PINELANDS REGIONAL SCHOOL DISTRICT

HIGH SCHOOL

565 NUGENTOWN ROAD
LITTLE EGG HARBOR, NJ 08087

FACILITY ENERGY REPORT

TABLE OF CONTENTS

I. HISTORIC ENERGY CONSUMPTION/COST

The energy usage for the facility has been tabulated and plotted in graph form as depicted within this section. Each energy source has been identified and monthly consumption and cost noted per the information provided by the Owner.

High School Main Accounts

Electric Utility Provider:	Atlantic City Electric
Electric Utility Rate Structure:	Annual General Service (AGS)
Third Party Supplier:	Direct Energy
Natural Gas Utility Provider:	New Jersey Natural Gas
Utility Rate Structure:	General Service Large (GSL)
Third Party Supplier:	Hess

High School Annex Accounts

Electric Utility Provider:	Atlantic City Electric
Electric Utility Rate Structure:	Monthly General Service (MGS)
Third Party Supplier:	Direct Energy
Natural Gas Utility Provider:	New Jersey Natural Gas
Utility Rate Structure:	General Service Small (GSS)
Third Party Supplier:	Hess

The electric usage profile represents the actual electrical usage for the facility. The electric utility measures consumption in kilowatt-hours (KWH) and maximum demand in kilowatts (KW). One KWH usage is equivalent to 1000 watts running for one hour. One KW of electric demand is equivalent to 1000 watts running at any given time. The basic usage charges are shown as generation service and delivery charges along with several non-utility generation charges. Rates used in this report reflect the historical data received for the facility.

The gas usage profile within each facility report shows the actual natural gas energy usage for the facility. The gas utility measures consumption in cubic feet x 100 (CCF), and converts the quantity into Therms of energy. One Therm is equivalent to 100,000 BTUs of energy.

Table 1
Electricity Billing Data (High School)

ELECTRIC USAGE SUMMARY

Utility Provider: Atlantic City Electric
Rate: Annual General Service (AGS)
Meter No: 86283942, 57397043
Account No: 0081 7289 9992
Third Party Utility Provider: Direct Energy
TPS Meter / Acct No: -

MONTH OF USE	CONSUMPTION KWH	DEMAND KW	TOTAL BILL
Jul-10	159,600	509.6	$22,105
Aug-10	168,000	518.5	$22,993
Sep-10	186,300	539.1	$25,434
Oct-10	180,000	555.6	$25,041
Nov-10	149,700	495.0	$21,103
Dec-10	150,000	434.0	$21,538
Jan-11	156,000	451.4	$22,887
Feb-11	145,200	480.2	$22,551
Mar-11	152,100	440.1	$23,082
Apr-11	139,800	446.4	$21,201
May-11	120,900	373.1	$16,872
Jun-11	189,000	546.9	$25,599
Totals	**1,896,600**	**555.6 Max**	**$270,406**

AVERAGE DEMAND **482.5 KW average**
AVERAGE RATE **$0.143** **$/kWh**

Demand for this facility was calculated based on 45% load factor.

Figure 1
Electricity Usage Profile (High School)

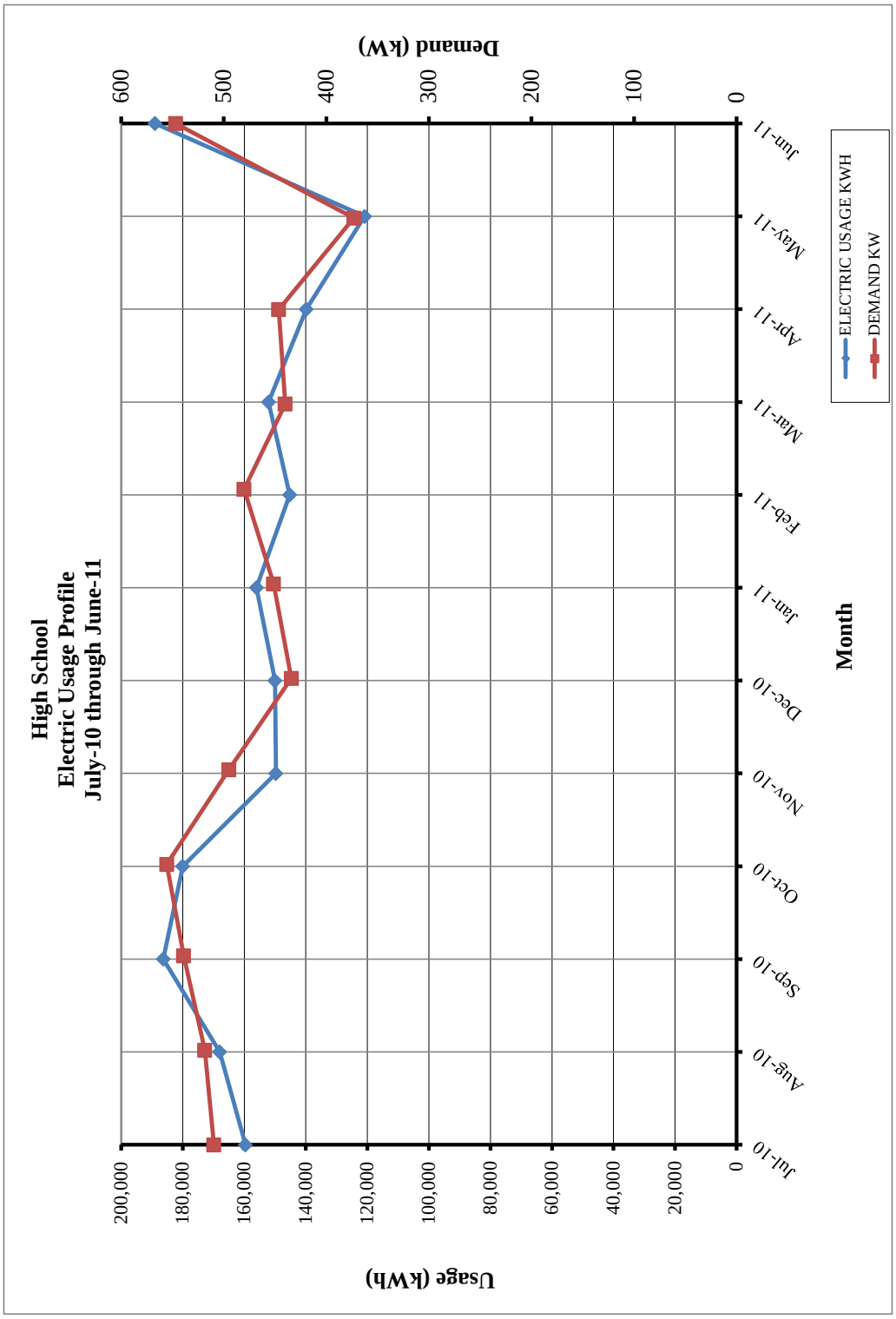


Table 2
Electricity Billing Data (High School Annex)

ELECTRIC USAGE SUMMARY

Utility Provider: Atlantic City Electric
Rate: Monthly General Service (MGS)
Meter No: 10906671
Account No: 0934 6629 9984
Third Party Utility Provider: Direct Energy
TPS Meter / Acct No: -

MONTH OF USE	CONSUMPTION KWH	DEMAND KW	TOTAL BILL
Jul-10	2,698	8.6	$466
Aug-10	2,444	7.5	$428
Sep-10	2,485	7.2	$436
Oct-10	3,338	10.3	$556
Nov-10	3,100	10.3	$514
Dec-10	3,840	11.1	$635
Jan-11	3,892	11.3	$668
Feb-11	3,579	11.8	$623
Mar-11	3,507	10.1	$625
Apr-11	3,185	10.2	$568
May-11	2,537	7.8	$429
Jun-11	2,554	7.4	$450
Totals	**37,159**	**11.8 Max**	**$6,399**

AVERAGE DEMAND **9.5 KW average**
AVERAGE RATE **$0.172** **$/kWh**

Demand for this facility was calculated based on 45% load factor.

