\$10,368.5	\$14,981	(\$999)	\$24,350.7	\$281,602.0	\$0.300	
13	0.2139	49,686.6	\$10,626.2	\$14,906	(\$994)	\$24,538.5	\$306,140.4	\$0.300	
14	0.2203	49,438.2	\$10,890.3	\$14,831	(\$989)	\$24,733.0	\$330,873.4	\$0.300	
15	0.2269	49,191.0	\$11,160.9	\$14,757	(\$984)	\$24,934.4	\$355,807.7	\$0.300	
16	0.2337	48,945.1	\$11,438.2	\$0	(\$979)	\$10,459.3	\$366,267.1		
17	0.2407	48,700.3	\$11,722.5	\$0	(\$974)	\$10,748.5	\$377,015.5		
18	0.2479	48,456.8	\$12,013.8	\$0	(\$969)	\$11,044.6	\$388,060.1		
19	0.2554	48,214.6	\$12,312.3	\$0	(\$964)	\$11,348.0	\$399,408.2		
20	0.2630	47,973.5	\$12,618.3	\$0	(\$959)	\$11,658.8	\$411,067.0		
21	0.2709	47,733.6	\$12,931.8	\$0	(\$955)	\$11,977.2	\$423,044.1		
22	0.2790	47,494.9	\$13,253.2	\$0	(\$950)	\$12,303.3	\$435,347.4		
23	0.2874	47,257.5	\$13,582.5	\$0	(\$945)	\$12,637.4	\$447,984.8		
24	0.2960	47,021.2	\$13,920.1	\$0	(\$940)	\$12,979.6	\$460,964.4		
25	0.3049	46,786.1	\$14,266.0	\$0	(\$936)	\$13,330.2	\$474,294.7		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

Edison Middle School

Existing Conditions

Current Utility Price (\$/kWh) 0.17
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 07052 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 148.5956
 Roof Space Needed (sq-ft) 14,859.56
 Annual Solar kWh (PV Watts) 182,178
 Net System installation Cost (\$9/kWh) \$1,337,360
 Electrical Service Modification Cost \$100,000
 Total System Installation Cost **\$1,437,360**
 Materials \$1,006,152
 Labor \$431,208
 Engineers Opinion of Probable Cost \$1,796,701

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1700	182,178.2	\$30,970.3	\$54,653	(\$3,644)	\$81,980.2	\$81,980.2	\$0.300	
2	0.1751	181,267.3	\$31,739.9	\$54,380	(\$3,625)	\$82,494.8	\$164,474.9	\$0.300	
3	0.1804	180,361.0	\$32,528.6	\$54,108	(\$3,607)	\$83,029.7	\$247,504.7	\$0.300	
4	0.1858	179,459.2	\$33,337.0	\$53,838	(\$3,589)	\$83,585.5	\$331,090.2	\$0.300	
5	0.1913	178,561.9	\$34,165.4	\$53,569	(\$3,571)	\$84,162.7	\$415,252.9	\$0.300	
6	0.1971	177,669.1	\$35,014.4	\$53,301	(\$3,553)	\$84,761.8	\$500,014.7	\$0.300	
7	0.2030	176,780.7	\$35,884.5	\$53,034	(\$3,536)	\$85,383.1	\$585,397.8	\$0.300	
8	0.2091	175,896.8	\$36,776.3	\$52,769	(\$3,518)	\$86,027.4	\$671,425.2	\$0.300	
9	0.2154	175,017.3	\$37,690.1	\$52,505	(\$3,500)	\$86,695.0	\$758,120.2	\$0.300	
10	0.2218	174,142.2	\$38,626.7	\$52,243	(\$3,483)	\$87,386.6	\$845,506.8	\$0.300	
11	0.2285	173,271.5	\$39,586.6	\$51,981	(\$3,465)	\$88,102.6	\$933,609.4	\$0.300	
12	0.2353	172,405.2	\$40,570.3	\$51,722	(\$3,448)	\$88,843.8	\$1,022,453.2	\$0.300	
13	0.2424	171,543.2	\$41,578.5	\$51,463	(\$3,431)	\$89,610.6	\$1,112,063.8	\$0.300	
14	0.2497	170,685.4	\$42,611.7	\$51,206	(\$3,414)	\$90,403.7	\$1,202,467.5	\$0.300	
15	0.2571	169,832.0	\$43,670.6	\$50,950	(\$3,397)	\$91,223.6	\$1,293,691.1	\$0.300	
16	0.2649	168,982.9	\$44,755.9	\$0	(\$3,380)	\$41,376.2	\$1,335,067.3		
17	0.2728	168,137.9	\$45,868.0	\$0	(\$3,363)	\$42,505.3	\$1,377,572.6		
18	0.2810	167,297.2	\$47,007.9	\$0	(\$3,346)	\$43,661.9	\$1,421,234.5		
19	0.2894	166,460.8	\$48,176.0	\$0	(\$3,329)	\$44,846.8	\$1,466,081.3		
20	0.2981	165,628.5	\$49,373.2	\$0	(\$3,313)	\$46,060.6	\$1,512,141.9		
21	0.3070	164,800.3	\$50,600.1	\$0	(\$3,296)	\$47,304.1	\$1,559,446.0		
22	0.3163	163,976.3	\$51,857.5	\$0	(\$3,280)	\$48,578.0	\$1,608,024.0		
23	0.3257	163,156.4	\$53,146.2	\$0	(\$3,263)	\$49,883.1	\$1,657,907.0		
24	0.3355	162,340.6	\$54,466.9	\$0	(\$3,247)	\$51,220.1	\$1,709,127.1		
25	0.3456	161,528.9	\$55,820.4	\$0	(\$3,231)	\$52,589.8	\$1,761,716.9		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

Gregory School

Existing Conditions

Current Utility Price (\$/kWh) 0.18
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 07052 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 109.8596
 Roof Space Needed (sq-ft) 10,985.96
 Annual Solar kWh (PV Watts) 134,688
 Net System installation Cost (\$9/kWh) \$988,736
 Electrical Service Modification Cost \$100,000
 Total System Installation Cost **\$1,088,736**
 Materials \$762,115
 Labor \$326,621
 Engineers Opinion of Probable Cost \$1,360,921

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1800	134,687.9	\$24,243.8	\$40,406	(\$2,694)	\$61,956.4	\$61,956.4	\$0.300	
2	0.1854	134,014.4	\$24,846.3	\$40,204	(\$2,680)	\$62,370.3	\$124,326.7	\$0.300	
3	0.1910	133,344.4	\$25,463.7	\$40,003	(\$2,667)	\$62,800.1	\$187,126.9	\$0.300	
4	0.1967	132,677.6	\$26,096.5	\$39,803	(\$2,654)	\$63,246.2	\$250,373.1	\$0.300	
5	0.2026	132,014.2	\$26,745.0	\$39,604	(\$2,640)	\$63,709.0	\$314,082.0	\$0.300	
6	0.2087	131,354.2	\$27,409.6	\$39,406	(\$2,627)	\$64,188.8	\$378,270.8	\$0.300	
7	0.2149	130,697.4	\$28,090.7	\$39,209	(\$2,614)	\$64,686.0	\$442,956.8	\$0.300	
8	0.2214	130,043.9	\$28,788.8	\$39,013	(\$2,601)	\$65,201.1	\$508,157.9	\$0.300	
9	0.2280	129,393.7	\$29,504.2	\$38,818	(\$2,588)	\$65,734.4	\$573,892.3	\$0.300	
10	0.2349	128,746.7	\$30,237.4	\$38,624	(\$2,575)	\$66,286.4	\$640,178.7	\$0.300	
11	0.2419	128,103.0	\$30,988.7	\$38,431	(\$2,562)	\$66,857.6	\$707,036.3	\$0.300	
12	0.2492	127,462.5	\$31,758.8	\$38,239	(\$2,549)	\$67,448.3	\$774,484.6	\$0.300	
13	0.2566	126,825.2	\$32,548.0	\$38,048	(\$2,537)	\$68,059.1	\$842,543.7	\$0.300	
14	0.2643	126,191.0	\$33,356.8	\$37,857	(\$2,524)	\$68,690.3	\$911,234.0	\$0.300	
15	0.2723	125,560.1	\$34,185.8	\$37,668	(\$2,511)	\$69,342.6	\$980,576.6	\$0.300	
16	0.2804	124,932.3	\$35,035.3	\$0	(\$2,499)	\$32,536.6	\$1,013,113.2		
17	0.2888	124,307.6	\$35,905.9	\$0	(\$2,486)	\$33,419.8	\$1,046,533.0		
18	0.2975	123,686.1	\$36,798.2	\$0	(\$2,474)	\$34,324.4	\$1,080,857.4		
19	0.3064	123,067.7	\$37,712.6	\$0	(\$2,461)	\$35,251.2	\$1,116,108.7		
20	0.3156	122,452.3	\$38,649.8	\$0	(\$2,449)	\$36,200.7	\$1,152,309.4		
21	0.3251	121,840.1	\$39,610.2	\$0	(\$2,437)	\$37,173.4	\$1,189,482.8		
22	0.3349	121,230.9	\$40,594.5	\$0	(\$2,425)	\$38,169.9	\$1,227,652.7		
23	0.3449	120,624.7	\$41,603.3	\$0	(\$2,412)	\$39,190.8	\$1,266,843.5		
24	0.3552	120,021.6	\$42,637.1	\$0	(\$2,400)	\$40,236.7	\$1,307,080.2		
25	0.3659	119,421.5	\$43,696.7	\$0	(\$2,388)	\$41,308.2	\$1,348,388.4		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

Hazel School

Existing Conditions

Current Utility Price (\$/kWh)	0.17
Actual SREC Market Values (January 2010-Present)	\$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 07052	4.63 kWh/sq-m/day
Solar Capacity Required (kW)	21.52
Roof Space Needed (sq-ft)	2,152.00
Annual Solar kWh (PV Watts)	26,384
Net System installation Cost (\$9/kWh)	\$193,680
Electrical Service Modification Cost	\$100,000
Total System Installation Cost	\$293,680
Materials	\$205,576
Labor	\$88,104
Engineers Opinion of Probable Cost	\$367,100

Assumptions

Annual System Degredation	0.50%
Annual Utility Inflation	3.00%
Annual Maintenance Costs	2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1700	26,383.5	\$4,485.2	\$7,915	(\$528)	\$11,872.6	\$11,872.6	\$0.300	
2	0.1751	26,251.6	\$4,596.7	\$7,875	(\$525)	\$11,947.1	\$23,819.7	\$0.300	
3	0.1804	26,120.3	\$4,710.9	\$7,836	(\$522)	\$12,024.6	\$35,844.3	\$0.300	
4	0.1858	25,989.7	\$4,827.9	\$7,797	(\$520)	\$12,105.1	\$47,949.3	\$0.300	
5	0.1913	25,859.8	\$4,947.9	\$7,758	(\$517)	\$12,188.7	\$60,138.0	\$0.300	
6	0.1971	25,730.5	\$5,070.9	\$7,719	(\$515)	\$12,275.4	\$72,413.4	\$0.300	
7	0.2030	25,601.8	\$5,196.9	\$7,681	(\$512)	\$12,365.4	\$84,778.8	\$0.300	
8	0.2091	25,473.8	\$5,326.0	\$7,642	(\$509)	\$12,458.7	\$97,237.5	\$0.300	
9	0.2154	25,346.5	\$5,458.4	\$7,604	(\$507)	\$12,555.4	\$109,792.9	\$0.300	
10	0.2218	25,219.7	\$5,594.0	\$7,566	(\$504)	\$12,655.5	\$122,448.5	\$0.300	
11	0.2285	25,093.6	\$5,733.0	\$7,528	(\$502)	\$12,759.3	\$135,207.7	\$0.300	
12	0.2353	24,968.2	\$5,875.5	\$7,490	(\$499)	\$12,866.6	\$148,074.3	\$0.300	
13	0.2424	24,843.3	\$6,021.5	\$7,453	(\$497)	\$12,977.6	\$161,052.0	\$0.300	
14	0.2497	24,719.1	\$6,171.1	\$7,416	(\$494)	\$13,092.5	\$174,144.5	\$0.300	
15	0.2571	24,595.5	\$6,324.5	\$7,379	(\$492)	\$13,211.2	\$187,355.7	\$0.300	
16	0.2649	24,472.5	\$6,481.7	\$0	(\$489)	\$5,992.2	\$193,347.9		
17	0.2728	24,350.2	\$6,642.7	\$0	(\$487)	\$6,155.7	\$199,503.6		
18	0.2810	24,228.4	\$6,807.8	\$0	(\$485)	\$6,323.2	\$205,826.9		
19	0.2894	24,107.3	\$6,977.0	\$0	(\$482)	\$6,494.8	\$212,321.7		
20	0.2981	23,986.7	\$7,150.4	\$0	(\$480)	\$6,670.6	\$218,992.3		
21	0.3070	23,866.8	\$7,328.0	\$0	(\$477)	\$6,850.7	\$225,843.0		
22	0.3163	23,747.5	\$7,510.1	\$0	(\$475)	\$7,035.2	\$232,878.2		
23	0.3257	23,628.7	\$7,696.8	\$0	(\$473)	\$7,224.2	\$240,102.4		
24	0.3355	23,510.6	\$7,888.0	\$0	(\$470)	\$7,417.8	\$247,520.2		
25	0.3456	23,393.0	\$8,084.0	\$0	(\$468)	\$7,616.2	\$255,136.4		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

Liberty Middle School

Existing Conditions

Current Utility Price (\$/kWh) 0.17
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 07052 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 279.76
 Roof Space Needed (sq-ft) 27,976.00
 Annual Solar kWh (PV Watts) 342,986
 Net System installation Cost (\$9/kWh) \$2,517,840
 Electrical Service Modification Cost \$100,000
 Total System Installation Cost **\$2,617,840**
 Materials \$1,832,488
 Labor \$785,352
 Engineers Opinion of Probable Cost \$3,272,300

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1700	342,985.8	\$58,307.6	\$102,896	(\$6,860)	\$154,343.6	\$154,343.6	\$0.300	
2	0.1751	341,270.8	\$59,756.5	\$102,381	(\$6,825)	\$155,312.4	\$309,655.9	\$0.300	
3	0.1804	339,564.5	\$61,241.5	\$101,869	(\$6,791)	\$156,319.5	\$465,975.5	\$0.300	
4	0.1858	337,866.7	\$62,763.3	\$101,360	(\$6,757)	\$157,366.0	\$623,341.5	\$0.300	
5	0.1913	336,177.3	\$64,323.0	\$100,853	(\$6,724)	\$158,452.6	\$781,794.1	\$0.300	
6	0.1971	334,496.4	\$65,921.4	\$100,349	(\$6,690)	\$159,580.4	\$941,374.5	\$0.300	
7	0.2030	332,824.0	\$67,559.6	\$99,847	(\$6,656)	\$160,750.3	\$1,102,124.8	\$0.300	
8	0.2091	331,159.8	\$69,238.4	\$99,348	(\$6,623)	\$161,963.2	\$1,264,088.0	\$0.300	
9	0.2154	329,504.0	\$70,959.0	\$98,851	(\$6,590)	\$163,220.1	\$1,427,308.1	\$0.300	
10	0.2218	327,856.5	\$72,722.3	\$98,357	(\$6,557)	\$164,522.1	\$1,591,830.2	\$0.300	
11	0.2285	326,217.2	\$74,529.5	\$97,865	(\$6,524)	\$165,870.3	\$1,757,700.5	\$0.300	
12	0.2353	324,586.1	\$76,381.5	\$97,376	(\$6,492)	\$167,265.7	\$1,924,966.2	\$0.300	
13	0.2424	322,963.2	\$78,279.6	\$96,889	(\$6,459)	\$168,709.3	\$2,093,675.5	\$0.300	
14	0.2497	321,348.4	\$80,224.9	\$96,405	(\$6,427)	\$170,202.4	\$2,263,877.9	\$0.300	
15	0.2571	319,741.7	\$82,218.5	\$95,922	(\$6,395)	\$171,746.1	\$2,435,624.0	\$0.300	
16	0.2649	318,142.9	\$84,261.6	\$0	(\$6,363)	\$77,898.7	\$2,513,522.8		
17	0.2728	316,552.2	\$86,355.5	\$0	(\$6,331)	\$80,024.4	\$2,593,547.2		
18	0.2810	314,969.5	\$88,501.4	\$0	(\$6,299)	\$82,202.0	\$2,675,749.2		
19	0.2894	313,394.6	\$90,700.7	\$0	(\$6,268)	\$84,432.8	\$2,760,182.0		
20	0.2981	311,827.7	\$92,954.6	\$0	(\$6,237)	\$86,718.0	\$2,846,900.0		
21	0.3070	310,268.5	\$95,264.5	\$0	(\$6,205)	\$89,059.1	\$2,935,959.2		
22	0.3163	308,717.2	\$97,631.8	\$0	(\$6,174)	\$91,457.5	\$3,027,416.6		
23	0.3257	307,173.6	\$100,058.0	\$0	(\$6,143)	\$93,914.5	\$3,121,331.2		
24	0.3355	305,637.7	\$102,544.4	\$0	(\$6,113)	\$96,431.7	\$3,217,762.8		
25	0.3456	304,109.5	\$105,092.6	\$0	(\$6,082)	\$99,010.5	\$3,316,773.3		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

Mt. Pleasant School

Existing Conditions

Current Utility Price (\$/kWh) 0.17
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 07052 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 322.8
 Roof Space Needed (sq-ft) 32,280.00
 Annual Solar kWh (PV Watts) 395,753
 Net System installation Cost (\$9/kWh) \$2,905,200
 Electrical Service Modification Cost \$100,000
 Total System Installation Cost **\$3,005,200**
 Materials \$2,103,640
 Labor \$901,560
 Engineers Opinion of Probable Cost \$3,756,500

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1700	395,752.8	\$67,278.0	\$118,726	(\$7,915)	\$178,088.8	\$178,088.8	\$0.300	
2	0.1751	393,774.0	\$68,949.8	\$118,132	(\$7,875)	\$179,206.6	\$357,295.3	\$0.300	
3	0.1804	391,805.2	\$70,663.2	\$117,542	(\$7,836)	\$180,368.7	\$537,664.0	\$0.300	
4	0.1858	389,846.1	\$72,419.2	\$116,954	(\$7,797)	\$181,576.1	\$719,240.1	\$0.300	
5	0.1913	387,896.9	\$74,218.8	\$116,369	(\$7,758)	\$182,830.0	\$902,070.1	\$0.300	
6	0.1971	385,957.4	\$76,063.2	\$115,787	(\$7,719)	\$184,131.3	\$1,086,201.4	\$0.300	
7	0.2030	384,027.6	\$77,953.3	\$115,208	(\$7,681)	\$185,481.1	\$1,271,682.5	\$0.300	
8	0.2091	382,107.5	\$79,890.5	\$114,632	(\$7,642)	\$186,880.6	\$1,458,563.0	\$0.300	
9	0.2154	380,197.0	\$81,875.8	\$114,059	(\$7,604)	\$188,330.9	\$1,646,893.9	\$0.300	
10	0.2218	378,296.0	\$83,910.4	\$113,489	(\$7,566)	\$189,833.2	\$1,836,727.2	\$0.300	
11	0.2285	376,404.5	\$85,995.5	\$112,921	(\$7,528)	\$191,388.8	\$2,028,116.0	\$0.300	
12	0.2353	374,522.5	\$88,132.5	\$112,357	(\$7,490)	\$192,998.8	\$2,221,114.8	\$0.300	
13	0.2424	372,649.9	\$90,322.6	\$111,795	(\$7,453)	\$194,664.6	\$2,415,779.4	\$0.300	
14	0.2497	370,786.6	\$92,567.1	\$111,236	(\$7,416)	\$196,387.4	\$2,612,166.8	\$0.300	
15	0.2571	368,932.7	\$94,867.4	\$110,680	(\$7,379)	\$198,168.6	\$2,810,335.4	\$0.300	
16	0.2649	367,088.0	\$97,224.9	\$0	(\$7,342)	\$89,883.1	\$2,900,218.6		
17	0.2728	365,252.6	\$99,640.9	\$0	(\$7,305)	\$92,335.9	\$2,992,554.4		
18	0.2810	363,426.3	\$102,117.0	\$0	(\$7,269)	\$94,848.5	\$3,087,402.9		
19	0.2894	361,609.2	\$104,654.6	\$0	(\$7,232)	\$97,422.4	\$3,184,825.4		
20	0.2981	359,801.1	\$107,255.3	\$0	(\$7,196)	\$100,059.3	\$3,284,884.6		
21	0.3070	358,002.1	\$109,920.6	\$0	(\$7,160)	\$102,760.5	\$3,387,645.2		
22	0.3163	356,212.1	\$112,652.1	\$0	(\$7,124)	\$105,527.9	\$3,493,173.1		
23	0.3257	354,431.1	\$115,451.5	\$0	(\$7,089)	\$108,362.9	\$3,601,535.9		
24	0.3355	352,658.9	\$118,320.5	\$0	(\$7,053)	\$111,267.3	\$3,712,803.3		
25	0.3456	350,895.6	\$121,260.7	\$0	(\$7,018)	\$114,242.8	\$3,827,046.1		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

Pleasantdale School

Existing Conditions

Current Utility Price (\$/kWh) 0.16
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 07052 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 55.952
 Roof Space Needed (sq-ft) 5,595.20
 Annual Solar kWh (PV Watts) 68,597
 Net System installation Cost (\$9/kWh) \$503,568
 Electrical Service Modification Cost \$100,000
 Total System Installation Cost **\$603,568**
 Materials \$422,498
 Labor \$181,070
 Engineers Opinion of Probable Cost \$754,460

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cumulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1600	68,597.2	\$10,975.5	\$20,579	(\$1,372)	\$30,182.7	\$30,182.7	\$0.300	
2	0.1648	68,254.2	\$11,248.3	\$20,476	(\$1,365)	\$30,359.5	\$60,542.2	\$0.300	
3	0.1697	67,912.9	\$11,527.8	\$20,374	(\$1,358)	\$30,543.4	\$91,085.6	\$0.300	
4	0.1748	67,573.3	\$11,814.3	\$20,272	(\$1,351)	\$30,734.8	\$121,820.4	\$0.300	
5	0.1801	67,235.5	\$12,107.9	\$20,171	(\$1,345)	\$30,933.8	\$152,754.2	\$0.300	
6	0.1855	66,899.3	\$12,408.7	\$20,070	(\$1,338)	\$31,140.5	\$183,894.7	\$0.300	
7	0.1910	66,564.8	\$12,717.1	\$19,969	(\$1,331)	\$31,355.2	\$215,250.0	\$0.300	
8	0.1968	66,232.0	\$13,033.1	\$19,870	(\$1,325)	\$31,578.1	\$246,828.0	\$0.300	
9	0.2027	65,900.8	\$13,357.0	\$19,770	(\$1,318)	\$31,809.2	\$278,637.3	\$0.300	
10	0.2088	65,571.3	\$13,688.9	\$19,671	(\$1,311)	\$32,048.9	\$310,686.1	\$0.300	
11	0.2150	65,243.4	\$14,029.1	\$19,573	(\$1,305)	\$32,297.2	\$342,983.4	\$0.300	
12	0.2215	64,917.2	\$14,377.7	\$19,475	(\$1,298)	\$32,554.5	\$375,537.9	\$0.300	
13	0.2281	64,592.6	\$14,735.0	\$19,378	(\$1,292)	\$32,820.9	\$408,358.8	\$0.300	
14	0.2350	64,269.7	\$15,101.2	\$19,281	(\$1,285)	\$33,096.7	\$441,455.5	\$0.300	
15	0.2420	63,948.3	\$15,476.4	\$19,184	(\$1,279)	\$33,381.9	\$474,837.4	\$0.300	
16	0.2493	63,628.6	\$15,861.0	\$0	(\$1,273)	\$14,588.4	\$489,425.9		
17	0.2568	63,310.4	\$16,255.1	\$0	(\$1,266)	\$14,988.9	\$504,414.8		
18	0.2645	62,993.9	\$16,659.1	\$0	(\$1,260)	\$15,399.2	\$519,814.0		
19	0.2724	62,678.9	\$17,073.1	\$0	(\$1,254)	\$15,819.5	\$535,633.5		
20	0.2806	62,365.5	\$17,497.3	\$0	(\$1,247)	\$16,250.0	\$551,883.5		
21	0.2890	62,053.7	\$17,932.1	\$0	(\$1,241)	\$16,691.1	\$568,574.6		
22	0.2976	61,743.4	\$18,377.8	\$0	(\$1,235)	\$17,142.9	\$585,717.5		
23	0.3066	61,434.7	\$18,834.4	\$0	(\$1,229)	\$17,605.7	\$603,323.2		
24	0.3158	61,127.5	\$19,302.5	\$0	(\$1,223)	\$18,079.9	\$621,403.2		
25	0.3252	60,821.9	\$19,782.1	\$0	(\$1,216)	\$18,565.7	\$639,968.9		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

Redwood School

Existing Conditions

Current Utility Price (\$/kWh) 0.16
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 07052 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 102.3276
 Roof Space Needed (sq-ft) 10,232.76
 Annual Solar kWh (PV Watts) 125,454
 Net System installation Cost (\$9/kWh) \$920,948
 Electrical Service Modification Cost **\$100,000**
 Total System Installation Cost \$1,020,948
 Materials \$714,664
 Labor \$306,285
 Engineers Opinion of Probable Cost \$1,276,186

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1600	125,453.6	\$20,072.6	\$37,636	(\$2,509)	\$55,199.6	\$55,199.6	\$0.300	
2	0.1648	124,826.4	\$20,571.4	\$37,448	(\$2,497)	\$55,522.8	\$110,722.4	\$0.300	
3	0.1697	124,202.2	\$21,082.6	\$37,261	(\$2,484)	\$55,859.2	\$166,581.6	\$0.300	
4	0.1748	123,581.2	\$21,606.5	\$37,074	(\$2,472)	\$56,209.2	\$222,790.8	\$0.300	
5	0.1801	122,963.3	\$22,143.4	\$36,889	(\$2,459)	\$56,573.1	\$279,363.9	\$0.300	
6	0.1855	122,348.5	\$22,693.7	\$36,705	(\$2,447)	\$56,951.3	\$336,315.2	\$0.300	
7	0.1910	121,736.8	\$23,257.6	\$36,521	(\$2,435)	\$57,343.9	\$393,659.1	\$0.300	
8	0.1968	121,128.1	\$23,835.6	\$36,338	(\$2,423)	\$57,751.4	\$451,410.5	\$0.300	
9	0.2027	120,522.4	\$24,427.9	\$36,157	(\$2,410)	\$58,174.2	\$509,584.7	\$0.300	
10	0.2088	119,919.8	\$25,034.9	\$35,976	(\$2,398)	\$58,612.5	\$568,197.1	\$0.300	
11	0.2150	119,320.2	\$25,657.0	\$35,796	(\$2,386)	\$59,066.7	\$627,263.8	\$0.300	
12	0.2215	118,723.6	\$26,294.6	\$35,617	(\$2,374)	\$59,537.2	\$686,801.0	\$0.300	
13	0.2281	118,130.0	\$26,948.0	\$35,439	(\$2,363)	\$60,024.4	\$746,825.5	\$0.300	
14	0.2350	117,539.4	\$27,617.7	\$35,262	(\$2,351)	\$60,528.7	\$807,354.2	\$0.300	
15	0.2420	116,951.7	\$28,304.0	\$35,085	(\$2,339)	\$61,050.4	\$868,404.6	\$0.300	
16	0.2493	116,366.9	\$29,007.3	\$0	(\$2,327)	\$26,680.0	\$895,084.6		
17	0.2568	115,785.1	\$29,728.2	\$0	(\$2,316)	\$27,412.5	\$922,497.1		
18	0.2645	115,206.1	\$30,466.9	\$0	(\$2,304)	\$28,162.8	\$950,659.9		
19	0.2724	114,630.1	\$31,224.0	\$0	(\$2,293)	\$28,931.4	\$979,591.3		
20	0.2806	114,057.0	\$31,999.9	\$0	(\$2,281)	\$29,718.8	\$1,009,310.1		
21	0.2890	113,486.7	\$32,795.1	\$0	(\$2,270)	\$30,525.4	\$1,039,835.5		
22	0.2976	112,919.2	\$33,610.1	\$0	(\$2,258)	\$31,351.7	\$1,071,187.2		
23	0.3066	112,354.6	\$34,445.3	\$0	(\$2,247)	\$32,198.2	\$1,103,385.4		
24	0.3158	111,792.9	\$35,301.3	\$0	(\$2,236)	\$33,065.4	\$1,136,450.8		
25	0.3252	111,233.9	\$36,178.5	\$0	(\$2,225)	\$33,953.8	\$1,170,404.6		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

Roosevelt Middle School

Existing Conditions

Current Utility Price (\$/kWh) 0.15
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 07052 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 64.56
 Roof Space Needed (sq-ft) 6,456.00
 Annual Solar kWh (PV Watts) 79,151
 Net System installation Cost (\$9/kWh) \$581,040
 Electrical Service Modification Cost **\$100,000**
 Total System Installation Cost \$681,040
 Materials \$476,728
 Labor \$204,312
 Engineers Opinion of Probable Cost \$851,300

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1500	79,150.6	\$11,872.6	\$23,745	(\$1,583)	\$34,034.7	\$34,034.7	\$0.300	
2	0.1545	78,754.8	\$12,167.6	\$23,626	(\$1,575)	\$34,219.0	\$68,253.7	\$0.300	
3	0.1591	78,361.0	\$12,470.0	\$23,508	(\$1,567)	\$34,411.1	\$102,664.8	\$0.300	
4	0.1639	77,969.2	\$12,779.9	\$23,391	(\$1,559)	\$34,611.2	\$137,276.0	\$0.300	
5	0.1688	77,579.4	\$13,097.4	\$23,274	(\$1,552)	\$34,819.7	\$172,095.7	\$0.300	
6	0.1739	77,191.5	\$13,422.9	\$23,157	(\$1,544)	\$35,036.5	\$207,132.2	\$0.300	
7	0.1791	76,805.5	\$13,756.5	\$23,042	(\$1,536)	\$35,262.0	\$242,394.2	\$0.300	
8	0.1845	76,421.5	\$14,098.3	\$22,926	(\$1,528)	\$35,496.3	\$277,890.6	\$0.300	
9	0.1900	76,039.4	\$14,448.7	\$22,812	(\$1,521)	\$35,739.7	\$313,630.3	\$0.300	
10	0.1957	75,659.2	\$14,807.7	\$22,698	(\$1,513)	\$35,992.3	\$349,622.6	\$0.300	
11	0.2016	75,280.9	\$15,175.7	\$22,584	(\$1,506)	\$36,254.3	\$385,876.9	\$0.300	
12	0.2076	74,904.5	\$15,552.8	\$22,471	(\$1,498)	\$36,526.1	\$422,403.0	\$0.300	
13	0.2139	74,530.0	\$15,939.3	\$22,359	(\$1,491)	\$36,807.7	\$459,210.6	\$0.300	
14	0.2203	74,157.3	\$16,335.4	\$22,247	(\$1,483)	\$37,099.4	\$496,310.1	\$0.300	
15	0.2269	73,786.5	\$16,741.3	\$22,136	(\$1,476)	\$37,401.5	\$533,711.6	\$0.300	
16	0.2337	73,417.6	\$17,157.3	\$0	(\$1,468)	\$15,689.0	\$549,400.6		
17	0.2407	73,050.5	\$17,583.7	\$0	(\$1,461)	\$16,122.7	\$565,523.3		
18	0.2479	72,685.3	\$18,020.6	\$0	(\$1,454)	\$16,566.9	\$582,090.2		
19	0.2554	72,321.8	\$18,468.5	\$0	(\$1,446)	\$17,022.0	\$599,112.3		
20	0.2630	71,960.2	\$18,927.4	\$0	(\$1,439)	\$17,488.2	\$616,600.5		
21	0.2709	71,600.4	\$19,397.8	\$0	(\$1,432)	\$17,965.7	\$634,566.2		
22	0.2790	71,242.4	\$19,879.8	\$0	(\$1,425)	\$18,454.9	\$653,021.1		
23	0.2874	70,886.2	\$20,373.8	\$0	(\$1,418)	\$18,956.1	\$671,977.2		
24	0.2960	70,531.8	\$20,880.1	\$0	(\$1,411)	\$19,469.5	\$691,446.7		
25	0.3049	70,179.1	\$21,399.0	\$0	(\$1,404)	\$19,995.4	\$711,442.0		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

St. Cloud School

Existing Conditions

Current Utility Price (\$/kWh)	0.16
Actual SREC Market Values (January 2010-Present)	\$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 07052	4.63 kWh/sq-m/day
Solar Capacity Required (kW)	39.812
Roof Space Needed (sq-ft)	3,981.20
Annual Solar kWh (PV Watts)	48,810
Net System installation Cost (\$9/kWh)	\$358,308
Electrical Service Modification Cost	\$100,000
Total System Installation Cost	\$458,308
Materials	\$320,816
Labor	\$137,492
Engineers Opinion of Probable Cost	\$572,885

Assumptions

Annual System Degredation	0.50%
Annual Utility Inflation	3.00%
Annual Maintenance Costs	2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1600	48,809.5	\$7,809.5	\$14,643	(\$976)	\$21,476.2	\$21,476.2	\$0.300	
2	0.1648	48,565.5	\$8,003.6	\$14,570	(\$971)	\$21,601.9	\$43,078.1	\$0.300	
3	0.1697	48,322.6	\$8,202.5	\$14,497	(\$966)	\$21,732.8	\$64,810.9	\$0.300	
4	0.1748	48,081.0	\$8,406.3	\$14,424	(\$962)	\$21,869.0	\$86,679.9	\$0.300	
5	0.1801	47,840.6	\$8,615.2	\$14,352	(\$957)	\$22,010.6	\$108,690.5	\$0.300	
6	0.1855	47,601.4	\$8,829.3	\$14,280	(\$952)	\$22,157.7	\$130,848.2	\$0.300	
7	0.1910	47,363.4	\$9,048.7	\$14,209	(\$947)	\$22,310.5	\$153,158.6	\$0.300	
8	0.1968	47,126.6	\$9,273.6	\$14,138	(\$943)	\$22,469.0	\$175,627.6	\$0.300	
9	0.2027	46,891.0	\$9,504.0	\$14,067	(\$938)	\$22,633.5	\$198,261.1	\$0.300	
10	0.2088	46,656.5	\$9,740.2	\$13,997	(\$933)	\$22,804.0	\$221,065.1	\$0.300	
11	0.2150	46,423.2	\$9,982.2	\$13,927	(\$928)	\$22,980.7	\$244,045.9	\$0.300	
12	0.2215	46,191.1	\$10,230.3	\$13,857	(\$924)	\$23,163.8	\$267,209.7	\$0.300	
13	0.2281	45,960.1	\$10,484.5	\$13,788	(\$919)	\$23,353.4	\$290,563.0	\$0.300	
14	0.2350	45,730.3	\$10,745.0	\$13,719	(\$915)	\$23,549.5	\$314,112.6	\$0.300	
15	0.2420	45,501.7	\$11,012.1	\$13,651	(\$910)	\$23,752.5	\$337,865.1	\$0.300	
16	0.2493	45,274.2	\$11,285.7	\$0	(\$905)	\$10,380.2	\$348,245.3		
17	0.2568	45,047.8	\$11,566.2	\$0	(\$901)	\$10,665.2	\$358,910.5		
18	0.2645	44,822.6	\$11,853.6	\$0	(\$896)	\$10,957.1	\$369,867.7		
19	0.2724	44,598.5	\$12,148.1	\$0	(\$892)	\$11,256.2	\$381,123.8		
20	0.2806	44,375.5	\$12,450.0	\$0	(\$888)	\$11,562.5	\$392,686.4		
21	0.2890	44,153.6	\$12,759.4	\$0	(\$883)	\$11,876.3	\$404,562.7		
22	0.2976	43,932.8	\$13,076.5	\$0	(\$879)	\$12,197.8	\$416,760.5		
23	0.3066	43,713.2	\$13,401.4	\$0	(\$874)	\$12,527.2	\$429,287.7		
24	0.3158	43,494.6	\$13,734.5	\$0	(\$870)	\$12,864.6	\$442,152.3		
25	0.3252	43,277.1	\$14,075.8	\$0	(\$866)	\$13,210.2	\$455,362.5		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

Washington School

Existing Conditions

Current Utility Price (\$/kWh) 0.16
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 8857 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 46.4832
 Roof Space Needed (sq-ft) 4,648.32
 Annual Solar kWh (PV Watts) 56,988
 Net System installation Cost (\$/kWh) \$418,349
 Electrical Service Modification Cost \$100,000
 Total System Installation Cost **\$518,349**
 Materials \$362,844
 Labor \$155,505
 Engineers Opinion of Probable Cost \$647,936

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1600	56,988.4	\$9,118.1	\$17,097	(\$1,140)	\$25,074.9	\$25,074.9	\$0.300	
2	0.1648	56,703.5	\$9,344.7	\$17,011	(\$1,134)	\$25,221.7	\$50,296.6	\$0.300	
3	0.1697	56,419.9	\$9,576.9	\$16,926	(\$1,128)	\$25,374.5	\$75,671.1	\$0.300	
4	0.1748	56,137.8	\$9,814.9	\$16,841	(\$1,123)	\$25,533.5	\$101,204.7	\$0.300	
5	0.1801	55,857.2	\$10,058.8	\$16,757	(\$1,117)	\$25,698.8	\$126,903.5	\$0.300	
6	0.1855	55,577.9	\$10,308.8	\$16,673	(\$1,112)	\$25,870.6	\$152,774.1	\$0.300	
7	0.1910	55,300.0	\$10,565.0	\$16,590	(\$1,106)	\$26,049.0	\$178,823.1	\$0.300	
8	0.1968	55,023.5	\$10,827.5	\$16,507	(\$1,100)	\$26,234.1	\$205,057.1	\$0.300	
9	0.2027	54,748.4	\$11,096.6	\$16,425	(\$1,095)	\$26,426.1	\$231,483.3	\$0.300	
10	0.2088	54,474.6	\$11,372.3	\$16,342	(\$1,089)	\$26,625.2	\$258,108.5	\$0.300	
11	0.2150	54,202.2	\$11,654.9	\$16,261	(\$1,084)	\$26,831.6	\$284,940.0	\$0.300	
12	0.2215	53,931.2	\$11,944.6	\$16,179	(\$1,079)	\$27,045.3	\$311,985.3	\$0.300	
13	0.2281	53,661.6	\$12,241.4	\$16,098	(\$1,073)	\$27,266.6	\$339,251.9	\$0.300	
14	0.2350	53,393.3	\$12,545.6	\$16,018	(\$1,068)	\$27,495.7	\$366,747.6	\$0.300	
15	0.2420	53,126.3	\$12,857.3	\$15,938	(\$1,063)	\$27,732.7	\$394,480.3	\$0.300	
16	0.2493	52,860.7	\$13,176.8	\$0	(\$1,057)	\$12,119.6	\$406,600.0		
17	0.2568	52,596.4	\$13,504.3	\$0	(\$1,052)	\$12,452.4	\$419,052.3		
18	0.2645	52,333.4	\$13,839.9	\$0	(\$1,047)	\$12,793.2	\$431,845.5		
19	0.2724	52,071.7	\$14,183.8	\$0	(\$1,041)	\$13,142.3	\$444,987.8		
20	0.2806	51,811.4	\$14,536.2	\$0	(\$1,036)	\$13,500.0	\$458,487.9		
21	0.2890	51,552.3	\$14,897.5	\$0	(\$1,031)	\$13,866.4	\$472,354.3		
22	0.2976	51,294.5	\$15,267.7	\$0	(\$1,026)	\$14,241.8	\$486,596.1		
23	0.3066	51,038.1	\$15,647.1	\$0	(\$1,021)	\$14,626.3	\$501,222.4		
24	0.3158	50,782.9	\$16,035.9	\$0	(\$1,016)	\$15,020.2	\$516,242.6		
25	0.3252	50,529.0	\$16,434.4	\$0	(\$1,011)	\$15,423.8	\$531,666.4		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

West Orange High School

Existing Conditions

Current Utility Price (\$/kWh) 0.16
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 8857 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 252.86
 Roof Space Needed (sq-ft) 25,286.00
 Annual Solar kWh (PV Watts) 310,006
 Net System installation Cost (\$9/kWh) \$2,275,740
 Electrical Service Modification Cost \$100,000
 Total System Installation Cost **\$2,375,740**
 Materials \$1,663,018
 Labor \$712,722
 Engineers Opinion of Probable Cost \$2,969,675

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.1600	310,006.4	\$49,601.0	\$93,002	(\$6,200)	\$136,402.8	\$136,402.8	\$0.300	
2	0.1648	308,456.3	\$50,833.6	\$92,537	(\$6,169)	\$137,201.4	\$273,604.2	\$0.300	
3	0.1697	306,914.0	\$52,096.8	\$92,074	(\$6,138)	\$138,032.8	\$411,636.9	\$0.300	
4	0.1748	305,379.5	\$53,391.4	\$91,614	(\$6,108)	\$138,897.7	\$550,534.6	\$0.300	
5	0.1801	303,852.6	\$54,718.2	\$91,156	(\$6,077)	\$139,796.9	\$690,331.5	\$0.300	
6	0.1855	302,333.3	\$56,077.9	\$90,700	(\$6,047)	\$140,731.3	\$831,062.8	\$0.300	
7	0.1910	300,821.6	\$57,471.5	\$90,246	(\$6,016)	\$141,701.5	\$972,764.3	\$0.300	
8	0.1968	299,317.5	\$58,899.7	\$89,795	(\$5,986)	\$142,708.6	\$1,115,472.9	\$0.300	
9	0.2027	297,821.0	\$60,363.3	\$89,346	(\$5,956)	\$143,753.2	\$1,259,226.1	\$0.300	
10	0.2088	296,331.8	\$61,863.3	\$88,900	(\$5,927)	\$144,836.3	\$1,404,062.3	\$0.300	
11	0.2150	294,850.2	\$63,400.6	\$88,455	(\$5,897)	\$145,958.7	\$1,550,021.0	\$0.300	
12	0.2215	293,375.9	\$64,976.1	\$88,013	(\$5,868)	\$147,121.4	\$1,697,142.4	\$0.300	
13	0.2281	291,909.1	\$66,590.8	\$87,573	(\$5,838)	\$148,325.3	\$1,845,467.8	\$0.300	
14	0.2350	290,449.5	\$68,245.6	\$87,135	(\$5,809)	\$149,571.4	\$1,995,039.2	\$0.300	
15	0.2420	288,997.3	\$69,941.5	\$86,699	(\$5,780)	\$150,860.7	\$2,145,899.9	\$0.300	
16	0.2493	287,552.3	\$71,679.5	\$0	(\$5,751)	\$65,928.5	\$2,211,828.4		
17	0.2568	286,114.5	\$73,460.8	\$0	(\$5,722)	\$67,738.5	\$2,279,566.9		
18	0.2645	284,683.9	\$75,286.3	\$0	(\$5,694)	\$69,592.6	\$2,349,159.5		
19	0.2724	283,260.5	\$77,157.1	\$0	(\$5,665)	\$71,491.9	\$2,420,651.4		
20	0.2806	281,844.2	\$79,074.5	\$0	(\$5,637)	\$73,437.6	\$2,494,089.0		
21	0.2890	280,435.0	\$81,039.5	\$0	(\$5,609)	\$75,430.8	\$2,569,519.8		
22	0.2976	279,032.8	\$83,053.3	\$0	(\$5,581)	\$77,472.7	\$2,646,992.5		
23	0.3066	277,637.7	\$85,117.2	\$0	(\$5,553)	\$79,564.4	\$2,726,556.9		
24	0.3158	276,249.5	\$87,232.4	\$0	(\$5,525)	\$81,707.4	\$2,808,264.3		
25	0.3252	274,868.2	\$89,400.1	\$0	(\$5,497)	\$83,902.7	\$2,892,167.0		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.

Bus Garage

Existing Conditions

Current Utility Price (\$/kWh) 0.2
 Actual SREC Market Values (January 2010-Present) \$110/MWh - \$700/MWh

Calculations

Solar Rating - Zip Code: 8857 4.63 kWh/sq-m/day
 Solar Capacity Required (kW) 43.04
 Roof Space Needed (sq-ft) 4,304.00
 Annual Solar kWh (PV Watts) 52,767
 Net System installation Cost (\$9/kWh) \$387,360
 Electrical Service Modification Cost \$100,000
 Total System Installation Cost **\$487,360**
 Materials \$341,152
 Labor \$146,208
 Engineers Opinion of Probable Cost \$609,200

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs 2%

Year	Utility Price	Solar kWh	Utility Savings	SRECS	Maintenance Costs	Annual Cash Flow	Cummulative Cash Flow	SREC Factor (\$/kWh)*	REC Factor (\$/kWh)
Install									
1	0.2000	52,767.0	\$10,553.4	\$15,830	(\$1,055)	\$25,328.2	\$25,328.2	\$0.300	
2	0.2060	52,503.2	\$10,815.7	\$15,751	(\$1,050)	\$25,516.6	\$50,844.7	\$0.300	
3	0.2122	52,240.7	\$11,084.4	\$15,672	(\$1,045)	\$25,711.8	\$76,556.6	\$0.300	
4	0.2185	51,979.5	\$11,359.9	\$15,594	(\$1,040)	\$25,914.1	\$102,470.7	\$0.300	
5	0.2251	51,719.6	\$11,642.2	\$15,516	(\$1,034)	\$26,123.7	\$128,594.3	\$0.300	
6	0.2319	51,461.0	\$11,931.5	\$15,438	(\$1,029)	\$26,340.6	\$154,934.9	\$0.300	
7	0.2388	51,203.7	\$12,228.0	\$15,361	(\$1,024)	\$26,565.0	\$181,499.9	\$0.300	
8	0.2460	50,947.7	\$12,531.8	\$15,284	(\$1,019)	\$26,797.2	\$208,297.1	\$0.300	
9	0.2534	50,692.9	\$12,843.3	\$15,208	(\$1,014)	\$27,037.3	\$235,334.4	\$0.300	
10	0.2610	50,439.5	\$13,162.4	\$15,132	(\$1,009)	\$27,285.5	\$262,619.8	\$0.300	
11	0.2688	50,187.3	\$13,489.5	\$15,056	(\$1,004)	\$27,541.9	\$290,161.8	\$0.300	
12	0.2768	49,936.3	\$13,824.7	\$14,981	(\$999)	\$27,806.9	\$317,968.7	\$0.300	
13	0.2852	49,686.6	\$14,168.3	\$14,906	(\$994)	\$28,080.5	\$346,049.2	\$0.300	
14	0.2937	49,438.2	\$14,520.3	\$14,831	(\$989)	\$28,363.0	\$374,412.2	\$0.300	
15	0.3025	49,191.0	\$14,881.2	\$14,757	(\$984)	\$28,654.7	\$403,066.9	\$0.300	
16	0.3116	48,945.1	\$15,251.0	\$0	(\$979)	\$14,272.1	\$417,338.9		
17	0.3209	48,700.3	\$15,630.0	\$0	(\$974)	\$14,655.9	\$431,994.9		
18	0.3306	48,456.8	\$16,018.4	\$0	(\$969)	\$15,049.2	\$447,044.1		
19	0.3405	48,214.6	\$16,416.4	\$0	(\$964)	\$15,452.1	\$462,496.2		
20	0.3507	47,973.5	\$16,824.4	\$0	(\$959)	\$15,864.9	\$478,361.1		
21	0.3612	47,733.6	\$17,242.4	\$0	(\$955)	\$16,287.8	\$494,648.9		
22	0.3721	47,494.9	\$17,670.9	\$0	(\$950)	\$16,721.0	\$511,369.9		
23	0.3832	47,257.5	\$18,110.0	\$0	(\$945)	\$17,164.9	\$528,534.8		
24	0.3947	47,021.2	\$18,560.1	\$0	(\$940)	\$17,619.7	\$546,154.4		
25	0.4066	46,786.1	\$19,021.3	\$0	(\$936)	\$18,085.6	\$564,240.0		

* SREC factor is referenced from the NJBPU Solar Alternative Compliance Payment (SACP) schedule.



Appendix F



2012 Prescriptive Lighting Application

Customer Information				
Company	Electric Utility Serving Applicant choose one	Electric Account No.	Anticipated Installation Date	
Facility Address	City	State	Zip	
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement	Size of Building			
Company Mailing Address	City	State	Zip	
Contact Person (Name/Title)	Telephone No. ()	Fax No. ()		
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt	Federal Tax ID# or SSN	E-mail Address		
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other	Please assign payment to contractor/vendor/other indicated below Customer Signature			

Payee Information (must submit W-9 form with application)					E-mail Address
Company	Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		Federal Tax ID#	
Street Address	City	State	Zip	Telephone No. ()	Fax No. ()

Contractor/Vendor Information (if different from Payee)					E-mail Address
Company	Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		Federal Tax ID#	
Street Address	City	State	Zip	Telephone No. ()	Fax No. ()

Building Type (circle one)
Education-Primary School; Education-Community College; Education-University; Grocery; Medical-Hospital; Medical-Clinic; Lodging Hotel(Guest Rooms); Lodging Motel; Manufacturing-Light Industrial; Office-Large; Office-Small; Restaurant-Sit Down; Restaurant-Fast Food; Retail-3 Story Large; Retail- Single Story Large; Retail-Small; Storage Conditioned; Storage Unconditioned; Warehouse; Other

Prescriptive Lighting Incentive
\$ _____ Total Incentive (per attached worksheet calculations)
Note: Prescriptive Lighting Worksheet must accompany this application.



2012 Prescriptive Lighting Incentive Worksheet

Customer Information	
Company	Facility Address
<input type="checkbox"/> Check here if multiple worksheets are being submitted for one project/building.	Date Submitted

Prescriptive Lighting Information								For additional fixtures, attach additional sheets and check here <input type="checkbox"/>
Reason <small>N-New R-Replaced</small>	Fixture Type Installed	Fixture Type Removed	Permanent Delamp w/ New Reflector (Y/N)	Location (Bldg/Rm)	Size of Replaced Lamps in Watts	A Incentive Per Fixture (Table)	B # of Units	Total Incentives (Ax B)
(Examples) R	2x4 3L T-5	2x4 3L T-12	N	Office	40	\$10	8	\$10 x 8 = \$80
R	2x2 2L T-8	2x2 2L T-12	N	Office	34	\$10	10	\$10 x 10 = \$100
R	28w CFL	100w Incan	N	Supply Room	100	\$25	3	\$25 x 3 = \$75
R	250w Pulse Start Metal Halide	400w Mercury Vapor	N	Warehouse	450	\$25	3	\$25 x 3 = \$75
N	New Doors 5' LED-Center	1L T-8 5'	N	Dairy Case #5	38	\$42	25	\$42 x 25=\$1,050
N	New Doors 5' LED-End	1L T-8 5'	N	Dairy Case #5	38	\$42	25	\$42 x 25=\$1,050
N	New 127w LED High Bay	400w Metal Halide	N	Warehouse	450	\$150	10	\$150 x 10=\$1,500
								\$0
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								\$0
								\$0
								\$0
								\$0
								\$0
Total (including additional sheets)								\$0

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
3. Incentives for T-5 and T-8 lamps with electronic ballasts are available only for fixtures with a Total Harmonic Distortion of $\leq 20\%$.
4. Incentives for retrofits/replacement of existing fixtures $\leq 250W$ to T-8 lighting requires high performance or reduced wattage lamps (4' only) and ballasts qualified by CEE. <http://www.cee.l.org/com-lt/com-lt-main.php5>
 - Incentives for delamped T-8 lamps with new reflectors are available only for fixtures with a total Harmonic Distortion of $< 20\%$. Electronic ballast replacement required for all eligible de-lamped fixtures. Eligible de-lamping can include reduction in linear lamp feet from existing conditions. For example, 1-8' linear fluorescent lamp can be considered as 2-4' linear lamps. U-bend lamps 4' in total length can be considered as 2-F17/T8 lamps.
 - Electronic ballast replacement is necessary for all eligible de-lamped fixtures.
 - Reduced wattage T8 (28W/25W 4') (1-4 lamps) retrofit requires lamp and ballast replacement.
5. For all eligible lighting devices, fixture or lamp must be listed by UL or other OSHA approved Nationally Recognized Testing Laboratory (NRTL) in accordance with applicable US standards.
6. Requirements for CFL fixtures (must meet all requirements):
 - Fixtures must be new and ENERGY STAR[®] qualified
 - Fixtures must have replaceable electronic ballasts
 - Total Harmonic Distortion (THD) must not exceed 33%
 - Power factor of the ballast must be no less than 90%
 - The manufacturer must warrant all fixtures for a minimum of 3 years. Warranty does not pertain to lamps or photocells not physically part of the fixture.
 - The installer must warrant installation of fixtures for a minimum of 1 year.
7. Screw-in PAR 38 or 30 Compact Fluorescent Lamps (CFL) with Aluminum Reflectors replacing existing incandescent fixtures.
 - Lamp must be ENERGY STAR[®] qualified where applicable. For ENERGY STAR[®] qualified and non-qualified product. ALL the following requirements must be met:
 - The lamp must be new and warranted by the manufacturer for 12 months, or one year
 - Average rated lamp life must be $\geq 8,000$ hours
 - Power factor of the ballast must be $> 50\%$
8. Pulse Start Metal Halide (including pole-mounted parking lot lighting) must have a 12% minimum wattage reduction.
9. T-5 or T-8 Fixtures replacing incandescent or T-12 fluorescent fixtures greater than 250 watt or High Intensity Discharge shall comply as follows:
 - T-5 fixtures replacing T-12 fluorescent or incandescent fixtures 250 watts or greater, or HID fixtures shall have a ballast factor greater than or equal to 1.0; have reflectivity greater than or equal to 91%; have a minimum 2 lamps; and be designated as F54T5 HO.
 - T-8 fixtures replacing T-12 fluorescent or incandescent fixtures 250 watts or greater, or HID fixtures shall have a ballast factor greater than or equal to 1.14; have reflectivity greater than or equal to 91%; have a minimum of 4 lamps; and be designated as F32T8, minimum 32 watts.
10. Incentive requirements for LED fixtures and lamps (excluding LED Exit Signs)
 - LED fixture or lamp must be listed on ENERGY STAR[®] or Design Lights Consortium Qualified (DLC) Product Lists.
 - For replacement of incandescent, fluorescent and HID only
 - LEDs categories not listed by ENERGY STAR^{®(1)(2)} or DLC⁽³⁾ qualified products will not be evaluated through Custom for incentive eligibility.
 - (1) http://www.energystar.gov/index.cfm?c=ssl.pr_commercial
 - (2) http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=ILB
 - (3) http://www.designlights.org/solidstate.about.QualifiedProductsList_Publicv2.php

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE _____

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form. I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.

New Jersey's Clean Energy Program
c/o TRC Energy Services
900 Route 9 North, Suite 404 • Woodbridge, NJ 07095
Phone: 866-657-6278 • Fax: 732-855-0422

Visit our website: NJCleanEnergy.com/ssb



Prescriptive Lighting Measures and Incentives

NEW FIXTURE INCENTIVES

Type of Fixture	Incentive		
Compact Fluorescent			
Recessed and Surface-Mounted Compact Fluorescents (New Fixtures Replacing Incandescent Fixtures Only): <small>Only available for hard-wired, electronically ballasted new fixtures with rare earth phosphor lamps and 4-pin based tubes (including: twin tube, quad tube, triple tube, 2D or circline lamps) or GU24 based lamps, THD<33% and BF>0.9</small>	\$25 per 1-lamp fixture \$30 per 2-lamp or more fixture		
Linear Fluorescent			
Type of Old Fixture	Wattage of Old Fixture	Type of New Fixture	Incentive Per Fixture Replaced
HID, T-12, Incandescent	≥ 1000 Watts	T-5, T-8	\$200
HID, T-12, Incandescent	400-999 Watt	T-5, T-8	\$100
HID, T-12, Incandescent	250-399 Watt	T-5, T-8	\$50
HID only	175-249 Watt	T-5, T-8	\$43
HID only	100-174 Watt	T-5, T-8	\$30
HID only	75-99 Watt	T-5, T-8	\$16
T-12 only	<250 Watt	T-5, T-8 (1-4 lamps)	\$25
Induction Lighting			
Replacement of HID	\$70 per HID (≥100w) fixture replaced with a new induction fixture. Replacement unit must use 30% less wattage per fixture than existing HID system.		
LED Lighting			
LED Exit Signs (new fixtures only): For existing facilities with connected load <75 kW For existing facilities with connected load ≥ 75 kW	\$20 per fixture \$10 per fixture		
LED Display Case Lighting	\$30 per display case		
LED Shelf-Mounted Display and Task Lights	\$15 per linear foot		
LED Portable Desk Lamps	\$20 per fixture		
LED Wall-Wash Lights	\$30 per fixture		
LED Recessed Down Lights	\$35 per fixture		
LED Outdoor Pole/Arm-Mounted Area and Roadway Luminaires	\$175 per fixture		
LED Outdoor Pole/Arm-Mounted Decorative Luminaires	\$175 per fixture		
LED Outdoor Wall-Mounted Area Luminaires	\$100 per fixture		
LED Parking Garage Luminaires	\$100 per fixture		
LED Track or Mono-Point Directional Lighting Fixtures	\$50 per fixture		
LED High-Bay and Low-Bay Fixtures for Commercial & Industrial Buildings	\$150 per fixture		
LED High-Bay-Aisle Lighting	\$150 per fixture		
LED Bollard Fixtures	\$50 per fixture		
LED Linear Panels (1x4, 2x2, 2x4 Troffers Only)	\$50 per fixture		
LED Fuel Pump Canopy	\$100 per fixture		
LED Screw-based & Pin-based (PAR, MR, BR, R) Standards (A-Style) and Decorative (globe, candelabra, etc.) Lamps	\$20 per lamp		
LED Refrigerated/Freezer Case Lighting: Incentive for replacement of fluorescent lighting systems in medium or low temperature display cases	\$30 per 4' fixture \$42 per 5' fixture \$65 per 6' fixture		
LED Retrofit Kits	To be evaluated through the custom measures path		
Pulse-Start Metal Halide			
Pulse Start metal Halide (for fixtures ≥ 150 watts)	\$25 per fixture (includes parking lot lighting)		
RETROFIT INCENTIVES			
Compact Fluorescent			
Screw-in PAR 38 or PAR 30 (CFL) as per requirement 7.	\$7 per lamp replaced		
Linear Fluorescent Lighting			
High-Efficiency Fluorescent Fixtures: For retrofit of T-12 fixtures to T-5 or T-8 with electric ballasts	\$10 per fixture (1-4 lamps retrofits)		
For retrofit of T-8 fixtures by permanent delamping & new reflectors. Electronic ballast replacement required for all eligible delamped fixtures.	\$15 per fixture		
T-12 to T-8 fixtures by permanent delamping & new reflectors. Electronic ballast replacement required for all eligible delamped fixtures.	\$20 per fixture		
Retrofit of existing 32 watt T-8 system to reduced wattage (28w/25w 4')	\$10 per fixture (1-4 lamps)		
Induction Lighting			
\$50 per HID (≥100w) fixture retrofitted with induction lamp	\$50 per HID (≥100w) fixture retrofitted with induction lamp, power coupler and generator. Replacement unit must use 30% less wattage per fixture than existing HID system.		
New Construction & Complete Renovation - Performance based only			

Program Terms and Conditions

Definitions:

Design Incentives – Incentives that may be offered to design professionals by the Program.

Design Services – Services that may be offered to design professionals under the Program.

Energy-Efficient Measures – Any device eligible to receive a Program Incentive payment through the NJ Clean Energy Commercial and Industrial Program (New Jersey SmartStart Buildings).

New Jersey Utilities – The regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

Administrator – New Jersey Board of Public Utilities, Office of Clean Energy

Participating Customers – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

Product Installation or Equipment Installation – Installation of the Energy-Efficient Measures.

Program – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, N.J.S.A. 48:3-49, et seq.

Program Incentives – Refers to the amount or level of incentive that the Program provides to Participating Customers pursuant to the Program offered herein (see description under “Incentive Amount” heading).

Program Offer – Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities identified above. Program Incentives for new construction are available only for projects in areas designated for growth in the State Plan. Public school (K-12) new construction projects are exempted from this restriction and are eligible for new Program incentives throughout the State. Customers, or their trade allies, can determine if a location is in a designated growth area by referring to the Smart Growth Locator available from the HMFA website or contact the Program Manager if you are uncertain about project eligibility.

Program Manager – TRC Energy Services.

Application and Eligibility Process – The Program pays incentives after the installation of qualified energy-efficient measures that were pre-approved (for exceptions to this condition, please refer to “Exceptions for Approval”.) In order to be eligible for Program Incentives, a Customer, or an agent (contractor/vendor) authorized by a Customer, must submit a properly completed application package. The package must include an application signed by the customer; a complete (current) utility bill; and technology worksheet and manufacturer’s cut sheets (where appropriate). This information must be submitted to the Program Manager before equipment is installed. Applications for measures that are self installed by customers must be submitted by the customer and not the sales vendor of the measure, however, the customer may elect to assign payment of the incentive to the sales vendor. This application package must be received by the Program Manager on or before December 31, 2012 in order to be eligible for 2012 incentives. The Program Manager will review the application package to determine if the project is eligible for a Program Incentive. If eligible, the Customer will receive an approval letter with the estimated authorized incentive amount and the date by which the equipment must be installed in order for the approval to remain in effect. Upon receipt of an approval letter, the Customer may then proceed to install the equipment listed on the approved application. Equipment installed prior to the date of the Program Manager’s approval letter is not eligible for an incentive. The Program Manager reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the approval letter. All equipment must be purchased within 12 months of date of application. **Any Customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Exceptions for Approval – The Application and Eligibility Process pertains to all projects except for those involving either Unitary HVAC or Motors having an incentive amount less than \$5,000. These measures, at this incentive level, may be installed without prior approval. In addition, but at the sole discretion of the Program Manager, emergency replacement of equipment may not require a prior approval determination and letter. **In such cases, please notify the Program Manager of such emergencies as early as possible, that an application will soon be sent in that was not pre-approved.**

Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager’s initial approval letter.

Please refer to the program guide on the NJCleanEnergy.com/ssb website for the complete Application and Eligibility Process.

The Program Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing product or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time.

Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

Equipment procured by Participating Customers through another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, is not eligible for incentives through this program. Customers who have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility are not eligible for incentives offered through this program.

Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Electric Chillers Application

Customer Information

Company		Electric Serving Applicant		Electric Account No.		Anticipated Installation Date	
Facility Address				City		State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement						Size of Building	
Company Mailing Address				City		State	Zip
Contact Person (Name/Title)				Telephone No. ()		Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt				Federal Tax ID# or SSN		E-mail Address	
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other				Please assign payment to contractor/vendor/other indicated below Customer Signature			

Payee Information (must submit W-9 form with application)

Company						Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		E-mail Address	
Street Address						City		State	Zip	Federal Tax ID#	
										Telephone No. ()	
										Fax No. ()	

Contractor/Vendor Information (if different from Payee)

Company						Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		E-mail Address	
Street Address						City		State	Zip	Federal Tax ID#	
										Telephone No. ()	
										Fax No. ()	

Building Type (circle one)

Commercial-Retail; Commercial-Other than Retail; Office; School-Public K-12; School-University-Public; School-University-Private; School-Other; Hospital; Government-Municipality; Government-Other than Municipality; Farm; Non-Profit; Other

Electric Chiller Equipment Information

Reason N - New R-Replaced	Type A - Air Cooled (w/Condenser) B - Air Cooled (w/o Condenser) WCR - Water Cooled (Reciprocating) WCS - Water Cooled (Screw/Scroll) WCC - Water Cooled (Centrifugal)	VFD Y/N	Manufacturer	Model	Location (Bldg/Rm)	Full Load kW/ton	Part Load kW/ton	A Unit Size (Tons)	B Incentive Per Ton (Table)	C # of Units	Total Incentives (AxBxC)
(Example) N	W	N	ACME	RRC/1957	Mech Rm #4	0.54	0.49	200	\$26	1	200 x \$26 x 1 = \$5,200
N	W	Y	ACME	RRC/1958	MechRm #5	0.55	0.40	250	\$79	1	250 x \$79 x 1 = \$19,750
Total											

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements.
2. Please submit manufacturer's certified AHRI performance sheet with the application package and mail or fax directly to the Commercial/ Industrial Program Manager.
3. Incentive is available for meeting either the full load kW/ton level or the partial load kW/ton, but not both.
4. Incentives are available for new centrifugal chillers outfitted at the factory with Variable Frequency Drives (VFDs) calculated at the appropriate partial load kW/ton level. There is no extra incentive for the VFD.
5. All water cooled chillers must be submitted at AHRI conditions of:
 - Evaporator - 54 degrees entering water temperature (EWT) and 44 degrees leaving water temperature (LWT)
 - Condenser - 85 degrees EWT and 95 degrees LWT
6. Efficiency requirements to comply with ASHRAE standard 90.1-2007

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Electric Chillers Efficiency Levels and Incentives*

Water-Cooled Chillers			Water-Cooled Chillers					Air-Cooled Chillers		
All Compressor Types	Incentives (<70 tons)	Incentives (70 to <150 tons)	All Compressor Types	Incentives (150 to <300 tons)		Incentives (≥300 tons)		All Compressor Types	Incentives (<150 tons)	Incentives (≥150 tons)
				Full Load \$/Ton	Full Load \$/Ton	(PLV) \$/Ton	Full Load \$/Ton			
0.75	\$16	\$25	0.56	\$16				1.20	\$14	\$8
0.74	\$18	\$26	0.55	\$21				1.19	\$16	\$10
0.73	\$20	\$27	0.54	\$26				1.18	\$18	\$12
0.72	\$22	\$28	0.53	\$31				1.17	\$20	\$14
0.71	\$24	\$30	0.52	\$36				1.16	\$22	\$16
0.70	\$26	\$32	0.51	\$41				1.15	\$24	\$18
0.69	\$28	\$34	0.50	\$46	\$16			1.14	\$26	\$20
0.68	\$30	\$36	0.49	\$51	\$22			1.13	\$28	\$22
0.67	\$32	\$38	0.48	\$56	\$29			1.12	\$30	\$24
0.66	\$34	\$40	0.47	\$61	\$35	\$12		1.11	\$32	\$26
0.65	\$36	\$42	0.46	\$66	\$41	\$14	\$12	1.10	\$34	\$28
0.64	\$38	\$44	0.45	\$71	\$47	\$16	\$14	1.09	\$36	\$30
0.63	\$40	\$46	0.44	\$76	\$54	\$18	\$16	1.08	\$38	\$32
0.62	\$42	\$48	0.43	\$81	\$60	\$20	\$18	1.07	\$40	\$34
0.61	\$44	\$50	0.42	\$86	\$66	\$25	\$20	1.06	\$42	\$36
0.60	\$46	\$52	0.41	\$91	\$72	\$30	\$25	1.05	\$44	\$38
0.59	\$48	\$54	0.40	\$96	\$79	\$40	\$30	1.04	\$46	\$40
0.58	\$50	\$56	0.39	\$101	\$85	\$50	\$42	1.03	\$48	\$42
0.57	\$52	\$58	0.38	\$106	\$91	\$60	\$53	1.02	\$50	\$44
0.56	\$54	\$60	0.37	\$111	\$97	\$70	\$65	1.01	\$52	\$46
			0.36	\$116	\$104	\$80	\$77			
			0.35	\$121	\$110	\$90	\$89			
			0.34	\$126	\$116	\$100	\$100			
			0.33	\$131	\$122	\$110	\$112			
			0.32	\$136	\$129	\$120	\$124			
			0.31	\$141		\$130				
			0.30			\$140				
			0.29			\$150				
			0.28			\$160				
			0.27			\$170				
			0.26							

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Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager’s initial approval letter.

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Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

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Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Gas Cooling Application

Customer Information				
Company		Gas Utility Serving Applicant		Gas Account No.
Facility Address		City		State Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement			Size of Building	
Company Mailing Address		City		State Zip
Contact Person (Name/Title)		Telephone No. ()		Fax No. ()
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt		Federal Tax ID# or SSN		E-mail Address
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other		Please assign payment to contractor/vendor/other indicated below Customer Signature		

Payee Information (must submit W-9 form with application)				E-mail Address	
Company		Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Street Address		City		State Zip	Federal Tax ID#
				Telephone No. ()	Fax No. ()

Contractor/Vendor Information (if different from Payee)				E-mail Address	
Company		Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Street Address		City		State Zip	Federal Tax ID#
				Telephone No. ()	Fax No. ()

Building Type (circle one)
Commercial-Retail; Commercial-Other than Retail; Office; School-Public K-12; School-University-Public; School-University-Private; School-Other; Hospital; Government-Municipality; Government-Other than Municipality; Farm; Non-Profit;Other

Gas Cooling Equipment Information										
Reason N–New R–Replaced	Type A–Absorption D–Desiccant	Manufacturer/ Model	Vaccum Boiler Effic.	Boiler Input Rating Therms/hr	Parasitic Load kW/Ton	A Unit Size (Tons)	B Unit Efficiency (C.O.P.)	C Incentive \$/ton (Table)	D Quantity	E Total Incentives (AxCx D)
(Example) N	A	ACME/GF1011	80%	100	0.1	10	1.1	\$450	1	10 x \$450 x 1 = \$4,500
									Total	

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
3. Chiller full and part load efficiencies are determined in accordance with A.H.R.I standard 550/590-2003.
4. Efficiency requirements to comply with ASHRAE 90.1-2007.

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Gas Cooling Equipment Efficiency Levels and Incentives*

Gas Absorption Chillers			Regenerative Desiccant Units
Size Range	Indirect-Fired (Incentive & Efficiency Threshold)	Direct-Fired (Incentive & Efficiency Threshold)	Incentive per CFM (based on process airflow)
<100 tons	≥1.1 F.L. COP \$450/ton	≥1.1 F.L. COP \$450/ton	\$1.00 per CFM
100 to 400 tons	≥1.1 F.L. COP \$230/ton	≥1.1 F.L. COP \$230/ton	Eligible when matched with core gas or electric cooling equipment
>400 tons (only two-stage chillers)	≥1.1 F.L. COP \$185/ton	≥1.1 F.L. COP \$185/ton	

Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.

New Jersey's Clean Energy Program
 c/o TRC Energy Services
 900 Route 9 North, Suite 404 • Woodbridge, NJ 07095
 Phone: 866-657-6278 • Fax: 732-855-0422

Visit our website: NJCleanEnergy.com

New Jersey SmartStart Buildings® is a registered trademark. Use of the mark without the permission of the New Jersey Board of Public Utilities, Office of Clean Energy is prohibited.

*Incentives/Requirements subject to change.



Program Terms and Conditions

Definitions:

Design Incentives – Incentives that may be offered to design professionals by the Program.

Design Services – Services that may be offered to design professionals under the Program.

Energy-Efficient Measures – Any device eligible to receive a Program Incentive payment through the NJ Clean Energy Commercial and Industrial Program (New Jersey SmartStart Buildings).

New Jersey Utilities – The regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

Administrator – New Jersey Board of Public Utilities, Office of Clean Energy

Participating Customers – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

Product Installation or Equipment Installation – Installation of the Energy-Efficient Measures.

Program – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

Program Incentives – Refers to the amount or level of incentive that the Program provides to Participating Customers pursuant to the Program offered herein (see description under “Incentive Amount” heading).

Program Offer – Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities identified above. Program Incentives for new construction are available only for projects in areas designated for growth in the State Plan. Public school (K-12) new construction projects are exempted from this restriction and are eligible for new Program incentives throughout the State. Customers, or their trade allies, can determine if a location is in a designated growth area by referring to the Smart Growth Locator available from the HMFA website or contact the Program Manager if you are uncertain about project eligibility.

Program Manager – TRC Energy Services.

Application and Eligibility Process – The Program pays incentives after the installation of qualified energy-efficient measures that were pre-approved (for exceptions to this condition, please refer to “Exceptions for Approval”). In order to be eligible for Program Incentives, a Customer, or an agent (contractor/vendor) authorized by a Customer, must submit a properly completed application package. The package must include an application signed by the customer; a complete (current) utility bill; and technology worksheet and manufacturer’s cut sheets (where appropriate). This information must be submitted to the Program Manager before equipment is installed. Applications for measures that are self installed by customers must be submitted by the customer and not the sales vendor of the measure, however, the customer may elect to assign payment of the incentive to the sales vendor. This application package must be received by the Program Manager on or before December 31, 2012 in order to be eligible for 2012 incentives. The Program Manager will review the application package to determine if the project is eligible for a Program Incentive. If eligible, the Customer will receive an approval letter with the estimated authorized incentive amount and the date by which the equipment must be installed in order for the approval to remain in effect. Upon receipt of an approval letter, the Customer may then proceed to install the equipment listed on the approved application. Equipment installed prior to the date of the Program Manager’s approval letter is not eligible for an incentive. The Program Manager reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the approval letter. All equipment must be purchased within 12 months of date of application. **Any Customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Exceptions for Approval – The Application and Eligibility Process pertains to all projects except for those involving either Unitary HVAC or Motors having an incentive amount less than \$5,000. These measures, at this incentive level, may be installed without prior approval. In addition, but at the sole discretion of the Program Manager, emergency replacement of equipment may not require a prior approval determination and letter. **In such cases, please notify the Program Manager of such emergencies as early as possible, that an application will soon be sent in that was not pre-approved.**

Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager’s initial approval letter.

Please refer to the program guide on the NJCleanEnergy.com/ssb website for the complete Application and Eligibility Process.

The Program Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing product or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time.

Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

Equipment procured by Participating Customers through another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, is not eligible for incentives through this program. Customers who have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility are not eligible for incentives offered through this program.

Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Electric Unitary HVAC Application

Customer Information

Company		Electric Serving Applicant	Electric Account No.	Anticipated Installation Date	
Facility Address			City	State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement				Size of Building	
Company Mailing Address			City	State	Zip
Contact Person (Name/Title)			Telephone No. ()	Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt			Federal Tax ID# or SSN	E-mail Address	
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other			Please assign payment to contractor/vendor/other indicated below Customer Signature		

Payee Information (must submit W-9 form with application)

Company				Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	E-mail Address	
Street Address		City	State	Zip	Telephone No. ()	Fax No. ()	

Contractor/Vendor Information (if different from Payee)

Company				Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	E-mail Address	
Street Address		City	State	Zip	Telephone No. ()	Fax No. ()	

Building Type (circle one)

Commercial-Retail; Commercial-Other than Retail; Office; School-Public K-12; School-University-Public; School-University-Private; School-Other; Hospital; Government-Municipality; Government-Other than Municipality; Farm; Non-Profit; Other

Electric Unitary HVAC Equipment Information

Reason N-New R-Replaced	Type A-ASHP D-DXAC P-PTS S-Split U-Unitary W-WSHP	Manuf.	Model	A Unit Size Cooling (Btuh)	B Cooling Efficiency (EER or SEER)	C Has Dual Enthalpy Economizer? 0-No 1-Yes	D Incentive \$/ton (Table)	ASHP or WSHP Unit Size Heating (Btuh)	Heating Efficiency (COP or HSPF)	E Quantity	F Total Incentives ($\frac{A \times D \times E}{12,000}$) + C x Ex250 12,000
(Example) N	U	ACME	HV1011	120,000	11.5	1	\$73	N/A	N/A	2	$\frac{120,000 \times 73 \times 2}{12,000} + (1)(2)(250) = \$1,960$
*Split Systems: List matching Indoor and Outdoor Components **AHRI Certified Net Capacity and Rating										Total: \$	

Occupancy Controlled Thermostats

T _h =Heating Season Facility Temp. (°F)	T _c =Cooling Season Facility Temp. (°F)	H=Weekly Occupied Hours	Cap _{hp} = Connected load capacity of heat pump/AC (Tons)	Cap _h = Connected heating Load capacity (Btu/hr)	AFUE _h = Heating Equipment Efficiency	EER _{hp} =Heat Pump/AC Equipment Efficiency	Number of OCC. Controlled Thermostats	Total Incentives - \$75/OCT x # of units
(Example) 72 deg F	70 deg F	56	N/A	200,000 btu	95%	12 EER	10	\$750
							Total	

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements.
2. Include the manufacturer's specification sheet and AHRI Certified Net Capacity with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
3. Both indoor and outdoor components of a split system must be replaced to qualify for an incentive.
4. Incentive calculation is based on the Electric Unitary HVAC equipment capacity at AHRI Certified Net Capacity and Rating at operating conditions; it is not based on the nominal Electric Unitary HVAC equipment capacity.
5. Dual Enthalpy Economizer Control incentive is available with new installation on qualifying Electric Unitary HVAC equipment.
6. Efficiency requirements to comply with ASHRAE 90.1-2007.
7. Incentives for qualifying Central DX AC Systems >63 tons for existing buildings only. New construction ineligible

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Electric Unitary HVAC Efficiency Levels and Incentives*

Unitary HVAC/Split Systems		Water Source Heat Pumps	
<5.4 tons	14.0 SEER \$92/ton	≤5.4 tons	14.0 EER \$81/ton
≥5.4 to <11.25 tons	11.5 EER \$73/ton	>5.4 tons	14.0 EER \$81/ton
≥11.25 to <20 tons	11.5 EER \$79/ton	Central DX AC Systems	
≥20 to 30 tons	10.5 EER \$79/ton	>30 to 63 tons	≥9.5 EER \$40/ton
Air-to-Air Heat Pump Systems		> 63 tons	≥9.5 EER \$72/ton
<5.4 tons	14 SEER & 7.8 HSPF \$92/ton	Dual Enthalpy Economizer Controls	
≥5.4 to <11.25 tons	11.5 EER \$73/ton	All	\$250/unit
≥11.25 to <20 tons	11.5 EER \$79/ton	Occupancy Controlled Thermostats for Hospitality/Institutional Facilities	
≥20 to 30 tons	10.5 EER \$79/ton	All	\$75/unit
Packaged Terminal Systems			
<9,000 BTUH	12.0 EER \$65/ton		
≥9,000 to 12,000 BTUH	11.0 EER \$65/ton		
>12,000 BTUH	10.0 EER \$65/ton		

Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.

New Jersey's Clean Energy Program
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 Phone: 866-657-6278 • Fax: 732-855-0422

Visit our website: NJCleanEnergy.com



Program Terms and Conditions

Definitions:

Design Incentives – Incentives that may be offered to design professionals by the Program.

Design Services – Services that may be offered to design professionals under the Program.

Energy-Efficient Measures – Any device eligible to receive a Program Incentive payment through the NJ Clean Energy Commercial and Industrial Program (New Jersey SmartStart Buildings).

New Jersey Utilities – The regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

Administrator – New Jersey Board of Public Utilities, Office of Clean Energy

Participating Customers – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

Product Installation or Equipment Installation – Installation of the Energy-Efficient Measures.

Program – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

Program Incentives – Refers to the amount or level of incentive that the Program provides to Participating Customers pursuant to the Program offered herein (see description under “Incentive Amount” heading).

Program Offer – Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities identified above. Program Incentives for new construction are available only for projects in areas designated for growth in the State Plan. Public school (K-12) new construction projects are exempted from this restriction and are eligible for new Program incentives throughout the State. Customers, or their trade allies, can determine if a location is in a designated growth area by referring to the Smart Growth Locator available from the HMFA website or contact the Program Manager if you are uncertain about project eligibility.

Program Manager – TRC Energy Services.

Application and Eligibility Process – The Program pays incentives after the installation of qualified energy-efficient measures that were pre-approved (for exceptions to this condition, please refer to “Exceptions for Approval”). In order to be eligible for Program Incentives, a Customer, or an agent (contractor/vendor) authorized by a Customer, must submit a properly completed application package. The package must include an application signed by the customer; a complete (current) utility bill; and technology worksheet and manufacturer’s cut sheets (where appropriate). This information must be submitted to the Program Manager before equipment is installed. Applications for measures that are self installed by customers must be submitted by the customer and not the sales vendor of the measure, however, the customer may elect to assign payment of the incentive to the sales vendor. This application package must be received by the Program Manager on or before December 31, 2012 in order to be eligible for 2012 incentives. The Program Manager will review the application package to determine if the project is eligible for a Program Incentive. If eligible, the Customer will receive an approval letter with the estimated authorized incentive amount and the date by which the equipment must be installed in order for the approval to remain in effect. Upon receipt of an approval letter, the Customer may then proceed to install the equipment listed on the approved application. Equipment installed prior to the date of the Program Manager’s approval letter is not eligible for an incentive. The Program Manager reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the approval letter. All equipment must be purchased within 12 months of date of application. **Any Customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Exceptions for Approval – The Application and Eligibility Process pertains to all projects except for those involving either Unitary HVAC or Motors having an incentive amount less than \$5,000. These measures, at this incentive level, may be installed without prior approval. In addition, but at the sole discretion of the Program Manager, emergency replacement of equipment may not require a prior approval determination and letter. **In such cases, please notify the Program Manager of such emergencies as early as possible, that an application will soon be sent in that was not pre-approved.**

Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager’s initial approval letter.

Please refer to the program guide on the NJCleanEnergy.com/ssb website for the complete Application and Eligibility Process.

The Program Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing product or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time.

Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

Equipment procured by Participating Customers through another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, is not eligible for incentives through this program. Customers who have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility are not eligible for incentives offered through this program.

Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Ground Source Heat Pump Application

Customer Information

Company		Electric Utility Serving Applicant		Electric Account No.		Anticipated Installation Date	
Facility Address				City		State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement						Size of Building	
Company Mailing Address				City		State	Zip
Contact Person (Name/Title)				Telephone No. ()		Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt				Federal Tax ID# or SSN		E-mail Address	
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other				Please assign payment to contractor/vendor/other indicated below Customer Signature			

Payee Information (must submit W-9 form with application)

Company						Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		E-mail Address	
Street Address						City		State	Zip	Telephone No. ()	
										Fax No. ()	

Contractor/Vendor Information (if different from Payee)

Company						Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		E-mail Address	
Street Address						City		State	Zip	Telephone No. ()	
										Fax No. ()	

Building Type (circle one)

Commercial-Retail; Commercial-Other than Retail; Office; School-Public K-12; School-University-Public; School-University-Private; School-Other; Hospital; Government-Municipality; Government-Other than Municipality; Farm; Non-Profit; Other

Ground Source Heat Pump Equipment Information

Manuf.	Model	A Unit Size Cooling (Btuh)	B Cooling Efficiency (EER)	C Incentive \$/ton (Table)	D Unit Size Heating (Btuh)	E Heating Efficiency (COP or HSPF)	F Quantity	G Equipment Incentive (AxCx) 12,000
ACME	HV1011	51,000	16	\$450	45,000	3.5	4	$\frac{51,000 \times \$450 \times 4}{12,000} = \$7,650$
Total								

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
3. Performance ratings (EER, Btuh) for qualifying closed loop Ground Source Heat Pump equipment are calculated at 77 degrees Fahrenheit entering water temperature per test procedure ISO-13256-1.
4. No incentives are available for open loop Ground Source Heat Pump equipment.
5. Efficiency requirements to comply with ASHRAE 90.1-2007.

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Ground Source Heat Pump Equipment Efficiency Levels and Incentives*

Ground Loop & Ground Water Heat Pumps

Type	Qualifying Efficiency Level	Incentive
Closed Loop ≥ 16 EER	≥ 16 EER	Up to \$450 per ton
ENERGY STAR® rated equipment only	≥ 18 EER	Up to \$600 per ton
	≥ 20 EER	Up to \$750 per ton

Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.

New Jersey's Clean Energy Program
 c/o TRC Energy Services
 900 Route 9 North, Suite 404 • Woodbridge, NJ 07095
 Phone: 866-657-6278 • Fax: 732-855-0422

Visit our website: NJCleanEnergy.com



Program Terms and Conditions

Definitions:

Design Incentives – Incentives that may be offered to design professionals by the Program.