Figure 2
Electricity Usage Profile (High School Annex)

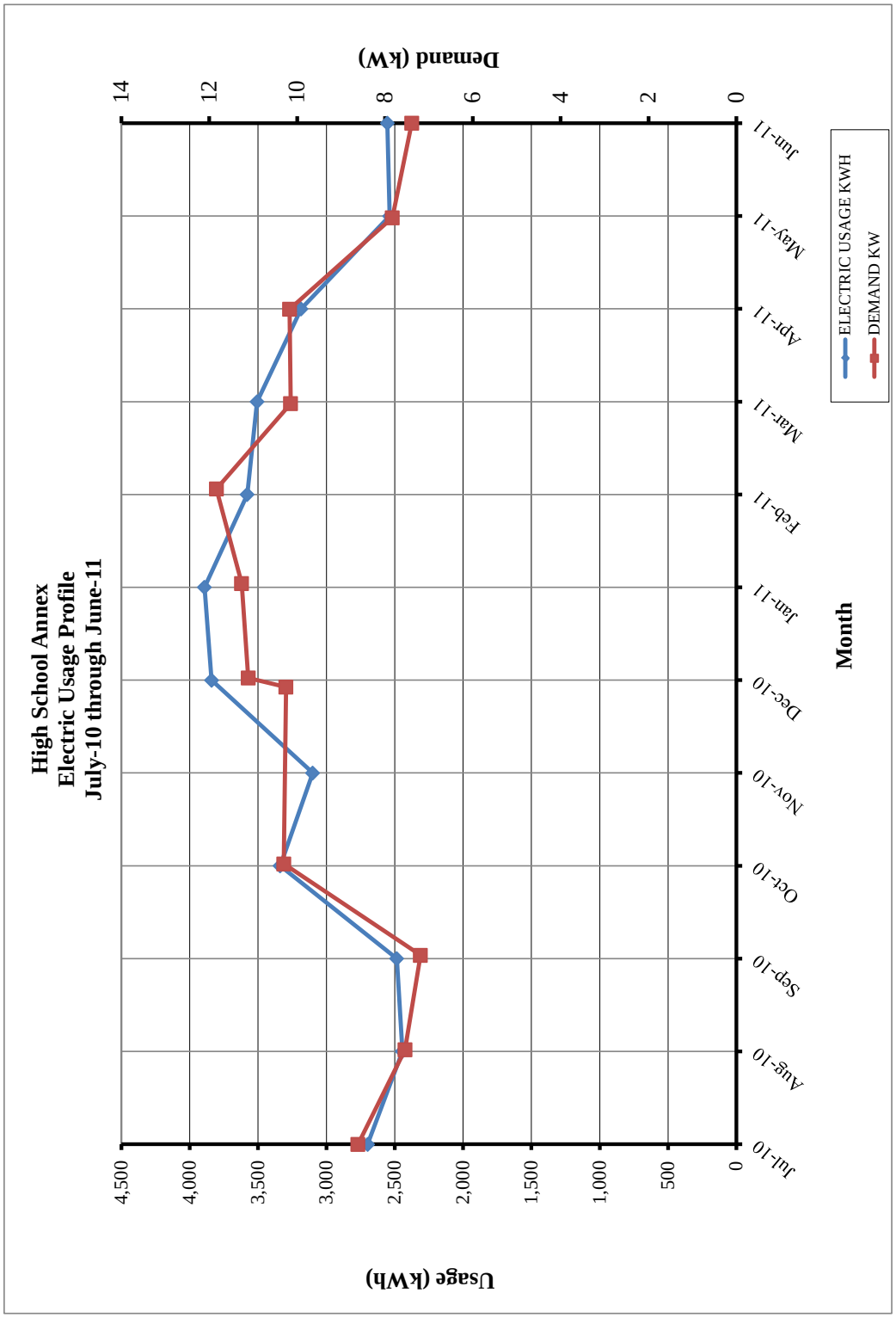


Table 3
Natural Gas Billing Data (High School)

NATURAL GAS USAGE SUMMARY		
Utility Provider:	New Jersey Natural Gas	
Rate:	General Service Large (GSL)	
Meter No:	504749	
Account No:	01-5091-0580-15	
Third Party Utility Provider:	-	
TPS Meter No:	-	
MONTH OF USE	**CONSUMPTION (THERMS)**	**TOTAL BILL**
Jul-10	351.24	$1,876.73
Aug-10	419.19	$1,929.21
Sep-10	566.48	$2,048.22
Oct-10	8,496.74	$9,855.93
Nov-10	16,174.63	$17,256.29
Dec-10	28,728.02	$31,659.47
Jan-11	21,726.43	$24,301.80
Feb-11	24,012.53	$26,468.70
Mar-11	15,213.89	$16,967.74
Apr-11	841.07	$2,386.53
May-11	592.99	$2,129.92
Jun-11	462.77	$1,991.37
TOTALS	**117,585.98**	**$138,871.91**
AVERAGE RATE:	**$1.18**	**$/THERM**

Figure 3
Natural Gas Usage Profile

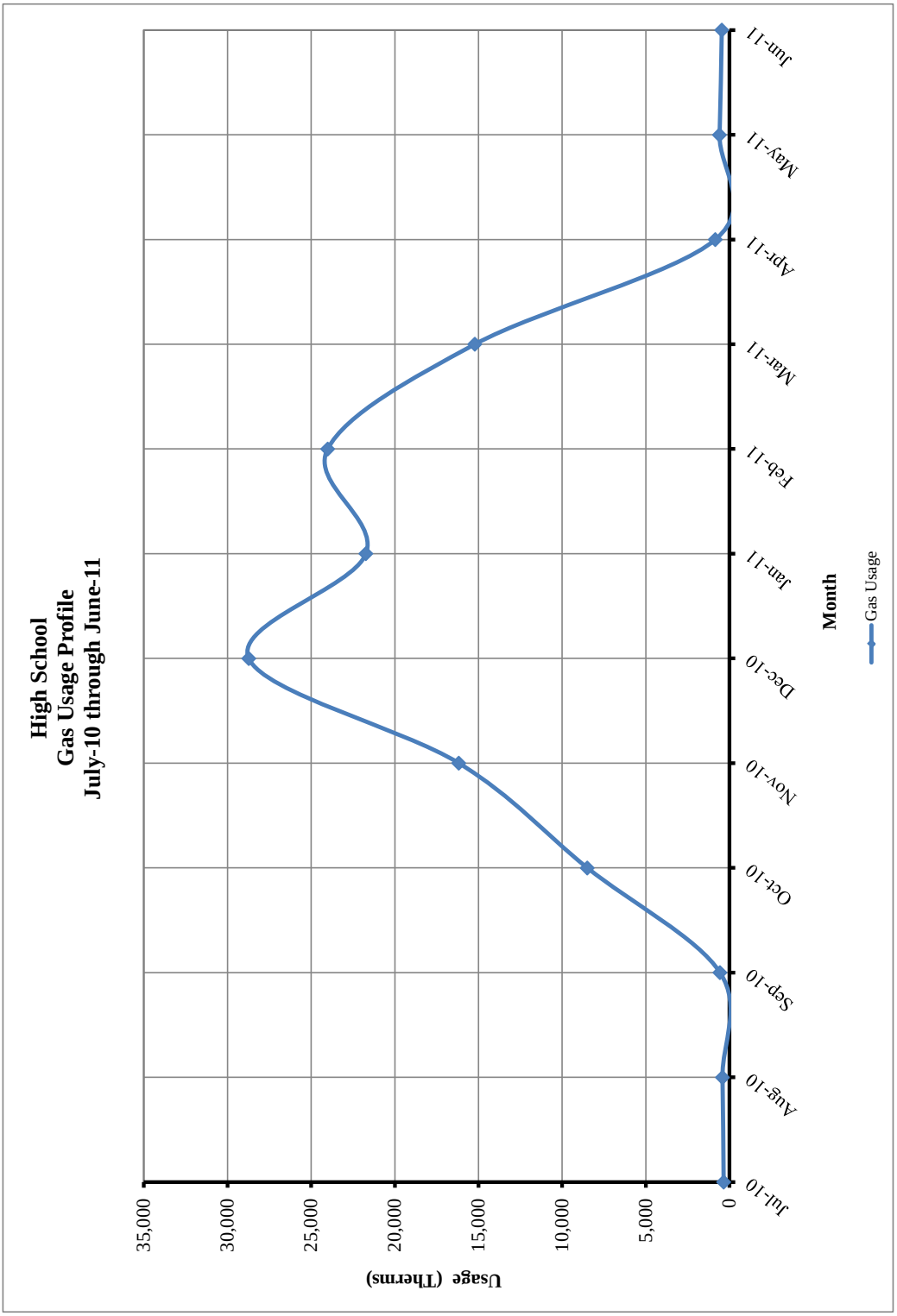
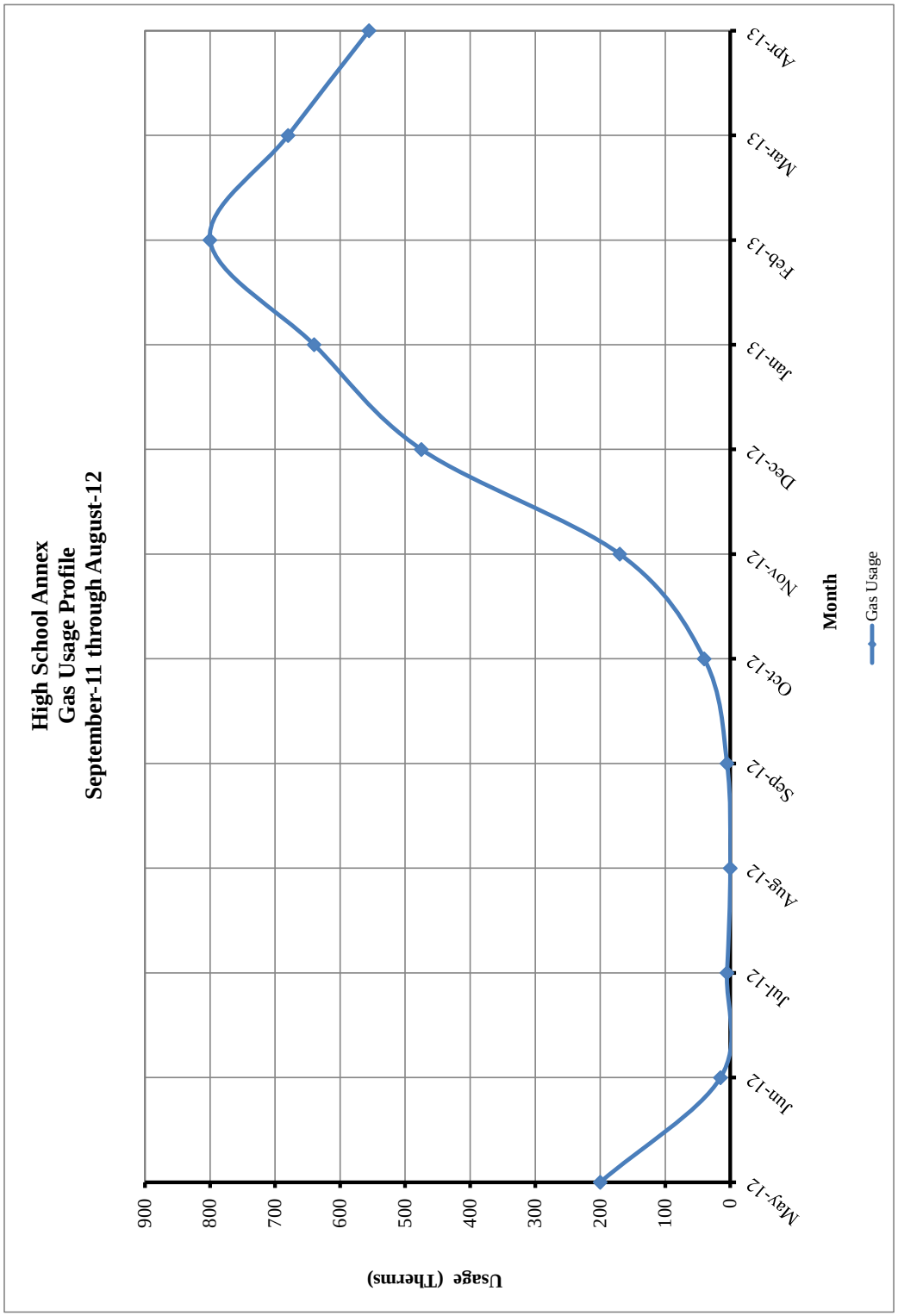


Table 3
Natural Gas Billing Data (High School Annex)

NATURAL GAS USAGE SUMMARY		
Utility Provider:	New Jersey Natural Gas	
Rate:	GSS	
Meter No:	429658	
Account No:	22-0005-8902-33	
Third Party Utility Provider:	-	
TPS Meter No:	-	
MONTH OF USE	**CONSUMPTION (THERMS)**	**TOTAL BILL**
Apr-13	555.41	$605.34
Mar-13	680.00	$745.87
Feb-13	800.00	$874.71
Jan-13	640.00	$699.76
Dec-12	475.00	$519.36
Nov-12	170.00	$185.88
Oct-12	40.00	$43.74
Sep-12	5.00	$5.47
Aug-12	0.00	$0.00
Jul-12	5.00	$5.47
Jun-12	15.00	$16.40
May-12	200.00	$218.68
TOTALS	**3,585.41**	**$3,920.66**
AVERAGE RATE:	**$1.09**	**$/THERM**

Figure 3
Natural Gas Usage Profile (High School Annex)



II. FACILITY DESCRIPTION

The Pinelands Regional High School is located on 565 Nugentown Road in Little Egg Harbor, New Jersey. The 219,000 SF High School was built in 1979, the adjacent Annex Building was built in 1999. The building is a three story facility comprised of classroom, auditorium, cafeteria, library, large 3-story atrium, offices, kitchen, utility/mechanical rooms, and restrooms. There is also a small three classroom room building adjacent to the building.

Occupancy Profile

The typical hours of operation for the High School are Monday through Friday between 7:00 am and 4:00 pm, with custodial staff on site until 11:00 pm. The school has a student enrollment of approximately 890, and a faculty of approximately 100 staff.

Building Envelope

Exterior walls for the High School are brick faced with a concrete block construction. There is an approximately 3" gap between the brick and block which is packed with an insulation material. The windows throughout are in good condition and appear to be maintained. Typical windows are double pane, operable, ¼" clear tinted with aluminum frames. The skylights extrude above the roof in an A-Frame shape and have double pane tinted glass with metal frames and typically with one air relief louver on the side. The roof is a flat, built up rubber roof with 2" to 5" of insulation between metal decking below. The white paint overlay coating applied to the roof is visibly deteriorating.

HVAC Systems

The A-Wing Classrooms span three floors, the first and second floors have heating only unit ventilator units and some rooms have supplemental cooling provided by a window air conditioning unit. The third floor classrooms in the A-Wing have Trane rooftop units with gas fired heating and direct expansion cooling; in addition each room has a heating only unit ventilator. The units range in size from 6 to 7 ½ tons of cooling, with 150 to 200 MBH of heating capacity. The Faculty Work Room, Faculty Lounge, and two Small Group Instruction rooms located on the first, second, and third floors of the A-Wing have ceiling hung fan coil units with chilled water coils.

The B-Wing Office area is conditioned by a single Trane Climate Changer air handler with hot water heating and direct expansion cooling. The unit has a rated capacity of 260 MBH heating and 18 tons of cooling. The unit is variable air volume equipped and distributes air to terminal boxes with dampers in the two office reception areas, nurse's office, and athletic director's office.

The D-Wing Classrooms are conditioned by ceiling hung unit ventilators with hot water heating coils. The Musical Instruction Classrooms are conditioned by Trane air handling units with hot water heating and direct expansion cooling. The Wood and Auto Shop have ceiling hung Trane air handling units with hot water heating only. The Graphics Lab has a ceiling hung hot water unit ventilator and a separate ceiling hung split direct expansion cooling only blower unit. The

Child Study Team Office is conditioned by a Trane air handler (AH-8) with hot water heating and direct expansion cooling. The Child Study team exterior offices are fitted with hot water baseboard for supplemental heat; however the internal reception area has electric base board strips for supplemental heat. The Youth Services Offices is conditioned by a single unit ventilator with hot water heating only; cooling is provided by a cooling only AercoAire 3 ton rooftop unit.

The Media Center is supplied by a single air handler (AH-5) Trane Climate Changer Series type M-14 B. The unit has a hot water coil and direct expansion cooling coil to condition the room. The unit is variable air volume equipped and distributes air to terminal boxes with dampers in the book stacks, lower and upper level offices, and computer lab.

The Cafeteria is conditioned by two air handlers (AH-6, 7) Trane Climate Changer Series type T-17. The units are heating only with hot water coils. The cafeteria dinning stage has an additional duct mounted hot water heating coil. The Serving Line located in the cafeteria has a single small kitchen exhaust hood coupled with a small makeup air unit that supplies unconditioned air. The Kitchen receives transfer air from the Cafeteria through four 60 inch by 10 inch grilles. An additional Trane rooftop gas fired heating and ventilating make up air unit supplies heated make up to the kitchen exhaust hood through front hood mounted supply grilles.

The Auditorium and Stage are conditioned by four Trane Climate Changer air handlers with hot water heating coils and direct expansion cooling coils. The front Auditorium units have two outdoor Trane RAUC condensing units rated at 50 tons.

The Gymnasium is conditioned by four heating and ventilating units manufactured by Trane each unit with a hot water heating coil only. The Auxiliary Gym and Weight Room on the mezzanine level are served by two heating and ventilating units manufactured by Trane with hot water heating coils.