Design Services – Services that may be offered to design professionals under the Program.

Energy-Efficient Measures – Any device eligible to receive a Program Incentive payment through the NJ Clean Energy Commercial and Industrial Program (New Jersey SmartStart Buildings).

New Jersey Utilities – The regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

Administrator – New Jersey Board of Public Utilities, Office of Clean Energy

Participating Customers – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

Product Installation or Equipment Installation – Installation of the Energy-Efficient Measures.

Program – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

Program Incentives – Refers to the amount or level of incentive that the Program provides to Participating Customers pursuant to the Program offered herein (see description under “Incentive Amount” heading).

Program Offer – Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities identified above. Program Incentives for new construction are available only for projects in areas designated for growth in the State Plan. Public school (K-12) new construction projects are exempted from this restriction and are eligible for new Program incentives throughout the State. Customers, or their trade allies, can determine if a location is in a designated growth area by referring to the Smart Growth Locator available from the HMFA website or contact the Program Manager if you are uncertain about project eligibility.

Program Manager – TRC Energy Services.

Application and Eligibility Process – The Program pays incentives after the installation of qualified energy-efficient measures that were pre-approved (for exceptions to this condition, please refer to “Exceptions for Approval”). In order to be eligible for Program Incentives, a Customer, or an agent (contractor/vendor) authorized by a Customer, must submit a properly completed application package. The package must include an application signed by the customer; a complete (current) utility bill; and technology worksheet and manufacturer’s cut sheets (where appropriate). This information must be submitted to the Program Manager before equipment is installed. Applications for measures that are self installed by customers must be submitted by the customer and not the sales vendor of the measure, however, the customer may elect to assign payment of the incentive to the sales vendor. This application package must be received by the Program Manager on or before December 31, 2012 in order to be eligible for 2012 incentives. The Program Manager will review the application package to determine if the project is eligible for a Program Incentive. If eligible, the Customer will receive an approval letter with the estimated authorized incentive amount and the date by which the equipment must be installed in order for the approval to remain in effect. Upon receipt of an approval letter, the Customer may then proceed to install the equipment listed on the approved application. Equipment installed prior to the date of the Program Manager’s approval letter is not eligible for an incentive. The Program Manager reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the approval letter. All equipment must be purchased within 12 months of date of application. **Any Customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Exceptions for Approval – The Application and Eligibility Process pertains to all projects except for those involving either Unitary HVAC or Motors having an incentive amount less than \$5,000. These measures, at this incentive level, may be installed without prior approval. In addition, but at the sole discretion of the Program Manager, emergency replacement of equipment may not require a prior approval determination and letter. **In such cases, please notify the Program Manager of such emergencies as early as possible, that an application will soon be sent in that was not pre-approved.**

Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager’s initial approval letter.

Please refer to the program guide on the NJCleanEnergy.com/ssb website for the complete Application and Eligibility Process.

The Program Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing product or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time.

Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

Equipment procured by Participating Customers through another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, is not eligible for incentives through this program. Customers who have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility are not eligible for incentives offered through this program.

Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Gas Heating Application

Customer Information

Company		Gas Utility Serving Applicant		Gas Account No.		Anticipated Installation Date	
Facility Address				City		State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement						Size of Building	
Company Mailing Address				City		State	Zip
Contact Person (Name/Title)				Telephone No. ()		Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt				Federal Tax ID# or SSN		E-mail Address	
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other				Please assign payment to contractor/vendor/other indicated below Customer Signature			

Payee Information (must submit W-9 form with application)

Company						Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		E-mail Address	
Street Address				City		State	Zip	Telephone No. ()		Fax No. ()	

Contractor/Vendor Information (if different from Payee)

Company						Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		E-mail Address	
Street Address				City		State	Zip	Telephone No. ()		Fax No. ()	

Building Type (circle one)

Education; Food Sales; Food Service; Health Care; Lodging; Retail; Office; Public Assembly; Public Order/Safety; Religious Worship; Service; Warehouse/Storage; Other

Building Location (circle the city closest to building site)

Atlantic City, NJ; Newark, NJ; Philadelphia, PA; Monticello, NY

Gas Heating Equipment Information

Reason N–New R–Replaced	Type B–Boiler F–Furnace	Manufacturer	Model	A Unit Size (MBH Input)	B Unit Efficiency (AFUE) (%)	C Incentive \$/Unit (Table)	D Quantity	E Total Incentives (Cx D)
(Example) N	F	ACME	GF1011	100	95	\$400	2	\$400 x 2 = \$800
R	B	ACME	B1500	1,500 MBH	85	\$1.75	2	1500 x \$1.75 x 2 = \$5,250
Total								

Specific Program Requirements* (These requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the Program Guide for additional applicable technical requirements.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Market Manager.

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Gas Heating Equipment Efficiency Levels and Incentives*		
Gas Fired Boilers		
Capacity - MBH	Minimum Efficiency	Incentive
<300 MBH	85% AFUE	\$2.00 per MBH but not less than \$300 per unit
≥ 300 MBH - 1500 MBH	85% AFUE for Hot Water boilers 84% AFUE for Steam boilers	\$1.75 per MBH
>1500 - ≤ 4000 MBH	84% AFUE for Hot Water boilers 83% AFUE for Steam boilers	\$1.00 per MBH
> 4000 MBH	See Custom Measure Path	
Gas Furnaces – Minimum Efficiency ≥ 95% AFUE, ≥ 2.0% Fan Efficiency, ENERGY STAR®		
Capacity	Incentive	
No size/capacity limitation	\$400 per furnace	

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Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Variable Frequency Drives Application

Customer Information

Company		Electric Utility Serving Applicant	Electric Account No.	Anticipated Installation Date	
Facility Address			City	State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement				Size of Building	
Company Mailing Address			City	State	Zip
Contact Person (Name/Title)			Telephone No. ()	Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt			Federal Tax ID# or SSN		E-mail Address
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other			Please assign payment to contractor/vendor/other indicated below Customer Signature		

Payee Information (must submit W-9 form with application)

Company					Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	E-mail Address	Federal Tax ID#
Street Address			City	State	Zip	Telephone No. ()	Fax No. ()	

Contractor/Vendor Information (if different from Payee)

Company					Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	E-mail Address	Federal Tax ID#
Street Address			City	State	Zip	Telephone No. ()	Fax No. ()	

Building Type (circle one)

Commercial-Retail; Commercial-Other than Retail; Office; School-Public K-12; School-University-Public; School-University-Private; School-Other; Hospital; Government-Municipality; Government-Other than Municipality; Farm; Non-Profit; Other

Variable Frequency Drive Information

Reason N-New R-Retrofit	Type of Usage F – Airfoil/Backward Inclined fan C – Forward Curved Fan P – Chilled Water Pump A – Air Compressor T – Cooling Tower	Manufacturer	Model	Annual Operating Hours	Drive Efficiency %	Motor Efficiency %	Location (Bldg/Rm)	A HP of Controlled Motors	B Incentive per HP (Table)	C # of Units	Total Incentives (AxBxC)
(Example) N	F	ACME	RR/C1957	4,000	97	94.1	Mech. Rm. #4	30	\$65	2	30 x \$65 x 2 = \$3,900
Total											

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

- Please refer to the program guide for additional applicable technical requirements.
 - Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
 - Incentives for VFDs in HVAC VAV systems, are available only for installing a VFD on existing VAV systems as an add-on measure. Replacement of an existing VFD on VAV systems and installations on VAV systems in new construction are not eligible for incentives.
 - The Variable Frequency Drive (VFD) incentive for cooling towers is available for existing single speed motors only. Replacement of two speed motor with single speed/VFD motor, replacement of existing VFD and new construction do not qualify.
 - The Variable Frequency Drive (VFD) incentive for pumps is available only for VFDs installed on centrifugal chilled water pump motors for HVAC systems.
 - The VFDs must be installed in a system (VAV air supply or chilled water pumping systems) that incorporates pressure sensors (or other applicable sensor devices) in the flow stream.
- For Compressed Air Systems:
- Incentives are available for new air or water cooled, single or double stage, oil lubricated or oil free twin rotor screw air compressors outfitted with VFDs (providing compressed air for typical plant air use).
 - Replacement of VFD on an existing air compressor that had VFD control is not eligible for incentives.
 - Incentives for retrofitting an existing qualified air compressor with VFD control may be available through the custom electric equipment program.
 - VFD controlled compressors with premium efficiency motors may be eligible for a premium motor incentive in addition to this prescriptive VFD incentive.
 - Only one VFD controlled air compressor will be eligible for an incentive for each compressed air system.
 - The applicant shall provide sufficient documentation to demonstrate that a VFD controlled air compressor operates, at a minimum, for 2000 hours annually. Documentation may include P&IDs, Control Logic Diagrams, and Plant Operating Schedules.
- For All VFDs:
- The VFD must have either an input line reactor or isolation transformer.

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Variable Frequency Drive Incentives*

Centrifugal Fan Applications on Variable Air Volume HVAC Systems

Cumulative Motor HP Controlled by Each VFD	Incentive \$/Cumulative HP Controlled
5 to <10 hp	\$155 per hp
10 to <20 hp	\$120 per hp
20+ hp	\$65 per hp
Cooling Tower Fan Systems	
≥ 10 hp	\$60 per VFD rated hp
Chilled Water Pump Motors for HVAC Systems	
20+ hp	\$60 per VFD rated hp
Rotary Screw Air Compressors	
25 to 29 hp	Up to \$5,250
30 to 39 hp	Up to \$6,000
40 to 49 hp	Up to \$7,200
50 to 59 hp	Up to \$8,000
60 to 199 hp	Up to \$9,000
200 to 249 hp	Up to \$10,000
≥ 250 hp	Up to \$12,500

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Exceptions for Approval – The Application and Eligibility Process pertains to all projects except for those involving either Unitary HVAC or Motors having an incentive amount less than \$5,000. These measures, at this incentive level, may be installed without prior approval. In addition, but at the sole discretion of the Program Manager, emergency replacement of equipment may not require a prior approval determination and letter. **In such cases, please notify the Program Manager of such emergencies as early as possible, that an application will soon be sent in that was not pre-approved.**

Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager’s initial approval letter.

Please refer to the program guide on the NJCleanEnergy.com/ssb website for the complete Application and Eligibility Process.

The Program Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing product or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time.

Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

Equipment procured by Participating Customers through another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, is not eligible for incentives through this program. Customers who have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility are not eligible for incentives offered through this program.

Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Gas Water Heating Application

Customer Information

Company	Gas Utility Serving Applicant	Gas Account No.	Anticipated Installation Date
Facility Address	City	State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement	Size of Building		
Company Mailing Address	City	State	Zip
Contact Person (Name/Title)	Telephone No. ()	Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt	Federal Tax ID# or SSN	E-mail Address	
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other	Please assign payment to contractor/vendor/other indicated below Customer Signature		

Payee Information (must submit W-9 form with application)

Company						Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	E-mail Address
Street Address		City	State	Zip	Telephone No. ()	Fax No. ()	Federal Tax ID#	

Contractor/Vendor Information (if different from Payee)

Company						Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	E-mail Address
Street Address		City	State	Zip	Telephone No. ()	Fax No. ()	Federal Tax ID#	

Building Type (circle one)

Education; Food Sales; Food Service; Health Care; Lodging; Retail; Office; Public Assembly; Public Order/Safety; Religious Worship; Service; Warehouse/Storage; Other

Building Location (circle the city closest to building site)

Atlantic City, NJ; Newark, NJ; Philadelphia, PA; Monticello, NY

Gas Water Heating Equipment Information

Reason N-New R-Replaced	Type 0 - Booster Heater 1 - Water Heater 2 - Tankless	Manuf.	Model	Area Served by Heater (1-13, see legend)	A Unit Size B-MBH Input W-Size Gallons	B Efficiency (EF or AFUE)	C Incentive (Table)	D Quantity	Total Incentive Booster = AxCx D WH≤50 G = CxD WH>50 G = AxCx D Tankless = CxD
(Example) N	0	ACME	GF1011	13	100	N/A	\$35	1	\$35 x 100 = \$3,500
R	1	ACME	DHW1500	1	1,500	85	\$1.75	2	1,500 x \$1.75 x 2 = \$5,250
R	2	ACME	BWH50	7	50	82	\$300	1	\$300 x 1 = \$300
Total									

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Area Legend

- | | | |
|-----------------|-----------------------------|---------------------------|
| 1- Education | 6- Retail (Other than Mall) | 11- Service |
| 2- Food Sales | 7- Office | 12- Warehouse and Storage |
| 3- Food Service | 8- Public Assembly | 13- Other |
| 4- Health Care | 9- Public Order and Safety | |
| 5- Lodging | 10- Religious Worship | |

Gas Water Heating Efficiency Levels and Incentives*

Gas-Fired Water Booster Heaters		Gas Water Heaters ≤ 50 Gallons	
Capacity - MBH	Incentive	Capacity - MBH	Incentive
≤100 MBH	\$35 per MBH	0.67 or better Energy Factor	\$50 per water heater
>100 MBH	\$17 per MBH	Size limit: ≤50 gallons	

Gas Water Heaters > 50 Gallons			Tankless Water Heater	
Capacity - MBH	Minimum Efficiency	Incentive	Minimum Efficiency	Incentive
>50 gallons - <300 MBH	85% AFUE	\$2.00 per MBH but not less than \$50/unit	≥ 82% energy factor or 90% Thermal Efficiency	\$300 per tankless water heater
≥ 300 MBH - 1500 MBH	85% AFUE	\$1.75 per MBH		
>1500 - ≤ 4000 MBH	84% AFUE	\$1.00 per MBH		

This incentive is only available for the replacement of existing, free-standing water heaters.

Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.

New Jersey's Clean Energy Program
 c/o TRC Energy Services
 900 Route 9 North, Suite 404 • Woodbridge, NJ 07095
 Phone: 866-657-6278 • Fax: 732-855-0422

Visit our website: NJCleanEnergy.com/ssb



Program Terms and Conditions

Definitions:

Design Incentives – Incentives that may be offered to design professionals by the Program.

Design Services – Services that may be offered to design professionals under the Program.

Energy-Efficient Measures – Any device eligible to receive a Program Incentive payment through the NJ Clean Energy Commercial and Industrial Program (New Jersey SmartStart Buildings).

New Jersey Utilities – The regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

Administrator – New Jersey Board of Public Utilities, Office of Clean Energy

Participating Customers – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

Product Installation or Equipment Installation – Installation of the Energy-Efficient Measures.

Program – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

Program Incentives – Refers to the amount or level of incentive that the Program provides to Participating Customers pursuant to the Program offered herein (see description under “Incentive Amount” heading).

Program Offer – Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities identified above. Program Incentives for new construction are available only for projects in areas designated for growth in the State Plan. Public school (K-12) new construction projects are exempted from this restriction and are eligible for new Program incentives throughout the State. Customers, or their trade allies, can determine if a location is in a designated growth area by referring to the Smart Growth Locator available from the HMFA website or contact the Program Manager if you are uncertain about project eligibility.

Program Manager – TRC Energy Services.

Application and Eligibility Process – The Program pays incentives after the installation of qualified energy-efficient measures that were pre-approved (for exceptions to this condition, please refer to “Exceptions for Approval”). In order to be eligible for Program Incentives, a Customer, or an agent (contractor/vendor) authorized by a Customer, must submit a properly completed application package. The package must include an application signed by the customer; a complete (current) utility bill; and technology worksheet and manufacturer’s cut sheets (where appropriate). This information must be submitted to the Program Manager before equipment is installed. Applications for measures that are self installed by customers must be submitted by the customer and not the sales vendor of the measure, however, the customer may elect to assign payment of the incentive to the sales vendor. This application package must be received by the Program Manager on or before December 31, 2012 in order to be eligible for 2012 incentives. The Program Manager will review the application package to determine if the project is eligible for a Program Incentive. If eligible, the Customer will receive an approval letter with the estimated authorized incentive amount and the date by which the equipment must be installed in order for the approval to remain in effect. Upon receipt of an approval letter, the Customer may then proceed to install the equipment listed on the approved application. Equipment installed prior to the date of the Program Manager’s approval letter is not eligible for an incentive. The Program Manager reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the approval letter. All equipment must be purchased within 12 months of date of application. **Any Customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Exceptions for Approval – The Application and Eligibility Process pertains to all projects except for those involving either Unitary HVAC or Motors having an incentive amount less than \$5,000. These measures, at this incentive level, may be installed without prior approval. In addition, but at the sole discretion of the Program Manager, emergency replacement of equipment may not require a prior approval determination and letter. **In such cases, please notify the Program Manager of such emergencies as early as possible, that an application will soon be sent in that was not pre-approved.**

Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager’s initial approval letter.

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Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

Equipment procured by Participating Customers through another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, is not eligible for incentives through this program. Customers who have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility are not eligible for incentives offered through this program.

Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Premium Motors Application

Customer Information			
Company	Electric Utility Serving Applicant	Electric Account No.	Anticipated Installation Date
Facility Address	City	State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement	Size of Building		
Company Mailing Address	City	State	Zip
Contact Person (Name/Title)	Telephone No. ()	Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt	Federal Tax ID# or SSN	E-mail Address	
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other	Please assign payment to contractor/vendor/other indicated below Customer Signature		

Payee Information (must submit W-9 form with application)				E-mail Address	
Company	Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		Federal Tax ID#	
Street Address	City	State	Zip	Telephone No. ()	Fax No. ()

Contractor/Vendor Information (if different from Payee)				E-mail Address	
Company	Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		Federal Tax ID#	
Street Address	City	State	Zip	Telephone No. ()	Fax No. ()

Building Type (circle one)
Commercial-Retail; Commercial-Other than Retail; Office; School-Public K-12; School-University-Public; School-University-Private; School-Other; Hospital; Government-Municipality; Government-Other than Municipality; Farm; Non-Profit; Other

Premium Motor Information													
Reason*	Type* ODP, TEFC or ECM	Manuf.*	Model*	Function*	Location	Size* (HP)	Speed (RPM)	NEMA Nominal Efficiency (%)	Has VFD	Annual Run Hours Y/N (2,000 min.)	Incentive Per Motor - Hours	Quantity (Table)	Total Incentives
(Example) N	TEFC	ACME	RR/C1957	HVAC Pump	Mech. Rm. #4	30	1800	93.6	N	4400	\$150	1	\$150
R	ECM	GE	26-ECM-6	Ref/Freezer	Freezer Case #2	1/15				6000	\$40	3	\$120
°Required fields for ECM											Total		

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
3. Incentives are only available for qualifying Premium Motors that operate at least 2000 run hours annually.

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Qualifying Premium Motor Efficiencies and Incentives*

Premium Motor Incentives Open Drip-Proof (ODP)					Premium Motor Incentives Totally Enclosed Fan-Cooled (TEFC)				
Size HP	Speed (RPM)			Customer Incentive (\$/Motor)	Size HP	Speed (RPM)			Customer Incentive (\$/Motor)
	1200	1800	3600			1200	1800	3600	
	NEMA Nominal Efficiency					NEMA Nominal Efficiency			
1	82.5%	85.5%	77.0%	\$45	1	82.5%	85.5%	77.0%	\$50
1.5	86.5%	86.5%	84.0%	\$45	1.5	87.5%	86.5%	84.0%	\$50
2	87.5%	86.5%	85.5%	\$54	2	88.5%	86.5%	85.5%	\$60
3	88.5%	89.5%	85.5%	\$54	3	89.5%	89.5%	86.5%	\$60
5	89.5%	89.5%	86.5%	\$54	5	89.5%	89.5%	88.5%	\$60
7.5	90.2%	91.0%	88.5%	\$81	7.5	91.0%	91.7%	89.5%	\$90
10	91.7%	91.7%	89.5%	\$90	10	91.0%	91.7%	90.2%	\$100
15	91.7%	93.0%	90.2%	\$104	15	91.7%	92.4%	91.0%	\$115
20	92.4%	93.0%	91.0%	\$113	20	91.7%	93.0%	91.0%	\$125
25	93.0%	93.6%	91.7%	\$117	25	93.0%	93.6%	91.7%	\$130
30	93.6%	94.1%	91.7%	\$135	30	93.0%	93.6%	91.7%	\$150
40	94.1%	94.1%	92.4%	\$162	40	94.1%	94.1%	92.4%	\$180
50	94.1%	94.5%	93.0%	\$198	50	94.1%	94.5%	93.0%	\$220
60	94.5%	95.0%	93.6%	\$234	60	94.5%	95.0%	93.6%	\$260
75	94.5%	95.0%	93.6%	\$270	75	94.5%	95.4%	93.6%	\$300
100	95.0%	95.4%	93.6%	\$360	100	95.0%	95.4%	94.1%	\$400
125	95.0%	95.4%	94.1%	\$540	125	95.0%	95.4%	95.0%	\$600
150	95.4%	95.8%	94.1%	\$630	150	95.8%	95.8%	95.0%	\$700
200	95.4%	95.8%	95.0%	\$630	200	95.8%	96.2%	95.4%	\$700

Fractional Motor Incentives Electronic Commutated Motors (ECM)

Size HP	Customer Incentive (\$/Motor)
<1 HP	\$40 per ECM for replacement of existing shaded-pole motor in refrigerated/freezer cases

**Motors > 200 HP must follow the Custom Electric Equipment Path
Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.**

New Jersey's Clean Energy Program
c/o TRC Energy Services
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Administrator – New Jersey Board of Public Utilities, Office of Clean Energy

Participating Customers – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

Product Installation or Equipment Installation – Installation of the Energy-Efficient Measures.

Program – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

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Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

Equipment procured by Participating Customers through another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, is not eligible for incentives through this program. Customers who have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility are not eligible for incentives offered through this program.

Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Prescriptive Lighting Application

Customer Information

Company		Electric Utility Serving Applicant	Electric Account No.	Anticipated Installation Date
Facility Address		City	State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement			Size of Building	
Company Mailing Address		City	State	Zip
Contact Person (Name/Title)		Telephone No. ()	Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt		Federal Tax ID# or SSN	E-mail Address	
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other		Please assign payment to contractor/vendor/other indicated below Customer Signature		

Payee Information (must submit W-9 form with application)

Company				Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	E-mail Address	Federal Tax ID#
Street Address		City	State	Zip	Telephone No. ()	Fax No. ()	

Contractor/Vendor Information (if different from Payee)

Company				Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	E-mail Address	Federal Tax ID#
Street Address		City	State	Zip	Telephone No. ()	Fax No. ()	

Building Type (circle one)

Education-Primary School; Education-Community College; Education-University; Grocery; Medical-Hospital; Medical-Clinic; Lodging Hotel(Guest Rooms); Lodging Motel; Manufacturing-Light Industrial; Office-Large; Office-Small; Restaurant-Sit Down; Restaurant-Fast Food; Retail-3 Story Large; Retail- Single Story Large; Retail-Small; Storage Conditioned; Storage Unconditioned; Warehouse; Other

Prescriptive Lighting Incentive

\$_____ Total Incentive (per attached worksheet calculations)

Note: Prescriptive Lighting Worksheet must accompany this application.

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
3. Incentives for T-5 and T-8 lamps with electronic ballasts are available only for fixtures with a Total Harmonic Distortion of $\leq 20\%$.
4. Incentives for retrofits/replacement of existing fixtures $\leq 250W$ to T-8 lighting requires high performance or reduced wattage lamps (4' only) and ballasts qualified by CEE. <http://www.cee1.org/com/com-lt/com-lt-main.php3>
 - Incentives for delamped T-8 lamps with new reflectors are available only for fixtures with a total Harmonic Distortion of $< 20\%$. Electronic ballast replacement required for all eligible de-lamped fixtures. Eligible de-lamping can include reduction in linear lamp feet from existing conditions. For example, 1-8' linear fluorescent lamp can be considered as 2-4' linear lamps. U-bend lamps 4' in total length can be considered as 2-F17/T8 lamps.
 - Electronic ballast replacement is necessary for all eligible de-lamped fixtures.
 - Reduced wattage T8 (28W/25W 4') (1-4 lamps) retrofit requires lamp and ballast replacement.
5. For all eligible lighting devices, fixture or lamp must be listed by UL or other OSHA approved Nationally Recognized Testing Laboratory (NRTL) in accordance with applicable US standards.
6. Requirements for CFL fixtures (must meet all requirements):
 - Fixtures must be new and ENERGY STAR® qualified
 - Fixtures must have replaceable electronic ballasts
 - Total Harmonic Distortion (THD) must not exceed 33%
 - Power factor of the ballast must be no less than 90%
 - The manufacturer must warrant all fixtures for a minimum of 3 years. Warranty does not pertain to lamps or photocells not physically part of the fixture.
 - The installer must warrant installation of fixtures for a minimum of 1 year.
7. Screw-in PAR 38 or 30 Compact Fluorescent Lamps (CFL) with Aluminum Reflectors replacing existing incandescent fixtures.
 - Lamp must be ENERGY STAR® qualified where applicable. For ENERGY STAR® qualified and non-qualified product, ALL the following requirements must be met:
 - The lamp must be new and warranted by the manufacturer for 12 months, or one year
 - Average rated lamp life must be $\geq 8,000$ hours
 - Power factor of the ballast must be $> 50\%$
8. Pulse Start Metal Halide (including pole-mounted parking lot lighting) must have a 12% minimum wattage reduction.
9. T-5 or T-8 Fixtures replacing incandescent or T-12 fluorescent fixtures greater than 250 watt or High Intensity Discharge shall comply as follows:
 - T-5 fixtures replacing T-12 fluorescent or incandescent fixtures 250 watts or greater, or HID fixtures shall have a ballast factor greater than or equal to 1.0; have reflectivity greater than or equal to 91%; have a minimum 2 lamps; and be designated as F54T5 HO.
 - T-8 fixtures replacing T-12 fluorescent or incandescent fixtures 250 watts or greater, or HID fixtures shall have a ballast factor greater than or equal to 1.14; have reflectivity greater than or equal to 91%; have a minimum of 4 lamps; and be designated as F32T8, minimum 32 watts.
10. Incentive requirements for LED fixtures and lamps (excluding LED Exit Signs)
 - LED fixture or lamp must be listed on ENERGY STAR® or Design Lights Consortium Qualified (DLC) Product Lists.
 - For replacement of incandescent, fluorescent and HID only
 - LEDs categories not listed by ENERGY STAR®⁽¹⁾⁽²⁾ or DLC⁽³⁾ qualified products will not be evaluated through Custom for incentive eligibility.
 - (1) http://www.energystar.gov/index.cfm?c=ssl.pr_commercial
 - (2) http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=LB
 - (3) http://www.designlights.org/solidstate.about.QualifiedProductsList_Publicv2.php

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

<hr/> CUSTOMER'S SIGNATURE	<p>By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).</p>
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Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.

New Jersey's Clean Energy Program
c/o TRC Energy Services
900 Route 9 North, Suite 404 • Woodbridge, NJ 07095
Phone: 866-657-6278 • Fax: 732-855-0422

Visit our website: NJCleanEnergy.com/ssb



Prescriptive Lighting Measures and Incentives

NEW FIXTURE INCENTIVES

Type of Fixture	Incentive
-----------------	-----------

Compact Fluorescent

Recessed and Surface-Mounted Compact Fluorescents (New Fixtures Replacing Incandescent Fixtures Only):

Only available for hard-wired, electronically ballasted new fixtures with rare earth phosphor lamps and 4-pin based tubes (including: twin tube, quad tube, triple tube, 2D or circline lamps) or GU24 based lamps, THD<33% and BF>0.9

\$25 per 1-lamp fixture
\$30 per 2-lamp or more fixture

Linear Fluorescent

Type of Old Fixture	Wattage of Old Fixture	Type of New Fixture	Incentive Per Fixture Replaced
HID, T-12, Incandescent	≥ 1000 Watts	T-5, T-8	\$200
HID, T-12, Incandescent	400-999 Watt	T-5, T-8	\$100
HID, T-12, Incandescent	250-399 Watt	T-5, T-8	\$50
HID only	175-249 Watt	T-5, T-8	\$43
HID only	100-174 Watt	T-5, T-8	\$30
HID only	75-99 Watt	T-5, T-8	\$16
T-12 only	<250 Watt	T-5, T-8 (1-4 lamps)	\$25

Induction Lighting

Replacement of HID

\$70 per HID (≥100w) fixture replaced with a new induction fixture. Replacement unit must use 30% less wattage per fixture than existing HID system.

LED Lighting

LED Exit Signs (new fixtures only):

For existing facilities with connected load <75 kW

\$20 per fixture

For existing facilities with connected load ≥ 75 kW

\$10 per fixture

LED Display Case Lighting

\$30 per display case

LED Shelf-Mounted Display and Task Lights

\$15 per linear foot

LED Portable Desk Lamps

\$20 per fixture

LED Wall-Wash Lights

\$30 per fixture

LED Recessed Down Lights

\$35 per fixture

LED Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

\$175 per fixture

LED Outdoor Pole/Arm-Mounted Decorative Luminaires

\$175 per fixture

LED Outdoor Wall-Mounted Area Luminaires

\$100 per fixture

LED Parking Garage Luminaires

\$100 per fixture

LED Track or Mono-Point Directional Lighting Fixtures

\$50 per fixture

LED High-Bay and Low-Bay Fixtures for Commercial & Industrial Buildings

\$150 per fixture

LED High-Bay-Aisle Lighting

\$150 per fixture

LED Bollard Fixtures

\$50 per fixture

LED Linear Panels (1x4, 2x2, 2x4 Troffers Only)

\$50 per fixture

LED Fuel Pump Canopy

\$100 per fixture

LED Screw-based & Pin-based (PAR, MR, BR, R) Standards (A-Style) and Decorative (globe, candelabra, etc.) Lamps

\$20 per lamp

LED Refrigerated/Freezer Case Lighting: Incentive for replacement of fluorescent lighting systems in medium or low temperature display cases

\$30 per 4' fixture

\$42 per 5' fixture

\$65 per 6' fixture

LED Retrofit Kits

To be evaluated through the custom measures path

Pulse-Start Metal Halide

Pulse Start metal Halide (for fixtures ≥ 150 watts)

\$25 per fixture (includes parking lot lighting)

RETROFIT INCENTIVES

Compact Fluorescent

Screw-in PAR 58 or PAR 50 (CFL) as per requirement 7.

\$7 per lamp replaced

Linear Fluorescent Lighting

High-Efficiency Fluorescent Fixtures:

For retrofit of T-12 fixtures to T-5 or T-8 with electric ballasts

\$10 per fixture (1-4 lamps retrofits)

For retrofit of T-8 fixtures by permanent delamping & new reflectors. Electronic ballast replacement required for all eligible delamped fixtures.

\$15 per fixture

T-12 to T-8 fixtures by permanent delamping & new reflectors. Electronic ballast replacement required for all eligible delamped fixtures.

\$20 per fixture

Retrofit of existing 32 watt T-8 system to reduced wattage (28w/25w 4')

\$10 per fixture (1-4 lamps)

Induction Lighting

\$50 per HID (≥100w) fixture retrofitted with induction lamp

\$50 per HID (≥100w) fixture retrofitted with induction lamp, power coupler and generator. Replacement unit must use 30% less wattage per fixture than existing HID system.

New Construction & Complete Renovation - Performance based only

Program Terms and Conditions

Definitions:

Design Incentives – Incentives that may be offered to design professionals by the Program.

Design Services – Services that may be offered to design professionals under the Program.

Energy-Efficient Measures – Any device eligible to receive a Program Incentive payment through the NJ Clean Energy Commercial and Industrial Program (New Jersey SmartStart Buildings).

New Jersey Utilities – The regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

Administrator – New Jersey Board of Public Utilities, Office of Clean Energy

Participating Customers – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

Product Installation or Equipment Installation – Installation of the Energy-Efficient Measures.

Program – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

Program Incentives – Refers to the amount or level of incentive that the Program provides to Participating Customers pursuant to the Program offered herein (see description under “Incentive Amount” heading).

Program Offer – Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities identified above. Program Incentives for new construction are available only for projects in areas designated for growth in the State Plan. Public school (K-12) new construction projects are exempted from this restriction and are eligible for new Program incentives throughout the State. Customers, or their trade allies, can determine if a location is in a designated growth area by referring to the Smart Growth Locator available from the HMFA website or contact the Program Manager if you are uncertain about project eligibility.

Program Manager – TRC Energy Services.

Application and Eligibility Process – The Program pays incentives after the installation of qualified energy-efficient measures that were pre-approved (for exceptions to this condition, please refer to “Exceptions for Approval”). In order to be eligible for Program Incentives, a Customer, or an agent (contractor/vendor) authorized by a Customer, must submit a properly completed application package. The package must include an application signed by the customer; a complete (current) utility bill; and technology worksheet and manufacturer’s cut sheets (where appropriate). This information must be submitted to the Program Manager before equipment is installed. Applications for measures that are self installed by customers must be submitted by the customer and not the sales vendor of the measure, however, the customer may elect to assign payment of the incentive to the sales vendor. This application package must be received by the Program Manager on or before December 31, 2012 in order to be eligible for 2012 incentives. The Program Manager will review the application package to determine if the project is eligible for a Program Incentive. If eligible, the Customer will receive an approval letter with the estimated authorized incentive amount and the date by which the equipment must be installed in order for the approval to remain in effect. Upon receipt of an approval letter, the Customer may then proceed to install the equipment listed on the approved application. Equipment installed prior to the date of the Program Manager’s approval letter is not eligible for an incentive. The Program Manager reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the approval letter. All equipment must be purchased within 12 months of date of application. **Any Customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Exceptions for Approval – The Application and Eligibility Process pertains to all projects except for those involving either Unitary HVAC or Motors having an incentive amount less than \$5,000. These measures, at this incentive level, may be installed without prior approval. In addition, but at the sole discretion of the Program Manager, emergency replacement of equipment may not require a prior approval determination and letter. **In such cases, please notify the Program Manager of such emergencies as early as possible, that an application will soon be sent in that was not pre-approved.**

Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager’s initial approval letter.

Please refer to the program guide on the NJCleanEnergy.com/ssb website for the complete Application and Eligibility Process.

The Program Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing product or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time.

Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

Equipment procured by Participating Customers through another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, is not eligible for incentives through this program. Customers who have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility are not eligible for incentives offered through this program.

Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Lighting Controls Application

Customer Information					
Company		Electric Utility Serving Applicant		Electric Account No.	
Facility Address		City		State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement				Size of Building	
Company Mailing Address		City		State	Zip
Contact Person (Name/Title)		Telephone No. ()		Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt		Federal Tax ID# or SSN		E-mail Address	
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other		Please assign payment to contractor/vendor/other indicated below Customer Signature			

Payee Information (must submit W-9 form with application)					E-mail Address	
Company		Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		Federal Tax ID#
Street Address		City	State	Zip	Telephone No. ()	Fax No. ()

Contractor/Vendor Information (if different from Payee)					E-mail Address	
Company		Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		Federal Tax ID#
Street Address		City	State	Zip	Telephone No. ()	Fax No. ()

Building Type (circle one)
Education-Primary School; Education-Community College; Education-University; Grocery; Medical-Hospital; Medical-Clinic; Lodging Hotel(Guest Rooms); Lodging Motel; Manufacturing-Light Industrial; Office-Large; Office-Small; Restaurant-Sit Down; Restaurant-Fast Food; Retail-3 Story Large; Retail- Single Story Large; Retail-Small; Storage Conditioned; Storage Unconditioned; Warehouse; Other

Lighting Control Incentive
\$ _____ Total Incentive (per attached worksheet calculations) Note: Lighting Controls Incentive Worksheet must accompany this application.

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements, including special requirements for lighting controls.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
3. All lighting controls must be listed by UL or other OSHA approved Nationally Recognized Testing Laboratory (NRTL) in accordance with applicable US standards.
4. If more than one eligible lighting control device is associated with the same eligible fixture, the incentive paid will be for the lighting control device that yields the largest incentive only.
5. Occupancy Sensor Controls (existing facilities only):
 - There is no incentive available for occupancy sensors installed in a space where they are prohibited by state or local building or safety code. Additionally, no incentive is eligible for occupancy sensors in the following specific spaces in all cases: stairways, restrooms (remote mounted only allowed), elevators, corridors/hallways, lobbies, and closets/storage areas.
 - Incentives will only be paid for eligible occupancy sensors (OSW & OSR) controlling at least 2 eligible lighting fixtures and, for OSR installations, a minimum total connected load of 180 watts.
 - Incentives will only be paid for eligible OSRH occupancy sensors controlling eligible fixtures when the controlled wattage is greater than 180 watts.
 - Occupancy sensors with manual override to the "ON" position are ineligible for incentive.
6. High-Low Controls (OHLF and OHLH):
 - Incentives will not be paid for high-low controls on eligible fluorescent fixtures where daylight dimming controls can be effectively employed.
 - Incentives will not be paid for spaces where the bottom of the fixture does not comply with the appropriate Prescriptive Lighting 2012 incentives, nor in spaces smaller than 250 square feet.
 - Incentives available only when "low level" is no more than 60% of "high level."
 - Incentives are not available for the following spaces: stairways, elevators, corridors/hallways, or lobbies.
 - OHLF will control fixtures that have a ballast factor less than 1.0 for T-5s, induction lighting and 1.14 for T-8s.
 - OHLH will control fixtures that have a ballast factor greater than or equal to 1.0 for T-5s, induction lighting and 1.14 for T-8s.
7. Daylight Dimming Controls for eligible fixtures:
 - Incentives will only be paid for eligible daylight dimming controls operating at least 4 eligible ballasts with a minimum total connected load of 240 watts.
 - Dimming shall be continuous or stepped at 4 or more levels.
 - Incentives will be paid only for eligible daylight dimming control systems designed in accordance with IESNA practice as delineated in "RP-5-99, IESNA Recommended Practice of Daylighting."
 - DLD will control fixtures that have a ballast factor less than 1.0 for T-5s and 1.14 for T-8s.
 - DDH will control fixtures that have a ballast factor greater than or equal to 1.0 for T-5s and 1.14 for T-8s.

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Lighting Control Prescriptive Incentives*

Control Device Type	Incentive per Unit
OSW – Occupancy Sensor Wall Mounted (Existing facilities only)	\$20 per control
OSR – Occupancy Sensor Remote Mounted (Existing facilities only)	\$35 per control
DLD – Fluorescent Daylight Dimming	\$25 per fixture controlled
DLD – Fluorescent Daylight Dimming (Office Applications)	\$50 per fixture controlled
OHLF – Occupancy Controlled High-Low with Step Ballast	\$25 per fixture controlled
OSRH – Occupancy Sensor Remote Mounted	\$35 per control
OHLH – Occupancy Controlled High-Low with Step Ballast	\$75 per fixture controlled
DDH – Daylight Dimming	\$75 per fixture controlled

Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.

New Jersey's Clean Energy Program
 c/o TRC Energy Services
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 Phone: 866-657-6278 • Fax: 732-855-0422

Visit our website: NJCleanEnergy.com



Program Terms and Conditions

Definitions:

Design Incentives – Incentives that may be offered to design professionals by the Program.

Design Services – Services that may be offered to design professionals under the Program.

Energy-Efficient Measures – Any device eligible to receive a Program Incentive payment through the NJ Clean Energy Commercial and Industrial Program (New Jersey SmartStart Buildings).

New Jersey Utilities – The regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

Administrator – New Jersey Board of Public Utilities, Office of Clean Energy

Participating Customers – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

Product Installation or Equipment Installation – Installation of the Energy-Efficient Measures.

Program – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

Program Incentives – Refers to the amount or level of incentive that the Program provides to Participating Customers pursuant to the Program offered herein (see description under “Incentive Amount” heading).

Program Offer – Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities identified above. Program Incentives for new construction are available only for projects in areas designated for growth in the State Plan. Public school (K-12) new construction projects are exempted from this restriction and are eligible for new Program incentives throughout the State. Customers, or their trade allies, can determine if a location is in a designated growth area by referring to the Smart Growth Locator available from the HMFA website or contact the Program Manager if you are uncertain about project eligibility.

Program Manager – TRC Energy Services.

Application and Eligibility Process – The Program pays incentives after the installation of qualified energy-efficient measures that were pre-approved (for exceptions to this condition, please refer to “Exceptions for Approval”). In order to be eligible for Program Incentives, a Customer, or an agent (contractor/vendor) authorized by a Customer, must submit a properly completed application package. The package must include an application signed by the customer; a complete (current) utility bill; and technology worksheet and manufacturer’s cut sheets (where appropriate). This information must be submitted to the Program Manager before equipment is installed. Applications for measures that are self installed by customers must be submitted by the customer and not the sales vendor of the measure, however, the customer may elect to assign payment of the incentive to the sales vendor. This application package must be received by the Program Manager on or before December 31, 2012 in order to be eligible for 2012 incentives. The Program Manager will review the application package to determine if the project is eligible for a Program Incentive. If eligible, the Customer will receive an approval letter with the estimated authorized incentive amount and the date by which the equipment must be installed in order for the approval to remain in effect. Upon receipt of an approval letter, the Customer may then proceed to install the equipment listed on the approved application. Equipment installed prior to the date of the Program Manager’s approval letter is not eligible for an incentive. The Program Manager reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the approval letter. All equipment must be purchased within 12 months of date of application. **Any Customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Exceptions for Approval – The Application and Eligibility Process pertains to all projects except for those involving either Unitary HVAC or Motors having an incentive amount less than \$5,000. These measures, at this incentive level, may be installed without prior approval. In addition, but at the sole discretion of the Program Manager, emergency replacement of equipment may not require a prior approval determination and letter. **In such cases, please notify the Program Manager of such emergencies as early as possible, that an application will soon be sent in that was not pre-approved.**

Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager’s initial approval letter.