The Atrium located in the center of the building is conditioned by a single Trane Climate Changer air handler (AH-19) with hot water heating coils. The unit is located in the Cafeteria Mezzanine mechanical room and distributes air through a floor mounted supply grille. Each of the skylights has an operable louver, some of which are fitted with a fractional horsepower direct drive exhaust fan. The Atrium also currently acts as a fresh air plenum space for classrooms in the A-Wing that have a perimeter wall to the space. Air is transferred from the Atrium to the classrooms through louvers directly into each classrooms unit ventilator.

The Boiler Room provides heating hot water to the entire main building. The boiler room is fitted with two cast iron section H.B. Smith 4500 Mills natural gas fired boilers. Each boiler has 20 sections for a name plate rated input capacity of 8393 MBH and Net IBR water output rating of 5870 MBH. Heating water is circulated through the building via two pumps primary/backup with 20 horsepower motors and a flow rating of 475 GPM at 85 foot of head pressure.

Chilled Water for the A-Wing core spaces is supplied by a single Air Cooled Chiller Located on the Gymnasium roof. This chiller is manufactured by Trane with a rated capacity of 30 tons. The chilled water is then circulated by two Bell and Gossett pumps primary/backup with 3 horsepower motors and a flow rating of 83 GPM at 78 foot of head pressure.

The Annex building has a separate hot water heating system that supplied a single heating and ventilating unit which conditioned the three classroom building. Cooling is provided to these classrooms by window air conditioning units. The heating hot water is supplied by two Weil McLain 175 MBH natural gas fired boilers. Water is then circulated by two 1/3 horsepower in-line pumps.

Exhaust System

Air is exhausted from the toilet rooms and classrooms through roof exhaust fans, typically down-blast style. The science classrooms also have chemical exhaust cabinets with fans located above on the roof, these fans are switch operated on the cabinet. The Cafeteria Serving line has a single exhaust fan that services the warming hood in the space connected to a raw air make-up unit. The Kitchen has a single large Cook exhaust fan that services the main kitchen hood; this is interlocked with a Trane gas fired make up air unit. The exhaust fans all appeared to be controlled by a disconnect switch located in various mechanical rooms and closets throughout the building. Some of the fans are interlocked with local air handling units.

HVAC System Controls

The HVAC systems through the building are controlled via a pneumatic operating system. Each air handler has a dedicated control panel located by the unit. The air handlers heating and/or chilled water supply is fitted with a 3-way pneumatic control valve, and all return air/outdoor air dampers are open and closed with pneumatic controlled actuators. Typical room set points are 70 degrees Fahrenheit for heating and cooling. The air handler control panels do not tie back to a central building management system. The classroom unit ventilators are fitted with pneumatic actuators, however inspection of the units determined they do not have a pneumatic controlled heating hot water valve, and are only fitted with manual 2-way shut off valves. The unit ventilator fan is controlled by an on/off dial that requires a screw driver to toggle between operating states. The 3rd floor A-Wing classrooms have digital programmable thermostats manufactured by Trane to control the rooftop units. While these thermostats have occupied and unoccupied operating modes they are not interconnected with the classroom unit ventilator and/or baseboard, which could lead to simultaneous heating and cooling.

The Annex Building is controlled by a single Honeywell digital programmable thermostat. The thermostat is located in the front classroom.

Domestic Hot Water

Domestic hot water is provided by a single A.O. Smith boiler located in the main boiler room coupled with a large 1,800 gallon storage tank maintained at 130 degrees Fahrenheit. The boiler is rated for 660 MBH and has a nameplate efficiency of 82%. The boiler is 14 years old, and the storage tank is original to the building. Domestic water is circulated by multiple fraction horsepower in-line pumps.

Lighting

Refer to the Investment Grade lighting Audit Appendix for a detailed list of the lighting throughout the facility and estimated operating hours per space.

Miscellaneous

The kitchen has a single CMA model 66H dishwasher with a Hatco 45 kilowatt electric booster heater. The kitchen cooking equipment is all electric and consists of a 6 burner range, two fryers, three Blodgett Mark V double stack convection ovens, one braising pan, and one tilt skillet, and a convection steamer. The kitchen also has three walk-in coolers each with a dedicated condensing unit and two evaporate fans.

The domestic cold water system has a single pump skid with two 10 horsepower pumps.

III. MAJOR EQUIPMENT LIST

The equipment list contains major energy consuming equipment that through implementation of energy conservation measures could yield substantial energy savings. The list shows the major equipment in the facility and all pertinent information utilized in energy savings calculations. An approximate age was assigned to the equipment in some cases if a manufactures date was not shown on the equipment's nameplate. The ASHRAE service life for the equipment along with the remaining useful life is also shown in the Appendix.

Refer to the **Major Equipment List Appendix** for this facility.

IV. ENERGY CONSERVATION MEASURES

Energy Conservation Measures are developed specifically for this facility. The energy savings and calculations are highly dependent on the information received from the site survey and interviews with operations personnel. The assumptions and calculations should be reviewed by the owner to ensure accurate representation of this facility. The following ECMs were analyzed:

Table 1
ECM Financial Summary

ENERGY CONSERVATION MEASURES (ECM's)					
ECM NO.	**DESCRIPTION**	**NET INSTALLATION COST[A]**	**ANNUAL SAVINGS[B]**	**SIMPLE PAYBACK (Yrs)**	**SIMPLE LIFETIME ROI**
ECM #1	Vending Miser	$1,500	$1,428	1.1	852.0%
ECM #2	Refrigerator Replacement	$3,450	$564	6.1	63.5%
ECM #3	Clothes Washer Replacement	$700	$145	4.8	107.1%
ECM #4	Walk-In Evaporator Controls	$3,025	$445	6.8	47.1%
ECM #5	Kitchen Hood Controls	$32,325	$2,504	12.9	16.2%
ECM #6	Kitchen Equipment Gas Conversion	$111,252	$2,111	52.7	-71.5%
ECM #7	Premium Efficiency Motors	$45,000	$1,501	30.0	-40.0%
ECM #8	VFD Air Handler Fans	$199,668	$14,915	13.4	12.0%
ECM #9	AC#1 Chiller Replacement	$129,490	$2,342	55.3	-63.8%
ECM #10	Boiler Replacement	$543,000	$22,444	24.2	3.3%
ECM #11	DDC Control System	$850,000	$38,421	22.1	-9.6%
ECM #12	Condensing Unit Replacement	$244,112	$4,964	49.2	-69.5%
ECM #13	Lighting Upgrade	$341,548	$43,509	7.9	91.1%
ECM #14	Lighting Controls	$44,730	$4,021	11.1	34.9%
RENEWABLE ENERGY MEASURES (REM's)					
ECM NO.	**DESCRIPTION**	**NET INSTALLATION COST**	**ANNUAL SAVINGS**	**SIMPLE PAYBACK (Yrs)**	**SIMPLE LIFETIME ROI**
REM #1	692 kW Solar Array	$3,201,934	$276,394	11.6	72.6%

Notes: A. Cost takes into consideration applicable NJ Smart StartTM incentives.
B. Savings takes into consideration applicable maintenance savings.

Table 2
ECM Energy Summary

ENERGY CONSERVATION MEASURES (ECM's)				
ECM NO.	DESCRIPTION	ANNUAL UTILITY REDUCTION		
		ELECTRIC DEMAND (KW)	ELECTRIC CONSUMPTION (KWH)	NATURAL GAS (THERMS)
ECM #1	Vending Miser	0.0	9,992	0
ECM #2	Refrigerator Replacement	0	3,942	0
ECM #3	Clothes Washer Replacement	0.0	378	39
ECM #4	Walk-In Evaporator Controls	0.0	3,111	0
ECM #5	Kitchen Hood Controls	0.0	7,118	1,259
ECM #6	Kitchen Equipment Gas Conversion	0.0	44,056	-3,550
ECM #7	Premium Efficiency Motors	4.0	10,499	0
ECM #8	VFD Air Handler Fans	33.2	104,301	0
ECM #9	AC#1 Chiller Replacement	9.9	16,375	0
ECM #10	Boiler Replacement	0.0	0	19,020
ECM #11	DDC Control System	0.0	140,328	15,555
ECM #12	Condensing Unit Replacement	30.7	34,712	0
ECM #13	Lighting Upgrade	99.9	304,259	0
ECM #14	Lighting Controls	0.0	28,122	0
RENEWABLE ENERGY MEASURES (REM's)				
ECM NO.	DESCRIPTION	ANNUAL UTILITY REDUCTION		
		ELECTRIC DEMAND (KW)	ELECTRIC CONSUMPTION (KWH)	NATURAL GAS (THERMS)
REM #1	692 kW Solar Array	560.8	827,316	0

Table 3
ECM Emissions Summary

ENERGY CONSERVATION MEASURES (ECM's)				
ECM NO.	DESCRIPTION	GREENHOUSE GAS EMISSIONS REDUCTION		
		CO_2 EMISSIONS (LBS)	NO_X EMISSIONS (LBS)	SO_2 EMISSIONS (LBS)
ECM #1	Vending Miser	15,188	28	65
ECM #2	Refrigerator Replacement	5,992	11	26
ECM #3	Clothes Washer Replacement	1,031	1	2
ECM #4	Walk-In Evaporator Controls	4,729	9	20
ECM #5	Kitchen Hood Controls	25,550	32	46
ECM #6	Kitchen Equipment Gas Conversion	25,428	91	286
ECM #7	Premium Efficiency Motors	15,959	29	68
ECM #8	VFD Air Handler Fans	158,538	292	678
ECM #9	AC#1 Chiller Replacement	24,890	46	106
ECM #10	Boiler Replacement	222,535	175	0
ECM #11	DDC Control System	395,288	536	912
ECM #12	Condensing Unit Replacement	52,762	97	226
ECM #13	Lighting Upgrade	462,474	852	1,978
ECM #14	Lighting Controls	42,745	79	183

Notes: A. Emissions Reduction based on NJCEP published factors for electric & gas.

Table 4
Facility Project Summary

ENERGY SAVINGS IMPROVEMENT PROGRAM - POTENTIAL PROJECT					
ENERGY CONSERVATION MEASURES	**ANNUAL ENERGY SAVINGS ($)**	**PROJECT COST ($)**	**SMART START INCENTIVES**	**CUSTOMER COST**	**SIMPLE PAYBACK**
Vending Miser	$1,428	$1,500	$0	$1,500	1.1
Refrigerator Replacement	$564	$3,450	$0	$3,450	6.1
Clothes Washer Replacement	$145	$700	$0	$700	4.8
Walk-In Evaporator Controls	$445	$3,250	$225	$3,025	6.8
Kitchen Hood Controls	$2,504	$33,000	$675	$32,325	12.9
Kitchen Equipment Gas Conversion	$2,111	$115,000	$3,748	$111,252	52.7
Premium Efficiency Motors	$1,501	$45,000	$0	$45,000	30.0
VFD Air Handler Fans	$14,915	$203,000	$3,332	$199,668	13.4
AC#1 Chiller Replacement	$2,342	$130,000	$510	$129,490	55.3
Boiler Replacement	$22,444	$555,000	$12,000	$543,000	24.2
DDC Control System	$38,421	$850,000	$0	$850,000	22.1
Condensing Unit Replacement	$4,964	$250,000	$5,888	$244,112	49.2
Lighting Upgrade	$43,509	$365,833	$24,285	$341,548	7.9
Lighting Controls	$4,021	$45,150	$420	$44,730	11.1
Design / Construction Extras (15%)		$225,882		$225,882	
Total Project	**$105,953**	**$1,731,765**	**$28,937**	**$1,702,828**	**16.1**

Design / Construction Extras is shown as an additional cost for the facility project summary. This cost is included to estimate the costs associated with construction management fees for a larger combined project. Highlighted measures are not included in overall combined project.

ECM #1: Vending Miser Controls

Description:

The High School currently utilizes vending machines in select areas within the building. Vending machines are located in the faculty rooms, cafeteria, and atrium which can be in use for a limited time during the day. The installation of the Vending Miser system will help reduce the operating hours of vending machines.

Cold beverage machines regularly operate inefficiently trying to maintain a constant cool temperature within the machine and snack machines with no cooling usually have lights that operate 24/7. The VendingMiser® system incorporates innovative energy-saving technology into a small plug-and-play device that in conjunction with a passive infrared sensor regulate the operation of the cold beverage and snack machines based on occupancy and room temperature. This ECM approximates the installation of five (5) for the cold beverage machine. (Note: There are currently no NJ OCE incentives for vending miser controls.)

Energy Savings Calculations:

Cold Drink and Snack Vending Machine Energy Conservation Project

	Input Variables	
Energy Analysis Prepared For:	Energy Costs ($0.000 per kwh)	$0.143
	Facility Occupied Hours per Week	60
Pinelands Reg. High School	Number of Cold Drink Vending Machines	5
	Number of Uncooled Snack Machines	0
www.VendingMiserStore.com	Power Requirements of Cold Drink Machine (avg watts	427
	Power Requirements of Snack Machine (avg watts)	100
	VendingMiser Sale Price (for cold drink machines)	$200.00
	OfficeMiser Sale Price (for snack machines)	$100.00

Savings Analysis

	Before	After	
Cold Drink Machines	$2,676.30	$1,247.48	Cost of Operation
	18,715	8,724	kWh
		53%	% Energy Savings
Snack Machines	$0.00	$0.00	Cost of Operation
	0	0	kWh
		0%	% Energy Savings

Project Summary

Present kWh	Projected kWh	kWh Savings per Year
18,715	8,724	9,992

Present Cost	Projected Costs	Annual Savings	Per Cent Savings	Total Project Cost	Break Even (Months)
$2,676.30	$1,247.48	$1,428.83	53%	$1,000.00	8.4

Energy Savings Summary:

ECM #1 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$1,500
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$1,500
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$1,428
Total Yearly Savings ($/Yr):	$1,428
Estimated ECM Lifetime (Yr):	10
Simple Payback	1.1
Simple Lifetime ROI	852.0%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$14,280
Internal Rate of Return (IRR)	95%
Net Present Value (NPV)	$10,681.13

ECM #2: Refrigerator Replacement

Description:

The High School has residential style refrigerators in many of its teacher lounges, offices, locker room office, some classrooms, and home economics room. Many of these units are older models that are not nearly as energy efficient as those manufactured today.

The proposed replacement is a one-for-one with a unit of similar size and dimensions that has the most up-to-date Energy Star Rating. The models selected are 2012 models manufactured by Frigidaire, five (5) model FFTR17, and one (1) model FFHT182. (Note: There are currently no NJ OCE incentives for commercial property refrigerator replacement.)

Energy Savings Calculations:

ENERGY STAR REFRIGERATOR CALCULATION			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Quantity	6	6	
Manufacturer	Varies	Frigidaire	
Type	Top Freezer	Top Freezer	
Model	Varies	FFTR1715LW, FFHT1826LW	
Size (Cu-Ft)	16.5	16.5	
Per Unit Electric Usage (kWh	1,104	447	657
Electric Rate ($/kWh)	$0.143	$0.143	
ENERGY SAVINGS CALCULATIONS			
Electric Usage (kWh)	6,625	2,683	3,942
Energy Cost ($)	$947	$384	$564
COMMENTS:	Calculations based Energy Star Website http://www.energystar.gov/index.cfm?fuseaction=refrig.calculator		

Energy Savings Summary:

ECM #2 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$3,450
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$3,450
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$564
Total Yearly Savings ($/Yr):	$564
Estimated ECM Lifetime (Yr):	10
Simple Payback	6.1
Simple Lifetime ROI	63.5%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$5,640
Internal Rate of Return (IRR)	10%
Net Present Value (NPV)	$1,361.03

ECM #3: Energy Star Clothes Washer Replacement

Description:

The High School has a standard top load clothes washer in the Home Economics Room. The installation of a newer Energy Star Rated high efficiency top load *w*asher will not only reduce water and energy consumption due to washing and drying of clothes it will also reduce water heating costs.

The proposed replacement is a replacement with a similar sized top load machine that is Energy Star rated. The unit specified in this case is manufactured be Whirlpool model WTW5600XW. (Note: There are currently no NJ OCE incentives for commercial clothes washer replacements.)