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Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

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Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Performance Lighting Application

Customer Information			
Company	Electric Utility Serving Applicant	Electric Account No.	Anticipated Installation Date
Facility Address	City	State	Zip
Type of Project <input type="checkbox"/> New Construction (Renovation and Equipment Replacement are no longer eligible for Performance Lighting Incentives)		Size of Building	
Company Mailing Address	City	State	Zip
Contact Person (Name/Title)	Telephone No. ()	Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt	Federal Tax ID# or SSN	E-mail Address	
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other	Please assign payment to contractor/vendor/other indicated below Customer Signature		

Payee Information (must submit W-9 form with application)			E-mail Address
Company	Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	Federal Tax ID#
Street Address	City	State Zip	Telephone No. () Fax No. ()

Contractor/Vendor Information (if different from Payee)			E-mail Address
Company	Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	Federal Tax ID#
Street Address	City	State Zip	Telephone No. () Fax No. ()

Building Type (circle one)
Education-Primary School; Education-Community College; Education-University; Grocery; Medical-Hospital; Medical-Clinic; Lodging Hotel(Guest Rooms); Lodging Motel; Manufacturing-Light Industrial; Office-Large; Office-Small; Restaurant-Sit Down; Restaurant-Fast Food; Retail-3 Story Large; Retail- Single Story Large; Retail-Small; Storage Conditioned; Storage Unconditioned; Warehouse; Other

Performance Lighting Incentive
\$ _____ Total Incentive (per attached worksheet calculations)
1. Attach Performance Lighting Incentive Worksheet.
2. Data must be provided to indicate that installed lighting exceeds ASHRAE performance standard by the program incentive threshold (refer to table on next page).

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements, including special requirements for compact fluorescent fixtures.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
3. Incentives for T-5 and T-8 fluorescent lighting fixtures with electronic ballasts are available only for fixtures with a Total Harmonic Distortion of $\leq 20\%$.
4. All eligible lighting devices must be UL or other OSHA approved Nationally Recognized Testing Laboratory (NRTL) in accordance with applicable US standards.
5. Incentives are available for new construction only.

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

CUSTOMER'S SIGNATURE

By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).

Performance Lighting Incentives*

Indoor Lighting Outdoor Lighting (attached to building only)	\$1.00 per watt per square foot below program incentive threshold
Maximum Incentive	\$30 per qualified fixture
Baseline	New Jersey Code (ASHRAE 90.1-2007)
Incentive Threshold New Construction	5% more energy-efficient than ASHRAE 90.1-2007
Minimum Lighting Levels- Applicant shall be responsible for confirming light levels	Lighting installed under the performance incentive path should comply with the following minimum lighting levels: <ul style="list-style-type: none"> ■ Lighting level requirements as specified by New Jersey's non-residential construction code, or ■ For publicly supported schools, minimum lighting levels as specified in the New Jersey Administrative Code Title 6-NJAC 6:22-5.4, g1-h1.

Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.

New Jersey's Clean Energy Program
c/o TRC Energy Services
900 Route 9 North, Suite 404 • Woodbridge, NJ 07095
Phone: 866-657-6278 • Fax: 732-855-0422

Visit our website: NJCleanEnergy.com

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Definitions:

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Design Services – Services that may be offered to design professionals under the Program.

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Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

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Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Performance Lighting Incentive Worksheet

Customer Information

Company	Facility Address
<input type="checkbox"/> Check here if multiple worksheets are being submitted for one project/building.	Date Submitted

Code and Program Limit

A	B	C	D	E	F
Space Type	Gross Lighted Area (sq.ft.)	Unit Lighting Power Allowance (Watts/sq. ft.)	New Construction Program Limit (Watts/sq. ft.) [C x 0.95]	Lighting Power Limit (W) [B x D]	Composite Program Limit [ΣE/ΣB]
	Σ			Σ	

Installed Lighting Levels

G	H	I	J	K	L
Space ID	Luminaire Tag	Luminaire Description	Number of Luminaires	Watts per Luminaire	Connected Watts [J x K]
			Σ		Σ

M. Composite Connected Watts/Square Foot [ΣL/ΣB]

Incentive Calculation

N. Incentive Margin [F-M] (If less than zero, enter 0; no incentive)

O. Lighting Level Incentive [ΣB x N x \$1]

P. Fixture Maximum Incentive [ΣJ x \$30]

Q. Program Incentive [Enter lesser of O or P]

* To ensure correct incentive calculations, do not include any spaces that exceed the program limit (watts/sq. ft.) in Column D.

Performance Lighting Incentive Worksheet — Instructions

This worksheet is intended for use in assessing incentives that may be available for meeting Performance Lighting criteria of the New Jersey SmartStart Buildings® Program. It is modeled after the lighting worksheets/forms in the ASHRAE 90.1-2007 User's Manual and is intended to be used in conjunction with ASHRAE Standard 90.1-2007 for Lighting Power Densities by building area (Table 9.5.1 - page 62) and space type (Table 9.6.1 - pages 63-64).

1. Applicants must select building types from Table 9.5.1 and space types from Table 9.6.1.
2. Each space type must be listed separately on the worksheet with a corresponding 'Space ID' (see Column G) of sufficient detail for an auditor to find the associated luminaires (see Column H).
3. For each space type with multiple luminaire types (i.e. 2x4 3L and 2x2 2U), list each luminaire type on a separate line. List the 'space type,' 'gross lighted area' and 'space ID' only once and on the first line describing that 'space type.'
4. Interior lighting and exterior lighting must appear on separate worksheets.
5. Incentives are available for new construction only.

Specific Instructions

1. At the top of the page in the space provided, enter the 'building type' (as listed ASHRAE 90.1-2007 Table 9.5.1). Enter in Column A the 'space type' (as listed in ASHRAE 90.1-2007 Table 9.6.1).
2. Enter the floor area of the space in Column B.
3. Select the Unit Lighting Power Allowance (ULPA) from ASHRAE Standard 90.1-2007 for the appropriate space/building using any of the Tables: 9.5.1 (for interior lighting), or 9.4.5 (for exterior lighting) in the standard. Enter this in Column C.
4. Calculate D for New Construction.
5. Calculate E and F.
6. In the lower table in the worksheet, enter installed lighting equipment by type in Columns H and I, indicating spaces where installed in Column G. Enter all lighting fixtures/luminaires in the building/space, including new and retrofit fixtures, and pre-existing fixtures that remain in use.
7. Enter the number of each type of luminaire in Column J and the watts per luminaire unit in Column K.
8. Calculate Column L.
9. Calculate M and N. If N is zero or less, no incentive is available for this building/space.
10. Calculate O and P.
11. Enter the estimated incentive (lesser amount of O or P) in Line Q.

Performance Lighting Incentives*

Indoor Lighting Outdoor Lighting (attached to building only)	\$1.00 per watt per square foot below program incentive threshold
Maximum Incentive	\$30 per qualified fixture
Baseline	New Jersey Code (ASHRAE 90.1-2007)
Incentive Threshold New Construction	5% more energy-efficient than ASHRAE 90.1-2007
Minimum Lighting Levels – Applicant shall be responsible for confirming light levels	<p>Lighting installed under the performance incentive path should comply with the following minimum lighting levels:</p> <ul style="list-style-type: none"> ■ Lighting level requirements as specified by New Jersey's non-residential construction code, or ■ For publicly supported schools, minimum lighting levels as specified in the New Jersey Administrative Code Title 6-NJAC 6:22-5.4, g1-h1.

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Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Refrigeration Doors/Covers Application

Customer Information

Company		Electric Utility Serving Applicant		Electric Account No.		Anticipated Installation Date	
Facility Address				City		State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement						Size of Building	
Company Mailing Address				City		State	Zip
Contact Person (Name/Title)				Telephone No. ()		Fax No. ()	
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt				Federal Tax ID# or SSN		E-mail Address	
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other				Please assign payment to contractor/vendor/other indicated below Customer Signature			

Payee Information (must submit W-9 form with application)

Company						Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		E-mail Address	
Street Address						City		State	Zip	Telephone No. ()	
										Fax No. ()	

Contractor/Vendor Information (if different from Payee)

Company						Contact Name		Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No		E-mail Address	
Street Address						City		State	Zip	Telephone No. ()	
										Fax No. ()	

Building Type (circle one)

Education-Primary School; Education-Community College; Education-University; Grocery; Medical-Hospital; Medical-Clinic; Lodging Hotel(Guest Rooms); Lodging Motel; Manufacturing-Light Industrial; Office-Large; Office-Small; Restaurant-Sit Down; Restaurant-Fast Food; Retail-3 Story Large; Retail- Single Story Large; Retail-Small; Storage Conditioned; Storage Unconditioned; Warehouse; Other

Refrigeration Doors/Covers Information

Reason Type	Type	Manufacturer	Location	Refrigeration Case Temperature	Hours Store Closed Per Day-For Covers Only	# of Energy-Efficient Doors (A ¹)	Width of Protected Opening In Linear Feet (A ²)	Incentive (Table) (B)	Total Incentives (A ¹ or A ² x B)
(example) N	C- Aluminum Night Covers D- Energy-Efficient Doors	Acme	Non-Dairy Refrigerated Foods	Low Temperature (-35°F to -5°F) Medium Temperature (0°F to 30°F) High Temperature (35°F to 55°F)	6	N/A	40 feet	\$3.50	40 x \$3.50 = \$140
N	D	Acme	Open Dairy Cases	High	N/A	10	30 feet	\$100	10 x \$100 = \$1,000

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
3. Replacement of existing doors/covers not eligible for incentive.
4. Incentives for existing open refrigerated cases only.
5. Doors must have either heat reflective treated glass, be gas filled, or both.
6. Aluminum night curtains incentive applicable for existing refrigerated cases, used for non-frozen products which do not have doors or other means of full or partial closure to reduce cold air loss to ambient room air.

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

<hr/> CUSTOMER'S SIGNATURE	By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).
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Refrigeration Covers/Doors Incentives

Type	Incentive
Energy-Efficient Doors/Covers for Open Refrigerated Cases	\$100 per door
Aluminum Night Curtains for Open Refrigerated Cases	\$3.50 per linear foot

Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.

New Jersey's Clean Energy Program
c/o TRC Energy Services
900 Route 9 North, Suite 404 • Woodbridge, NJ 07095
Phone: 866-657-6278 • Fax: 732-855-0422

Visit our website: NJCleanEnergy.com/ssb



Program Terms and Conditions

Definitions:

Design Incentives – Incentives that may be offered to design professionals by the Program.

Design Services – Services that may be offered to design professionals under the Program.

Energy-Efficient Measures – Any device eligible to receive a Program Incentive payment through the NJ Clean Energy Commercial and Industrial Program (New Jersey SmartStart Buildings).

New Jersey Utilities – The regulated electric and/or gas utilities in the State of New Jersey. They are: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas.

Administrator – New Jersey Board of Public Utilities, Office of Clean Energy

Participating Customers – Those non-residential electric and/or gas service customers of the New Jersey Utilities who participate in this Program.

Product Installation or Equipment Installation – Installation of the Energy-Efficient Measures.

Program – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

Program Incentives – Refers to the amount or level of incentive that the Program provides to Participating Customers pursuant to the Program offered herein (see description under “Incentive Amount” heading).

Program Offer – Program Incentives are available to non-residential retail electric and/or gas service customers of the New Jersey Utilities identified above. Program Incentives for new construction are available only for projects in areas designated for growth in the State Plan. Public school (K-12) new construction projects are exempted from this restriction and are eligible for new Program incentives throughout the State. Customers, or their trade allies, can determine if a location is in a designated growth area by referring to the Smart Growth Locator available from the HMFA website or contact the Program Manager if you are uncertain about project eligibility.

Program Manager – TRC Energy Services.

Application and Eligibility Process – The Program pays incentives after the installation of qualified energy-efficient measures that were pre-approved (for exceptions to this condition, please refer to “Exceptions for Approval”). In order to be eligible for Program Incentives, a Customer, or an agent (contractor/vendor) authorized by a Customer, must submit a properly completed application package. The package must include an application signed by the customer; a complete (current) utility bill; and technology worksheet and manufacturer’s cut sheets (where appropriate). This information must be submitted to the Program Manager before equipment is installed. Applications for measures that are self installed by customers must be submitted by the customer and not the sales vendor of the measure, however, the customer may elect to assign payment of the incentive to the sales vendor. This application package must be received by the Program Manager on or before December 31, 2012 in order to be eligible for 2012 incentives. The Program Manager will review the application package to determine if the project is eligible for a Program Incentive. If eligible, the Customer will receive an approval letter with the estimated authorized incentive amount and the date by which the equipment must be installed in order for the approval to remain in effect. Upon receipt of an approval letter, the Customer may then proceed to install the equipment listed on the approved application. Equipment installed prior to the date of the Program Manager’s approval letter is not eligible for an incentive. The Program Manager reserves the right to conduct a pre-inspection of the facility prior to the installation of equipment. This will be done prior to the issuance of the approval letter. All equipment must be purchased within 12 months of date of application. **Any Customer and/or agent who purchases equipment prior to the receipt of an incentive approval letter does so at his/her own risk.**

Exceptions for Approval – The Application and Eligibility Process pertains to all projects except for those involving either Unitary HVAC or Motors having an incentive amount less than \$5,000. These measures, at this incentive level, may be installed without prior approval. In addition, but at the sole discretion of the Program Manager, emergency replacement of equipment may not require a prior approval determination and letter. **In such cases, please notify the Program Manager of such emergencies as early as possible, that an application will soon be sent in that was not pre-approved.**

Post-Installation Approval – After installation is completed, the Customer, or an agent authorized by the Customer, must finalize and submit an invoice for the purchase of the equipment (material cost must be broken out from labor costs), and any other required documentation as specified on the equipment application or in the Program Manager’s initial approval letter.

Please refer to the program guide on the NJCleanEnergy.com/ssb website for the complete Application and Eligibility Process.

The Program Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing product or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time.

Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

Equipment procured by Participating Customers through another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, is not eligible for incentives through this program. Customers who have not contributed to the Societal Benefits Charge of the applicable New Jersey Utility are not eligible for incentives offered through this program.

Incentive Amount – Program Incentives will equal either: a) the approved Program Incentive amount, or b) the actual equipment cost of the Energy-Efficient Measure, whichever is less, as determined by the Program Manager. Products offered at no direct cost to the customer are ineligible. Incomplete application submissions, applications requiring inspections and unanticipated high volume of activities may cause processing delays. Program Incentives are limited to \$500,000 per utility account in a calendar year. Contact the Program Manager regarding any questions.

Tax Liability – The Program Manager will not be responsible for any tax liability that may be imposed on any Participating Customer as a result of the payment of Program Incentives. All Participating Customers must supply their federal tax identification number or social security number to the Program Manager on the application form in order to receive a Program Incentive. In addition, Participating Customers must also provide a Tax Clearance Form (entitled "Business Assistance or Incentive Clearance Certificate") that is dated within 90 days of equipment installation.

Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



2012 Refrigeration Controls Application

Customer Information

Company		Electric Utility Serving Applicant	Electric Account No.	Anticipated Installation Date	
Facility Address			City	State	Zip
Type of Project <input type="checkbox"/> New Construction <input type="checkbox"/> Renovation <input type="checkbox"/> Equipment Replacement				Size of Building	
Company Mailing Address		City	State	Zip	
Contact Person (Name/Title)		Telephone No. ()	Fax No. ()		
Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Exempt		Federal Tax ID# or SSN	E-mail Address		
Incentive Payment to <input type="checkbox"/> Customer <input type="checkbox"/> Contractor <input type="checkbox"/> Other		Please assign payment to contractor/vendor/other indicated below Customer Signature			

Payee Information (must submit W-9 form with application)

Company					Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	E-mail Address
Street Address		City	State	Zip	Telephone No. ()	Fax No. ()	Federal Tax ID#

Contractor/Vendor Information (if different from Payee)

Company					Contact Name	Incorporated? <input type="checkbox"/> Yes <input type="checkbox"/> No	E-mail Address
Street Address		City	State	Zip	Telephone No. ()	Fax No. ()	Federal Tax ID#

Building Type (circle one)

Education-Primary School; Education-Community College; Education-University; Grocery; Medical-Hospital; Medical-Clinic; Lodging Hotel(Guest Rooms); Lodging Motel; Manufacturing-Light Industrial; Office-Large; Office-Small; Restaurant-Sit Down; Restaurant-Fast Food; Retail-3 Story Large; Retail- Single Story Large; Retail-Small; Storage Conditioned; Storage Unconditioned; Warehouse; Other

Refrigeration Controls Information

Reason Type	Type	Manufacturer	Location	Refrigeration Case Temperature	Equipment Info	# of Units (A)	Incentive (Table) (B)	Total Incentives (AxB)
N-New	D - Door Heater Control E - Electric Defrost Control EF - Evaporator Fan Control N - Novelty Cooler Shutoff			Low Temperature (-35°F to -5°F) Medium Temperature (0°F to 30°F) High Temperature (35°F to 55°F)	Door Heater / Electric Defrost - Enter nameplate kW Evaporator Fan - Enter fan and compressor (Amps/Volts/Phase) Novelty Cooler - Enter (Amps/Volts/Phase)			
(Example) N	D	Acme	Dairy Cooler	Low	0.5 kW	4	\$50	4 x \$50 = \$200
N	N	Acme	Open Dairy Cases	Medium	0.9A / 230V / 3-phase	5	\$50	5 x \$50 = \$250

Specific Program Requirements* (these requirements are in addition to the Program Terms and Conditions.)

1. Please refer to the program guide for additional applicable technical requirements.
2. Include the manufacturer's specification sheet with the application package and mail or fax directly to the Commercial/Industrial Program Manager.
3. Replacement of existing refrigeration controls not eligible for incentive.
4. All eligible refrigeration control devices must be listed by UL or other OSHA approved Nationally Recognized Testing Laboratory (NRTL) in accordance with applicable US standards.

Application Checklist (before submitting your application, please make sure you have signed in the space below and completed the following items.)

- Payee Information is filled out and a W-9 form of the payee is included
- Manufacturer's specification sheets for proposed technology are included
- A copy (all pages) of a recent month's utility bill is included
- Check this box if you are applying for an ARRA Block Grant.
- Check the box if an Energy Savings Improvement Program (ESIP) will be a source of funding. ESIP allows government agencies to pay for energy related improvements using the value of the resulting energy savings.

ACKNOWLEDGEMENT

<hr/> CUSTOMER'S SIGNATURE	By signing, I certify that I have read, understand and agree to the Specific Program Requirements/Terms and Conditions listed on this application form, I will also submit for approval a properly completed application package, which includes this signed application, worksheet (if applicable), manufacturer's specification sheets and complete utility bill (name and address on utility bill must match name and address on application).
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Refrigeration Controls Incentives

Type	Incentive
Door Heater Control	\$50 per control
Electric Defrost Control	\$50 per control
Evaporator Fan Control	\$75 per control
Novelty Cooler Shutoff	\$50 per control

Mail or fax your application package DIRECTLY to the Commercial/Industrial Program Manager.

New Jersey's Clean Energy Program
c/o TRC Energy Services
900 Route 9 North, Suite 404 • Woodbridge, NJ 07095
Phone: 866-657-6278 • Fax: 732-855-0422

Visit our website: NJCleanEnergy.com/ssb



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Program – The Commercial and Industrial Energy-Efficient Construction Program (New Jersey SmartStart Buildings) offered herein by the New Jersey Board of Public Utilities, Office of Clean Energy pursuant to state regulatory approval under the New Jersey Electric Discount and Energy Competition Act, NJSA 48:3-49, et seq.

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Please refer to the program guide on the NJCleanEnergy.com/ssb website for the complete Application and Eligibility Process.

The Program Manager reserves the right to verify sales transactions and to have reasonable access to Participating Customer's facility to inspect both pre-existing product or equipment (if applicable) and the Energy-Efficient Measures installed under this Program, either prior to issuing incentives or at a later time.

Energy-Efficient Measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the Participating Customer's incentive application. Program Incentives are available for qualified Energy-Efficient Measures as listed and described in the Program materials and incentive applications. The Participating Customer must ultimately own the equipment, either through an up-front purchase or at the end of a short-term lease. Design Incentives are available to design professionals as described in the Program materials and applications. A different and separate agreement must be executed by participating design professionals to be eligible for this type of incentive. The design professional does not need to be based in New Jersey.

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Endorsement – The Program Manager and Administrator do not endorse, support or recommend any particular manufacturer, product or system design in promoting this Program.

Warranties – THE PROGRAM MANAGER AND ADMINISTRATOR DO NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, AND/OR SERVICES RENDERED AS PART OF THIS PROGRAM, EITHER EXPRESSLY OR IMPLICITLY. NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, EXPRESSED, OR IMPLIED, INCLUDING, WITHOUT LIMITATIONS, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING EQUIPMENT OR SERVICES PROVIDED BY A MANUFACTURER OR VENDOR. CONTACT YOUR VENDOR/SERVICES PROVIDER FOR DETAILS REGARDING PERFORMANCE AND WARRANTIES.

Limitation of Liability – By virtue of participating in this Program, Participating Customers agree to waive any and all claims or damages against the Program Manager or the Administrator, except the receipt of the Program Incentive. Participating Customers agree that the Program Manager's and Administrator's liability, in connection with this Program, is limited to paying the Program Incentive specified. Under no circumstances shall the Program Manager, its representatives, or subcontractors, or the Administrator, be liable for any lost profits, special, punitive, consequential or incidental damages or for any other damages or claims connected with or resulting from participation in this Program. Further, any liability attributed to the Program Manager under this Program shall be individual, and not joint and/or several.

Assignment – The Participating Customer may assign Program Incentive payments to a specified vendor.

Participating Customer's Certification – Participating Customer certifies that he/she purchased and installed the equipment listed in their application at their defined New Jersey location. Participating Customer agrees that all information is true and that he/she has conformed to all of the Program and equipment requirements listed in the application.

Termination – The New Jersey Board of Public Utilities reserves the right to extend, modify (this includes modification of Program Incentive levels) or terminate this Program without prior or further notice.

Acknowledgement – I have read, understood and am in compliance with all rules and regulations concerning this incentive program. I certify that all information provided is correct to the best of my knowledge, and I give the Program Manager permission to share my records with the New Jersey Board of Public Utilities, and contractors it selects to manage, coordinate or evaluate the NJ SmartStart Buildings Program. Additionally, I allow reasonable access to my property to inspect the installation and performance of the technologies and installations that are eligible for incentives under the guidelines of New Jersey's Clean Energy Program.



Appendix G



SmartStart



2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)				
Facility Name <i>Administration Bldg</i>				
Address <i>179 Eagle Rock Ave</i>		City <i>West Orange</i>	State <i>NJ</i>	Zip <i>07052</i>
County <i>Essex</i>		Facility's Description <i>School</i>		
Total Sq. Ft <i>35,700</i>	Year Built <i>1937</i>	Hours/Week Occupied <i>7am-5pm M-F</i>	Number of Employees <i>40</i>	

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input checked="" type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSE&G - 67 387 822 09

Annual kWh Use	Annual Electricity Cost	Max Summer kW ⁽²⁾	Max Winter kW ⁽²⁾
361,745	\$55,721	115	88

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G - 67 387 82201

Annual Use in Therms	Annual Natural Gas Cost
33,618	\$35,423

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons

Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons

Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)

Annual Energy Cost

Please mail, fax, or e-mail your completed application to:
New Jersey's Clean Energy Program c/o TRC Energy Services
900 Route 9 North, Suite 404 • Woodbridge, NJ 07095

Phone: 866-657-6278 • Fax: 732-855-0422 • E-mail: LGEA@trcsolutions.com

For further questions, please call 866-657-6278 x4 or visit our website at NJCleanEnergy.com/LGEA

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2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)

Facility Name <u>Edison Central Six School</u>				
Address <u>75 William Street</u>		City <u>West Orange</u>	State <u>NJ</u>	Zip <u>07057</u>
County <u>Essex</u>		Facility's Description <u>School</u>		
Total Sq. Ft. <u>82,510</u>	Year Built <u>1927</u>	Hours/Week Occupied <u>7am - 9pm M-F</u>	Number of Employees <u>458</u>	

Building Type (check one of the following):

<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSE&G 42 005 376 05

Annual kWh Use	Annual Electricity Cost	Max Summer kW ⁽²⁾	Max Winter kW ⁽²⁾
859,781	\$143,901	306	315

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G 42 005 376 05

Annual Use in Therms	Annual Natural Gas Cost
23,508	\$22,063

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons	Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons	Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)	Annual Energy Cost

Please mail, fax, or e-mail your completed application to:
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900 Route 9 North, Suite 404 • Woodbridge, NJ 07095
Phone: 866-657-6278 • Fax: 732-855-0422 • E-mail: LGEA@trcsolutions.com
For further questions, please call 866-657-6278 x4 or visit our website at NJCleanEnergy.com/LGEA

Staff Use Only: Date Received: _____ Project No. _____



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2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)				
Facility Name <i>Gregory Elementary School</i>				
Address <i>301 Gregory Avenue</i>		City <i>West Orange</i>	State <i>NJ</i>	Zip <i>07052</i>
County <i>Essex</i>		Facility's Description <i>School</i>		
Total Sq. Ft. <i>61,666</i>	Year Built <i>1950</i>	Hours/Week Occupied <i>7am-3pm</i>	Number of Employees <i>522</i>	

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

DSEB 65 747 073 07

Annual kWh Use
463,156

Annual Electricity Cost
\$79,686

Max Summer kW⁽²⁾
172

Max Winter kW⁽²⁾
205

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G 65 747 073 07

Annual Use in Therms
51,892

Annual Natural Gas Cost
\$57,612

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons

Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons

Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)

Annual Energy Cost

Please mail, fax, or e-mail your completed application to:
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Phone: 866-657-6278 • Fax: 732-855-0422 • E-mail: LGEA@trcsolutions.com

For further questions, please call 866-657-6278 x4 or visit our website at NJCleanEnergy.com/LGEA

Staff Use Only: Date Received: _____

Project No. _____



2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

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Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)				
Facility Name <i>Hazel Elementary School</i>				
Address <i>45 Hazel Avenue</i>		City <i>West Orange</i>	State <i>NJ</i>	Zip <i>07052</i>
County <i>Essex</i>		Facility's Description <i>School</i>		
Total Sq. Ft <i>44,290</i>	Year Built <i>1950</i>	Hours/Week Occupied <i>7am - 9pm</i>	Number of Employees <i>329</i>	

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSEG 65 133 609 00

Annual kWh Use

145,826

Annual Electricity Cost

\$23,744

Max Summer kW ⁽²⁾

59

Max Winter kW ⁽²⁾

86

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G 65 133 609 00

Annual Use in Therms

20,198

Annual Natural Gas Cost

\$22,814

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons

Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons

Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)

Annual Energy Cost

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Phone: 866-657-6278 • Fax: 732-855-0422 • E-mail: LGEA@trcsolutions.com

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2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)				
Facility Name <u>Liberty Middle School</u>				
Address <u>1 Kelly Drive</u>		City <u>West Orange</u>	State <u>NJ</u>	Zip <u>07052</u>
County <u>Essex</u>		Facility's Description <u>School</u>		
Total Sq. Ft <u>115,741</u>	Year Built <u>2005</u>	Hours/Week Occupied <u>7am - 9pm</u>	Number of Employees <u>543</u>	

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSEG - 42 004 063 06

Annual kWh Use	Annual Electricity Cost	Max Summer kW ⁽²⁾	Max Winter kW ⁽²⁾
1,000,359	\$170,625	533	333

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G 42 004 063 06

Annual Use in Therms	Annual Natural Gas Cost
48,909	\$48,471

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons	Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons	Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)	Annual Energy Cost

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Phone: 866-657-6278 • Fax: 732-855-0422 • E-mail: LGEA@trcsolutions.com
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2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)				
Facility Name <u>Mt. Pleasant Elementary School</u>				
Address <u>9 Manger Road</u>		City <u>West Orange</u>	State <u>NJ</u>	Zip <u>07052</u>
County <u>Essex</u>		Facility's Description <u>School</u>		
Total Sq. Ft <u>41,992</u>	Year Built <u>1957</u>	Hours/Week Occupied <u>7am to 9pm</u>	Number of Employees <u>391</u>	

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSE&G - 66 610 48700

Annual kWh Use	Annual Electricity Cost	Max Summer kW ⁽²⁾	Max Winter kW ⁽²⁾
179,773	\$30,121	78	78

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G - 66 610 48700

Annual Use in Therms	Annual Natural Gas Cost
21,199	\$23,287

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons	Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons	Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)	Annual Energy Cost

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Phone: 866-657-6278 • Fax: 732-855-0422 • E-mail: LGEA@trcsolutions.com

For further questions, please call 866-657-6278 x4 or visit our website at NJCleanEnergy.com/LGEA

Staff Use Only: Date Received: _____

Project No. _____



2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)				
Facility Name <i>Pleasantdale Elementary School</i>				
Address <i>555 Pleasant Valley Way</i>		City <i>West Orange</i>	State <i>NJ</i>	Zip <i>07052</i>
County <i>Essex</i>	Facility's Description <i>School</i>			
Total Sq. Ft. <i>76,071</i>	Year Built <i>1928</i>	Hours/Week Occupied <i>7am - 11pm</i>	Number of Employees <i>430</i>	

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSEG - 42 005 484 02

Annual kWh Use	Annual Electricity Cost	Max Summer kW ⁽²⁾	Max Winter kW ⁽²⁾
370,573	\$60,408	155	111

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G 42 005 484 02

Annual Use in Therms	Annual Natural Gas Cost
24,216	\$10,492

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons	Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons	Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)	Annual Energy Cost

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For further questions, please call 866-657-6278 x4 or visit our website at NJCleanEnergy.com/LGEA

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Project No. _____



2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)				
Facility Name <i>Redwood Elementary School</i>				
Address <i>75 Redwood Avenue</i>		City <i>West Orange</i>	State <i>NJ</i>	Zip <i>07052</i>
County <i>Essex</i>		Facility's Description <i>School</i>		
Total Sq. Ft <i>53,176</i>	Year Built <i>1961</i>	Hours/Week Occupied <i>7am - 9pm</i>	Number of Employees <i>529</i>	

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSE&G 66 001 936 03

Annual kWh Use	Annual Electricity Cost	Max Summer kW ⁽²⁾	Max Winter kW ⁽²⁾
326,147	\$51,751	104	109

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G 66 001 936 03

Annual Use in Therms	Annual Natural Gas Cost
—	—

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons	Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons	Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)	Annual Energy Cost

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Staff Use Only: Date Received: _____ Project No. _____



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2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)			
Facility Name <u>Roosevelt Elementary School</u>			
Address <u>36 Gilbert Place</u>		City <u>West Orange</u>	State <u>NJ</u>
County <u>Essex</u>		Facility's Description <u>School</u>	
Total Sq. Ft <u>111,738</u>	Year Built <u>1962</u>	Hours/Week Occupied <u>7am - 5pm</u>	Number of Employees <u>470</u>

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSE&G - 42 003 067 00

Annual kWh Use	Annual Electricity Cost	Max Summer kW ⁽²⁾	Max Winter kW ⁽²⁾
966,966	\$152,326	273	387

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G - 42 003 067 00

Annual Use in Therms	Annual Natural Gas Cost
42,715	\$17,973

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons	Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons	Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)	Annual Energy Cost

Please mail, fax, or e-mail your completed application to:
New Jersey's Clean Energy Program c/o TRC Energy Services
900 Route 9 North, Suite 404 • Woodbridge, NJ 07095
Phone: 866-657-6278 • Fax: 732-855-0422 • E-mail: LGEA@trcsolutions.com
For further questions, please call 866-657-6278 x4 or visit our website at NJCleanEnergy.com/LGEA

Staff Use Only: Date Received: _____

Project No. _____



2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)

Facility Name <i>St. Cloud Elementary School</i>				
Address <i>71 Sheridan Ave</i>		City <i>West Orange</i>	State <i>NJ</i>	Zip <i>07052</i>
County <i>Essex</i>		Facility's Description <i>School</i>		
Total Sq. Ft <i>42,186</i>	Year Built <i>1929</i>	Hours/Week Occupied <i>7am - 9pm</i>	Number of Employees <i>358</i>	

Building Type (check one of the following):

<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSE&G - 65 968 950 09

Annual kWh Use

196,010

Annual Electricity Cost

\$30,582

Max Summer kW ⁽²⁾

55

Max Winter kW ⁽²⁾

69

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G - 65 968 950 09

Annual Use in Therms

3,250

Annual Natural Gas Cost

\$ 3,391

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons

Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons

Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)

Annual Energy Cost

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Phone: 866-657-6278 • Fax: 732-855-0422 • E-mail: LGEA@trcsolutions.com
For further questions, please call 866-657-6278 x4 or visit our website at NJCleanEnergy.com/LGEA

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Project No. _____



SmartStart



2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

- This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)			
Facility Name <u>Washington Elementary School</u>			
Address <u>289 Main Street</u>		City <u>West Orange</u>	State <u>NJ</u>
Zip <u>07052</u>		County <u>Essex</u>	
Facility's Description <u>School</u>		Total Sq. Ft. <u>57,588</u>	
Year Built <u>1937</u>		Hours/Week Occupied <u>7am - 9pm</u>	Number of Employees <u>430</u>

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSE&G - 65 308 269 04

Annual kWh Use	Annual Electricity Cost	Max Summer kW ⁽²⁾	Max Winter kW ⁽²⁾
276,800	\$43,083	87	89

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G - 65 308 269 04

Annual Use in Therms	Annual Natural Gas Cost
45,973	\$47,604

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons

Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons

Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)

Annual Energy Cost

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 Phone: 866-657-6278 • Fax: 732-855-0422 • E-mail: LGEA@tresolutions.com
 For further questions, please call 866-657-6278 x4 or visit our website at NJCleanEnergy.com/LGEA

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Project No. _____



SmartStart



2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)			
Facility Name <i>West Orange High School</i>			
Address <i>51 Conforti Avenue</i>		City <i>West Orange</i>	State <i>NJ</i>
County <i>Essex</i>		Facility's Description <i>School</i>	
Total Sq. Ft <i>381,668</i>	Year Built <i>1959</i>	Hours/Week Occupied <i>7am-11pm</i>	Number of Employees <i>2002</i>

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSE&G - 42 008 288 04

Annual kWh Use	Annual Electricity Cost	Max Summer kW ⁽²⁾	Max Winter kW ⁽²⁾
3,278,790	\$492,373	800	1,057

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G - 42 008 288 04

Annual Use in Therms	Annual Natural Gas Cost
65,315	\$23,941

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

Annual Use in Gallons	Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons	Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)	Annual Energy Cost

Please mail, fax, or e-mail your completed application to:
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900 Route 9 North, Suite 404 • Woodbridge, NJ 07095

Phone: 866-657-6278 • Fax: 732-855-0422 • E-mail: LGEA@trcsolutions.com

For further questions, please call 866-657-6278 x4 or visit our website at NJCleanEnergy.com/LGEA

Staff Use Only: Date Received: _____

Project No. _____



New Jersey SmartStart BUILDINGS



2012 Local Government Energy Audit Program Facility Data Form

Complete one Facility Data Form for each building that you would like to have audited.

Applying Entity: West Orange Board of Education

This Entity owns the facility described below or has provided documentation to show that the applicant pays the utility bills and has permission from the building owner to perform audit and install energy-efficient equipment.

Utility Serving Applicant (check all that apply):

- Atlantic City Electric
 Jersey Central Power & Light
 New Jersey Natural Gas
 Elizabethtown Gas
 South Jersey Gas
 Public Service Electric & Gas
 Rockland Electric Company
 Non-regulated energy company (oil, propane, municipal, cooperative, etc.⁽¹⁾): _____

⁽¹⁾ Note: buildings that are NOT served by at least one regulated utility will be eligible to receive incentives on a limited basis, depending on federal funding availability. Applicant must check off the appropriate box above for buildings in this situation.

Facility Information (please complete the info below for this specific facility that is seeking enrollment in the Program.)			
Facility Name <i>Bus Garage</i>			
Address		City <i>West Orange</i>	State <i>NJ</i>
		Zip <i>07052</i>	
County <i>Essex</i>		Facility's Description <i>School</i>	
Total Sq. Ft <i>42,201</i>	Year Built <i>1970</i>	Hours/Week Occupied <i>6am-6pm</i>	Number of Employees <i>40</i>

Building Type (check one of the following):	
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Garage
<input type="checkbox"/> Center/Meeting Hall/Library	<input type="checkbox"/> Offices
<input type="checkbox"/> Recreation/Entertainment/Parks	<input type="checkbox"/> Religious
<input checked="" type="checkbox"/> School	<input type="checkbox"/> School: College or University
<input type="checkbox"/> Water Treatment/Pumping	<input type="checkbox"/> Other: _____

Energy Data

Please complete the energy information below for the most recent 12 month period available. In order to gain a complete picture of the facility's energy use, be sure to include all types of energy used by the facility. Do not include vehicle fuel.

The data below is for the 12 month period: 1 / 1 / 11 to 12 / 31 / 11

Buildings with maximum demand of under 150 kW will not be eligible for the LGEA Program, unless applicant demonstrates need for envelope measures to be evaluated. Direct Install should be considered for the buildings instead of the LGEA Program.

Electricity

Electricity Utility Name & Account Number(s)

PSE&G - 65 382 585 03

Annual kWh Use	Annual Electricity Cost	Max Summer kW ⁽²⁾	Max Winter kW ⁽²⁾
76,940	\$73,431	32	44

⁽²⁾ These numbers are DEMAND. If the max demand is less than 150 kW, please provide additional documentation to demonstrate that the building needs envelope measures considered. Alternatively, the building may be submitted to the Direct Install Program.

Natural Gas

Natural Gas Utility Name & Account Number(s)

PSE&G - 65 382 585 03

Annual Use in Therms	Annual Natural Gas Cost
2,055	\$2,119

Fuel Oil

Fuel Oil Utility Name & Account Number(s)

1

Annual Use in Gallons	Annual Fuel Oil Cost

Propane

Propane Utility Name & Account Number(s)

Annual Use in Gallons	Annual Propane Cost

Other

In this section please indicate any other fuel type that the facility uses, such as: solar energy, wind energy, bio-fuel, cogeneration, fuel cells.

Other Fuel Type:

Annual Energy Use (indicate units)	Annual Energy Cost

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Staff Use Only: Date Received: _____

Project No. _____



Appendix H

CDMSmith

11 British American Blvd
 Latham, NY 12110
 Phone (518) 782-4500
 Fax (518) 786-3810

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: West Orange Board of Education
 Estimate by: RG
 Checked by: JM

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Administration Building - Total									
	Lighting Upgrades	1	ea.	\$ 113,185.25	\$ 113,185.25	1	ea.	\$ 34,205.50	\$ 34,205.50	\$ 147,390.75
	Subtotal				\$ 113,185.25				\$ 34,205.50	

Notes:

- CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
- CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
- Bonds not included in estimate
- Escalation not included in estimate.
 - "This is an Opinion of Probable Construction Cost only. CDM has no control over the cost of labor, materials, equipment, or services furnished, over schedules, over contractor's methods of determining prices, competitive bidding, market conditions or negotiating terms. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids. There are not any costs provided for: Change Orders, Design Engineering, Construction Oversight, Client Costs, Finance or Funding Costs, Legal Fees, Land Acquisition or temporary/permanent Easements, Operations, or any other costs associated with this project that are not specifically part of the bidding contractor's proposed scope.

SUBTOTAL =	\$	147,390.75
MARKUP % =	\$	0.15
MARKUP =	\$	22,108.61
SUB-TOTAL w/ OH & P =	\$	169,499.36
CONTINGENCY % =		0.25
CONTINGENCY =	\$	42,374.84
BUDGET COST ESTIMATE =	\$	211,874.20

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Edison Middle School - Total									
	Lighting Upgrades	1	ea.	\$ 200,442.25	\$ 200,442.25	1	ea.	\$ 57,667.50	\$ 57,667.50	\$ 258,109.75
	Subtotal				\$ 200,442.25				\$ 57,667.50	

Notes:

- CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
- CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
- Bonds not included in estimate
- Escalation not included in estimate.
 - "This is an Opinion of Probable Construction Cost only. CDM has no control over the cost of labor, materials, equipment, or services furnished, over schedules, over contractor's methods of determining prices, competitive bidding, market conditions or negotiating terms. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids. There are not any costs provided for: Change Orders, Design Engineering, Construction Oversight, Client Costs, Finance or Funding Costs, Legal Fees, Land Acquisition or temporary/permanent Easements, Operations, or any other costs associated with this project that are not specifically part of the bidding contractor's proposed scope.

SUBTOTAL =	\$	258,109.75
MARKUP % =	\$	0.15
MARKUP =	\$	38,716.46
SUB-TOTAL w/ OH & P =	\$	296,826.21
CONTINGENCY % =		0.25
CONTINGENCY =	\$	74,206.55
BUDGET COST ESTIMATE =	\$	371,032.77

CDMSmith

11 British American Blvd
 Latham, NY 12110
 Phone (518) 782-4500
 Fax (518) 786-3810

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: West Orange Board of Education
 Estimate by: RG
 Checked by: JM

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Gregory School - Total									
	Lighting Upgrades	1	ea.	\$ 212,892.50	\$ 212,892.50	1	ea.	\$ 59,895.00	\$ 59,895.00	\$ 272,787.50
	Subtotal				\$ 212,892.50				\$ 59,895.00	

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate
4. Escalation not included in estimate.

o "This is an Opinion of Probable Construction Cost only. CDM has no control over the cost of labor, materials, equipment, or services furnished, over schedules, over contractor's methods of determining prices, competitive bidding, market conditions or negotiating terms. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids. There are not any costs provided for: Change Orders, Design Engineering, Construction Oversight, Client Costs, Finance or Funding Costs, Legal Fees, Land Acquisition or temporary/permanent Easements, Operations, or any other costs associated with this project that are not specifically part of the bidding contractor's proposed scope.

SUBTOTAL =	\$	272,787.50
MARKUP % =	\$	0.15
MARKUP =	\$	40,918.13
SUB-TOTAL w/ OH & P =	\$	313,705.63
CONTINGENCY % =		0.25
CONTINGENCY =	\$	78,426.41
BUDGET COST ESTIMATE =	\$	392,132.03

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Hazel School - Total									
	Lighting Upgrades	1	ea.	\$ 119,325.25	\$ 119,325.25	1	ea.	\$ 36,139.00	\$ 36,139.00	\$ 155,464.25
	Subtotal				\$ 119,325.25				\$ 36,139.00	

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate
4. Escalation not included in estimate.

o "This is an Opinion of Probable Construction Cost only. CDM has no control over the cost of labor, materials, equipment, or services furnished, over schedules, over contractor's methods of determining prices, competitive bidding, market conditions or negotiating terms. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids. There are not any costs provided for: Change Orders, Design Engineering, Construction Oversight, Client Costs, Finance or Funding Costs, Legal Fees, Land Acquisition or temporary/permanent Easements, Operations, or any other costs associated with this project that are not specifically part of the bidding contractor's proposed scope.