Energy Savings Calculations:

Savings calculations are based on water consumption per load and electric consumption per load of the washer.

$$\text{Water Usage (gal)} = \frac{\text{Gallons}}{\text{Load}} \times \frac{\text{Loads}}{\text{year}}$$

$$\text{Water Heat (Btu)} = \text{Water Usage} \times 8.33\frac{\text{lbs}}{\text{gal}} \times \text{c} \times (110 - 50)\Delta\text{T} \times \text{Hot/Cold Mix (50\%)}$$

$$\text{Water Heat Energy (Fuel Units)} = \frac{\text{Water Heat (Btu)}}{\text{Heater Efficiency}} \times \frac{1}{\text{Fuel Conversion}}$$

$$\text{Washer Electric } \left(\frac{\text{kWh}}{\text{Load}}\right) = \text{Volts} \times \text{Amps} \times \text{Run Factor (50\%)} \times \frac{\text{kW}}{1000\ \text{W}} \times 1\frac{\text{hr}}{\text{load}}$$

ENERGY STAR CLOTHES WASHER CALCULATION			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Quantity of Units	1	1	
Manufacturer	Admiral	Whirlpool	
Type	Top Load	HE Top Load	
Model	LATA100AAE	WTW5600XW	
Loads per Day	3	3	
Days Per Week	5	5	
Weeks Per Year	42	42	
Washer Usage kWh per Load	0.9	0.3	
Washer Usage Gallons per Load	31.4	13.824	17.576
Percent Hot / Cold Water Mix	0.5	0.5	
Water Heater Type	Gas	Gas	
Water Heater Efficiency	82%	82%	
Electric Rate ($/kWh)	$0.143	$0.143	
Natural Gas Rate ($/therm)	$1.180	$1.180	
Water Rate ($/1,000 Gal)	$4.000	$4.000	
ENERGY SAVINGS CALCULATIONS			
Electric Usage (kWh)	567	189	378
Natural Gas (Therm)	70.33	30.97	39
Water Usage (Gallons)	19,782	8,709	11,073
Energy Cost ($)	$243	$98	$145
COMMENTS:	Home Economics Unit		

Energy Savings Summary:

ECM #3 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$700
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$700
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$145
Total Yearly Savings ($/Yr):	$145
Estimated ECM Lifetime (Yr):	10
Simple Payback	4.8
Simple Lifetime ROI	107.1%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$1,450
Internal Rate of Return (IRR)	16%
Net Present Value (NPV)	$536.88

ECM #4: Walk-In Controls

The High School has three walk-in coolers/freezers that store food for the kitchen. Each box has an evaporator with two fans to circulate cold air. These fans operate continuously whether the compressor is on or off resulting in unnecessary heat buildup in the box due to the fan motors.

This measure would install an evaporator fan controller that features two-speed operation of the evaporator fans – high speed during cooling, and low speed or off when not cooling manufactured by Frigitek or equivalent.

Energy Savings Calculations:

Energy savings calculations are based on New Jersey Board of Public Utilities Protocols to Measure Resource Savings. The energy savings are calculated using existing equipment characteristics.

$$\text{kWh Savings Evap Fans} = \frac{\left(\text{Amps} \times \text{Volts} \times \text{Phase}^{\frac{1}{2}}\right)}{1000} \times 0.55 \times 8760 \times 35.52\%$$

$$\text{kWh Savings Evap Reduced Heat} = \text{kWh Savings Evap Fans} \times 0.28 \times 1.6$$

$$\text{kWh Savings Controls} = \frac{\text{Amps}_{CP} \times \text{Volts}_{CP} \times \text{Phase}_{CP}^{\frac{1}{2}}}{1000} \times 0.85 \times (35\% \times 2{,}195 \text{ Hrs} + 55\% \times 6{,}565 \text{ Hrs}) + \frac{\text{Amps}_{EF} \times \text{Volts}_{EF} \times \text{Phase}_{EF}^{\frac{1}{2}}}{1000} \times 0.55 \times 8760 \times 35.52\% \times 5\%$$

CALCULATION CONSTANTS	
Evaporator Fan Motor Power Factor	0.55
ConversIon kW to ton (Refrigeration)	0.28
Efficiency of Typical System (kW/ton)	1.6
Compressor Power Factor	0.85
Compressor Winter Runtime	2195
Compressor Winter Duty Cycle	35%
Compressor Non-Winter Runtime	6565
Compressor Non-Winter Duty Cycle	55%
Reduced Runtime due to Controls	5%
Percent Time Evaporator is Turned Off	35.52%

WALK-IN COOLER/FREEZER EVAPORATOR FAN CONTROL			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	No Controller	Frigitek Controller	
Qty of Evaporator Fans	6	6	
Nameplate Amps of Evap Fan	1.0	1.0	
Nameplate Volts of Evap Fan	208	208	
Phase of Evap Fan	1	1	
Nameplate Amps of Compressor	11.0	11.0	
Nameplate Volts of Compressor	230	230	
Phase of Compressor	3	3	
Elec Cost ($/kWh)	$0.143	$0.143	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Evaporator Fan Usage (KWH)	6,013	3,877	2,136
Evap Fan Heat Usage (KWH)	449	289	159
Compressor Usage (KWH)	16,311	15,495	816
Total Electric Usage (KWH)	22,773	19,662	3,111
Electric Cost ($)	$3,256	$2,812	$445
COMMENTS:	Walk-In #1, 2, 3		

Energy Savings Summary:

ECM #4 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$3,250
NJ Smart Start Equipment Incentive ($):	$225
Net Installation Cost ($):	$3,025
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$445
Total Yearly Savings ($/Yr):	$445
Estimated ECM Lifetime (Yr):	10
Simple Payback	6.8
Simple Lifetime ROI	47.1%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$4,450
Internal Rate of Return (IRR)	8%
Net Present Value (NPV)	$770.94

ECM #5: Commercial Kitchen Exhaust Hood Controls

Description:

The existing kitchen hood and serving hood operates for 12 hours per day regardless of whether or not cooking is being conducted underneath the hood. This type of operation continuously exhausts conditioned air from out of the kitchen, thereby forcing makeup air systems to continually condition the kitchen space. While this type of operation is standard procedure in most commercial kitchens, additional controls can be added to the hood exhaust system in order to reduce the airflow and power requirements of the system while full load operation is not required.

This ECM would install Captiv Aire EMS system that allows for a reduction in air flow to 80%, while cooking is not being conducted. This system will modulate both the exhaust flow and make up air flow down based on the activity it senses under the hood. In addition the EMS system comes with a hood mounted control panel that allows for the chef to override the system for a period of time.

Energy Savings Calculations:

Savings were calculated based on the kitchen hood operating for 12 hours per day for 42 weeks per year.

Serving Hood

VARIABLE SPEED KITCHEN HOOD CONTROLS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Constant	EMS Controls	
Exhaust Fan, HP	0.75	0.75	
Make-up Air Fan, HP	0.3	0.3	
Exhaust Air, CFM	1,250	1,250	
Full Load Operating Hours	2,520	735	
Part Load Operating Hours	0	945	
Fan Power Usage, kWh	2,507	1,212	1,294
Heating Usage, therms	147	87	60
Cooling Usage, kWh	0	0	0
Elec Cost ($/kWh)	0.143	0.143	-
Natural Gas ($/therm)	1.180	1.180	-
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Electric Energy (kWh)	2,507	1,212	1,294
Natural Gas (therm)	147	87	60
Energy Cost ($)	$532	$276	$256
COMMENTS:	EMS System Reduces Airflow to 80% for low speed operation		

Main Kitchen Hood

VARIABLE SPEED KITCHEN HOOD CONTROLS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Constant	EMS Controls	
Exhaust Fan, HP	1.50	1.50	
Make-up Air Fan, HP	3.0	3.0	
Exhaust Air, CFM	5,000	5,000	
Full Load Operating Hours	2,520	735	
Part Load Operating Hours	0	945	
Fan Power Usage, kWh	11,280	5,456	5,824
Heating Usage, therms	2,937	1,738	1,199
Cooling Usage, kWh	0	0	0
Elec Cost ($/kWh)	0.143	0.143	-
Natural Gas ($/therm)	1.180	1.180	-
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Electric Energy (kWh)	11,280	5,456	5,824
Natural Gas (therm)	2,937	1,738	1,199
Energy Cost ($)	$5,079	$2,831	$2,248
COMMENTS:	EMS System Reduces Airflow to 80% for low speed operation		

Energy Savings Summary:

ECM #5 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$33,000
NJ Smart Start Equipment Incentive ($):	$675
Net Installation Cost ($):	$32,325
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$2,504
Total Yearly Savings ($/Yr):	$2,504
Estimated ECM Lifetime (Yr):	15
Simple Payback	12.9
Simple Lifetime ROI	16.2%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$37,560
Internal Rate of Return (IRR)	2%
Net Present Value (NPV)	($2,432.41)

ECM #6: Kitchen Equipment Gas Conversion

Description:

The High School Kitchen is equipped with electric cooking equipment. Located in the kitchen are a steamer, six burner range combination, two fryers, and three rack convection ovens. By converting over to Energy Star Rated natural gas fired cooking equipment significant energy and cost savings could be realized.

This ECM would replace the existing equipment with new natural gas fired Energy Star rated kitchen equipment. Natural gas will be required to be extended into the kitchen area from the nearest line connection of adequate size.

Energy Savings Calculations:

Energy savings were calculated based on NJ BPU Protocols to Measure Resource Savings with adjustments made based on operating assumptions for a school kitchen.