SUBTOTAL =	\$	155,464.25
MARKUP % =	\$	0.15
MARKUP =	\$	23,319.64
SUB-TOTAL w/ OH & P =	\$	178,783.89
CONTINGENCY % =		0.25
CONTINGENCY =	\$	44,695.97
BUDGET COST ESTIMATE =	\$	223,479.86

CDMSmith

11 British American Blvd
 Latham, NY 12110
 Phone (518) 782-4500
 Fax (518) 786-3810

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: West Orange Board of Education
 Estimate by: RG
 Checked by: JM

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Liberty Middle School - Total									
	Lighting Upgrades	1	ea.	\$ 396,940.00	\$ 396,940.00	1	ea.	\$ 106,747.00	\$ 106,747.00	\$ 503,687.00
	Subtotal				\$ 396,940.00				\$ 106,747.00	

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate
4. Escalation not included in estimate.

o "This is an Opinion of Probable Construction Cost only. CDM has no control over the cost of labor, materials, equipment, or services furnished, over schedules, over contractor's methods of determining prices, competitive bidding, market conditions or negotiating terms. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids. There are not any costs provided for: Change Orders, Design Engineering, Construction Oversight, Client Costs, Finance or Funding Costs, Legal Fees, Land Acquisition or temporary/permanent Easements, Operations, or any other costs associated with this project that are not specifically part of the bidding contractor's proposed scope.

SUBTOTAL =	\$	503,687.00
MARKUP % =	\$	0.15
MARKUP =	\$	75,553.05
SUB-TOTAL w/ OH & P =	\$	579,240.05
CONTINGENCY % =		0.25
CONTINGENCY =	\$	144,810.01
BUDGET COST ESTIMATE =	\$	724,050.06

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Mt. Pleasant School - Total									
	Lighting Upgrades	1	ea.	\$ 141,498.00	\$ 141,498.00	1	ea.	\$ 42,318.00	\$ 42,318.00	\$ 183,816.00
	Subtotal				\$ 141,498.00				\$ 42,318.00	

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate
4. Escalation not included in estimate.

o "This is an Opinion of Probable Construction Cost only. CDM has no control over the cost of labor, materials, equipment, or services furnished, over schedules, over contractor's methods of determining prices, competitive bidding, market conditions or negotiating terms. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids. There are not any costs provided for: Change Orders, Design Engineering, Construction Oversight, Client Costs, Finance or Funding Costs, Legal Fees, Land Acquisition or temporary/permanent Easements, Operations, or any other costs associated with this project that are not specifically part of the bidding contractor's proposed scope.

SUBTOTAL =	\$	183,816.00
MARKUP % =	\$	0.15
MARKUP =	\$	27,572.40
SUB-TOTAL w/ OH & P =	\$	211,388.40
CONTINGENCY % =		0.25
CONTINGENCY =	\$	52,847.10
BUDGET COST ESTIMATE =	\$	264,235.50

CDMSmith

11 British American Blvd
 Latham, NY 12110
 Phone (518) 782-4500
 Fax (518) 786-3810

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: West Orange Board of Education
 Estimate by: RG
 Checked by: JM

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Washington School - Total									
	Lighting Upgrades	1	ea.	\$ 138,683.00	\$ 138,683.00	1	ea.	\$ 38,699.50	\$ 38,699.50	\$ 177,382.50
	Subtotal				\$ 138,683.00				\$ 38,699.50	

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate
4. Escalation not included in estimate.
 - o "This is an Opinion of Probable Construction Cost only. CDM has no control over the cost of labor, materials, equipment, or services furnished, over schedules, over contractor's methods of determining prices, competitive bidding, market conditions or negotiating terms. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids. There are not any costs provided for: Change Orders, Design Engineering, Construction Oversight, Client Costs, Finance or Funding Costs, Legal Fees, Land Acquisition or temporary/permanent Easements, Operations, or any other costs associated with this project that are not specifically part of the bidding contractor's proposed scope.

SUBTOTAL =	\$	177,382.50
MARKUP % =	\$	0.15
MARKUP =	\$	26,607.38
SUB-TOTAL w/ OH & P =	\$	203,989.88
CONTINGENCY % =		0.25
CONTINGENCY =	\$	50,997.47
BUDGET COST ESTIMATE =	\$	254,987.34

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	West Orange High School - Total									
	Lighting Upgrades	1	ea.	\$ 746,308.75	\$ 746,308.75	1	ea.	\$ 192,912.00	\$ 192,912.00	\$ 939,220.75
	Subtotal				\$ 746,308.75				\$ 192,912.00	

Notes:

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3. Bonds not included in estimate
4. Escalation not included in estimate.
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SUBTOTAL =	\$	939,220.75
MARKUP % =	\$	0.15
MARKUP =	\$	140,883.11
SUB-TOTAL w/ OH & P =	\$	1,080,103.86
CONTINGENCY % =		0.25
CONTINGENCY =	\$	270,025.97
BUDGET COST ESTIMATE =	\$	1,350,129.83

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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: West Orange Board of Education
 Estimate by: RG
 Checked by: JM

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Bus Garage - Total									
	Lighting Upgrades	1	ea.	\$ 55,843.25	\$ 55,843.25	1	ea.	\$ 16,745.50	\$ 16,745.50	\$ 72,588.75
	Subtotal				\$ 55,843.25				\$ 16,745.50	

Notes:

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3. Bonds not included in estimate
4. Escalation not included in estimate.

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SUBTOTAL =	\$	72,588.75
MARKUP % =	\$	0.15
MARKUP =	\$	10,888.31
SUB-TOTAL w/ OH & P =	\$	83,477.06
CONTINGENCY % =		0.25
CONTINGENCY =	\$	20,869.27
BUDGET COST ESTIMATE =	\$	104,346.33

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Washington School - Total									
	Solar	1	ea.	\$ 542,500.00	\$ 542,500.00	1	ea.	\$ 232,500.00	\$ 232,500.00	\$ 775,000.00
	Subtotal				\$ 542,500.00				\$ 232,500.00	

Notes:

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2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate
4. Escalation not included in estimate

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SUBTOTAL =	\$	775,000.00
CONTINGENCY % =		0.25
CONTINGENCY =	\$	193,750.00
BUDGET COST ESTIMATE =	\$	968,750.00

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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: West Orange Board of Education
 Estimate by: RG
 Checked by: JM

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	West Orange High School - Total									
	Solar	1	ea.	\$ 1,204,000.00	\$ 1,204,000.00	1	ea.	\$ 516,000.00	\$ 516,000.00	\$ 1,720,000.00
	Subtotal				\$ 1,204,000.00				\$ 516,000.00	

SUBTOTAL = \$ 1,720,000.00
 CONTINGENCY % = 0.25
 CONTINGENCY = \$ 430,000.00
 BUDGET COST ESTIMATE = \$ 2,150,000.00

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate
4. Escalation not included in estimate

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ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Bus Garage - Total									
	Solar	1	ea.	\$ 1,645,000.00	\$ 1,645,000.00	1	ea.	\$ 705,000.00	\$ 705,000.00	\$ 2,350,000.00
	Subtotal				\$ 1,645,000.00				\$ 705,000.00	

SUBTOTAL = \$ 2,350,000.00
 CONTINGENCY % = 0.25
 CONTINGENCY = \$ 587,500.00
 BUDGET COST ESTIMATE = \$ 2,937,500.00

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
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3. Bonds not included in estimate
4. Escalation not included in estimate

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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: West Orange Board of Education
 Estimate by: RG
 Checked by: JM

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Administration Building - Total									
	Solar	1	ea.	\$ 542,500.00	\$ 542,500.00	1	ea.	\$ 232,500.00	\$ 232,500.00	\$ 775,000.00
	Subtotal				\$ 542,500.00				\$ 232,500.00	

SUBTOTAL = \$ 775,000.00
 CONTINGENCY % = 0.25
 CONTINGENCY = \$ 193,750.00
 BUDGET COST ESTIMATE = \$ 968,750.00

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate
4. Escalation not included in estimate
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ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Edison Middle School - Total									
	Solar	1	ea.	\$ 1,204,000.00	\$ 1,204,000.00	1	ea.	\$ 516,000.00	\$ 516,000.00	\$ 1,720,000.00
	Subtotal				\$ 1,204,000.00				\$ 516,000.00	

SUBTOTAL = \$ 1,720,000.00
 CONTINGENCY % = 0.25
 CONTINGENCY = \$ 430,000.00
 BUDGET COST ESTIMATE = \$ 2,150,000.00

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate
4. Escalation not included in estimate
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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: West Orange Board of Education
 Estimate by: RG
 Checked by: JM

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Gregory School - Total									
	Solar	1	ea.	\$ 1,645,000.00	\$ 1,645,000.00	1	ea.	\$ 705,000.00	\$ 705,000.00	\$ 2,350,000.00
	Subtotal				\$ 1,645,000.00				\$ 705,000.00	

SUBTOTAL = \$ 2,350,000.00
 CONTINGENCY % = 0.25
 CONTINGENCY = \$ 587,500.00
 BUDGET COST ESTIMATE = \$ 2,937,500.00

Notes:

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- Bonds not included in estimate
- Escalation not included in estimate
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ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Hazel School - Total									
	Solar	1	ea.	\$ 2,086,000.00	\$ 2,086,000.00	1	ea.	\$ 894,000.00	\$ 894,000.00	\$ 2,980,000.00
	Subtotal				\$ 2,086,000.00				\$ 894,000.00	

SUBTOTAL = \$ 2,980,000.00
 CONTINGENCY % = 0.25
 CONTINGENCY = \$ 745,000.00
 BUDGET COST ESTIMATE = \$ 3,725,000.00

Notes:

- CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
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- Bonds not included in estimate
- Escalation not included in estimate
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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: West Orange Board of Education
 Estimate by: RG
 Checked by: JM

ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Liberty Middle School - Total									
	Solar	1	ea.	\$ 511,000.00	\$ 511,000.00	1	ea.	\$ 219,000.00	\$ 219,000.00	\$ 730,000.00
	Subtotal				\$ 511,000.00				\$ 219,000.00	

SUBTOTAL = \$ 730,000.00
 CONTINGENCY % = 0.25
 CONTINGENCY = \$ 182,500.00
 BUDGET COST ESTIMATE = \$ 912,500.00

Notes:

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- Bonds not included in estimate
- Escalation not included in estimate

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ITEM	DESCRIPTION	QTY	UNIT	MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	LABOR COST	LABOR SUBTOTAL	TOTAL
1	Mt. Pleasant School - Total									
	Solar	1	ea.	\$ 889,000.00	\$ 889,000.00	1	ea.	\$ 381,000.00	\$ 381,000.00	\$ 1,270,000.00
	Subtotal				\$ 889,000.00				\$ 381,000.00	

SUBTOTAL = \$ 1,270,000.00
 CONTINGENCY % = 0.25
 CONTINGENCY = \$ 317,500.00
 BUDGET COST ESTIMATE = \$ 1,587,500.00

Notes:

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- Bonds not included in estimate
- Escalation not included in estimate

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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: Edison Six School
 Estimate by: BRM
 Checked by: MG

ITEM	DESCRIPTION	QTY	UNIT	*MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	**LABOR COST	LABOR SUBTOTAL	TOTAL
Edison Six: New Steam Boilers										
1	Boiler Demolition	2	Ea.	\$ -	\$ -	1	Ea.	\$4,250.00	\$4,250.00	\$ 4,250.00
2	Steam Boiler 4,000 MBH	2	Ea.	\$ 27,300.00	\$ 54,600.00	2	Ea.	\$14,100.00	\$28,200.00	\$ 82,800.00
3	Pipe, Steel	60	L.F.	\$ 49.00	\$ 2,940.00	60	L.F.	\$27.50	\$1,650.00	\$ 4,590.00
4	Pipe Demolition	60	L.F.	\$ -	\$ -	60	L.F.	\$10.90	\$654.00	\$ 654.00
5	Stainless Steel Vent Chimney	60	Ea.	\$ 142.00	\$ 8,520.00	60	Ea.	\$43.00	\$2,580.00	\$ 11,100.00
6	Copper Wire, #10,	8	C.L.F.	\$ 22.00	\$ 176.00	8	C.L.F.	\$54.50	\$436.00	\$ 612.00
7	1" Electrical Conduit	200	L.F.	\$ 3.12	\$ 624.00	200	L.F.	\$5.90	\$1,180.00	\$ 1,804.00
8	Gas Pipe, Steel	50	L.F.	\$ 14.85	\$ 742.50	50	L.F.	\$15.40	\$770.00	\$ 1,512.50
9	Pipe Insulation, 2" wall	60	L.F.	\$ 6.55	\$ 393.00	60	L.F.	\$6.75	\$405.00	\$ 798.00
10	DDC Controller	1	Ea.	\$ -	\$ -	1	Ea.	\$0.00	\$2,400.00	\$ 2,400.00
Subtotal					67,995.50				42,525.00	

*Pricing per RS Means COSTWORKS and Vendor

**Includes installation cost per RS Means COSTWORKS.

SUBTOTAL =	\$	110,520.50
MARKUP % =	\$	0.15
MARKUP =	\$	16,578.08
SUB-TOTAL w/ OH & P =	\$	127,098.58
CONTINGENCY % =		0.25
CONTINGENCY =	\$	31,774.64
BUDGET COST ESTIMATE =	\$	158,873.22

Notes:

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2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate.
4. Escalation not included in estimate.
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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: Mt. Pleasant Elementary
 Estimate by: BRM
 Checked by: MG

ITEM	DESCRIPTION	QTY	UNIT	*MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	**LABOR COST	LABOR SUBTOTAL	TOTAL
Mt. Pleasant: New Steam Boilers										
1	Boiler Demolition	2	Ea.	\$ -	\$ -	1	Ea.	\$4,250.00	\$4,250.00	\$ 4,250.00
2	Steam Boiler 4,000 MBH	2	Ea.	\$ 27,300.00	\$ 54,600.00	2	Ea.	\$14,100.00	\$28,200.00	\$ 82,800.00
3	Pipe, Steel	60	L.F.	\$ 49.00	\$ 2,940.00	60	L.F.	\$27.50	\$1,650.00	\$ 4,590.00
4	Pipe Demolition	60	L.F.	\$ -	\$ -	60	L.F.	\$10.90	\$654.00	\$ 654.00
5	Stainless Steel Vent Chimney	60	Ea.	\$ 142.00	\$ 8,520.00	60	Ea.	\$43.00	\$2,580.00	\$ 11,100.00
6	Copper Wire, #10,	8	C.L.F.	\$ 22.00	\$ 176.00	8	C.L.F.	\$54.50	\$436.00	\$ 612.00
7	1" Electrical Conduit	200	L.F.	\$ 3.12	\$ 624.00	200	L.F.	\$5.90	\$1,180.00	\$ 1,804.00
8	Gas Pipe, Steel	50	L.F.	\$ 14.85	\$ 742.50	50	L.F.	\$15.40	\$770.00	\$ 1,512.50
9	Pipe Insulation, 2" wall	60	L.F.	\$ 6.55	\$ 393.00	60	L.F.	\$6.75	\$405.00	\$ 798.00
10	DDC Controller	1	Ea.	\$ -	\$ -	1	Ea.	\$0.00	\$2,400.00	\$ 2,400.00
	Subtotal				67,995.50				42,525.00	

*Pricing per RS Means COSTWORKS and Vendor

**Includes installation cost per RS Means COSTWORKS.

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate.
4. Escalation not included in estimate.

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SUBTOTAL =	\$	110,520.50
MARKUP % =	\$	0.15
MARKUP =	\$	16,578.08
SUB-TOTAL w/ OH & P =	\$	127,098.58
CONTINGENCY % =		0.25
CONTINGENCY =	\$	31,774.64
BUDGET COST ESTIMATE =	\$	158,873.22

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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: Roosevelt Middle School
 Estimate by: BRM
 Checked by: MG

ITEM	DESCRIPTION	QTY	UNIT	*MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	**LABOR COST	LABOR SUBTOTAL	TOTAL
Roosevelt: New Steam Boilers										
1	Boiler Demolition	2	Ea.	\$ -	\$ -	1	Ea.	\$4,250.00	\$4,250.00	\$ 4,250.00
2	Steam Boiler 11,000 MBH	2	Ea.	\$ 97,000.00	\$ 194,000.00	2	Ea.	\$25,000.00	\$50,000.00	\$ 244,000.00
3	Pipe, Steel, 4"	60	L.F.	\$ 49.00	\$ 2,940.00	60	L.F.	\$27.50	\$1,650.00	\$ 4,590.00
4	Pipe Demolition	60	L.F.	\$ -	\$ -	60	L.F.	\$10.90	\$654.00	\$ 654.00
5	Stainless Steel Vent Chimney	60	Ea.	\$ 142.00	\$ 8,520.00	60	Ea.	\$43.00	\$2,580.00	\$ 11,100.00
6	Copper Wire, #10,	8	C.L.F.	\$ 22.00	\$ 176.00	8	C.L.F.	\$54.50	\$436.00	\$ 612.00
7	1" Electrical Conduit	200	L.F.	\$ 3.12	\$ 624.00	200	L.F.	\$5.90	\$1,180.00	\$ 1,804.00
8	Gas Pipe, 2", Steel	50	L.F.	\$ 14.85	\$ 742.50	50	L.F.	\$15.40	\$770.00	\$ 1,512.50
9	Pipe Insulation, 4" Pipe, 2" wall	60	L.F.	\$ 6.55	\$ 393.00	60	L.F.	\$6.75	\$405.00	\$ 798.00
10	DDC Controller	1	Ea.	\$ -	\$ -	1	Ea.	\$0.00	\$2,400.00	\$ 2,400.00
	Subtotal				207,395.50				64,325.00	

*Pricing per RS Means COSTWORKS and Vendor

**Includes installation cost per RS Means COSTWORKS.

SUBTOTAL =	\$	271,720.50
MARKUP % =	\$	0.15
MARKUP =	\$	40,758.08
SUB-TOTAL w/ OH & P =	\$	312,478.58
CONTINGENCY % =		0.25
CONTINGENCY =	\$	78,119.64
BUDGET COST ESTIMATE =	\$	390,598.22

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate.
4. Escalation not included in estimate.

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CDM Smith

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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: Washington Elementary
 Estimate by: BRM
 Checked by: MG

ITEM	DESCRIPTION	QTY	UNIT	*MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	**LABOR COST	LABOR SUBTOTAL	TOTAL
Washington Elementary: New Steam Boilers										
1	Boiler Demolition	2	Ea.	\$ -	\$ -	1	Ea.	\$4,250.00	\$4,250.00	\$ 4,250.00
2	Steam Boiler 4,000 MBH	2	Ea.	\$ 27,300.00	\$ 54,600.00	2	Ea.	\$14,100.00	\$28,200.00	\$ 82,800.00
3	Pipe, Steel	60	L.F.	\$ 49.00	\$ 2,940.00	60	L.F.	\$27.50	\$1,650.00	\$ 4,590.00
4	Pipe Demolition	60	L.F.	\$ -	\$ -	60	L.F.	\$10.90	\$654.00	\$ 654.00
5	Stainless Steel Vent Chimney	60	Ea.	\$ 142.00	\$ 8,520.00	60	Ea.	\$43.00	\$2,580.00	\$ 11,100.00
6	Copper Wire, #10,	8	C.L.F.	\$ 22.00	\$ 176.00	8	C.L.F.	\$54.50	\$436.00	\$ 612.00
7	1" Electrical Conduit	200	L.F.	\$ 3.12	\$ 624.00	200	L.F.	\$5.90	\$1,180.00	\$ 1,804.00
8	Gas Pipe, Steel	50	L.F.	\$ 14.85	\$ 742.50	50	L.F.	\$15.40	\$770.00	\$ 1,512.50
9	Pipe Insulation, 2" wall	60	L.F.	\$ 6.55	\$ 393.00	60	L.F.	\$6.75	\$405.00	\$ 798.00
10	DDC Controller	1	Ea.	\$ -	\$ -	1	Ea.	\$0.00	\$2,400.00	\$ 2,400.00
	Subtotal				67,995.50				42,525.00	

*Pricing per RS Means COSTWORKS and Vendor

**Includes installation cost per RS Means COSTWORKS.

SUBTOTAL =	\$	110,520.50
MARKUP % =	\$	0.15
MARKUP =	\$	16,578.08
SUB-TOTAL w/ OH & P =	\$	127,098.58
CONTINGENCY % =		0.25
CONTINGENCY =	\$	31,774.64
BUDGET COST ESTIMATE =	\$	158,873.22

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate.
4. Escalation not included in estimate.

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CDM Smith

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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: West Orange Bus Garage
 Estimate by: BRM
 Checked by: MG

ITEM	DESCRIPTION	QTY	UNIT	*MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	**LABOR COST	LABOR SUBTOTAL	TOTAL
	Bus Garage: Condensing Unit Heaters									
1	Heater Demolition	3	Ea.	\$ -	\$ -	3	Ea.	\$397.00	\$1,191.00	\$ 1,191.00
2	Condensing unit heater 120 MBH	3	Ea.	\$ 2,600.00	\$ 7,800.00	3	Ea.	\$285.00	\$855.00	\$ 8,655.00
3	Furnace Demolition	1	Ea.	\$ -	\$ -	1	Ea.	\$615.00	\$615.00	\$ 615.00
4	Condensing Furnace, 300 MBH	1	Ea.	\$ 3,500.00	\$ 3,500.00	1	Ea.	\$600.00	\$600.00	\$ 4,100.00
5	Stainless Steel Vent Chimney	30	L.F.	\$ 142.00	\$ 4,260.00	30	L.F.	\$43.00	\$1,290.00	\$ 5,550.00
	Subtotal				15,560.00				4,551.00	

*Pricing per RS Means COSTWORKS and Vendor

**Includes installation cost per RS Means COSTWORKS.

SUBTOTAL =	\$	20,111.00
MARKUP % =	\$	0.15
MARKUP =	\$	3,016.65
SUB-TOTAL w/ OH & P =	\$	23,127.65
CONTINGENCY % =		0.25
CONTINGENCY =	\$	5,781.91
BUDGET COST ESTIMATE =	\$	28,909.56

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
2. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids.
3. Bonds not included in estimate.
4. Escalation not included in estimate.
 - o "This is an Opinion of Probable Construction Cost only. CDM has no control over the cost of labor, materials, equipment, or services furnished, over schedules, over contractor's methods of determining prices, competitive bidding, market conditions or negotiating terms. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids. There are not any costs provided for: Change Orders, Design Engineering, Construction Oversight, Client Costs, Finance or Funding Costs, Legal Fees, Land Acquisition or temporary/permanent Easements, Operations, or any other costs associated with this project that are not specifically part of the bidding contractor's proposed scope.

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ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Location: All Sites
 Estimate by: BRM
 Checked by: CDW

ITEM	DESCRIPTION	QTY	UNIT	*MATERIAL UNIT COST	MATERIAL SUBTOTAL	QTY	UNIT	**LABOR COST	LABOR SUBTOTAL	TOTAL
1	Single Site: Combined Heat and Power Engine and Generator, 65 kW	1	Ea.	\$ 32,000.00	\$ 32,000.00	1	Ea.	\$4,000.00	\$4,000.00	\$ 36,000.00
2	Electric Inverter and Transfer Switch	1	Ea.	\$ 6,000.00	\$ 6,000.00	1	Ea.	\$1,000.00	\$1,000.00	\$ 7,000.00
3	Heat Recovery System	1	Ea.	\$ 15,000.00	\$ 15,000.00	1	Ea.	\$1,400.00	\$1,400.00	\$ 16,400.00
4	Piping and Wiring	1	Ea.	\$ 20,000.00	\$ 20,000.00	1	Ea.	\$18,000.00	\$18,000.00	\$ 38,000.00
5					\$ -				\$0.00	\$ -
	Subtotal				73,000.00				24,400.00	

*Pricing per RS Means COSTWORKS and Vendor

**Includes installation cost per RS Means COSTWORKS.

SUBTOTAL =	\$	97,400.00
MARKUP % =	\$	0.15
MARKUP =	\$	14,610.00
SUB-TOTAL w/ OH & P =	\$	112,010.00
CONTINGENCY % =		0.25
CONTINGENCY =	\$	28,002.50
BUDGET COST ESTIMATE =	\$	140,012.50

Notes:

1. CDM has no control over the cost of labor, materials, equipment, services furnished or market conditions.
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3. Bonds not included in estimate.
4. Escalation not included in estimate.
 - o "This is an Opinion of Probable Construction Cost only. CDM has no control over the cost of labor, materials, equipment, or services furnished, over schedules, over contractor's methods of determining prices, competitive bidding, market conditions or negotiating terms. CDM does not guarantee that this opinion will not vary from actual cost, or contractor's bids. There are not any costs provided for: Change Orders, Design Engineering, Construction Oversight, Client Costs, Finance or Funding Costs, Legal Fees, Land Acquisition or temporary/permanent Easements, Operations, or any other costs associated with this project that are not specifically part of the bidding contractor's proposed scope.



Appendix I

IRR, NPV, AROI

Inflation Rate: 3%

Lighting Upgrades Administration Building - Total		Lighting Upgrades Edison Middle School - Total		Lighting Upgrades Gregory School - Total		Lighting Upgrades Hazel School - Total		Lighting Upgrades Liberty Middle School - Total	
Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15
Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow
0	(\$187,359.20)	0	(\$328,727.77)	0	(\$348,582.03)	0	(\$198,269.86)	0	(\$645,750.06)
1	\$15,282.37	1	\$28,870.44	1	\$43,334.28	1	\$16,494.12	1	\$44,411.05
2	\$15,740.84	2	\$29,736.55	2	\$44,634.31	2	\$16,988.94	2	\$45,743.38
3	\$16,213.06	3	\$30,628.65	3	\$45,973.33	3	\$17,498.61	3	\$47,115.68
4	\$16,699.45	4	\$31,547.51	4	\$47,352.53	4	\$18,023.57	4	\$48,529.15
5	\$17,200.44	5	\$32,493.94	5	\$48,773.11	5	\$18,564.28	5	\$49,985.03
6	\$17,716.45	6	\$33,468.75	6	\$50,236.30	6	\$19,121.20	6	\$51,484.58
7	\$18,247.94	7	\$34,472.82	7	\$51,743.39	7	\$19,694.84	7	\$53,029.12
8	\$18,795.38	8	\$35,507.00	8	\$53,295.69	8	\$20,285.69	8	\$54,619.99
9	\$19,359.24	9	\$36,572.21	9	\$54,894.57	9	\$20,894.26	9	\$56,258.59
10	\$19,940.02	10	\$37,669.38	10	\$56,541.40	10	\$21,521.08	10	\$57,946.35
11	\$20,538.22	11	\$38,799.46	11	\$58,237.64	11	\$22,166.72	11	\$59,684.74
12	\$21,154.37	12	\$39,963.44	12	\$59,984.77	12	\$22,831.72	12	\$61,475.28
13	\$21,789.00	13	\$41,162.35	13	\$61,784.32	13	\$23,516.67	13	\$63,319.54
14	\$22,442.67	14	\$42,397.22	14	\$63,637.85	14	\$24,222.17	14	\$65,219.13
15	\$23,115.95	15	\$43,669.13	15	\$65,546.98	15	\$24,948.83	15	\$67,175.70
IRR	5.30%	IRR	6.34%	IRR	11.79%	IRR	5.58%	IRR	3.02%
NPV	\$35,199.51	NPV	\$91,715.55	NPV	\$282,499.67	NPV	\$41,935.75	NPV	\$1,012.82
AROI	1.49%	AROI	2.12%	AROI	5.76%	AROI	1.65%	AROI	0.21%
Lighting Upgrades Administration Building - Interior		Lighting Upgrades Edison Middle School - Interior		Lighting Upgrades Gregory School - Interior		Lighting Upgrades Hazel School - Interior		Lighting Upgrades Liberty Middle School - Interior	
Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15
Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow
0	(\$183,500.08)	0	(\$327,933.64)	0	(\$332,508.56)	0	(\$192,520.61)	0	(\$572,639.38)
1	\$15,092.45	1	\$28,821.46	1	\$41,292.73	1	\$15,683.24	1	\$40,397.09
2	\$15,545.23	2	\$29,686.10	2	\$42,531.51	2	\$16,153.74	2	\$41,609.00
3	\$16,011.58	3	\$30,576.68	3	\$43,807.45	3	\$16,638.35	3	\$42,857.27
4	\$16,491.93	4	\$31,493.98	4	\$45,121.68	4	\$17,137.50	4	\$44,142.99
5	\$16,986.69	5	\$32,438.80	5	\$46,475.33	5	\$17,651.63	5	\$45,467.28
6	\$17,496.29	6	\$33,411.97	6	\$47,869.59	6	\$18,181.17	6	\$46,831.30
7	\$18,021.18	7	\$34,414.33	7	\$49,305.67	7	\$18,726.61	7	\$48,236.24
8	\$18,561.81	8	\$35,446.76	8	\$50,784.84	8	\$19,288.41	8	\$49,683.32
9	\$19,118.67	9	\$36,510.16	9	\$52,308.39	9	\$19,867.06	9	\$51,173.82
10	\$19,692.23	10	\$37,605.46	10	\$53,877.64	10	\$20,463.07	10	\$52,709.04
11	\$20,282.99	11	\$38,733.63	11	\$55,493.97	11	\$21,076.96	11	\$54,290.31
12	\$20,891.48	12	\$39,895.64	12	\$57,158.79	12	\$21,709.27	12	\$55,919.02
13	\$21,518.23	13	\$41,092.51	13	\$58,873.55	13	\$22,360.55	13	\$57,596.59
14	\$22,163.78	14	\$42,325.28	14	\$60,639.76	14	\$23,031.37	14	\$59,324.49
15	\$22,828.69	15	\$43,595.04	15	\$62,458.95	15	\$23,722.31	15	\$61,104.22
IRR	5.42%	IRR	6.35%	IRR	11.78%	IRR	5.28%	IRR	3.35%
NPV	\$36,292.93	NPV	\$91,796.31	NPV	\$268,841.80	NPV	\$35,876.10	NPV	\$15,667.74
AROI	1.56%	AROI	2.12%	AROI	5.75%	AROI	1.48%	AROI	0.39%
Lighting Upgrades Administration Building - Exterior		Lighting Upgrades Edison Middle School - Exterior		Lighting Upgrades Gregory School - Exterior		Lighting Upgrades Hazel School - Exterior		Lighting Upgrades Liberty Middle School - Exterior	
Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15
Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow
0	(\$3,859.13)	0	(\$794.13)	0	(\$16,073.47)	0	(\$5,749.25)	0	(\$73,110.69)
1	\$189.91	1	\$48.99	1	\$2,041.55	1	\$810.88	1	\$4,013.96
2	\$195.61	2	\$50.45	2	\$2,102.80	2	\$835.20	2	\$4,134.38
3	\$201.48	3	\$51.97	3	\$2,165.88	3	\$860.26	3	\$4,258.41
4	\$207.52	4	\$53.53	4	\$2,230.86	4	\$886.07	4	\$4,386.17
5	\$213.75	5	\$55.13	5	\$2,297.78	5	\$912.65	5	\$4,517.75
6	\$220.16	6	\$56.79	6	\$2,366.72	6	\$940.03	6	\$4,653.28
7	\$226.76	7	\$58.49	7	\$2,437.72	7	\$968.23	7	\$4,792.88
8	\$233.57	8	\$60.25	8	\$2,510.85	8	\$997.28	8	\$4,936.67
9	\$240.57	9	\$62.05	9	\$2,586.18	9	\$1,027.20	9	\$5,084.77
10	\$247.79	10	\$63.91	10	\$2,663.76	10	\$1,058.01	10	\$5,237.31
11	\$255.23	11	\$65.83	11	\$2,743.68	11	\$1,089.75	11	\$5,394.43
12	\$262.88	12	\$67.81	12	\$2,825.99	12	\$1,122.44	12	\$5,556.26
13	\$270.77	13	\$69.84	13	\$2,910.76	13	\$1,156.12	13	\$5,722.95
14	\$278.89	14	\$71.94	14	\$2,998.09	14	\$1,190.80	14	\$5,894.64
15	\$287.26	15	\$74.09	15	\$3,088.03	15	\$1,226.53	15	\$6,071.48
IRR	-1.02%	IRR	1.65%	IRR	12.17%	IRR	14.04%	IRR	0.25%
NPV	(\$1,093.42)	NPV	(\$80.75)	NPV	\$13,657.87	NPV	\$6,059.65	NPV	(\$14,654.92)
AROI	-1.75%	AROI	-0.50%	AROI	6.03%	AROI	7.44%	AROI	-1.18%

IRR, NPV, AROI

Inflation Rate: 3%

Lighting Upgrades Mt. Pleasant School - Total		Lighting Upgrades Pleasantdale School - Total		Lighting Upgrades Redwood School - Total		Lighting Upgrades Roosevelt Middle School - Total		Lighting Upgrades St. Cloud School - Total	
Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15
Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow
0	(\$233,000.50)	0	(\$315,032.84)	0	(\$326,279.48)	0	(\$551,373.06)	0	(\$244,677.20)
1	\$16,528.33	1	\$23,818.75	1	\$24,141.95	1	\$43,853.90	1	\$17,833.87
2	\$17,024.18	2	\$24,533.32	2	\$24,866.21	2	\$45,169.52	2	\$18,368.88
3	\$17,534.91	3	\$25,269.32	3	\$25,612.20	3	\$46,524.60	3	\$18,919.95
4	\$18,060.96	4	\$26,027.40	4	\$26,380.56	4	\$47,920.34	4	\$19,487.55
5	\$18,602.79	5	\$26,808.22	5	\$27,171.98	5	\$49,357.95	5	\$20,072.18
6	\$19,160.87	6	\$27,612.46	6	\$27,987.14	6	\$50,838.69	6	\$20,674.34
7	\$19,735.70	7	\$28,440.84	7	\$28,826.76	7	\$52,363.85	7	\$21,294.57
8	\$20,327.77	8	\$29,294.06	8	\$29,691.56	8	\$53,934.76	8	\$21,933.41
9	\$20,937.60	9	\$30,172.89	9	\$30,582.30	9	\$55,552.81	9	\$22,591.41
10	\$21,565.73	10	\$31,078.07	10	\$31,499.77	10	\$57,219.39	10	\$23,269.15
11	\$22,212.70	11	\$32,010.41	11	\$32,444.77	11	\$58,935.97	11	\$23,967.23
12	\$22,879.08	12	\$32,970.73	12	\$33,418.11	12	\$60,704.05	12	\$24,686.24
13	\$23,565.45	13	\$33,959.85	13	\$34,420.65	13	\$62,525.17	13	\$25,426.83
14	\$24,272.42	14	\$34,978.64	14	\$35,453.27	14	\$64,400.93	14	\$26,189.64
15	\$25,000.59	15	\$36,028.00	15	\$36,516.87	15	\$66,332.96	15	\$26,975.33
IRR	3.42%	IRR	4.27%	IRR	3.98%	IRR	4.95%	IRR	3.78%
NPV	\$7,703.40	NPV	\$31,842.22	NPV	\$25,302.37	NPV	\$87,275.95	NPV	\$15,039.32
AROI	0.43%	AROI	0.89%	AROI	0.73%	AROI	1.29%	AROI	0.62%
Lighting Upgrades Mt. Pleasant School - Interior		Lighting Upgrades Pleasantdale School - Interior		Lighting Upgrades Redwood School - Interior		Lighting Upgrades Roosevelt Middle School - Interior		Lighting Upgrades St. Cloud School - Interior	
Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15
Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow
0	(\$222,382.63)	0	(\$307,238.66)	0	(\$299,116.00)	0	(\$541,071.50)	0	(\$239,531.70)
1	\$15,943.70	1	\$23,293.74	1	\$22,341.99	1	\$42,899.60	1	\$17,208.19
2	\$16,422.01	2	\$23,992.55	2	\$23,012.25	2	\$44,186.59	2	\$17,724.44
3	\$16,914.67	3	\$24,712.32	3	\$23,702.62	3	\$45,512.19	3	\$18,256.17
4	\$17,422.11	4	\$25,453.69	4	\$24,413.70	4	\$46,877.55	4	\$18,803.86
5	\$17,944.78	5	\$26,217.30	5	\$25,146.11	5	\$48,283.88	5	\$19,367.97
6	\$18,483.12	6	\$27,003.82	6	\$25,900.49	6	\$49,732.40	6	\$19,949.01
7	\$19,037.61	7	\$27,813.94	7	\$26,677.50	7	\$51,224.37	7	\$20,547.48
8	\$19,608.74	8	\$28,648.36	8	\$27,477.83	8	\$52,761.10	8	\$21,163.91
9	\$20,197.00	9	\$29,507.81	9	\$28,302.16	9	\$54,343.93	9	\$21,798.83
10	\$20,802.91	10	\$30,393.04	10	\$29,151.23	10	\$55,974.25	10	\$22,452.79
11	\$21,427.00	11	\$31,304.83	11	\$30,025.77	11	\$57,653.48	11	\$23,126.37
12	\$22,069.81	12	\$32,243.98	12	\$30,926.54	12	\$59,383.08	12	\$23,820.17
13	\$22,731.91	13	\$33,211.30	13	\$31,854.34	13	\$61,164.58	13	\$24,534.77
14	\$23,413.86	14	\$34,207.64	14	\$32,809.97	14	\$62,999.51	14	\$25,270.81
15	\$24,116.28	15	\$35,233.86	15	\$33,794.26	15	\$64,889.50	15	\$26,028.94
IRR	3.56%	IRR	4.30%	IRR	4.10%	IRR	4.91%	IRR	3.59%
NPV	\$9,807.21	NPV	\$31,990.50	NPV	\$26,252.79	NPV	\$83,680.00	NPV	\$11,073.07
AROI	0.50%	AROI	0.91%	AROI	0.80%	AROI	1.26%	AROI	0.52%
Lighting Upgrades Mt. Pleasant School - Exterior		Lighting Upgrades Pleasantdale School - Exterior		Lighting Upgrades Redwood School - Exterior		Lighting Upgrades Roosevelt Middle School - Exterior		Lighting Upgrades St. Cloud School - Exterior	
Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15
Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow
0	(\$10,617.88)	0	(\$7,794.19)	0	(\$27,163.48)	0	(\$10,301.56)	0	(\$5,145.50)
1	\$584.63	1	\$525.02	1	\$1,799.96	1	\$954.30	1	\$625.67
2	\$602.17	2	\$540.77	2	\$1,853.96	2	\$982.92	2	\$644.44
3	\$620.24	3	\$556.99	3	\$1,909.58	3	\$1,012.41	3	\$663.78
4	\$638.84	4	\$573.70	4	\$1,966.87	4	\$1,042.79	4	\$683.69
5	\$658.01	5	\$590.91	5	\$2,025.87	5	\$1,074.07	5	\$704.20
6	\$677.75	6	\$608.64	6	\$2,086.65	6	\$1,106.29	6	\$725.33
7	\$698.08	7	\$626.90	7	\$2,149.25	7	\$1,139.48	7	\$747.09
8	\$719.02	8	\$645.71	8	\$2,213.73	8	\$1,173.66	8	\$769.50
9	\$740.59	9	\$665.08	9	\$2,280.14	9	\$1,208.87	9	\$792.58
10	\$762.81	10	\$685.03	10	\$2,348.54	10	\$1,245.14	10	\$816.36
11	\$785.70	11	\$705.58	11	\$2,419.00	11	\$1,282.49	11	\$840.85
12	\$809.27	12	\$726.75	12	\$2,491.57	12	\$1,320.97	12	\$866.08
13	\$833.55	13	\$748.55	13	\$2,566.32	13	\$1,360.60	13	\$892.06
14	\$858.55	14	\$771.01	14	\$2,643.31	14	\$1,401.42	14	\$918.82
15	\$884.31	15	\$794.14	15	\$2,722.61	15	\$1,443.46	15	\$946.39
IRR	0.28%	IRR	2.75%	IRR	2.54%	IRR	7.12%	IRR	11.42%
NPV	(\$2,103.81)	NPV	(\$148.28)	NPV	(\$950.42)	NPV	\$3,595.95	NPV	\$3,966.25
AROI	-1.16%	AROI	0.07%	AROI	-0.04%	AROI	2.60%	AROI	5.49%

IRR, NPV, AROI

Inflation Rate: 3%

Lighting Upgrades Washington School - Total		Lighting Upgrades West Orange High School - Total		Lighting Upgrades Bus Garage - Total	
Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15
Year	Cash Flow	Year	Cash Flow	Year	Cash Flow
0	(\$225,702.34)	0	(\$1,197,429.83)	0	(\$96,181.33)
1	\$22,812.35	1	\$118,627.45	1	\$10,598.55
2	\$23,496.72	2	\$122,186.28	2	\$10,916.51
3	\$24,201.62	3	\$125,851.87	3	\$11,244.01
4	\$24,927.67	4	\$129,627.42	4	\$11,581.33
5	\$25,675.50	5	\$133,516.24	5	\$11,928.77
6	\$26,445.77	6	\$137,521.73	6	\$12,286.63
7	\$27,239.14	7	\$141,647.38	7	\$12,655.23
8	\$28,056.31	8	\$145,896.81	8	\$13,034.88
9	\$28,898.00	9	\$150,273.71	9	\$13,425.93
10	\$29,764.94	10	\$154,781.92	10	\$13,828.71
11	\$30,657.89	11	\$159,425.38	11	\$14,243.57
12	\$31,577.63	12	\$164,208.14	12	\$14,670.88
13	\$32,524.96	13	\$169,134.38	13	\$15,111.00
14	\$33,500.70	14	\$174,208.42	14	\$15,564.33
15	\$34,505.73	15	\$179,434.67	15	\$16,031.26
IRR	8.43%	IRR	8.12%	IRR	9.79%
NPV	\$106,516.34	NPV	\$530,154.45	NPV	\$58,166.54
AROI	3.44%	AROI	3.24%	AROI	4.35%
Lighting Upgrades Washington School - Interior		Lighting Upgrades West Orange High School - Interior		Lighting Upgrades Bus Garage - Interior	
Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15
Year	Cash Flow	Year	Cash Flow	Year	Cash Flow
0	(\$225,059.16)	0	(\$1,188,753.58)	0	(\$93,389.86)
1	\$22,746.69	1	\$118,096.00	1	\$10,405.16
2	\$23,429.10	2	\$121,638.88	2	\$10,717.31
3	\$24,131.97	3	\$125,288.05	3	\$11,038.83
4	\$24,855.93	4	\$129,046.69	4	\$11,370.00
5	\$25,601.61	5	\$132,918.09	5	\$11,711.10
6	\$26,369.65	6	\$136,905.63	6	\$12,062.43
7	\$27,160.74	7	\$141,012.80	7	\$12,424.30
8	\$27,975.57	8	\$145,243.18	8	\$12,797.03
9	\$28,814.83	9	\$149,600.48	9	\$13,180.94
10	\$29,679.28	10	\$154,088.49	10	\$13,576.37
11	\$30,569.66	11	\$158,711.15	11	\$13,983.66
12	\$31,486.75	12	\$163,472.48	12	\$14,403.17
13	\$32,431.35	13	\$168,376.66	13	\$14,835.27
14	\$33,404.29	14	\$173,427.96	14	\$15,280.32
15	\$34,406.42	15	\$178,630.79	15	\$15,738.73
IRR	8.43%	IRR	8.17%	IRR	9.97%
NPV	\$106,203.39	NPV	\$531,091.07	NPV	\$58,141.55
AROI	3.44%	AROI	3.27%	AROI	4.47%
Lighting Upgrades Washington School - Exterior		Lighting Upgrades West Orange High School - Exterior		Lighting Upgrades Bus Garage - Exterior	
Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15	Life of ECRM (Yrs):	15
Year	Cash Flow	Year	Cash Flow	Year	Cash Flow
0	(\$643.19)	0	(\$8,676.25)	0	(\$2,791.47)
1	\$65.65	1	\$531.46	1	\$193.40
2	\$67.62	2	\$547.40	2	\$199.20
3	\$69.65	3	\$563.82	3	\$205.17
4	\$71.74	4	\$580.74	4	\$211.33
5	\$73.90	5	\$598.16	5	\$217.67
6	\$76.11	6	\$616.10	6	\$224.20
7	\$78.40	7	\$634.59	7	\$230.93
8	\$80.75	8	\$653.62	8	\$237.85
9	\$83.17	9	\$673.23	9	\$244.99
10	\$85.66	10	\$693.43	10	\$252.34
11	\$88.23	11	\$714.23	11	\$259.91
12	\$90.88	12	\$735.66	12	\$267.71
13	\$93.61	13	\$757.73	13	\$275.74
14	\$96.42	14	\$780.46	14	\$284.01
15	\$99.31	15	\$803.87	15	\$292.53
IRR	8.58%	IRR	1.56%	IRR	3.11%
NPV	\$312.95	NPV	(\$936.61)	NPV	\$24.99
AROI	3.54%	AROI	-0.54%	AROI	0.26%

ECM	Administration Building - Total	Edison Middle School - Total	Gregory School - Total	Hazel School - Total	Liberty Middle School - Total	Mt. Pleasant School - Total	Pleasantdale School - Total	Redwood School - Total	Roosevelt Middle School - Total	St. Cloud School - Total
Assumed Inflation (Gas)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Initial Yearly Savings (Gas)										
Assumed Inflation (Electricity)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Initial Yearly Savings (Electricity)	\$8,630.75	\$17,526.64	\$29,744.49	\$9,578.90	\$23,053.30	\$9,509.38	\$14,114.76	\$14,203.94	\$23,646.22	\$10,617.13
Assumed Average Useful Life (Years)	15	15	15	15	15	15	15	24	15	15
Lifetime Savings	\$160,522.48	\$325,976.49	\$553,215.15	\$178,157.11	\$428,766.36	\$176,864.22	\$262,519.29	\$264,177.93	\$439,793.99	\$197,467.04
<u>Year</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>
1	\$8,630.75	\$17,526.64	\$29,744.49	\$9,578.90	\$23,053.30	\$9,509.38	\$14,114.76	\$14,203.94	\$23,646.22	\$10,617.13
2	\$8,889.67	\$18,052.44	\$30,636.82	\$9,866.27	\$23,744.90	\$9,794.67	\$14,538.21	\$14,630.06	\$24,355.61	\$10,936.64
3	\$9,156.36	\$18,594.01	\$31,555.93	\$10,162.25	\$24,457.25	\$10,088.51	\$14,974.35	\$15,068.96	\$25,086.27	\$11,263.71
4	\$9,431.05	\$19,151.83	\$32,502.60	\$10,467.12	\$25,190.96	\$10,391.16	\$15,423.58	\$15,521.03	\$25,838.86	\$11,601.62
5	\$9,713.98	\$19,726.39	\$33,477.68	\$10,781.13	\$25,946.69	\$10,702.90	\$15,886.29	\$15,986.66	\$26,614.03	\$11,949.67
6	\$10,005.40	\$20,318.18	\$34,482.01	\$11,104.57	\$26,725.09	\$11,023.98	\$16,362.88	\$16,466.26	\$27,412.45	\$12,308.16
7	\$10,305.56	\$20,927.73	\$35,516.47	\$11,437.71	\$27,526.85	\$11,354.70	\$16,853.77	\$16,960.25	\$28,234.82	\$12,677.41
8	\$10,614.73	\$21,555.56	\$36,581.97	\$11,780.84	\$28,352.65	\$11,695.34	\$17,359.38	\$17,469.06	\$29,081.87	\$13,057.73
9	\$10,933.17	\$22,202.22	\$37,679.43	\$12,134.26	\$29,203.23	\$12,046.20	\$17,880.16	\$17,993.13	\$29,954.32	\$13,448.46
10	\$11,261.16	\$22,868.29	\$38,809.81	\$12,498.29	\$30,079.33	\$12,407.59	\$18,416.57	\$18,532.92	\$30,852.95	\$13,852.94
11	\$11,599.00	\$23,554.34	\$39,974.10	\$12,873.24	\$30,981.71	\$12,779.82	\$18,969.06	\$19,088.91	\$31,778.54	\$14,268.53
12	\$11,946.97	\$24,260.97	\$41,173.33	\$13,259.44	\$31,911.16	\$13,163.21	\$19,538.14	\$19,661.58	\$32,731.90	\$14,696.59
13	\$12,305.38	\$24,988.80	\$42,408.53	\$13,657.22	\$32,868.50	\$13,558.11	\$20,124.28	\$20,251.43	\$33,713.85	\$15,137.49
14	\$12,674.54	\$25,738.46	\$43,680.78	\$14,066.94	\$33,854.55	\$13,964.85	\$20,728.01	\$20,858.97	\$34,725.27	\$15,591.61
15	\$13,054.78	\$26,510.62	\$44,991.21	\$14,488.94	\$34,870.19	\$14,383.80	\$21,349.85	\$21,484.74	\$35,767.03	\$16,059.36
ECM	Administration Building - Interior	Edison Middle School - Interior	Gregory School - Interior	Hazel School - Interior	Liberty Middle School - Interior	Mt. Pleasant School - Interior	Pleasantdale School - Interior	Redwood School - Interior	Roosevelt Middle School - Interior	St. Cloud School - Interior
Assumed Inflation (Gas)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Initial Yearly Savings (Gas)										
Assumed Inflation (Electricity)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Initial Yearly Savings (Electricity)	\$8,490.81	\$17,505.99	\$28,105.52	\$8,914.66	\$21,304.37	\$9,098.03	\$13,709.71	\$12,896.83	\$22,896.87	\$10,188.81
Assumed Average Useful Life (Years)	15	15	15	15	15	15	15	24	15	15
Lifetime Savings	\$157,919.90	\$325,592.33	\$522,732.05	\$165,803.01	\$396,238.11	\$169,213.51	\$254,985.63	\$239,867.03	\$425,856.97	\$189,500.88
<u>Year</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>
1	\$8,490.81	\$17,505.99	\$28,105.52	\$8,914.66	\$21,304.37	\$9,098.03	\$13,709.71	\$12,896.83	\$22,896.87	\$10,188.81
2	\$8,745.54	\$18,031.17	\$28,948.68	\$9,182.10	\$21,943.50	\$9,370.97	\$14,121.00	\$13,283.73	\$23,583.78	\$10,494.48
3	\$9,007.90	\$18,572.10	\$29,817.14	\$9,457.56	\$22,601.80	\$9,652.10	\$14,544.63	\$13,682.25	\$24,291.29	\$10,809.31
4	\$9,278.14	\$19,129.26	\$30,711.66	\$9,741.29	\$23,279.86	\$9,941.66	\$14,980.97	\$14,092.71	\$25,020.03	\$11,133.59
5	\$9,556.48	\$19,703.14	\$31,633.00	\$10,033.53	\$23,978.25	\$10,239.91	\$15,430.39	\$14,515.50	\$25,770.63	\$11,467.60
6	\$9,843.18	\$20,294.24	\$32,581.99	\$10,334.54	\$24,697.60	\$10,547.11	\$15,893.31	\$14,950.96	\$26,543.75	\$11,811.63
7	\$10,138.47	\$20,903.06	\$33,559.45	\$10,644.57	\$25,438.53	\$10,863.53	\$16,370.11	\$15,399.49	\$27,340.06	\$12,165.98
8	\$10,442.63	\$21,530.16	\$34,566.24	\$10,963.91	\$26,201.69	\$11,189.43	\$16,861.21	\$15,861.47	\$28,160.27	\$12,530.96
9	\$10,755.91	\$22,176.06	\$35,603.23	\$11,292.83	\$26,987.74	\$11,525.11	\$17,367.04	\$16,337.32	\$29,005.07	\$12,906.88
10	\$11,078.59	\$22,841.34	\$36,671.32	\$11,631.61	\$27,797.37	\$11,870.87	\$17,888.06	\$16,827.44	\$29,875.23	\$13,294.09
11	\$11,410.94	\$23,526.58	\$37,771.46	\$11,980.56	\$28,631.29	\$12,226.99	\$18,424.70	\$17,332.26	\$30,771.48	\$13,692.91
12	\$11,753.27	\$24,232.38	\$38,904.61	\$12,339.98	\$29,490.23	\$12,593.80	\$18,977.44	\$17,852.23	\$31,694.63	\$14,103.70
13	\$12,105.87	\$24,959.35	\$40,071.74	\$12,710.17	\$30,374.94	\$12,971.62	\$19,546.76	\$18,387.80	\$32,645.47	\$14,526.81
14	\$12,469.05	\$25,708.13	\$41,273.90	\$13,091.48	\$31,286.18	\$13,360.77	\$20,133.16	\$18,939.43	\$33,624.83	\$14,962.62
15	\$12,843.12	\$26,479.38	\$42,512.11	\$13,484.22	\$32,224.77	\$13,761.59	\$20,737.16	\$19,507.61	\$34,633.58	\$15,411.50

ECM	Administration Building - Exterior	Edison Middle School - Exterior	Gregory School - Exterior	Hazel School - Exterior	Liberty Middle School - Exterior	Mt. Pleasant School - Exterior	Pleasantdale School - Exterior	Redwood School - Exterior	Roosevelt Middle School - Exterior	St. Cloud School - Exterior
Assumed Inflation (Gas)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Initial Yearly Savings (Gas)										
Assumed Inflation (Electricity)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Initial Yearly Savings (Electricity)	\$139.93	\$20.66	\$1,638.97	\$664.24	\$1,748.93	\$411.35	\$405.06	\$1,307.11	\$749.35	\$428.31
Assumed Average Useful Life (Years)	15	15	15	15	15	15	15	24	15	15
Lifetime Savings	\$2,602.58	\$384.16	\$30,483.10	\$12,354.10	\$32,528.25	\$7,650.71	\$7,533.66	\$24,310.89	\$13,937.02	\$7,966.17
<u>Year</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>
1	\$139.93	\$20.66	\$1,638.97	\$664.24	\$1,748.93	\$411.35	\$405.06	\$1,307.11	\$749.35	\$428.31
2	\$144.13	\$21.27	\$1,688.14	\$684.16	\$1,801.40	\$423.69	\$417.21	\$1,346.33	\$771.83	\$441.16
3	\$148.45	\$21.91	\$1,738.79	\$704.69	\$1,855.44	\$436.40	\$429.73	\$1,386.72	\$794.98	\$454.40
4	\$152.91	\$22.57	\$1,790.95	\$725.83	\$1,911.11	\$449.50	\$442.62	\$1,428.32	\$818.83	\$468.03
5	\$157.49	\$23.25	\$1,844.68	\$747.61	\$1,968.44	\$462.98	\$455.90	\$1,471.17	\$843.40	\$482.07
6	\$162.22	\$23.94	\$1,900.02	\$770.03	\$2,027.49	\$476.87	\$469.57	\$1,515.30	\$868.70	\$496.53
7	\$167.09	\$24.66	\$1,957.02	\$793.13	\$2,088.32	\$491.18	\$483.66	\$1,560.76	\$894.76	\$511.43
8	\$172.10	\$25.40	\$2,015.73	\$816.93	\$2,150.97	\$505.91	\$498.17	\$1,607.58	\$921.60	\$526.77
9	\$177.26	\$26.17	\$2,076.20	\$841.44	\$2,215.50	\$521.09	\$513.12	\$1,655.81	\$949.25	\$542.57
10	\$182.58	\$26.95	\$2,138.49	\$866.68	\$2,281.96	\$536.72	\$528.51	\$1,705.49	\$977.73	\$558.85
11	\$188.06	\$27.76	\$2,202.64	\$892.68	\$2,350.42	\$552.82	\$544.37	\$1,756.65	\$1,007.06	\$575.62
12	\$193.70	\$28.59	\$2,268.72	\$919.46	\$2,420.93	\$569.41	\$560.70	\$1,809.35	\$1,037.27	\$592.89
13	\$199.51	\$29.45	\$2,336.78	\$947.04	\$2,493.56	\$586.49	\$577.52	\$1,863.63	\$1,068.39	\$610.67
14	\$205.49	\$30.33	\$2,406.89	\$975.46	\$2,568.37	\$604.08	\$594.84	\$1,919.54	\$1,100.44	\$628.99
15	\$211.66	\$31.24	\$2,479.09	\$1,004.72	\$2,645.42	\$622.21	\$612.69	\$1,977.13	\$1,133.45	\$647.86

	Washington School - Total	West Orange High School - Total	Bus Garage - Total
ECM			
Assumed Inflation (Gas)	2%	2%	2%
Initial Yearly Savings (Gas)			
Assumed Inflation (Electricity)	3%	3%	3%
Initial Yearly Savings (Electricity)	\$14,362.70	\$74,131.38	\$7,558.82
Assumed Average Useful Life (Years)	15	15	15
Lifetime Savings	\$267,130.61	\$1,378,763.23	\$140,585.91
<u>Year</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>
1	\$14,362.70	\$74,131.38	\$7,558.82
2	\$14,793.58	\$76,355.33	\$7,785.59
3	\$15,237.39	\$78,645.99	\$8,019.16
4	\$15,694.51	\$81,005.36	\$8,259.73
5	\$16,165.34	\$83,435.53	\$8,507.52
6	\$16,650.31	\$85,938.59	\$8,762.75
7	\$17,149.81	\$88,516.75	\$9,025.63
8	\$17,664.31	\$91,172.25	\$9,296.40
9	\$18,194.24	\$93,907.42	\$9,575.29
10	\$18,740.07	\$96,724.64	\$9,862.55
11	\$19,302.27	\$99,626.38	\$10,158.43
12	\$19,881.34	\$102,615.17	\$10,463.18
13	\$20,477.78	\$105,693.63	\$10,777.08
14	\$21,092.11	\$108,864.44	\$11,100.39
15	\$21,724.87	\$112,130.37	\$11,433.40
ECM	Washington School - Interior	West Orange High School - Interior	Bus Garage - Interior
Assumed Inflation (Gas)	2%	2%	2%
Initial Yearly Savings (Gas)			
Assumed Inflation (Electricity)	3%	3%	3%
Initial Yearly Savings (Electricity)	\$14,305.37	\$73,753.67	\$7,398.75
Assumed Average Useful Life (Years)	15	15	15
Lifetime Savings	\$266,064.43	\$1,371,738.14	\$137,608.65
<u>Year</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>
1	\$14,305.37	\$73,753.67	\$7,398.75
2	\$14,734.54	\$75,966.28	\$7,620.71
3	\$15,176.57	\$78,245.27	\$7,849.33
4	\$15,631.87	\$80,592.63	\$8,084.81
5	\$16,100.83	\$83,010.40	\$8,327.35
6	\$16,583.85	\$85,500.72	\$8,577.18
7	\$17,081.37	\$88,065.74	\$8,834.49
8	\$17,593.81	\$90,707.71	\$9,099.53
9	\$18,121.62	\$93,428.94	\$9,372.51
10	\$18,665.27	\$96,231.81	\$9,653.69
11	\$19,225.23	\$99,118.76	\$9,943.30
12	\$19,801.98	\$102,092.33	\$10,241.60
13	\$20,396.04	\$105,155.10	\$10,548.84
14	\$21,007.93	\$108,309.75	\$10,865.31
15	\$21,638.16	\$111,559.04	\$11,191.27
ECM	Washington School - Exterior	West Orange High School - Exterior	Bus Garage - Exterior
Assumed Inflation (Gas)	2%	2%	2%
Initial Yearly Savings (Gas)			
Assumed Inflation (Electricity)	3%	3%	3%
Initial Yearly Savings (Electricity)	\$57.32	\$377.72	\$160.08
Assumed Average Useful Life (Years)	15	15	15
Lifetime Savings	\$1,066.18	\$7,025.09	\$2,977.25
<u>Year</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>
1	\$57.32	\$377.72	\$160.08
2	\$59.04	\$389.05	\$164.88
3	\$60.82	\$400.72	\$169.83
4	\$62.64	\$412.74	\$174.92
5	\$64.52	\$425.12	\$180.17
6	\$66.46	\$437.88	\$185.57
7	\$68.45	\$451.01	\$191.14
8	\$70.50	\$464.54	\$196.87
9	\$72.62	\$478.48	\$202.78
10	\$74.80	\$492.83	\$208.86
11	\$77.04	\$507.62	\$215.13
12	\$79.35	\$522.85	\$221.58
13	\$81.73	\$538.53	\$228.23
14	\$84.18	\$554.69	\$235.08
15	\$86.71	\$571.33	\$242.13

IRR, NPV, AROI - PV Solar Energy Systems

Financial Calculations

Based on inflation of: 3%
 O&M inflation: 3%

Administration Building					Edison Middle School					Gregory School					Hazel School				
Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow	Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow	Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow	Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow
0				(\$609,200)	0				(\$1,796,701)	0				(\$1,360,921)	0				(\$367,100)
1	\$7,915.1	\$15,830	(\$1,055)	\$22,690	1	\$30,970.3	\$54,653	(\$3,644)	\$81,980	1	\$24,243.8	\$40,406	(\$2,694)	\$61,956	1	\$4,485.2	\$7,915	(\$528)	\$11,873
2	\$8,111.7	\$15,751	(\$1,050)	\$22,813	2	\$31,739.9	\$54,380	(\$3,625)	\$82,495	2	\$24,846.3	\$40,204	(\$2,680)	\$62,370	2	\$4,596.7	\$7,875	(\$525)	\$11,947
3	\$8,313.3	\$15,672	(\$1,045)	\$22,941	3	\$32,528.6	\$54,108	(\$3,607)	\$83,030	3	\$25,463.7	\$40,003	(\$2,667)	\$62,800	3	\$4,710.9	\$7,836	(\$522)	\$12,025
4	\$8,519.9	\$15,594	(\$1,040)	\$23,074	4	\$33,337.0	\$53,836	(\$3,589)	\$83,586	4	\$26,096.5	\$39,803	(\$2,654)	\$63,246	4	\$4,827.9	\$7,797	(\$520)	\$12,105
5	\$8,731.6	\$15,516	(\$1,034)	\$23,213	5	\$34,165.4	\$53,569	(\$3,571)	\$84,163	5	\$26,745.0	\$39,604	(\$2,640)	\$63,709	5	\$4,947.9	\$7,758	(\$517)	\$12,189
6	\$8,948.6	\$15,438	(\$1,029)	\$23,358	6	\$35,014.4	\$53,301	(\$3,553)	\$84,762	6	\$27,409.6	\$39,406	(\$2,627)	\$64,189	6	\$5,070.9	\$7,719	(\$515)	\$12,275
7	\$9,171.0	\$15,361	(\$1,024)	\$23,508	7	\$35,884.5	\$53,034	(\$3,536)	\$85,383	7	\$28,090.7	\$39,209	(\$2,614)	\$64,686	7	\$5,196.9	\$7,681	(\$512)	\$12,365
8	\$9,398.9	\$15,284	(\$1,019)	\$23,664	8	\$36,776.3	\$52,769	(\$3,518)	\$86,027	8	\$28,788.8	\$39,013	(\$2,601)	\$65,201	8	\$5,326.0	\$7,642	(\$509)	\$12,459
9	\$9,632.4	\$15,208	(\$1,014)	\$23,826	9	\$37,690.1	\$52,505	(\$3,500)	\$86,695	9	\$29,504.2	\$38,818	(\$2,588)	\$65,734	9	\$5,458.4	\$7,604	(\$507)	\$12,555
10	\$9,871.8	\$15,132	(\$1,009)	\$23,995	10	\$38,626.7	\$52,243	(\$3,483)	\$87,387	10	\$30,237.4	\$38,624	(\$2,575)	\$66,286	10	\$5,594.0	\$7,566	(\$504)	\$12,656
11	\$10,117.1	\$15,056	(\$1,004)	\$24,170	11	\$39,586.6	\$51,981	(\$3,465)	\$88,103	11	\$30,988.7	\$38,431	(\$2,562)	\$66,858	11	\$5,733.0	\$7,528	(\$502)	\$12,759
12	\$10,368.5	\$14,981	(\$999)	\$24,351	12	\$40,570.3	\$51,722	(\$3,448)	\$88,844	12	\$31,758.8	\$38,239	(\$2,549)	\$67,448	12	\$5,875.5	\$7,490	(\$499)	\$12,867
13	\$10,626.2	\$14,906	(\$994)	\$24,538	13	\$41,578.5	\$51,463	(\$3,431)	\$89,611	13	\$32,548.0	\$38,048	(\$2,537)	\$68,059	13	\$6,021.5	\$7,453	(\$497)	\$12,978
14	\$10,890.3	\$14,831	(\$989)	\$24,733	14	\$42,611.7	\$51,206	(\$3,414)	\$90,404	14	\$33,356.8	\$37,857	(\$2,524)	\$68,690	14	\$6,171.1	\$7,416	(\$494)	\$13,092
15	\$11,160.9	\$14,757	(\$984)	\$24,934	15	\$43,670.6	\$50,950	(\$3,397)	\$91,224	15	\$34,185.8	\$37,668	(\$2,511)	\$69,343	15	\$6,324.5	\$7,379	(\$492)	\$13,211
16	\$11,438.2	\$0	(\$979)	\$10,459	16	\$44,755.9	\$0	(\$3,380)	\$41,376	16	\$35,035.3	\$0	(\$2,499)	\$32,537	16	\$6,481.7	\$0	(\$489)	\$5,992
17	\$11,722.5	\$0	(\$974)	\$10,748	17	\$45,868.0	\$0	(\$3,363)	\$42,505	17	\$35,905.9	\$0	(\$2,486)	\$33,420	17	\$6,642.7	\$0	(\$487)	\$6,156
18	\$12,013.8	\$0	(\$969)	\$11,045	18	\$47,007.9	\$0	(\$3,346)	\$43,662	18	\$36,798.2	\$0	(\$2,474)	\$34,324	18	\$6,807.8	\$0	(\$485)	\$6,323
19	\$12,312.3	\$0	(\$964)	\$11,348	19	\$48,176.0	\$0	(\$3,329)	\$44,847	19	\$37,712.6	\$0	(\$2,461)	\$35,251	19	\$6,977.0	\$0	(\$482)	\$6,495
20	\$12,618.3	\$0	(\$959)	\$11,659	20	\$49,373.2	\$0	(\$3,313)	\$46,061	20	\$38,649.8	\$0	(\$2,449)	\$36,201	20	\$7,150.4	\$0	(\$480)	\$6,671
21	\$12,931.8	\$0	(\$955)	\$11,977	21	\$50,600.1	\$0	(\$3,296)	\$47,304	21	\$39,610.2	\$0	(\$2,437)	\$37,173	21	\$7,328.0	\$0	(\$477)	\$6,851
22	\$13,253.2	\$0	(\$950)	\$12,303	22	\$51,857.5	\$0	(\$3,280)	\$48,578	22	\$40,594.5	\$0	(\$2,425)	\$38,170	22	\$7,510.1	\$0	(\$475)	\$7,035
23	\$13,582.5	\$0	(\$945)	\$12,637	23	\$53,146.2	\$0	(\$3,263)	\$49,883	23	\$41,603.3	\$0	(\$2,412)	\$39,191	23	\$7,696.8	\$0	(\$473)	\$7,224
24	\$13,920.1	\$0	(\$940)	\$12,980	24	\$54,466.9	\$0	(\$3,247)	\$51,220	24	\$42,637.1	\$0	(\$2,400)	\$40,237	24	\$7,888.0	\$0	(\$470)	\$7,418
25	\$14,266.0	\$0	(\$936)	\$13,330	25	\$55,820.4	\$0	(\$3,231)	\$52,590	25	\$43,696.7	\$0	(\$2,388)	\$41,308	25	\$8,084.0	\$0	(\$468)	\$7,616
			IRR	-2.10%				IRR	-0.17%				IRR	-0.08%				IRR	-2.94%
			NPV	(\$262,622.40)				NPV	(\$516,813.55)				NPV	(\$383,872.41)				NPV	(\$181,743.45)
			AROI	-0.28%				AROI	0.56%				AROI	0.55%				AROI	-0.77%

IRR, NPV, AROI - PV Solar Energy Systems

Financial Calculations

Based on inflation of: 3%

O&M inflation: 3%

Liberty Middle School					Mt. Pleasant School					Pleasantdale School					Redwood School				
Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow	Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow	Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow	Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow
0				(\$3,272,300)	0				(\$3,756,500)	0				(\$754,460)	0				(\$1,276,186)
1	\$58,307.6	\$102,896	(\$6,860)	\$154,344	1	\$67,278.0	\$118,726	(\$7,915)	\$178,089	1	\$10,975.5	\$20,579	(\$1,372)	\$30,183	1	\$20,072.6	\$37,636	(\$2,509)	\$55,200
2	\$59,756.5	\$102,381	(\$6,825)	\$155,312	2	\$68,949.8	\$118,132	(\$7,875)	\$179,207	2	\$11,248.3	\$20,476	(\$1,365)	\$30,359	2	\$20,571.4	\$37,448	(\$2,497)	\$55,523
3	\$61,241.5	\$101,869	(\$6,791)	\$156,320	3	\$70,663.2	\$117,542	(\$7,836)	\$180,369	3	\$11,527.8	\$20,374	(\$1,358)	\$30,543	3	\$21,082.6	\$37,261	(\$2,484)	\$55,859
4	\$62,763.3	\$101,360	(\$6,757)	\$157,366	4	\$72,419.2	\$116,954	(\$7,797)	\$181,576	4	\$11,814.3	\$20,272	(\$1,351)	\$30,735	4	\$21,606.5	\$37,074	(\$2,472)	\$56,209
5	\$64,323.0	\$100,853	(\$6,724)	\$158,453	5	\$74,218.8	\$116,369	(\$7,758)	\$182,830	5	\$12,107.9	\$20,171	(\$1,345)	\$30,934	5	\$22,143.4	\$36,889	(\$2,459)	\$56,573
6	\$65,921.4	\$100,349	(\$6,690)	\$159,580	6	\$76,063.2	\$115,787	(\$7,719)	\$184,131	6	\$12,408.7	\$20,070	(\$1,338)	\$31,141	6	\$22,693.7	\$36,705	(\$2,447)	\$56,951
7	\$67,559.6	\$99,847	(\$6,656)	\$160,750	7	\$77,953.3	\$115,208	(\$7,681)	\$185,481	7	\$12,717.1	\$19,969	(\$1,331)	\$31,355	7	\$23,257.6	\$36,521	(\$2,435)	\$57,344
8	\$69,238.4	\$99,348	(\$6,623)	\$161,963	8	\$79,890.5	\$114,632	(\$7,642)	\$186,881	8	\$13,033.1	\$19,870	(\$1,325)	\$31,578	8	\$23,835.6	\$36,338	(\$2,423)	\$57,751
9	\$70,959.0	\$98,851	(\$6,590)	\$163,220	9	\$81,875.8	\$114,059	(\$7,604)	\$188,331	9	\$13,357.0	\$19,770	(\$1,318)	\$31,809	9	\$24,427.9	\$36,157	(\$2,410)	\$58,174
10	\$72,722.3	\$98,357	(\$6,557)	\$164,522	10	\$83,910.4	\$113,489	(\$7,566)	\$189,833	10	\$13,688.9	\$19,671	(\$1,311)	\$32,049	10	\$25,034.9	\$35,976	(\$2,398)	\$58,612
11	\$74,529.5	\$97,865	(\$6,524)	\$165,870	11	\$85,995.5	\$112,921	(\$7,528)	\$191,389	11	\$14,029.1	\$19,573	(\$1,305)	\$32,297	11	\$25,657.0	\$35,796	(\$2,386)	\$59,067
12	\$76,381.5	\$97,376	(\$6,492)	\$167,266	12	\$88,132.5	\$112,357	(\$7,490)	\$192,999	12	\$14,377.7	\$19,475	(\$1,298)	\$32,555	12	\$26,294.6	\$35,617	(\$2,374)	\$59,537
13	\$78,279.6	\$96,889	(\$6,459)	\$168,709	13	\$90,322.6	\$111,795	(\$7,453)	\$194,665	13	\$14,735.0	\$19,378	(\$1,292)	\$32,821	13	\$26,948.0	\$35,439	(\$2,363)	\$60,024
14	\$80,224.9	\$96,405	(\$6,427)	\$170,202	14	\$92,567.1	\$111,236	(\$7,416)	\$196,387	14	\$15,101.2	\$19,281	(\$1,285)	\$33,097	14	\$27,617.7	\$35,262	(\$2,351)	\$60,529
15	\$82,218.5	\$95,922	(\$6,395)	\$171,746	15	\$94,867.4	\$110,680	(\$7,379)	\$198,169	15	\$15,476.4	\$19,184	(\$1,279)	\$33,382	15	\$28,304.0	\$35,085	(\$2,339)	\$61,050
16	\$84,261.6	\$0	(\$6,363)	\$77,899	16	\$97,224.9	\$0	(\$7,342)	\$99,883	16	\$15,861.0	\$0	(\$1,273)	\$14,588	16	\$29,007.3	\$0	(\$2,327)	\$26,680
17	\$86,355.5	\$0	(\$6,331)	\$80,024	17	\$99,640.9	\$0	(\$7,305)	\$92,336	17	\$16,255.1	\$0	(\$1,266)	\$14,989	17	\$29,728.2	\$0	(\$2,316)	\$27,412
18	\$88,501.4	\$0	(\$6,299)	\$82,202	18	\$102,117.0	\$0	(\$7,269)	\$94,848	18	\$16,659.1	\$0	(\$1,260)	\$15,399	18	\$30,466.9	\$0	(\$2,304)	\$28,163
19	\$90,700.7	\$0	(\$6,268)	\$84,433	19	\$104,654.6	\$0	(\$7,232)	\$97,422	19	\$17,073.1	\$0	(\$1,254)	\$15,819	19	\$31,224.0	\$0	(\$2,293)	\$28,931
20	\$92,954.6	\$0	(\$6,237)	\$86,718	20	\$107,255.3	\$0	(\$7,196)	\$100,059	20	\$17,497.3	\$0	(\$1,247)	\$16,250	20	\$31,999.9	\$0	(\$2,281)	\$29,719
21	\$95,264.5	\$0	(\$6,205)	\$89,059	21	\$109,920.6	\$0	(\$7,160)	\$102,761	21	\$17,932.1	\$0	(\$1,241)	\$16,691	21	\$32,795.1	\$0	(\$2,270)	\$30,525
22	\$97,631.8	\$0	(\$6,174)	\$91,457	22	\$112,652.1	\$0	(\$7,124)	\$105,528	22	\$18,377.8	\$0	(\$1,235)	\$17,143	22	\$33,610.1	\$0	(\$2,258)	\$31,352
23	\$100,058.0	\$0	(\$6,143)	\$93,915	23	\$115,451.5	\$0	(\$7,089)	\$108,363	23	\$18,834.4	\$0	(\$1,229)	\$17,606	23	\$34,445.3	\$0	(\$2,247)	\$32,198
24	\$102,544.4	\$0	(\$6,113)	\$96,432	24	\$118,320.5	\$0	(\$7,053)	\$111,267	24	\$19,302.5	\$0	(\$1,223)	\$18,080	24	\$35,301.3	\$0	(\$2,236)	\$33,065
25	\$105,092.6	\$0	(\$6,082)	\$99,010	25	\$121,260.7	\$0	(\$7,018)	\$114,243	25	\$19,782.1	\$0	(\$1,216)	\$18,566	25	\$36,178.5	\$0	(\$2,225)	\$33,954
			IRR	0.12%				IRR	0.16%				IRR	-1.40%				IRR	-0.75%
			NPV	(\$862,664.91)				NPV	(\$976,151.82)				NPV	(\$288,221.05)				NPV	(\$423,506.19)
			AROI	0.72%				AROI	0.74%				AROI	0.00%				AROI	0.33%

IRR, NPV, AROI - PV Solar Energy Systems

Financial Calculations

Based on inflation of: 3%
 O&M inflation: 3%

Roosevelt Middle School					St. Cloud School				
Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow	Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow
0				(\$851,300)	0				(\$572,885)
1	\$11,872.6	\$23,745	(\$1,583)	\$34,035	1	\$7,809.5	\$14,643	(\$976)	\$21,476
2	\$12,167.6	\$23,626	(\$1,575)	\$34,219	2	\$8,003.6	\$14,570	(\$971)	\$21,602
3	\$12,470.0	\$23,508	(\$1,567)	\$34,411	3	\$8,202.5	\$14,497	(\$966)	\$21,733
4	\$12,779.9	\$23,391	(\$1,559)	\$34,611	4	\$8,406.3	\$14,424	(\$962)	\$21,869
5	\$13,097.4	\$23,274	(\$1,552)	\$34,820	5	\$8,615.2	\$14,352	(\$957)	\$22,011
6	\$13,422.9	\$23,157	(\$1,544)	\$35,037	6	\$8,829.3	\$14,280	(\$952)	\$22,158
7	\$13,756.5	\$23,042	(\$1,536)	\$35,262	7	\$9,048.7	\$14,209	(\$947)	\$22,310
8	\$14,098.3	\$22,926	(\$1,528)	\$35,496	8	\$9,273.6	\$14,138	(\$943)	\$22,469
9	\$14,448.7	\$22,812	(\$1,521)	\$35,740	9	\$9,504.0	\$14,067	(\$938)	\$22,633
10	\$14,807.7	\$22,698	(\$1,513)	\$35,992	10	\$9,740.2	\$13,997	(\$933)	\$22,804
11	\$15,175.7	\$22,584	(\$1,506)	\$36,254	11	\$9,982.2	\$13,927	(\$928)	\$22,981
12	\$15,552.8	\$22,471	(\$1,498)	\$36,526	12	\$10,230.3	\$13,857	(\$924)	\$23,164
13	\$15,939.3	\$22,359	(\$1,491)	\$36,808	13	\$10,484.5	\$13,788	(\$919)	\$23,353
14	\$16,335.4	\$22,247	(\$1,483)	\$37,099	14	\$10,745.0	\$13,719	(\$915)	\$23,550
15	\$16,741.3	\$22,136	(\$1,476)	\$37,402	15	\$11,012.1	\$13,651	(\$910)	\$23,753
16	\$17,157.3	\$0	(\$1,468)	\$15,689	16	\$11,285.7	\$0	(\$905)	\$10,380
17	\$17,583.7	\$0	(\$1,461)	\$16,123	17	\$11,566.2	\$0	(\$901)	\$10,665
18	\$18,020.6	\$0	(\$1,454)	\$16,567	18	\$11,853.6	\$0	(\$896)	\$10,957
19	\$18,468.5	\$0	(\$1,446)	\$17,022	19	\$12,148.1	\$0	(\$892)	\$11,256
20	\$18,927.4	\$0	(\$1,439)	\$17,488	20	\$12,450.0	\$0	(\$888)	\$11,563
21	\$19,397.8	\$0	(\$1,432)	\$17,966	21	\$12,759.4	\$0	(\$883)	\$11,876
22	\$19,879.8	\$0	(\$1,425)	\$18,455	22	\$13,076.5	\$0	(\$879)	\$12,198
23	\$20,373.8	\$0	(\$1,418)	\$18,956	23	\$13,401.4	\$0	(\$874)	\$12,527
24	\$20,880.1	\$0	(\$1,411)	\$19,469	24	\$13,734.5	\$0	(\$870)	\$12,865
25	\$21,399.0	\$0	(\$1,404)	\$19,995	25	\$14,075.8	\$0	(\$866)	\$13,210
				IRR	-1.53%				
				NPV	#####				
				AROI	0.00%				
				IRR	-1.92%				
				NPV	(\$241,138.06)				
				AROI	-0.25%				

Lifetime Savings Analysis - Photovoltaic Solar Energy Systems										
ECM	Administration Building	Edison Middle School	Gregory School	Hazel School	Liberty Middle School	Mt. Pleasant School	Pleasantdale School	Redwood School	Roosevelt Middle School	St. Cloud School
Assumed Inflation (Gas)										
Initial Yearly Savings (Gas)										
Assumed Inflation (Electricity)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Initial Yearly Savings (Electricity)	\$7,915.06	\$30,970.29	\$24,243.82	\$4,485.20	\$58,307.58	\$67,277.98	\$10,975.54	\$20,072.58	\$11,872.58	\$7,809.52
Assumed Average Useful Life (Years)	25	25	25	25	25	25	25	25	25	25
Lifetime Savings	\$288,577.12	\$1,129,154.17	\$883,911.71	\$163,527.03	\$2,125,851.44	\$2,452,905.51	\$400,160.27	\$731,831.57	\$432,865.68	\$284,729.42
Year	Annual Savings	Annual Savings	Annual Savings	Annual Savings	Annual Savings	Annual Savings	Annual Savings	Annual Savings	Annual Savings	Annual Savings
1	\$7,915.06	\$30,970.29	\$24,243.82	\$4,485.20	\$58,307.58	\$67,277.98	\$10,975.54	\$20,072.58	\$11,872.58	\$7,809.52
2	\$8,152.51	\$31,899.40	\$24,971.13	\$4,619.75	\$60,056.81	\$69,296.32	\$11,304.81	\$20,674.76	\$12,228.76	\$8,043.81
3	\$8,397.08	\$32,856.39	\$25,720.26	\$4,758.35	\$61,858.51	\$71,375.20	\$11,643.95	\$21,295.00	\$12,595.62	\$8,285.12
4	\$8,649.00	\$33,842.08	\$26,491.87	\$4,901.10	\$63,714.27	\$73,516.46	\$11,993.27	\$21,933.85	\$12,973.49	\$8,533.68
5	\$8,908.47	\$34,857.34	\$27,286.63	\$5,048.13	\$65,625.69	\$75,721.95	\$12,353.07	\$22,591.87	\$13,362.70	\$8,789.69
6	\$9,175.72	\$35,903.06	\$28,105.23	\$5,199.57	\$67,594.46	\$77,993.61	\$12,723.66	\$23,269.62	\$13,763.58	\$9,053.38
7	\$9,450.99	\$36,980.15	\$28,948.38	\$5,355.56	\$69,622.30	\$80,333.42	\$13,105.37	\$23,967.71	\$14,176.49	\$9,324.98
8	\$9,734.52	\$38,089.56	\$29,816.84	\$5,516.23	\$71,710.97	\$82,743.42	\$13,498.54	\$24,686.74	\$14,601.78	\$9,604.73
9	\$10,026.56	\$39,232.24	\$30,711.34	\$5,681.72	\$73,862.30	\$85,225.73	\$13,903.49	\$25,427.35	\$15,039.83	\$9,892.87
10	\$10,327.35	\$40,409.21	\$31,632.68	\$5,852.17	\$76,078.17	\$87,782.50	\$14,320.60	\$26,190.17	\$15,491.03	\$10,189.65
11	\$10,637.17	\$41,621.49	\$32,581.66	\$6,027.73	\$78,360.51	\$90,415.97	\$14,750.21	\$26,975.87	\$15,955.76	\$10,495.34
12	\$10,956.29	\$42,870.13	\$33,559.11	\$6,208.56	\$80,711.33	\$93,128.45	\$15,192.72	\$27,785.15	\$16,434.43	\$10,810.20
13	\$11,284.98	\$44,156.24	\$34,565.89	\$6,394.82	\$83,132.67	\$95,922.31	\$15,648.50	\$28,618.70	\$16,927.47	\$11,134.51
14	\$11,623.53	\$45,480.92	\$35,602.86	\$6,586.67	\$85,626.65	\$98,799.98	\$16,117.96	\$29,477.26	\$17,435.29	\$11,468.55
15	\$11,972.23	\$46,845.35	\$36,670.95	\$6,784.27	\$88,195.45	\$101,763.98	\$16,601.50	\$30,361.58	\$17,958.35	\$11,812.60
16	\$12,331.40	\$48,250.71	\$37,771.08	\$6,987.79	\$90,841.31	\$104,816.89	\$17,099.54	\$31,272.43	\$18,497.10	\$12,166.98
17	\$12,701.34	\$49,698.23	\$38,904.21	\$7,197.43	\$93,566.55	\$107,961.40	\$17,612.53	\$32,210.60	\$19,052.01	\$12,531.99
18	\$13,082.38	\$51,189.18	\$40,071.33	\$7,413.35	\$96,373.54	\$111,200.24	\$18,140.90	\$33,176.92	\$19,623.57	\$12,907.95
19	\$13,474.85	\$52,724.85	\$41,273.47	\$7,635.75	\$99,264.75	\$114,536.25	\$18,685.13	\$34,172.23	\$20,212.28	\$13,295.19
20	\$13,879.10	\$54,306.60	\$42,511.68	\$7,864.82	\$102,242.69	\$117,972.34	\$19,245.68	\$35,197.39	\$20,818.65	\$13,694.04
21	\$14,295.47	\$55,935.80	\$43,787.03	\$8,100.77	\$105,309.97	\$121,511.51	\$19,823.05	\$36,253.32	\$21,443.21	\$14,104.87
22	\$14,724.34	\$57,613.87	\$45,100.64	\$8,343.79	\$108,469.27	\$125,156.85	\$20,417.75	\$37,340.92	\$22,086.50	\$14,528.01
23	\$15,166.07	\$59,342.29	\$46,453.66	\$8,594.10	\$111,723.35	\$128,911.56	\$21,030.28	\$38,461.14	\$22,749.10	\$14,963.85
24	\$15,621.05	\$61,122.56	\$47,847.27	\$8,851.93	\$115,075.05	\$132,778.91	\$21,661.19	\$39,614.98	\$23,431.57	\$15,412.77
25	\$16,089.68	\$62,956.23	\$49,282.69	\$9,117.48	\$118,527.30	\$136,762.27	\$22,311.02	\$40,803.43	\$24,134.52	\$15,875.15