Fryer, Griddle, & Ovens Equation:

$$\text{Energy Usage} = \frac{\text{Days}}{\text{Year}} \times \left[\frac{\text{Energy}}{\text{Food}}\frac{\text{Btu}}{\text{lb}} \times \frac{1}{\text{Efficiency}} + \text{Idle Energy Rate}\left(\frac{\text{Btu}}{\text{hr}}\right) \times \left(\frac{\text{Hours}}{\text{day}} - \frac{\text{Production}}{\text{Capacity}}\right)\right] \times \frac{1}{\text{Fuel Conversion}}$$

Combination Oven & Range:

$$\text{Energy Usage} = \text{Qty of Units} \times \frac{\text{Days}}{\text{Year}} \times \left[(\text{Op. Hrs} - \text{Idle Hrs}) \times \text{Qty Burners} \times \text{Energy Rate} \times \text{Burner Use Rate \%} + \text{Idle Hours} \times \text{Qty Pilots} \times \text{Idle Energy Rate} + (\text{Op. Hrs} - \text{Idle Hrs}) \times \text{Oven Qty} \times \text{Energy Rate} \times \frac{1}{\text{Efficiency}}\right] \times \frac{1}{\text{Fuel Conversion}}$$

FRYER EQUIPMENT ANALYSIS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Quantity of Units	2	2	
Operating Days per Year	180	180	
Operating Hours per Day	8	8	
Average Production per Day (lbs)	150	150	
Production Capacity (lb/hr)	65.0	60.0	
Fuel Source	Electric	Gas	
Fuel Conversion Factor	3,412	100,000	
Heavy Load Efficiency	75%	35%	
Idle Energy Rate (Btu/hr)	3,583.0	14,000.0	
Electric Cost ($/kWh)	$0.143	$0.143	
Natural Gas Cost ($/therm)	$1.180	$1.180	
ENERGY SAVINGS CALCULATIONS			
Electric Usage (kWh)	12,039	0	12,039
Natural Gas Usage (therm)	0	881	(881)
Energy Cost ($)	$1,722	$1,039	$682
COMMENTS:			

STEAMER EQUIPMENT ANALYSIS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Quantity of Units	1	1	
Operating Days per Year	180	180	
Operating Hours per Day	8	8	
Average Production per Day (lbs)	100	100	
Production Capacity (lb/hr)	70.0	65.0	
Fuel Source	Electric	Gas	
Fuel Conversion Factor	3,412	100,000	
Heavy Load Efficiency	26%	15%	
Idle Energy Rate (Btu/hr)	3,412.0	11,000.0	
Electric Cost ($/kWh)	$0.143	$0.143	
Natural Gas Cost ($/therm)	$1.180	$1.180	
ENERGY SAVINGS CALCULATIONS			
Electric Usage (kWh)	2,136	0	2,136
Natural Gas Usage (therm)	0	127	(127)
Energy Cost ($)	$305	$149	$156
COMMENTS:			

OVEN EQUIPMENT ANALYSIS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Quantity of Units	3	3	
Type of Oven	Convection	Convection	
Operating Days per Year	180	180	
Operating Hours per Day	8	8	
Average Production per Day (lbs)	100	100	
Production Capacity (lb/hr)	70.0	70.0	
Fuel Source	Electric	Gas	
Fuel Conversion Factor	3,412	100,000	
Heavy Load Efficiency	65%	30%	
Idle Energy Rate (Btu/hr)	6,824.0	1,800.0	
Electric Cost ($/kWh)	$0.143	$0.143	
Natural Gas Cost ($/therm)	$1.180	$1.180	
ENERGY SAVINGS CALCULATIONS			
Electric Usage (kWh)	6,120	0	6,120
Natural Gas Usage (therm)	0	450	(450)
Energy Cost ($)	$875	$531	$344
COMMENTS:			

TILT SKILLET EQUIPMENT ANALYSIS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Quantity of Units	1	1	
Operating Days per Year	180	180	
Operating Hours per Day	8	8	
Idle Operating Hours per Day	5	5	
Servings per Day	750	750	
Production Capacity (Gallons)	30.0	30.0	
Production Capacity (4 oz Servings)	960.0	960.0	
Fuel Source	Electric	Gas	
Fuel Conversion Factor	3,412	100,000	
Energy Rate (Btu/h)	49,133	91,000	
Idle Energy Rate (Btu/h)	19,653	36,400	
Electric Cost ($/kWh)	$0.143	$0.143	
Natural Gas Cost ($/therm)	$1.180	$1.180	
ENERGY SAVINGS CALCULATIONS			
Electric Usage (kWh)	11,259	0	11,259
Natural Gas Usage (therm)	0	712	(712)
Energy Cost ($)	$1,610	$840	$770
COMMENTS:	Assumed 40% idle energy rate		

COMBINATION RANGE EQUIPMENT ANALYSIS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Quantity of Units	1	1	
Operating Days per Year	180	180	
Operating Hours per Day	8	8	
Idle Operating Hours per Day	4	4	
Quantity of Burners	6	6	
Burner Energy Rate (Btu/h)	6,824.0	30,000.0	
Burner Idle Energy Rate (Btu/h)	0.0	600.0	
Underneath Oven Quantity	1.0	1.0	
Oven Energy Rate (Btu/h)	17,060.0	35,000.0	
Fuel Source	Electric	Gas	
Fuel Conversion Factor	3,412	100,000	
Burner Use Rate	50%	50%	
Oven Heavy Load Efficiency	44%	35%	
Electric Cost ($/kWh)	$0.143	$0.143	
Natural Gas Cost ($/therm)	$1.180	$1.180	
ENERGY SAVINGS CALCULATIONS			
Electric Usage (kWh)	12,502	0	12,502
Natural Gas Usage (therm)	0	1,381	(1,381)
Energy Cost ($)	$1,788	$1,630	$158
COMMENTS:	2% Pilot Light Energy Consumption, 1 Pilot Light per 2 Burners		

Energy Savings Summary:

ECM #6 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$115,000
NJ Smart Start Equipment Incentive ($):	$3,748
Net Installation Cost ($):	$111,252
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$2,111
Total Yearly Savings ($/Yr):	$2,111
Estimated ECM Lifetime (Yr):	15
Simple Payback	52.7
Simple Lifetime ROI	-71.5%
Simple Lifetime Maintenance Savings	0
Simple Lifetime Savings	$31,665
Internal Rate of Return (IRR)	-13%
Net Present Value (NPV)	($86,051.02)

ECM #7: Premium Efficiency Motors

Description:

The improved efficiency of the NEMA Premium® efficient motors is primarily due to better designs with use of better materials to reduce losses. Surprisingly, the electricity used to power a motor represents 95 % of its total lifetime operating cost. Because many motors operate continuously 24 hours a day, even small increases in efficiency can yield substantial energy and dollar savings.

The electric motors driving the pumps and supply fans in some of the HVAC equipment are candidates for replacing with premium efficiency motors. These standard efficiency motors run considerable amount of time over a year.

This energy conservation measure replaces existing inefficient electric motors with NEMA Premium® efficiency motors. (Note: There are currently no NJ OCE incentives for premium efficiency motors.)

IMPLEMENTATION SUMMARY					
EQMT ID	FUNCTION	MOTOR HP	HOURS OF OPERATION	EXISTING EFFICIENCY	NEMA PREMIUM EFFICIENCY
AH-1	Supply Fan	1.5	2,745	79.1%	88.5%
AH-10	Supply Fan	1	2,745	76.7%	85.5%
AH-11	Supply Fan	1	2,745	76.7%	85.5%
AH-12	Supply Fan	1.5	2,745	79.1%	88.5%
AH-13	Supply Fan	3	2,745	86.5%	89.5%
AH-14	Supply Fan	3	2,745	86.5%	89.5%
AH-15	Supply Fan	5	2,745	87.5%	89.5%
AH-16	Supply Fan	5	2,745	87.5%	89.5%
AH-17	Supply Fan	5	2,745	87.5%	89.5%
AH-18	Supply Fan	5	2,745	87.5%	89.5%
AH-19	Supply Fan	5	2,745	91.5%	89.5%
AH-2	Supply Fan	2	2,745	80.8%	86.5%
AH-20	Supply Fan	3	2,745	86.5%	89.5%
AH-21	Supply Fan	2	2,745	80.8%	86.5%
AH-22	Supply Fan	3	2,745	87.5%	85.5%
AH-3	Supply Fan	3	2,745	86.5%	89.5%
AH-4	Supply Fan	7.5	3,391	85.5%	91.0%
AH-5	Supply Fan	7.5	3,391	85.5%	91.0%
AH-6	Supply Fan	7.5	3,391	85.5%	91.0%
AH-7	Supply Fan	7.5	3,391	85.5%	91.0%
AH-8	Supply Fan	3	2,745	86.5%	89.5%
AH-9	Supply Fan	1	2,745	76.7%	85.5%
HWP-1	Hot Water Pump	20	1,696	88.5%	93.0%
HWP-2	Hot Water Pump	20	1,696	88.5%	93.0%