IRR, NPV, AROI - PV Solar Energy Systems

Financial Calculations

Based on inflation of: 3%
O&M inflation: 3%

Washington School					West Orange High School					Bus Garage				
Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow	Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow	Year	Energy Savings	SREC Sales	Maintenance Cost	Cash Flow
0				(\$647,936)	0				(\$2,969,675)	0				(\$609,200)
1	\$9,118.1	\$17,097	(\$1,140)	\$25,075	1	\$49,601.0	\$93,002	(\$6,200)	\$136,403	1	\$10,553.4	\$15,830	(\$1,055)	\$25,328
2	\$9,344.7	\$17,011	(\$1,134)	\$25,222	2	\$50,833.6	\$92,537	(\$6,169)	\$137,201	2	\$10,815.7	\$15,751	(\$1,050)	\$25,517
3	\$9,576.9	\$16,926	(\$1,128)	\$25,375	3	\$52,096.8	\$92,074	(\$6,138)	\$138,033	3	\$11,084.4	\$15,672	(\$1,045)	\$25,712
4	\$9,814.9	\$16,841	(\$1,123)	\$25,534	4	\$53,391.4	\$91,614	(\$6,108)	\$138,898	4	\$11,359.9	\$15,594	(\$1,040)	\$25,914
5	\$10,058.8	\$16,757	(\$1,117)	\$25,699	5	\$54,718.2	\$91,156	(\$6,077)	\$139,797	5	\$11,642.2	\$15,516	(\$1,034)	\$26,124
6	\$10,308.8	\$16,673	(\$1,112)	\$25,871	6	\$56,077.9	\$90,700	(\$6,047)	\$140,731	6	\$11,931.5	\$15,438	(\$1,029)	\$26,341
7	\$10,565.0	\$16,590	(\$1,106)	\$26,049	7	\$57,471.5	\$90,246	(\$6,016)	\$141,702	7	\$12,228.0	\$15,361	(\$1,024)	\$26,565
8	\$10,827.5	\$16,507	(\$1,100)	\$26,234	8	\$58,899.7	\$89,795	(\$5,986)	\$142,709	8	\$12,531.8	\$15,284	(\$1,019)	\$26,797
9	\$11,096.6	\$16,425	(\$1,095)	\$26,426	9	\$60,363.3	\$89,346	(\$5,956)	\$143,753	9	\$12,843.3	\$15,208	(\$1,014)	\$27,037
10	\$11,372.3	\$16,342	(\$1,089)	\$26,625	10	\$61,863.3	\$88,900	(\$5,927)	\$144,836	10	\$13,162.4	\$15,132	(\$1,009)	\$27,285
11	\$11,654.9	\$16,261	(\$1,084)	\$26,832	11	\$63,400.6	\$88,455	(\$5,897)	\$145,959	11	\$13,489.5	\$15,056	(\$1,004)	\$27,542
12	\$11,944.6	\$16,179	(\$1,079)	\$27,045	12	\$64,976.1	\$88,013	(\$5,868)	\$147,121	12	\$13,824.7	\$14,981	(\$999)	\$27,807
13	\$12,241.4	\$16,098	(\$1,073)	\$27,267	13	\$66,590.8	\$87,573	(\$5,838)	\$148,325	13	\$14,168.3	\$14,906	(\$994)	\$28,081
14	\$12,545.6	\$16,018	(\$1,068)	\$27,496	14	\$68,245.6	\$87,135	(\$5,809)	\$149,571	14	\$14,520.3	\$14,831	(\$989)	\$28,363
15	\$12,857.3	\$15,938	(\$1,063)	\$27,733	15	\$69,941.5	\$86,699	(\$5,780)	\$150,861	15	\$14,881.2	\$14,757	(\$984)	\$28,655
16	\$13,176.8	\$0	(\$1,057)	\$12,120	16	\$71,679.5	\$0	(\$5,751)	\$65,928	16	\$15,251.0	\$0	(\$979)	\$14,272
17	\$13,504.3	\$0	(\$1,052)	\$12,452	17	\$73,460.8	\$0	(\$5,722)	\$67,738	17	\$15,630.0	\$0	(\$974)	\$14,666
18	\$13,839.9	\$0	(\$1,047)	\$12,793	18	\$75,286.3	\$0	(\$5,694)	\$69,593	18	\$16,018.4	\$0	(\$969)	\$15,049
19	\$14,183.8	\$0	(\$1,041)	\$13,142	19	\$77,157.1	\$0	(\$5,665)	\$71,492	19	\$16,416.4	\$0	(\$964)	\$15,452
20	\$14,536.2	\$0	(\$1,036)	\$13,500	20	\$79,074.5	\$0	(\$5,637)	\$73,438	20	\$16,824.4	\$0	(\$959)	\$15,865
21	\$14,897.5	\$0	(\$1,031)	\$13,866	21	\$81,039.5	\$0	(\$5,609)	\$75,431	21	\$17,242.4	\$0	(\$955)	\$16,288
22	\$15,267.7	\$0	(\$1,026)	\$14,242	22	\$83,053.3	\$0	(\$5,581)	\$77,473	22	\$17,670.9	\$0	(\$950)	\$16,721
23	\$15,647.1	\$0	(\$1,021)	\$14,626	23	\$85,117.2	\$0	(\$5,553)	\$79,564	23	\$18,110.0	\$0	(\$945)	\$17,165
24	\$16,035.9	\$0	(\$1,016)	\$15,020	24	\$87,232.4	\$0	(\$5,525)	\$81,707	24	\$18,560.1	\$0	(\$940)	\$17,620
25	\$16,434.4	\$0	(\$1,011)	\$15,424	25	\$89,400.1	\$0	(\$5,497)	\$83,903	25	\$19,021.3	\$0	(\$936)	\$18,086
				IRR -1.67%					IRR -0.23%					IRR -0.64%
				NPV (\$260,599.03)					NPV (\$862,633.60)					NPV (\$202,283.67)
				AROI -0.13%					AROI 0.59%					AROI 0.16%

Lifetime Savings Analysis - Photovoltaic Solar Energy Systems

ECM	Washington School	West Orange High School	Bus Garage
Assumed Inflation (Gas)			
Initial Yearly Savings (Gas)			
Assumed Inflation (Electricity)	3%	3%	3%
Initial Yearly Savings (Electricity)	\$9,118.14	\$49,601.02	\$10,553.41
Assumed Average Useful Life (Years)	25	25	25
Lifetime Savings	\$332,440.84	\$1,808,416.61	\$384,769.49
<u>Year</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>
1	\$9,118.14	\$49,601.02	\$10,553.41
2	\$9,391.69	\$51,089.05	\$10,870.01
3	\$9,673.44	\$52,621.72	\$11,196.11
4	\$9,963.64	\$54,200.37	\$11,531.99
5	\$10,262.55	\$55,826.38	\$11,877.95
6	\$10,570.43	\$57,501.17	\$12,234.29
7	\$10,887.54	\$59,226.21	\$12,601.32
8	\$11,214.17	\$61,003.00	\$12,979.36
9	\$11,550.59	\$62,833.09	\$13,368.74
10	\$11,897.11	\$64,718.08	\$13,769.80
11	\$12,254.02	\$66,659.62	\$14,182.90
12	\$12,621.64	\$68,659.41	\$14,608.38
13	\$13,000.29	\$70,719.19	\$15,046.64
14	\$13,390.30	\$72,840.77	\$15,498.04
15	\$13,792.01	\$75,025.99	\$15,962.98
16	\$14,205.77	\$77,276.77	\$16,441.87
17	\$14,631.95	\$79,595.07	\$16,935.12
18	\$15,070.90	\$81,982.92	\$17,443.18
19	\$15,523.03	\$84,442.41	\$17,966.47
20	\$15,988.72	\$86,975.68	\$18,505.46
21	\$16,468.38	\$89,584.96	\$19,060.63
22	\$16,962.43	\$92,272.50	\$19,632.45
23	\$17,471.31	\$95,040.68	\$20,221.42
24	\$17,995.45	\$97,891.90	\$20,828.06
25	\$18,535.31	\$100,828.66	\$21,452.91

IRR, NPV, AROI - Wind Energy Systems

Financial Calculations

Based on inflation of: 3%
 O&M inflation: 3%

Wind Turbine - Minimum Wind Speed				Wind Turbine - Maximum Wind Speed				Wind Turbine - Average Wind Speed			
REIP Incentive: \$0				REIP Incentive: \$0				REIP Incentive: \$0			
Year	Energy Savings	REC Sales	Cash Flow	Year	Energy Savings	REC Sales	Cash Flow	Year	Energy Savings	REC Sales	Cash Flow
0			(\$450,000)	0			(\$450,000)	0			(\$450,000)
1	\$12,985.6	\$1,927	\$14,912	1	\$26,478.6	\$3,929	\$30,407	1	\$20,862.3	\$3,095	\$23,958
2	\$13,308.3	\$1,917	\$15,225	2	\$27,136.6	\$3,909	\$31,046	2	\$21,380.8	\$3,080	\$24,461
3	\$13,639.0	\$1,907	\$15,546	3	\$27,810.9	\$3,889	\$31,700	3	\$21,912.1	\$3,064	\$24,976
4	\$13,978.0	\$1,898	\$15,876	4	\$28,502.0	\$3,870	\$32,372	4	\$22,456.6	\$3,049	\$25,506
5	\$14,325.3	\$1,888	\$16,214	5	\$29,210.3	\$3,851	\$33,061	5	\$23,014.6	\$3,034	\$26,048
6	\$14,681.3	\$1,879	\$16,560	6	\$29,936.2	\$3,831	\$33,768	6	\$23,586.5	\$3,019	\$26,605
7	\$15,046.1	\$1,870	\$16,916	7	\$30,680.1	\$3,812	\$34,492	7	\$24,172.7	\$3,004	\$27,176
8	\$15,420.0	\$1,860	\$17,280	8	\$31,442.5	\$3,793	\$35,236	8	\$24,773.4	\$2,989	\$27,762
9	\$15,803.2	\$1,851	\$17,654	9	\$32,223.8	\$3,774	\$35,998	9	\$25,389.0	\$2,974	\$28,363
10	\$16,195.9	\$1,842	\$18,038	10	\$33,024.6	\$3,755	\$36,780	10	\$26,019.9	\$2,959	\$28,979
11	\$16,598.4	\$1,832	\$18,431	11	\$33,845.3	\$3,737	\$37,582	11	\$26,666.5	\$2,944	\$29,610
12	\$17,010.9	\$1,823	\$18,834	12	\$34,686.3	\$3,718	\$38,404	12	\$27,329.1	\$2,929	\$30,258
13	\$17,433.6	\$1,814	\$19,248	13	\$35,548.3	\$3,699	\$39,248	13	\$28,008.3	\$2,915	\$30,923
14	\$17,866.8	\$1,805	\$19,672	14	\$36,431.7	\$3,681	\$40,112	14	\$28,704.3	\$2,900	\$31,604
15	\$18,310.8	\$1,796	\$20,107	15	\$37,337.0	\$3,662	\$40,999	15	\$29,417.6	\$2,886	\$32,303
16	\$18,765.8	\$1,787	\$20,553	16	\$38,264.8	\$3,644	\$41,909	16	\$30,148.6	\$2,871	\$33,020
17	\$19,232.1	\$1,778	\$21,010	17	\$39,215.7	\$3,626	\$42,841	17	\$30,897.8	\$2,857	\$33,755
18	\$19,710.1	\$1,769	\$21,479	18	\$40,190.2	\$3,608	\$43,798	18	\$31,665.6	\$2,842	\$34,508
19	\$20,199.9	\$1,760	\$21,960	19	\$41,188.9	\$3,590	\$44,779	19	\$32,452.5	\$2,828	\$35,281
20	\$20,701.8	\$1,752	\$22,453	20	\$42,212.5	\$3,572	\$45,784	20	\$33,258.9	\$2,814	\$36,073
21	\$21,216.3	\$1,743	\$22,959	21	\$43,261.4	\$3,554	\$46,815	21	\$34,085.4	\$2,800	\$36,885
22	\$21,743.5	\$1,734	\$23,478	22	\$44,336.5	\$3,536	\$47,873	22	\$34,932.5	\$2,786	\$37,718
23	\$22,283.8	\$1,725	\$24,009	23	\$45,438.3	\$3,518	\$48,957	23	\$35,800.5	\$2,772	\$38,573
24	\$22,837.6	\$1,717	\$24,554	24	\$46,567.4	\$3,501	\$50,068	24	\$36,690.2	\$2,758	\$39,448
25	\$23,405.1	\$1,708	\$25,113	25	\$47,724.6	\$3,483	\$51,208	25	\$37,601.9	\$2,744	\$40,346
		IRR	0.58%			IRR	6.57%			IRR	4.36%
		NPV	(\$121,167.87)			NPV	\$220,511.86			NPV	\$78,292.16
		AROI	-0.69%			AROI	2.76%			AROI	1.32%

ECM	West Orange BOE - Minimum Wind Speed	West Orange BOE - Maximum Wind Speed	West Orange BOE - Average Wind Speed
Assumed Inflation (Gas)			
Initial Yearly Savings (Gas)			
Assumed Inflation (Electricity)	3%	3%	3%
Initial Yearly Savings (Electricity)	\$12,985.62	\$26,478.60	\$20,862.32
Assumed Average Useful Life (Years)	25	25	25
Lifetime Savings	\$473,446.19	\$965,390.11	\$760,624.91
<u>Year</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>
1	\$12,985.62	\$26,478.60	\$20,862.32
2	\$13,375.19	\$27,272.95	\$21,488.19
3	\$13,776.45	\$28,091.14	\$22,132.84
4	\$14,189.74	\$28,933.88	\$22,796.82
5	\$14,615.43	\$29,801.89	\$23,480.73
6	\$15,053.89	\$30,695.95	\$24,185.15
7	\$15,505.51	\$31,616.83	\$24,910.70
8	\$15,970.68	\$32,565.33	\$25,658.02
9	\$16,449.80	\$33,542.29	\$26,427.77
10	\$16,943.29	\$34,548.56	\$27,220.60
11	\$17,451.59	\$35,585.02	\$28,037.22
12	\$17,975.14	\$36,652.57	\$28,878.33
13	\$18,514.39	\$37,752.15	\$29,744.68
14	\$19,069.82	\$38,884.71	\$30,637.02
15	\$19,641.92	\$40,051.25	\$31,556.13
16	\$20,231.17	\$41,252.79	\$32,502.82
17	\$20,838.11	\$42,490.37	\$33,477.90
18	\$21,463.25	\$43,765.08	\$34,482.24
19	\$22,107.15	\$45,078.04	\$35,516.71
20	\$22,770.37	\$46,430.38	\$36,582.21
21	\$23,453.48	\$47,823.29	\$37,679.67
22	\$24,157.08	\$49,257.99	\$38,810.06
23	\$24,881.79	\$50,735.73	\$39,974.37
24	\$25,628.25	\$52,257.80	\$41,173.60
25	\$26,397.09	\$53,825.53	\$42,408.81

ECM	Edison Middle School Steam Boiler	Mt Pleasant Elem Steam Boiler	Washington Elem Steam Boiler	West Orange Bus Garage Condensing Heater
Assumed Inflation (Gas, Oil)	2%	2%	2%	2%
Initial Yearly Savings (Gas, Oil)	\$4,424.58	\$3,698.64	\$6,622.72	\$475.28
Assumed Inflation (Electricity)	3%	3%	3%	3%
Initial Yearly Savings (Electricity)	\$0.00	\$0.00	\$0.00	\$0.00
Annual Maintenance Cost Savings	\$0.00	\$0.00	\$0.00	\$0.00
Assumed Average Useful Life (Years)	24	24	24	24
Lifetime Savings	\$134,603.96	\$112,519.52	\$201,475.48	\$14,458.90
<u>Year</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>	<u>Annual Savings</u>
1	\$4,424.58	\$3,698.64	\$6,622.72	\$475.28
2	\$4,513.07	\$3,772.61	\$6,755.17	\$484.79
3	\$4,603.33	\$3,848.07	\$6,890.28	\$494.48
4	\$4,695.40	\$3,925.03	\$7,028.08	\$504.37
5	\$4,789.31	\$4,003.53	\$7,168.65	\$514.46
6	\$4,885.09	\$4,083.60	\$7,312.02	\$524.75
7	\$4,982.80	\$4,165.27	\$7,458.26	\$535.24
8	\$5,082.45	\$4,248.57	\$7,607.42	\$545.95
9	\$5,184.10	\$4,333.55	\$7,759.57	\$556.87
10	\$5,287.78	\$4,420.22	\$7,914.76	\$568.00
11	\$5,393.54	\$4,508.62	\$8,073.06	\$579.36
12	\$5,501.41	\$4,598.79	\$8,234.52	\$590.95
13	\$5,611.44	\$4,690.77	\$8,399.21	\$602.77
14	\$5,723.67	\$4,784.59	\$8,567.19	\$614.83
15	\$5,838.14	\$4,880.28	\$8,738.54	\$627.12
16	\$5,954.90	\$4,977.88	\$8,913.31	\$639.66
17	\$6,074.00	\$5,077.44	\$9,091.58	\$652.46
18	\$6,195.48	\$5,178.99	\$9,273.41	\$665.51
19	\$6,319.39	\$5,282.57	\$9,458.87	\$678.82
20	\$6,445.78	\$5,388.22	\$9,648.05	\$692.39
21	\$6,574.69	\$5,495.98	\$9,841.01	\$706.24
22	\$6,706.19	\$5,605.90	\$10,037.83	\$720.37
23	\$6,840.31	\$5,718.02	\$10,238.59	\$734.77
24	\$6,977.12	\$5,832.38	\$10,443.36	\$749.47

IRR, NPV, AROI - HVAC ECRI

Edison Middle School Steam Boiler		Mt Pleasant Elem Steam Boiler		Washington Elem Steam Boiler		West Orange Bus Garage Condensing Heater	
Year	Cash Flow	Year	Cash Flow	Year	Cash Flow	Year	Cash Flow
0	(\$151,000.00)	0	(\$151,000.00)	0	(\$151,000.00)	0	(\$27,400.00)
1	\$4,424.58	1	\$3,698.64	1	\$6,622.72	1	\$475.28
2	\$4,513.07	2	\$3,772.61	2	\$6,755.17	2	\$484.79
3	\$4,603.33	3	\$3,848.07	3	\$6,890.28	3	\$494.48
4	\$4,695.40	4	\$3,925.03	4	\$7,028.08	4	\$504.37
5	\$4,789.31	5	\$4,003.53	5	\$7,168.65	5	\$514.46
6	\$4,885.09	6	\$4,083.60	6	\$7,312.02	6	\$524.75
7	\$4,982.80	7	\$4,165.27	7	\$7,458.26	7	\$535.24
8	\$5,082.45	8	\$4,248.57	8	\$7,607.42	8	\$545.95
9	\$5,184.10	9	\$4,333.55	9	\$7,759.57	9	\$556.87
10	\$5,287.78	10	\$4,420.22	10	\$7,914.76	10	\$568.00
11	\$5,393.54	11	\$4,508.62	11	\$8,073.06	11	\$579.36
12	\$5,501.41	12	\$4,598.79	12	\$8,234.52	12	\$590.95
13	\$5,611.44	13	\$4,690.77	13	\$8,399.21	13	\$602.77
14	\$5,723.67	14	\$4,784.59	14	\$8,567.19	14	\$614.83
15	\$5,838.14	15	\$4,880.28	15	\$8,738.54	15	\$627.12
16	\$5,954.90	16	\$4,977.88	16	\$8,913.31	16	\$639.66
17	\$6,074.00	17	\$5,077.44	17	\$9,091.58	17	\$652.46
18	\$6,195.48	18	\$5,178.99	18	\$9,273.41	18	\$665.51
19	\$6,319.39	19	\$5,282.57	19	\$9,458.87	19	\$678.82
20	\$6,445.78	20	\$5,388.22	20	\$9,648.05	20	\$692.39
21	\$6,574.69	21	\$5,495.98	21	\$9,841.01	21	\$706.24
22	\$6,706.19	22	\$5,605.90	22	\$10,037.83	22	\$720.37
23	\$6,840.31	23	\$5,718.02	23	\$10,238.59	23	\$734.77
24	\$6,977.12	24	\$5,832.38	24	\$10,443.36	24	\$749.47
IRR	-0.84%	IRR	-2.09%	IRR	2.26%	IRR	-4.32%
NPV	(\$58,634.48)	NPV	(\$100,647.33)	NPV	(\$12,747.11)	NPV	(\$17,478.27)
AROI	-1.24%	AROI	-4.22%	AROI	0.22%	AROI	-2.43%

ECM	Submetering All Sites	CHP Single Site
Assumed Inflation (Gas, Oil)	2%	2%
Initial Yearly Savings (Gas, Oil)	\$8,568.00	-\$29,877.00
Assumed Inflation (Electricity)	3%	3%
Initial Yearly Savings (Electricity)	\$27,052.00	\$42,120.00
Annual Maintenance Cost Savings	-\$20,800.00	-\$2,527.00
Assumed Average Useful Life (Years)	15	15
Lifetime Savings	\$339,307.81	\$266,710.84
<u>Year</u>	<u>Annual Savings</u>	<u>Annual Savings</u>
1	\$14,820.00	\$12,243.00
2	\$15,802.92	\$12,909.06
3	\$16,813.61	\$13,601.08
4	\$17,852.88	\$14,319.95
5	\$18,921.54	\$15,066.61
6	\$20,020.45	\$15,842.00
7	\$21,150.46	\$16,647.13
8	\$22,312.49	\$17,483.01
9	\$23,507.44	\$18,350.69
10	\$24,736.28	\$19,251.27
11	\$25,999.97	\$20,185.86
12	\$27,299.53	\$21,155.64
13	\$28,635.98	\$22,161.79
14	\$30,010.40	\$23,205.55
15	\$31,423.87	\$24,288.21
16		
17		
18		
19		
20		
21		
22		
23		
24		

IRR, NPV, AROI - HVAC ECRMS

Submetering All Sites		CHP Single Site	
Year	Cash Flow	Year	Cash Flow
0	(\$32,500.00)	0	(\$143,000.00)
1	\$14,820.00	1	\$12,243.00
2	\$15,802.92	2	\$12,909.06
3	\$16,813.61	3	\$13,601.08
4	\$17,852.88	4	\$14,319.95
5	\$18,921.54	5	\$15,066.61
6	\$20,020.45	6	\$15,842.00
7	\$21,150.46	7	\$16,647.13
8	\$22,312.49	8	\$17,483.01
9	\$23,507.44	9	\$18,350.69
10	\$24,736.28	10	\$19,251.27
11	\$25,999.97	11	\$20,185.86
12	\$27,299.53	12	\$21,155.64
13	\$28,635.98	13	\$22,161.79
14	\$30,010.40	14	\$23,205.55
15	\$31,423.87	15	\$24,288.21
16	\$0.00	16	\$0.00
17	\$0.00	17	\$0.00
18	\$0.00	18	\$0.00
19	\$0.00	19	\$0.00
20	\$0.00	20	\$0.00
21	\$0.00	21	\$0.00
22	\$0.00	22	\$0.00
23	\$0.00	23	\$0.00
24	\$0.00	24	\$0.00
IRR	51.59%	IRR	7.90%
NPV	\$229,795.43	NPV	\$63,657.58
AROI	41.43%	AROI	1.89%



Appendix J

WindCad Turbine Performance Model

Endurance S-343 Wind Turbine, Grid - Intertie

Prepared For: **West Orange Board of Education**
 Site Location: **West Orange, NJ**
 Data Source: **NASA Atmospheric Science Data Center**
 Date: **9/24/2012**

35 kW

Inputs:	
Ave. Wind (m/s) =	4.42
Weibull K =	2
Site Altitude (m) =	0
Wind Shear Exp. =	0.180
Anem. Height (m) =	42.7
Tower Height (m) =	42.7
Turbulence Factor =	2.0%

Results:	
Hub Average Wind Speed (m/s) =	4.42
Air Density Factor =	0%
Average Output Power (kW) =	8.80
Daily Energy Output (kWh) =	211.1
Annual Energy Output (kWh) =	77,066
Monthly Energy Output =	6,422
Percent Operating Time =	60.9%

Weibull Performance Calculations

Wind Speed Bin (m/s)	Power (kW)	Wind Probability (f)	Net kW @ V
1	0.00	7.79%	0.000
2	0.00	13.79%	0.000
3	0.00	16.89%	0.000
4	2.45	16.95%	0.415
5	7.45	14.71%	1.096
6	14.70	11.30%	1.662
7	24.50	7.78%	1.907
8	35.28	4.84%	1.709
9	38.22	2.73%	1.045
10	38.22	1.41%	0.538
11	38.22	0.66%	0.252
12	38.22	0.28%	0.108
13	38.22	0.11%	0.043
14	38.22	0.04%	0.015
15	38.22	0.01%	0.005
16	38.22	0.00%	0.002
17	38.22	0.00%	0.000
18	38.22	0.00%	0.000
19	38.22	0.00%	0.000
20	38.22	0.00%	0.000
Totals:		99.32%	8.797

Weibull Calculations:
 Wind speed probability is calculated as a Weibull curve defined by the average wind speed and a shape factor, K. To facilitate piece-wise integration, the wind speed range is broken down into "bins" of 1 m/s in width (Column 1). For each wind speed bin, instantaneous wind turbine power (W, Column 2) is multiplied by the Weibull wind speed probability (f, Column 3). This cross product (Net W, Column 4) is the contribution to average turbine power output contributed by wind speeds in that bin. The sum of these contributions is the average power output of the turbine on a continuous, 24 hour, basis.
 Best results are achieved using annual or monthly average wind speeds. Use of daily or hourly average speeds is not recommended.

WindCad Turbine Performance Model

Endurance S-343 Wind Turbine, Grid - Intertie

Prepared For: **West Orange Board of Education**
 Site Location: **West Orange, NJ**
 Data Source: **NASA Atmospheric Science Data Center**
 Date: **9/24/2012**

35 kW

Inputs:	
Ave. Wind (m/s) =	5.5
Weibull K =	2
Site Altitude (m) =	0
Wind Shear Exp. =	0.180
Anem. Height (m) =	42.7
Tower Height (m) =	42.7
Turbulence Factor =	2.0%

Results:	
Hub Average Wind Speed (m/s) =	5.50
Air Density Factor =	0%
Average Output Power (kW) =	14.13
Daily Energy Output (kWh) =	339.2
Annual Energy Output (kWh) =	123,812
Monthly Energy Output =	10,318
Percent Operating Time =	72.6%

Weibull Performance Calculations

Wind Speed Bin (m/s)	Power (kW)	Wind Probability (f)	Net kW @ V
1	0.00	5.10%	0.000
2	0.00	9.43%	0.000
3	0.00	12.41%	0.000
4	2.45	13.78%	0.338
5	7.45	13.61%	1.013
6	14.70	12.24%	1.800
7	24.50	10.16%	2.490
8	35.28	7.84%	2.766
9	38.22	5.65%	2.160
10	38.22	3.82%	1.459
11	38.22	2.42%	0.926
12	38.22	1.45%	0.553
13	38.22	0.81%	0.311
14	38.22	0.43%	0.165
15	38.22	0.22%	0.083
16	38.22	0.10%	0.039
17	38.22	0.05%	0.018
18	38.22	0.02%	0.007
19	38.22	0.01%	0.003
20	38.22	0.00%	0.001
Totals:		99.56%	14.134

Weibull Calculations:
 Wind speed probability is calculated as a Weibull curve defined by the average wind speed and a shape factor, K. To facilitate piece-wise integration, the wind speed range is broken down into "bins" of 1 m/s in width (Column 1). For each wind speed bin, instantaneous wind turbine power (W, Column 2) is multiplied by the Weibull wind speed probability (f, Column 3). This cross product (Net W, Column 4) is the contribution to average turbine power output contributed by wind speeds in that bin. The sum of these contributions is the average power output of the turbine on a continuous, 24 hour, basis.
 Best results are achieved using annual or monthly average wind speeds. Use of daily or hourly average speeds is not recommended.

WindCad Turbine Performance Model

Endurance S-343 Wind Turbine, Grid - Intertie

Prepared For: **West Orange Board of Education**
 Site Location: **West Orange, NJ**
 Data Source: **NASA Atmospheric Science Data Center**
 Date: **9/24/2012**

35 kW

Inputs:
Ave. Wind (m/s) = 6.38
Weibull K = 2
Site Altitude (m) = 0
Wind Shear Exp. = 0.180
Anem. Height (m) = 42.7
Tower Height (m) = 42.7
Turbulence Factor = 2.0%

Results:
Hub Average Wind Speed (m/s) = 6.38
Air Density Factor = 0%
Average Output Power (kW) = 17.94
Daily Energy Output (kWh) = 430.5
Annual Energy Output (kWh) = 157,143
Monthly Energy Output = 13,095
Percent Operating Time = 78.8%

Weibull Performance Calculations

Wind Speed Bin (m/s)	Power (kW)	Wind Probability (f)	Net kW @ V
1	0.00	3.82%	0.000
2	0.00	7.20%	0.000
3	0.00	9.80%	0.000
4	2.45	11.40%	0.279
5	7.45	11.96%	0.891
6	14.70	11.59%	1.704
7	24.50	10.50%	2.572
8	35.28	8.96%	3.162
9	38.22	7.24%	2.768
10	38.22	5.56%	2.125
11	38.22	4.06%	1.553
12	38.22	2.83%	1.083
13	38.22	1.89%	0.721
14	38.22	1.20%	0.459
15	38.22	0.73%	0.280
16	38.22	0.43%	0.163
17	38.22	0.24%	0.091
18	38.22	0.13%	0.049
19	38.22	0.07%	0.025
20	38.22	0.03%	0.012
2008, BWC	Totals:	99.65%	17.939

Weibull Calculations:
 Wind speed probability is calculated as a Weibull curve defined by the average wind speed and a shape factor, K. To facilitate piece-wise integration, the wind speed range is broken down into "bins" of 1 m/s in width (Column 1). For each wind speed bin, instantaneous wind turbine power (W, Column 2) is multiplied by the Weibull wind speed probability (f, Column 3). This cross product (Net W, Column 4) is the contribution to average turbine power output contributed by wind speeds in that bin. The sum of these contributions is the average power output of the turbine on a continuous, 24 hour, basis.
 Best results are achieved using annual or monthly average wind speeds. Use of daily or hourly average speeds is not recommended.



Appendix K

West Orange Board of Education
(Minimum Site Wind Speed @42.7m - 4.42 m/s)

Annual kWh 77,066
 Engineer's Opinion of Probable Cost \$450,000.00

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs \$0.02/kWh Production
 REC Factor \$25/MWh Production
 REIP Incentive \$3.20/kWh First 16,000 kWh
 \$0.50/kWh 16,000 kWh - 750,000 kWh

Year	Utility Price	Annual Wind kWh Production	Utility Savings	Renewable Energy Credits (RECs)	Renewable Energy Incentive Program (REIP)*	Maintenance Costs	Annual Cash Flow	Cumulative Cash Flow
1	0.1685	77,066.0	\$12,985.6	\$1,927	\$0	(\$1,541)	\$13,371.0	\$13,371.0
2	0.1736	76,680.7	\$13,308.3	\$1,917	\$0	(\$1,534)	\$13,691.7	\$27,062.7
3	0.1788	76,297.3	\$13,639.0	\$1,907	\$0	(\$1,526)	\$14,020.5	\$41,083.2
4	0.1841	75,915.8	\$13,978.0	\$1,898	\$0	(\$1,518)	\$14,357.5	\$55,440.7
5	0.1896	75,536.2	\$14,325.3	\$1,888	\$0	(\$1,511)	\$14,703.0	\$70,143.7
6	0.1953	75,158.5	\$14,681.3	\$1,879	\$0	(\$1,503)	\$15,057.1	\$85,200.8
7	0.2012	74,782.7	\$15,046.1	\$1,870	\$0	(\$1,496)	\$15,420.0	\$100,620.8
8	0.2072	74,408.8	\$15,420.0	\$1,860	\$0	(\$1,488)	\$15,792.1	\$116,412.9
9	0.2135	74,036.8	\$15,803.2	\$1,851	\$0	(\$1,481)	\$16,173.4	\$132,586.3
10	0.2199	73,666.6	\$16,195.9	\$1,842	\$0	(\$1,473)	\$16,564.2	\$149,150.5
11	0.2264	73,298.3	\$16,598.4	\$1,832	\$0	(\$1,466)	\$16,964.9	\$166,115.4
12	0.2332	72,931.8	\$17,010.9	\$1,823	\$0	(\$1,459)	\$17,375.5	\$183,490.9
13	0.2402	72,567.1	\$17,433.6	\$1,814	\$0	(\$1,451)	\$17,796.4	\$201,287.3
14	0.2474	72,204.3	\$17,866.8	\$1,805	\$0	(\$1,444)	\$18,227.8	\$219,515.1
15	0.2549	71,843.2	\$18,310.8	\$1,796	\$0	(\$1,437)	\$18,670.0	\$238,185.1
16	0.2625	71,484.0	\$18,765.8	\$1,787	\$0	(\$1,430)	\$19,123.2	\$257,308.4
17	0.2704	71,126.6	\$19,232.1	\$1,778	\$0	(\$1,423)	\$19,587.8	\$276,896.1
18	0.2785	70,771.0	\$19,710.1	\$1,769	\$0	(\$1,415)	\$20,063.9	\$296,960.0
19	0.2869	70,417.1	\$20,199.9	\$1,760	\$0	(\$1,408)	\$20,551.9	\$317,512.0
20	0.2955	70,065.0	\$20,701.8	\$1,752	\$0	(\$1,401)	\$21,052.1	\$338,564.1
21	0.3043	69,714.7	\$21,216.3	\$1,743	\$0	(\$1,394)	\$21,564.8	\$360,129.0
22	0.3135	69,366.1	\$21,743.5	\$1,734	\$0	(\$1,387)	\$22,090.3	\$382,219.3
23	0.3229	69,019.3	\$22,283.8	\$1,725	\$0	(\$1,380)	\$22,628.9	\$404,848.2
24	0.3325	68,674.2	\$22,837.6	\$1,717	\$0	(\$1,373)	\$23,180.9	\$428,029.1
25	0.3425	68,330.8	\$23,405.1	\$1,708	\$0	(\$1,367)	\$23,746.7	\$451,775.9

*REIP program is currently on hold.

West Orange Board of Education
(Maximum Site Wind Speed @42.7m - 6.38 m/s)

Annual kWh 157,143
 Engineer's Opinion of Probable Cost \$450,000.00

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs \$0.02/kWh Production
 REC Factor \$25/MWh Production
 REIP Incentive \$3.20/kWh First 16,000 kWh
 \$0.50/kWh 16,000 kWh - 750,000 kWh

Year	Utility Price	Annual Wind kWh Production	Utility Savings	Renewable Energy Credits (RECs)	Renewable Energy Incentive Program (REIP)*	Maintenance Costs	Annual Cash Flow	Cumulative Cash Flow
1	0.1685	157,143.0	\$26,478.6	\$3,929	\$0	(\$3,143)	\$27,264.3	\$27,264.3
2	0.1736	156,357.3	\$27,136.6	\$3,909	\$0	(\$3,127)	\$27,918.4	\$55,182.7
3	0.1788	155,575.5	\$27,810.9	\$3,889	\$0	(\$3,112)	\$28,588.8	\$83,771.5
4	0.1841	154,797.6	\$28,502.0	\$3,870	\$0	(\$3,096)	\$29,276.0	\$113,047.5
5	0.1896	154,023.6	\$29,210.3	\$3,851	\$0	(\$3,080)	\$29,980.4	\$143,027.9
6	0.1953	153,253.5	\$29,936.2	\$3,831	\$0	(\$3,065)	\$30,702.5	\$173,730.4
7	0.2012	152,487.2	\$30,680.1	\$3,812	\$0	(\$3,050)	\$31,442.5	\$205,172.9
8	0.2072	151,724.8	\$31,442.5	\$3,793	\$0	(\$3,034)	\$32,201.1	\$237,374.1
9	0.2135	150,966.2	\$32,223.8	\$3,774	\$0	(\$3,019)	\$32,978.7	\$270,352.7
10	0.2199	150,211.4	\$33,024.6	\$3,755	\$0	(\$3,004)	\$33,775.7	\$304,128.4
11	0.2264	149,460.3	\$33,845.3	\$3,737	\$0	(\$2,989)	\$34,592.6	\$338,721.0
12	0.2332	148,713.0	\$34,686.3	\$3,718	\$0	(\$2,974)	\$35,429.9	\$374,150.9
13	0.2402	147,969.4	\$35,548.3	\$3,699	\$0	(\$2,959)	\$36,288.1	\$410,439.0
14	0.2474	147,229.6	\$36,431.7	\$3,681	\$0	(\$2,945)	\$37,167.8	\$447,606.8
15	0.2549	146,493.4	\$37,337.0	\$3,662	\$0	(\$2,930)	\$38,069.5	\$485,676.3
16	0.2625	145,761.0	\$38,264.8	\$3,644	\$0	(\$2,915)	\$38,993.6	\$524,669.9
17	0.2704	145,032.2	\$39,215.7	\$3,626	\$0	(\$2,901)	\$39,940.8	\$564,610.7
18	0.2785	144,307.0	\$40,190.2	\$3,608	\$0	(\$2,886)	\$40,911.7	\$605,522.4
19	0.2869	143,585.5	\$41,188.9	\$3,590	\$0	(\$2,872)	\$41,906.9	\$647,429.3
20	0.2955	142,867.5	\$42,212.5	\$3,572	\$0	(\$2,857)	\$42,926.8	\$690,356.1
21	0.3043	142,153.2	\$43,261.4	\$3,554	\$0	(\$2,843)	\$43,972.2	\$734,328.3
22	0.3135	141,442.4	\$44,336.5	\$3,536	\$0	(\$2,829)	\$45,043.7	\$779,372.0
23	0.3229	140,735.2	\$45,438.3	\$3,518	\$0	(\$2,815)	\$46,141.9	\$825,514.0
24	0.3325	140,031.6	\$46,567.4	\$3,501	\$0	(\$2,801)	\$47,267.6	\$872,781.5
25	0.3425	139,331.4	\$47,724.6	\$3,483	\$0	(\$2,787)	\$48,421.3	\$921,202.8

*REIP program is currently on hold.

West Orange Board of Education
(Average Site Wind Speed @42.7m - 5.5 m/s)

Annual kWh 123,812
 Engineer's Opinion of Probable Cost \$450,000.00

Assumptions

Annual System Degredation 0.50%
 Annual Utility Inflation 3.00%
 Annual Maintenance Costs \$0.02/kWh Production
 REC Factor \$25/MWh Production
 REIP Incentive \$3.20/kWh First 16,000 kWh
 \$0.50/kWh 16,000 kWh - 750,000 kWh

Year	Utility Price	Annual Wind kWh Production	Utility Savings	Renewable Energy Credits (RECs)	Renewable Energy Incentive Program (REIP)*	Maintenance Costs	Annual Cash Flow	Cumulative Cash Flow
1	0.1685	123,812.0	\$20,862.3	\$3,095	\$0	(\$2,476)	\$21,481.4	\$21,481.4
2	0.1736	123,192.9	\$21,380.8	\$3,080	\$0	(\$2,464)	\$21,996.7	\$43,478.1
3	0.1788	122,577.0	\$21,912.1	\$3,064	\$0	(\$2,452)	\$22,524.9	\$66,003.0
4	0.1841	121,964.1	\$22,456.6	\$3,049	\$0	(\$2,439)	\$23,066.4	\$89,069.4
5	0.1896	121,354.3	\$23,014.6	\$3,034	\$0	(\$2,427)	\$23,621.4	\$112,690.8
6	0.1953	120,747.5	\$23,586.5	\$3,019	\$0	(\$2,415)	\$24,190.3	\$136,881.1
7	0.2012	120,143.8	\$24,172.7	\$3,004	\$0	(\$2,403)	\$24,773.4	\$161,654.5
8	0.2072	119,543.0	\$24,773.4	\$2,989	\$0	(\$2,391)	\$25,371.1	\$187,025.6
9	0.2135	118,945.3	\$25,389.0	\$2,974	\$0	(\$2,379)	\$25,983.7	\$213,009.3
10	0.2199	118,350.6	\$26,019.9	\$2,959	\$0	(\$2,367)	\$26,611.6	\$239,620.9
11	0.2264	117,758.8	\$26,666.5	\$2,944	\$0	(\$2,355)	\$27,255.3	\$266,876.2
12	0.2332	117,170.1	\$27,329.1	\$2,929	\$0	(\$2,343)	\$27,915.0	\$294,791.2
13	0.2402	116,584.2	\$28,008.3	\$2,915	\$0	(\$2,332)	\$28,591.2	\$323,382.4
14	0.2474	116,001.3	\$28,704.3	\$2,900	\$0	(\$2,320)	\$29,284.3	\$352,666.6
15	0.2549	115,421.3	\$29,417.6	\$2,886	\$0	(\$2,308)	\$29,994.7	\$382,661.3
16	0.2625	114,844.2	\$30,148.6	\$2,871	\$0	(\$2,297)	\$30,722.8	\$413,384.1
17	0.2704	114,269.9	\$30,897.8	\$2,857	\$0	(\$2,285)	\$31,469.1	\$444,853.3
18	0.2785	113,698.6	\$31,665.6	\$2,842	\$0	(\$2,274)	\$32,234.1	\$477,087.4
19	0.2869	113,130.1	\$32,452.5	\$2,828	\$0	(\$2,263)	\$33,018.1	\$510,105.5
20	0.2955	112,564.5	\$33,258.9	\$2,814	\$0	(\$2,251)	\$33,821.8	\$543,927.3
21	0.3043	112,001.6	\$34,085.4	\$2,800	\$0	(\$2,240)	\$34,645.4	\$578,572.8
22	0.3135	111,441.6	\$34,932.5	\$2,786	\$0	(\$2,229)	\$35,489.7	\$614,062.4
23	0.3229	110,884.4	\$35,800.5	\$2,772	\$0	(\$2,218)	\$36,354.9	\$650,417.4
24	0.3325	110,330.0	\$36,690.2	\$2,758	\$0	(\$2,207)	\$37,241.8	\$687,659.2
25	0.3425	109,778.3	\$37,601.9	\$2,744	\$0	(\$2,196)	\$38,150.8	\$725,810.0

*REIP program is currently on hold.



Appendix L

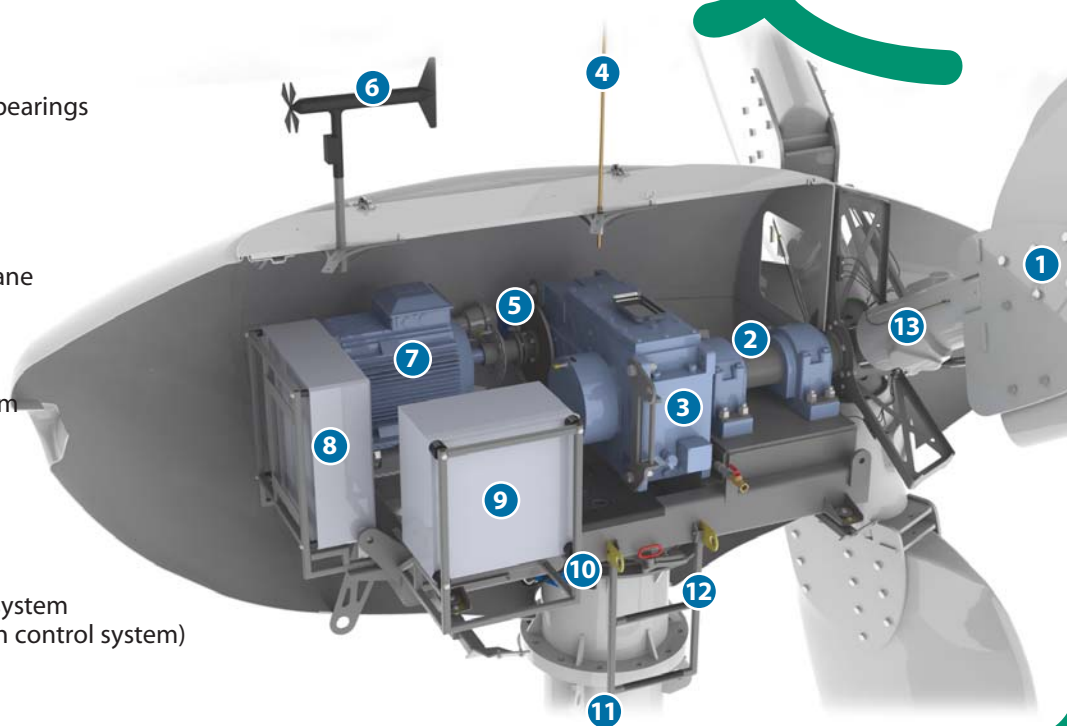
CLEAN ENERGY... JUST PLUG IT IN

Endurance[®]
wind power

G-3120

G-3120 35 kW model

- 1 9 m blade
- 2 Main shaft with two bearings
- 3 Gearbox
- 4 Lightning protection
- 5 Disk brake
- 6 Anemometer wind vane
- 7 Generator
- 8 Control panel
- 9 Braking control system
- 10 Passive yaw control with brake
- 11 Tower
- 12 Access ladder
- 13 Aerodynamic safety system (patent pending pitch control system)



ENDURANCE WIND TURBINES GREEN ENERGY THAT WORKS

TURBINE

Configuration	3 blades, horizontal axis, downwind
Rated power @ 11 m/s	35 kW
Applications	Direct grid-tied
Rotor speed	36 rpm
Cut-in wind speed	3.5 m/s (7.8 mph)
Cut-out wind speed	25 m/s (56 mph)
Survival wind speed	52 m/s (116 mph)
Design lifetime	30 years *
Overall weight	4,130 kg (9,105 lbs) - single phase turbine 3,850 kg (8,488 lbs) - three phase turbine

ROTOR

Rotor diameter	19.2 m (63 ft)
Swept area	290 m ² (3,120 ft ²)
Blade length	9 m (29.5 ft)
Blade material	Fiberglass / Epoxy
Power regulation	Stall control (constant speed)

GENERATOR

Frequency	60 Hz
Voltage	240 V - single phase; 480 V - three phase
Phase	Single phase and three phase
Type	Induction generator

BRAKE & SAFETY SYSTEMS

Main brake system	Rapid fail-safe brake on high speed shaft
Secondary safety system	Pitch control system (for over speed regulation) using passive spring loaded mechanism (patent pending)
Automatic shut down triggered by :	<ul style="list-style-type: none"> - Over speed - High wind speed - Grid failure - All other fault conditions

CONTROLS

PLC based	Includes remote monitoring software
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WARRANTY

Turbine, controls	5 years
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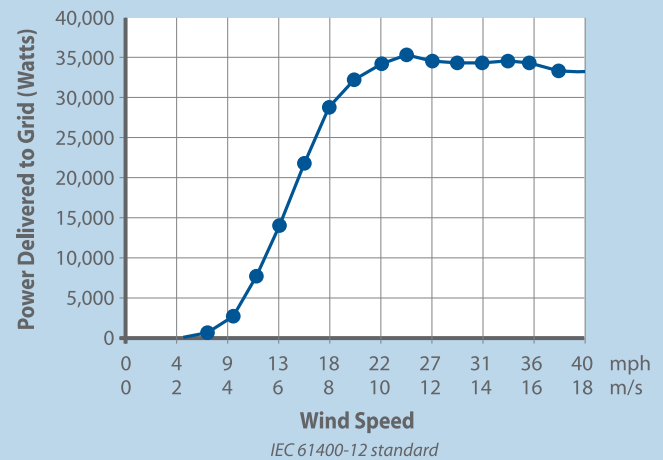
TOWERS

Types and heights	Standard Monopole 30.5 m (100 ft) Standard Lattice 42.7 m (140 ft) Custom heights available
Maintenance Access	Working space inside the nacelle Top work platform and safety cable climbing system

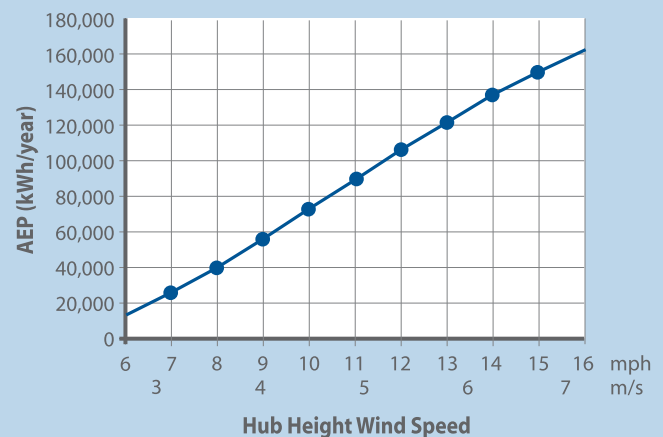
*Provided service and maintenance schedules are strictly followed



POWER CURVE



ANNUAL ENERGY PRODUCTION (AEP)



WIND SPEED CONVERSION TABLE

m/s	4	5	6	7	8	9	10	12	14	25	32	45
km/h	14	18	22	25	29	32	36	43	50	90	125	160
mph	9	11	13	16	18	20	22	27	31	56	80	100



Appendix M

Admin Building

ID	Type	Quantity	Location	Serves	Make	Model Number	Efficiency	Age	Capacity	Notes
1	Split				Dakin	FDX5024HVM		2008	2 Tons	
2	Conditioner					4TTR3042D		2010	2.5 Tons	
3	Conditioner				Trane					
4	Window AC		201		Freidrich				2 Tons	
5	Window AC		202		Freidrich					
6	Window AC	2	206		Freidrich				1 Ton	
7	Window AC	1	206		Hailer					
9	Window AC		205		GE			1990	0.5 Ton	
10	Window AC	2	205		Hailer	ESA415K	11	2010	1350 Watts	
11	Window AC	1	204		Trane	TWE037E13FBI				
12	Window AC	3	212		Freidrich	K513L	11		14500BTU	
14	Conditioner		Roof	110	Trane					
15	Conditioner		Roof	106	Trane					
16	Conditioner		Ground		Sanyo	RXF18FVJU			1.5 Tons	
17	Conditioner		Ground		Sanyo	RCL18T2			1.5 Tons	
18	Conditioner		Ground	Copy Room	Sanyo	RXF24FVJU			2 Tons	
19	RTU		102		Freidrich					
20	Split				Sanyo	KHS1852		2002	1.5 Tons	
21	Split		Pay Role	Pay Role	Trane	BACAB756C				Elec. Heat AC
22	Electric Heater		Basement		Hailer	HWF05XCK			0.5 Ton	
23	Electric Heater	2	Warehouse		Nesbit	ITT				
24	Window AC		Food Service						8000BTUH	
25	Conditioner		Pump		ShipCo	48588				Vacuum Return

Bus Garage

ID	Type	Location	Serves	Make	Model Number	Efficiency	Age	Capacity	Notes
1	UH		Firepipe	Qmark					5kW
2	UH		Mens	Dayton					5kW
4	AC	Trans	Trans	Freidrich			2005		1400W
5	AC			Freidrich			2012		1400W
6	AC	Kitchen	Kitchen	Carrier			1988		
7	UH	Kitchen	Kitchen	Qmark	MUH100		1988		10kW
8	UH	Warehouse	Warehouse				1988		100MBH
9	UH	Warehouse	Warehouse	Bryant			1988		100MBH
10	UH	Warehouse	Warehouse	Bryant			1988		100MBH
11	UH	Breakroom	Breakroom	Qmark	MUH0581				5kW
12	AC	Supply Room	Shop Room	Friedrich			2012		14000BTUH
13	Furance	Storage		Lennox			1960		250MBH
14	AC	Shop Room	Shop Room	Friedrich			2012		14000BTUH
15	DWH	Mens Room		Rheem	81VP105				2kW

Edison Middle School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	RTU		Roof	207	Lennox	LCA180H		1999	15 Tons	
2	RTU		Roof	LMC	Trane	YSC120E3RHB	80%	2012	10 Tons	250 MBH Input
3	RTU		Roof	Gym	York	Y23A542A50DA	466/372.8	1998		372.8 Output
4	Fan		Roof	Classroom	FloAire	BDCR20				1HP
5	AC Split		Roof	Vpoff	Mitsubishi	MUZ-A09NA				
7	AC Split	5				PUY-A12NHA				
8	Unit Vent				Trane					DX ALC Steam&HW
9	Unit Vent				Airedale	CHH312-460-410		2007		18.8A Heat
10	Boiler	2	Boiler Room	Building	Superior	GC4RB200A		1960	7000/hr	
11	Air conditioner	22			Trane	2TTA3036A			1.5 Tons	
12	DWH				RUUD	RF92-200		1987	199MBH	92 Gallons
13	Compressor				Speed Aire	57658E				3/4 HP

Gregory Elementary School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	EPU		Roof		AnnexAir	CRP-E-05-FPHQ		2004		
2	MAU				Trane	GRCA25GDJFON		2005		250 MBH input
4	Boiler	2	Boiler Room	Building	Smith	28HE-5-14				4293MBH
5	AC				Sanyo	CH1822		2008	1/2 Ton	
6	Window AC	20								
7	DWH				AOSmith	BPD75		2005	70 MBH	75 Gallons
8	DWH				Slate	PR675NRRS		1999	75 MBH	73 Gallons
9	Compressor				SpeedAire				80 Gallons	5HP

Hazel Elementary School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	Boiler	2	Boiler Room	Building	HB Smith	450Mills13	82%	2007	5372 MBH	Steam
2	Window AC		Principals		GE	MSL14E2J		1982	14000BTU/Hr	
3	Window AC		Principals		Freidrich				14000BTU/Hr	
4	Window AC		Teachers Rm.		Freidrich	SS14M10-A		2012	14000BTU/Hr	
5	Split AC	2	Comp. Lab		Dakin	FTX515HVJU		2010	15000BTU/Hr	
6	Split AC		Library	Office	Dakin	CTX512GVJU		2008	12MBH	
7	DWH				Bradford	MI75S6BN12		2004	76000BTUH	
8	Compressor				Speedaire	52698A		2004	20 Gallons	.75 HP

West Orange High School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	AHU		Nurse	Tork	NA	NA		1995	3 Tons	
2	Chiller		Mech Room	Addition	York	YRWDWC11-46A		2004	200 Tons	Screw
3	Boiler	2	Boiler Room	Building	Weil	942294		2000		6100MBH; Hot Water
4	Boiler	2	PVW	Building	Weil	1888		2000		4640MBH; Steam
5	Boiler	2	40	Building	Cleaver Brooks	CB523-200		1959		7000MBH
6	AC		1104	1104	Dakin	FTXS24HV74				
7	AHU		Nurse	Nurse	York					
8	MAU	3			Friedrich					5000BTUH
9	HX	6	Roof	Classrooms	AnnexAire	ERV-E-04		2004		
10	Split		Roof	Classrooms	EM1	SCC12DA		2004		12000BTUH
11	CT	2	Chiller		Evapco	LRT5-122				
12	RTU	2	Roof		York	DH120S20Q4MAG3C				10 Tons
13	RTU	2	Roof	Gym	York	YPALO60MCC		2003		60 Tons; 750 MBH input
14	AC				York	H4DH036506A		2004		3 Tons
15	AC				Trane	RHUB0306AD00A2		1983		26 Tons
16	SU		Roof		LJWing	118-HLS		1999		
17	SU		Roof	Teachers Rm.	McQuay	RPS030CLS		1999		30 Tons
18	SU		Roof	Auditorium	Trane	SSAGD1267D75CC7		1995		100 Tons
19	AC		Roof		Sanyo	CL0971		2004		3/4 Tons
20	AC		Roof		Dankin	RX12FVJU		2008		1 Ton
21	AC		Roof		Dankin	RXS36HVJU		2008		3 Tons
22	AC		Roof		EM1	SCC30DF		2005		2.5 Tons
23	AC	3	Roof	Café	York	DJ300S32C4MS		2004		400MBH; 15 Tons
24	MAU	30			RUUD	R3-1.700-918		2004		7.5HP; 428MBH
25	Condenser	6			York					3 Tons
26	DWH	2			Lochinvoir	PFN1700PM		2004	1000 Gallons	1700MBH
27	DWH	2			RUUD	G91-300		2004	91 Gallons	300MBH
28	Compressor				Speedaire	MAWP200			200 Gallons	1.5 HP

Liberty Middle School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	Boiler	3	Boiler Room	Building	DeDietrich	GT409A		2005		1658MBH output
2	RTU	3	Roof		Venmar	C770-04		2005		DX HW 32 Tons
3	AC		Roof	IT	Lielert	C-7704		2005		20 Tons
4	RTU	4	Roof		VeilMar	C-7704		2005		20 Tons
5	AC		Roof		Trane	4TTR3036D1		2012		3 Tons
6	RTU		Roof		EM1	SCC36DF		2005		
7	RTU-2		Roof		Venmar	C770-04		2005		5 Tons
8	RTU-4		Roof		Venmar	C770-04		2005		20 Tons
9	RTU-19		Roof		Venmar	C770-04		2005		4 Tons
10	RTU-5		Roof		Venmar	C770-04		2005		7.5 Tons
11	RTU-3		Roof		Venmar	C770-04		2005		12 Tons
12	RTU-18		Roof		Venmar	C770-04		2005		3 Tons
13	RTU-1		Roof	Café	Venmar	C770-04		2005		20 Tons
14	RTU-10		Roof					2005		20 Tons
15	RTU-11		Roof					2005		8 Tons
16	AC		Roof	Elec	Mitsubishi	PU42EK7		2005		3.5 Tons
17	RTU-7		Roof		Venmar	C770-04		2005		12 Tons
18	RTU-8		Roof		Venmar	C770-04		2005		12 Tons
19	RTU-9		Roof		Venmar	C770-04		2005		20 Tons
20	DWH		Café Mech Rm.	Building	PV1	560N250APV		2005	250 Gallons	399MBH

Mt. Pleasant Elementary School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	Boilers									Gone/Being replaced
2	Unit vents				Nesbit					
3	AC			119	Sanyo	K50951		2004	3/4Ton	
4	AC			103	Trane	2TTR3048A1		2007	4 Ton	
5	Window AC	11								
6	DWH			Building	RUUD	G-100-270A		2005	270MBH	97 Gallons

Pleasantdale Elementary School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	Boiler	2	Boiler Room	Building	WeilMclaim	1888				4640MBH output; Steam
2	AC				Heiler	ESA3				
3	Window AC	~30			Freidrich				1 Ton	
4	Window AC				Climatire				.5 Ton	
5	DWH		Boiler Room	Building	RUUD	G91-200-1	80%	2009	199 MBH	91 Gallons
6	Compressor		Boiler Room	Building	Speedaire	57700B			30 Gallons	1.5 HP

Redwood Elementary School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	AC		Roof		Sanyo	C1251		2005	11800BTUH	
2	AC	2	Roof		Lennox	HS29-042-11Y-DPT		2005	3.5 Tons	
3	AC		Roof		EM1	SCC09DA		2002	.75 Ton	
4	AC		Roof		EM1	SCC12DA		2002	1 Ton	
5	MAU		Roof	Gym	Sterline	MIK-RT10C6	79%	2005		100MBH input
6	ERU-1		Roof	Gym	AnnexAire	CRP-E07-FP-HG				
7	Boiler	2	Boiler Room	Building	Smith	28HE-13	83%	2011		3978MBH input
8	HV unit		Crawl Space							
9	Unit vents									Old
10	Unit vents				McQuay	UAVV5.95A06		2005		Heat, cool, vent
11	Window AC	15								
12	DWH		Boiler Room	Building	RUUD	G91-200		2005	199MBH	91 Gallons

Roosevelt Middle School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	HV		Boiler Room	Building	McQuay			2000		
2	Boiler	2	Boiler Room	Building	Superior	6044-11345	75	1968	12102/hr	Steam
3	Boiler	2	Boiler Room	Building	RayPack	HiDelta	80	2000	1260 MBH	
4	Window AC		Maint. Office	Maint. Office	Friedrich				12000Btuh	
5	RTU-2		Roof	Music Room	Trane	YHC092A4R2A2HG		2007	8 Ton	200MBH input
6	AC		Roof			TCGD60521S2A		2007	5 Tons	
7	RTU-3		Roof	Music Room	Trane	YHC120A4R2A2KG		2007	10 Tons	250MBH input
8	AC		Roof		Lennox	HP29-036-1P		2000	3 Tons	
9	RTU	2	Roof	Gym	McQuay	RD570BBY		2000		
10	AC		Outside	Asst. Princ.	Mitsubishi	MUZA09NA		2004		
11	AC	3	Outside		Trane	XE13			3 Tons	
12	AC	2	Roof		Mitsubishi			2004		
13	AC	3	Outside		AG	AG036GB2			3 Tons	
14	Unit vents			Addition						
15	Heat pump			Building	Airedale					
16	AC		Roof	Library	Trane			1992	12 Tons	
17	DWH	2	Boiler Room	Building	RUUD	G100-200		2004	199MBH	100 Gallons
18	DWH		Boiler Room	Building	AO Smith	BTP140-720		2000	720MBH	140 Gallons
19	Compressor		Boiler Room		IngersolRand	T30			80 Gallons	2 HP

St. Cloud Elementary School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	HV	2	Stage	Gym	Nesbitt					
2	Unit Vents				Nesbitt					
3	Boiler	2	Boiler Room	Building	Smith	450Mills16			4193MBH	Steam
4	Window AC	11			Friedrich		9.5EER	2004	14000 BTUH	
5	DWH		Boiler Room	Building	RUUD	RFD98-180-1			1800 MBH	98 Gallons
6	Compressor				Speedaire				120 Gallons	5 HP

Washington Elementary School

ID	Type	Quantity	Location	Serves	Make	Model #	Efficiency	Age	Capacity	Notes
1	Unit Vent			Classrooms	Nesbit					Steam
2	MAU			Addition	Reznor				250 MBH	Gas
3	RTU				DesChamps	XPKD40-001-XPAK			400 MBH	Gas
4	Window AC	7			Friedrich					



Appendix N

Lighting ECRM Breakdown by Space Type (Including Labor Costs)

Location	Cost+ Markup	Incentives	Cost (Post Incentive)	NMCS	Energy Savings	Simple Payback	KWH Save
Administration Building - Interior	\$207,415	\$23,915	\$183,500	\$6,602	\$8,491	12.2	56,605
Administration Building - Exterior	\$4,459	\$600	\$3,859	\$50	\$140	20.3	933
Administration Building - Total	\$211,874	\$24,515	\$187,359	\$6,652	\$8,631	12.3	57,538
Edison Middle School - Interior							
Corridors	\$60,061	\$6,685	\$53,376	\$1,961	\$3,441	9.9	20,243
Classrooms	\$195,812	\$22,030	\$173,782	\$5,989	\$9,274	11.4	54,552
Gym/Auditorium	\$31,797	\$3,760	\$28,037	\$1,124	\$1,759	9.7	10,350
Bathrooms	\$13,254	\$1,595	\$11,659	\$306	\$402	16.5	2,367
Other Spaces	\$69,214	\$8,135	\$61,079	\$1,935	\$2,629	13.4	15,464
Edison Middle School - Exterior	\$894	\$100	\$794	\$28	\$21	16.2	122
Edison Middle School - Total	\$371,033	\$42,305	\$328,728	\$11,344	\$17,527	11.4	103,098
Gregory School - Interior							
Corridors	\$49,413	\$5,460	\$43,953	\$1,805	\$3,682	8.0	20,455
Classrooms	\$188,855	\$20,625	\$168,230	\$7,390	\$17,271	6.8	95,949
Gym/Auditorium	\$31,493	\$2,255	\$29,238	\$1,182	\$3,780	5.9	20,998
Bathrooms	\$10,429	\$1,250	\$9,179	\$252	\$403	14.0	2,238
Other Spaces	\$92,868	\$10,960	\$81,908	\$2,557	\$2,970	14.8	16,501
Gregory School - Exterior	\$19,073	\$3,000	\$16,073	\$403	\$1,639	7.9	9,105
Gregory School - Total	\$392,132	\$43,550	\$348,582	\$13,590	\$29,744	8.0	165,247
Hazel School - Interior							
Corridors	\$33,925	\$4,000	\$29,925	\$939	\$1,266	13.6	7,445
Classrooms	\$122,111	\$14,235	\$107,876	\$3,507	\$3,527	15.3	20,748
Gym/Auditorium	\$10,638	\$200	\$10,438	\$345	\$1,573	5.4	9,256
Bathrooms	\$6,233	\$740	\$5,493	\$166	\$114	19.6	671
Other Spaces	\$44,025	\$5,235	\$38,790	\$1,812	\$2,434	9.1	14,319
Hazel School - Exterior	\$6,549	\$800	\$5,749	\$147	\$664	7.1	3,907
Hazel School - Total	\$223,480	\$25,210	\$198,270	\$6,915	\$9,579	12.0	56,346
Liberty Middle School - Interior							
Corridors	\$96,521	\$10,950	\$84,823	\$2,150	\$2,205	19.5	12,970
Classrooms	\$352,533	\$37,900	\$314,633	\$11,869	\$14,477	11.9	85,157
Gym/Auditorium	\$95,881	\$6,900	\$88,981	\$2,452	\$1,661	21.6	9,773
Bathrooms	\$33,170	\$3,550	\$29,620	\$1,126	\$1,327	12.1	7,806
Other Spaces	\$60,734	\$6,900	\$53,834	\$1,471	\$1,632	17.3	9,599
Liberty Middle School - Exterior	\$85,211	\$12,100	\$73,111	\$2,265	\$1,749	18.2	10,288
Liberty Middle School - Total	\$724,050	\$78,300	\$645,750	\$21,334	\$23,053	14.5	135,608
Mt. Pleasant School - Interior							
Corridors	\$36,475	\$4,360	\$32,115	\$715	\$864	20.3	5,085
Classrooms	\$157,994	\$18,710	\$139,284	\$4,262	\$5,074	14.9	29,849
Gym/Auditorium	\$20,963	\$2,370	\$18,593	\$721	\$1,135	10.0	6,679
Bathrooms	\$7,717	\$920	\$6,797	\$200	\$249	15.1	1,465
Other Spaces	\$28,894	\$3,300	\$25,594	\$948	\$1,775	9.4	10,440
Mt. Pleasant School - Exterior	\$12,193	\$1,575	\$10,618	\$173	\$411	18.2	2,420

Lighting ECRM Breakdown by Space Type (Including Labor Costs)

Location	Cost+ Markup	Incentives	Cost (Post Incentive)	NMCS	Energy Savings	Simple Payback	KWH Save
Mt. Pleasant School - Total	\$264,236	\$31,235	\$233,001	\$7,019	\$9,509	14.1	55,938
Pleasantdale School - Interior							
Corridors	\$54,285	\$6,465	\$47,820	\$1,268	\$1,443	17.6	9,016
Classrooms	\$192,238	\$22,290	\$169,948	\$5,371	\$7,310	13.4	45,688
Gym/Auditorium	\$54,081	\$4,705	\$49,376	\$1,533	\$2,468	12.3	15,423
Bathrooms	\$13,225	\$1,600	\$11,625	\$310	\$410	16.2	2,560
Other Spaces	\$32,104	\$3,635	\$28,469	\$1,102	\$2,080	8.9	12,998
Pleasantdale School - Exterior	\$9,069	\$1,275	\$7,794	\$120	\$405	14.8	2,532
Pleasantdale School - Total	\$355,003	\$39,970	\$315,033	\$9,704	\$14,115	13.2	88,217
Redwood School - Interior							
Corridors	\$58,002	\$6,910	\$51,092	\$1,507	\$1,508	16.9	9,425
Classrooms	\$213,160	\$24,645	\$188,515	\$6,146	\$7,915	13.4	49,470
Gym/Auditorium	\$15,902	\$620	\$15,282	\$469	\$1,679	7.1	10,492
Bathrooms	\$10,942	\$1,280	\$9,662	\$292	\$453	13.0	2,833
Other Spaces	\$39,220	\$4,655	\$34,565	\$1,031	\$1,342	14.6	8,385
Redwood School - Exterior	\$31,438	\$4,275	\$27,163	\$493	\$1,307	15.1	8,169
Redwood School - Total	\$368,664	\$42,385	\$326,279	\$9,938	\$14,204	13.5	88,775
Roosevelt Middle School - Interior							
Corridors	\$112,753	\$13,330	\$99,423	\$2,117	\$2,819	20.1	18,794
Classrooms	\$271,962	\$30,500	\$241,462	\$8,285	\$11,360	12.3	75,731
Gym/Auditorium	\$93,151	\$8,165	\$84,986	\$6,144	\$5,032	7.6	33,549
Bathrooms	\$46,641	\$5,540	\$41,101	\$1,169	\$999	19.0	6,660
Other Spaces	\$83,970	\$9,870	\$74,100	\$2,287	\$2,687	14.9	17,912
Roosevelt Middle School - Exterior	\$11,752	\$1,450	\$10,302	\$205	\$749	10.8	4,996
Roosevelt Middle School - Total	\$620,228	\$68,855	\$551,373	\$20,208	\$23,646	12.6	157,641
St. Cloud School - Interior							
Corridors	\$53,338	\$6,405	\$46,933	\$823	\$859	27.9	5,370
Classrooms	\$151,176	\$17,840	\$133,336	\$4,164	\$4,604	15.2	28,774
Gym/Auditorium	\$19,602	\$735	\$18,867	\$589	\$2,254	6.6	14,084
Bathrooms	\$7,162	\$880	\$6,282	\$145	\$161	20.5	1,007
Other Spaces	\$38,499	\$4,385	\$34,114	\$1,298	\$2,311	9.5	14,445
St. Cloud School - Exterior	\$5,946	\$800	\$5,146	\$197	\$428	8.2	2,677
St. Cloud School - Total	\$275,722	\$31,045	\$244,677	\$7,217	\$10,617	13.7	66,357
Washington School - Interior							
Corridors	\$31,509	\$3,705	\$27,804	\$717	\$929	16.9	5,808
Classrooms	\$125,940	\$13,695	\$112,245	\$4,690	\$6,032	10.5	37,697
Gym/Auditorium	\$27,802	\$3,935	\$23,867	\$731	\$3,545	5.6	22,154
Bathrooms	\$16,457	\$1,915	\$14,542	\$491	\$737	11.8	4,608
Other Spaces	\$52,536	\$5,935	\$46,601	\$1,813	\$3,063	9.6	19,142
Washington School - Exterior	\$743	\$100	\$643	\$8	\$57	9.8	358
Washington School - Total	\$254,987	\$29,285	\$225,702	\$8,450	\$14,363	9.9	89,767
West Orange High School - Interior							

Lighting ECRM Breakdown by Space Type (Including Labor Costs)							
Location	Cost+ Markup	Incentives	Cost (Post Incentive)	NMCS	Energy Savings	Simple Payback	KWH Save
Corridors	\$146,726	\$16,050	\$130,676	\$4,797	\$7,884	10.3	52,562
Classrooms	\$852,440	\$92,800	\$759,640	\$29,372	\$42,337	10.6	282,245
Gym/Auditorium	\$196,720	\$26,300	\$170,420	\$5,490	\$17,145	7.5	114,301
Bathrooms	\$58,938	\$6,550	\$52,388	\$1,878	\$2,440	12.1	16,265
Other Spaces	\$84,907	\$9,650	\$75,257	\$2,795	\$3,946	11.2	26,306
West Orange High School - Exterior	\$9,976	\$1,300	\$8,676	\$154	\$378	16.3	2,518
West Orange High School - Total	\$1,350,130	\$152,700	\$1,197,430	\$44,496	\$74,131	10.1	494,196
Bus Garage - Interior	\$101,120	\$7,730	\$93,390	\$3,006	\$7,399	9.0	36,994
Bus Garage - Exterior	\$3,226	\$435	\$2,791	\$33	\$160	14.4	800
Bus Garage - Total	\$104,346	\$8,165	\$96,181	\$3,040	\$7,559	9.1	37,794

Lighting ECRM Breakdown by Space Type (Not Including Labor Costs)							
Location	Cost+ Markup	Incentives	Cost (Post Incentive)	NMCS	Energy Savings	Simple Payback	KWH Save
Administration Building - Interior	\$159,426	\$23,915	\$135,511	\$6,602	\$8,491	9.0	56,605
Administration Building - Exterior	\$3,278	\$600	\$2,678	\$50	\$140	14.1	933
Administration Building - Total	\$162,704	\$24,515	\$138,189	\$6,652	\$8,631	9.0	57,538
Edison Middle School - Interior							
Corridors	\$46,723	\$6,685	\$40,038	\$1,961	\$3,441	7.4	20,243
Classrooms	\$153,114	\$22,030	\$131,084	\$5,989	\$9,274	8.6	54,552
Gym/Auditorium	\$24,466	\$3,760	\$20,706	\$1,124	\$1,759	7.2	10,350
Bathrooms	\$9,992	\$1,595	\$8,397	\$306	\$402	11.9	2,367
Other Spaces	\$53,144	\$8,135	\$45,009	\$1,935	\$2,629	9.9	15,464
Edison Middle School - Exterior	\$697	\$100	\$597	\$28	\$21	12.2	122
Edison Middle School - Total	\$288,136	\$42,305	\$245,831	\$11,344	\$17,527	8.5	103,098
Gregory School - Interior							
Corridors	\$38,565	\$5,460	\$33,105	\$1,805	\$3,682	6.0	20,455
Classrooms	\$148,903	\$20,625	\$128,278	\$7,390	\$17,271	5.2	95,949
Gym/Auditorium	\$24,795	\$2,255	\$22,540	\$1,182	\$3,780	4.5	20,998
Bathrooms	\$7,691	\$1,250	\$6,441	\$252	\$403	9.8	2,238
Other Spaces	\$71,743	\$10,960	\$60,783	\$2,557	\$2,970	11.0	16,501
Gregory School - Exterior	\$14,335	\$3,000	\$11,335	\$403	\$1,639	5.6	9,105
Gregory School - Total	\$306,033	\$43,550	\$262,483	\$13,590	\$29,744	6.1	165,247
Hazel School - Interior							
Corridors	\$26,048	\$4,000	\$22,048	\$939	\$1,266	10.0	7,445
Classrooms	\$94,261	\$14,235	\$80,026	\$3,507	\$3,527	11.4	20,748
Gym/Auditorium	\$8,294	\$200	\$8,094	\$345	\$1,573	4.2	9,256
Bathrooms	\$4,689	\$740	\$3,949	\$166	\$114	14.1	671
Other Spaces	\$33,264	\$5,235	\$28,029	\$1,812	\$2,434	6.6	14,319
Hazel School - Exterior	\$4,974	\$800	\$4,174	\$147	\$664	5.1	3,907
Hazel School - Total	\$171,530	\$25,210	\$146,320	\$6,915	\$9,579	8.9	56,346

Lighting ECRM Breakdown by Space Type (Not Including Labor Costs)

Location	Cost+ Markup	Incentives	Cost (Post Incentive)	NMCS	Energy Savings	Simple Payback	KWH Save
Liberty Middle School - Interior							
Corridors	\$75,397	\$10,850	\$64,547	\$2,150	\$2,205	14.8	12,970
Classrooms	\$281,707	\$37,900	\$243,807	\$11,869	\$14,477	9.3	85,157
Gym/Auditorium	\$75,109	\$6,900	\$68,209	\$2,452	\$1,661	16.6	9,773
Bathrooms	\$26,536	\$3,550	\$22,986	\$1,126	\$1,327	9.4	7,806
Other Spaces	\$47,840	\$6,900	\$40,940	\$1,471	\$1,632	13.2	9,599
Liberty Middle School - Exterior	\$63,351	\$12,100	\$51,251	\$2,265	\$1,749	12.8	10,288
Liberty Middle School - Total	\$570,601	\$78,300	\$492,301	\$21,358	\$23,053	11.1	135,608
Mt. Pleasant School - Interior							
Corridors	\$28,086	\$4,360	\$23,726	\$715	\$864	15.0	5,085
Classrooms	\$121,581	\$18,710	\$102,871	\$4,262	\$5,074	11.0	29,849
Gym/Auditorium	\$16,454	\$2,370	\$14,084	\$721	\$1,135	7.6	6,679
Bathrooms	\$5,917	\$920	\$4,997	\$200	\$249	11.1	1,465
Other Spaces	\$22,324	\$3,300	\$19,024	\$948	\$1,775	7.0	10,440
Mt. Pleasant School - Exterior	\$9,042	\$1,575	\$7,467	\$173	\$411	12.8	2,420
Mt. Pleasant School - Total	\$203,403	\$31,235	\$172,168	\$7,019	\$9,509	10.4	55,938
Pleasantdale School - Interior							
Corridors	\$41,439	\$6,465	\$34,974	\$1,268	\$1,443	12.9	9,016
Classrooms	\$148,813	\$22,290	\$126,523	\$5,371	\$7,310	10.0	45,688
Gym/Auditorium	\$42,017	\$4,705	\$37,312	\$1,533	\$2,468	9.3	15,423
Bathrooms	\$9,833	\$1,600	\$8,233	\$310	\$410	11.4	2,560
Other Spaces	\$24,859	\$3,635	\$21,224	\$1,102	\$2,080	6.7	12,998
Pleasantdale School - Exterior	\$6,706	\$1,275	\$5,431	\$120	\$405	10.3	2,532
Pleasantdale School - Total	\$273,666	\$39,970	\$233,696	\$9,704	\$14,115	9.8	88,217
Redwood School - Interior							
Corridors	\$44,445	\$6,910	\$37,535	\$1,507	\$1,508	12.4	9,425
Classrooms	\$165,616	\$24,645	\$140,971	\$6,146	\$7,915	10.0	49,470
Gym/Auditorium	\$12,299	\$620	\$11,679	\$469	\$1,679	5.4	10,492
Bathrooms	\$8,228	\$1,280	\$6,948	\$292	\$453	9.3	2,833
Other Spaces	\$29,978	\$4,655	\$25,323	\$1,031	\$1,342	10.7	8,385
Redwood School - Exterior	\$23,138	\$4,275	\$18,863	\$493	\$1,307	10.5	8,169
Redwood School - Total	\$283,704	\$42,385	\$241,319	\$9,938	\$14,204	10.0	88,775
Roosevelt Middle School - Interior							
Corridors	\$86,313	\$13,330	\$72,983	\$2,117	\$2,819	14.8	18,794
Classrooms	\$212,935	\$30,500	\$182,435	\$8,285	\$11,360	9.3	75,731
Gym/Auditorium	\$71,677	\$8,165	\$63,512	\$6,144	\$5,032	5.7	33,549
Bathrooms	\$35,322	\$5,540	\$29,782	\$1,169	\$999	13.7	6,660
Other Spaces	\$64,220	\$9,870	\$54,350	\$2,287	\$2,687	10.9	17,912
Roosevelt Middle School - Exterior	\$8,798	\$1,450	\$7,348	\$205	\$749	7.7	4,996
Roosevelt Middle School - Total	\$479,265	\$68,855	\$410,410	\$20,208	\$23,646	9.4	157,641
St. Cloud School - Interior							
Corridors	\$40,845	\$6,405	\$34,440	\$823	\$859	20.5	5,370
Classrooms	\$116,872	\$17,840	\$99,032	\$4,164	\$4,604	11.3	28,774

Lighting ECRM Breakdown by Space Type (Not Including Labor Costs)							
Location	Cost+ Markup	Incentives	Cost (Post Incentive)	NMCS	Energy Savings	Simple Payback	KWH Save
Gym/Auditorium	\$15,235	\$735	\$14,500	\$589	\$2,254	5.1	14,084
Bathrooms	\$5,195	\$880	\$4,315	\$145	\$161	14.1	1,007
Other Spaces	\$29,856	\$4,385	\$25,471	\$1,298	\$2,311	7.1	14,445
St. Cloud School - Exterior	\$4,370	\$800	\$3,570	\$197	\$428	5.7	2,677
St. Cloud School - Total	\$212,372	\$31,045	\$181,327	\$7,217	\$10,617	10.2	66,357
Washington School - Interior							
Corridors	\$31,509	\$3,705	\$27,804	\$717	\$929	16.9	5,808
Classrooms	\$125,940	\$13,695	\$112,245	\$4,690	\$6,032	10.5	37,697
Gym/Auditorium	\$27,802	\$3,935	\$23,867	\$731	\$3,545	5.6	22,154
Bathrooms	\$16,457	\$1,915	\$14,542	\$491	\$737	11.8	4,608
Other Spaces	\$52,536	\$5,935	\$46,601	\$1,813	\$3,063	9.6	19,142
Washington School - Exterior	\$743	\$100	\$643	\$8	\$57	9.8	358
Washington School - Total	\$254,987	\$29,285	\$225,702	\$8,450	\$14,363	9.9	89,767
West Orange High School - Interior							
Corridors	\$146,726	\$16,050	\$130,676	\$4,797	\$7,884	10.3	52,562
Classrooms	\$852,440	\$92,800	\$759,640	\$29,372	\$42,337	10.6	282,245
Gym/Auditorium	\$196,720	\$26,300	\$170,420	\$5,490	\$17,145	7.5	114,301
Bathrooms	\$58,938	\$6,550	\$52,388	\$1,878	\$2,440	12.1	16,265
Other Spaces	\$84,907	\$9,650	\$75,257	\$2,795	\$3,946	11.2	26,306
West Orange High School - Exterior	\$9,976	\$1,300	\$8,676	\$154	\$378	16.3	2,518
West Orange High School - Total	\$1,349,706	\$152,650	\$1,197,056	\$44,484	\$74,129	10.1	494,196
Bus Garage - Interior	\$101,120	\$7,730	\$93,390	\$3,006	\$7,399	9.0	36,994
Bus Garage - Exterior	\$3,226	\$435	\$2,791	\$33	\$160	14.4	800
Bus Garage - Total	\$104,346	\$8,165	\$96,181	\$3,040	\$7,559	9.1	37,794