Energy Savings Calculations:
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$$\text{Electric Usage, kWh} = \frac{\text{HP} \times \text{LF} \times 0.746 \times \text{Hours of Operation}}{\text{Motor Efficiency}}$$

where, HP = Motor Nameplate Horsepower Rating

LF = Load Factor Motor Efficiency = Motor Nameplate Efficiency

$$\text{Electric Usage Savings kWh} = \text{Electric Usage}_{\text{Existing}} - \text{Electric Usage}_{\text{Proposed}}$$

$$\text{Electric Usage Savings, kWh} = \text{Electric Usage}_{\text{Existing}} - \text{Electric Usage}_{\text{Proposed}}$$

$$\text{Electric cost savings} = \text{Electric Usage Savings} \times \text{Electric Rate} \left(\frac{\$}{\text{kWh}}\right)$$

The calculations were carried out and the results are tabulated in the table below:

PREMIUM EFFICIENCY MOTOR CALCULATIONS								
EQMT ID	**QTY**	**MOTOR HP**	**LOAD FACTOR**	**EXISTING EFFICIENCY**	**PROPOSED EFFICIENCY**	**POWER SAVINGS kW**	**ENERGY SAVINGS kWH**	**COST SAVINGS**
AH-1	1	1.5	75%	79.1%	88.5%	0.11	311	$44
AH-10	1	1	75%	76.7%	85.5%	0.08	207	$30
AH-11	1	1	75%	76.7%	85.5%	0.08	207	$30
AH-12	1	1.5	75%	79.1%	88.5%	0.11	311	$44
AH-13	1	3	75%	86.5%	89.5%	0.07	180	$26
AH-14	1	3	75%	86.5%	89.5%	0.07	180	$26
AH-15	1	5	75%	87.5%	89.5%	0.07	197	$28
AH-16	1	5	75%	87.5%	89.5%	0.07	197	$28
AH-17	1	5	75%	87.5%	89.5%	0.07	197	$28
AH-18	1	5	75%	87.5%	89.5%	0.07	197	$28
AH-19	1	5	75%	91.5%	89.5%	0.00	0	$0
AH-2	4	2	75%	80.8%	86.5%	0.37	1,007	$144
AH-20	1	3	75%	86.5%	89.5%	0.07	180	$26
AH-21	1	2	75%	80.8%	86.5%	0.09	252	$36
AH-22	1	3	75%	87.5%	85.5%	0.00	0	$0
AH-3	2	3	75%	86.5%	89.5%	0.13	359	$51
AH-4	1	7.5	75%	85.5%	91.0%	0.30	1,011	$145
AH-5	1	7.5	75%	85.5%	91.0%	0.30	1,011	$145
AH-6	1	7.5	75%	85.5%	91.0%	0.30	1,011	$145
AH-7	1	7.5	75%	85.5%	91.0%	0.30	1,011	$145
AH-8	1	3	75%	86.5%	89.5%	0.07	180	$26
AH-9	1	1	75%	76.7%	85.5%	0.08	207	$30
HWP-1	1	20	75%	88.5%	93.0%	0.61	1,043	$149
HWP-2	1	20	75%	88.5%	93.0%	0.61	1,043	$149
TOTAL						**4.0**	**10,499**	**$1,501**

Energy Savings Summary:

ECM #7 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$45,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$45,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$1,501
Total Yearly Savings ($/Yr):	$1,501
Estimated ECM Lifetime (Yr):	18
Simple Payback	30.0
Simple Lifetime ROI	-40.0%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$27,018
Internal Rate of Return (IRR)	-5%
Net Present Value (NPV)	($24,355.98)

ECM #8: Variable Frequency Drive Supply Fans

Description:

The air handlers throughout the High School are not fitted with variable speed drives and continually operate at a constant speed. Some of these units are capable of variable air volume and would significantly benefit from the installation of a VFD and static pressure sensor. By installation VFD's on the remaining units the district will be able to better balance the system air flows as well as operate at a reduced horsepower based on the fan curve required power.

This ECM would install a variable frequency drive controller, inverter duty rated motor (assuming they get install through the premium efficiency motor ECM), and duct mounted static pressure sensor.

Energy Savings Calculations:

Energy Savings were calculated utilizing the New Jersey Board of Public Utilities Protocols to Measure Resource Savings dated July 2011.

$$\text{Energy Savings (kWh)} = 0.746 \times \text{HP} \times \text{HRS} \times (\text{ESF}/\eta_{\text{motor}})$$

$$\text{Demand Savings (kW)} = 0.746 \times \text{HP} \times (\text{DSF}/\eta_{\text{motor}})$$

$$\text{Energy Savings Factor (ESF)} = 0.475 \text{ (Airfoil/Backward Inclined Fans)}$$

$$\text{Demand Savings Factor (DSF)} = 0.448 \text{ (Airfoil/Backward Inclined Fans)}$$

VARIABLE SPEED DRIVE SAVINGS CALCULATIONS									
EQMT ID	**QTY**	**FUNCTION**	**MOTOR HP**	**HOURS OF OPERATION**	**PROPOSED EFFICIENCY**	**INSTALL VFD**	**DEMAND SAVINGS (KW)**	**ENERGY SAVINGS (KWH)**	**ENERGY COST SAVINGS**
AH-1	1	Supply Fan	1.5	2,745	88.5%	Yes	0.6	1,649	$236
AH-10	1	Supply Fan	1	2,745	85.5%	Yes	0.4	1,138	$163
AH-11	1	Supply Fan	1	2,745	85.5%	Yes	0.4	1,138	$163
AH-12	1	Supply Fan	1.5	2,745	88.5%	Yes	0.6	1,649	$236
AH-13	1	Supply Fan	3	2,745	89.5%	Yes	1.1	3,260	$466
AH-14	1	Supply Fan	3	2,745	89.5%	Yes	1.1	3,260	$466
AH-15	1	Supply Fan	5	2,745	89.5%	Yes	1.9	5,434	$777
AH-16	1	Supply Fan	5	2,745	89.5%	Yes	1.9	5,434	$777
AH-17	1	Supply Fan	5	2,745	89.5%	Yes	1.9	5,434	$777
AH-18	1	Supply Fan	5	2,745	89.5%	Yes	1.9	5,434	$777
AH-19	1	Supply Fan	5	2,745	89.5%	Yes	1.9	5,434	$777
AH-2	4	Supply Fan	2	2,745	86.5%	Yes	3.1	8,996	$1,286
AH-20	1	Supply Fan	3	2,745	89.5%	Yes	1.1	3,260	$466
AH-21	1	Supply Fan	2	2,745	86.5%	Yes	0.8	2,249	$322
AH-22	1	Supply Fan	3	2,745	85.5%	No	0.0	0	$0
AH-3	2	Supply Fan	3	2,745	89.5%	Yes	2.2	6,521	$932
AH-4	1	Supply Fan	7.5	3,391	91.0%	Yes	2.8	9,903	$1,416
AH-5	1	Supply Fan	7.5	3,391	91.0%	Yes	2.8	9,903	$1,416
AH-6	1	Supply Fan	7.5	3,391	91.0%	Yes	2.8	9,903	$1,416
AH-7	1	Supply Fan	7.5	3,391	91.0%	Yes	2.8	9,903	$1,416
AH-8	1	Supply Fan	3	2,745	89.5%	Yes	1.1	3,260	$466
AH-9	1	Supply Fan	1	2,745	85.5%	Yes	0.4	1,138	$163
TOTAL	26						33.2	104,301	$14,915

Energy Savings Summary:

ECM #8 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$203,000
NJ Smart Start Equipment Incentive ($):	$3,332
Net Installation Cost ($):	$199,668
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$14,915
Total Yearly Savings ($/Yr):	$14,915
Estimated ECM Lifetime (Yr):	15
Simple Payback	13.4
Simple Lifetime ROI	12.0%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$223,725
Internal Rate of Return (IRR)	1%
Net Present Value (NPV)	($21,613.70)

ECM #9: AC#1 Chiller Replacement

Description:

The High School has a 30 ton air-cooled chiller on the gymnasium roof which supplies cooling to the main office, 1st, 2nd, & 3rd floor faculty work rooms, and 1st, 2nd, & 3rd floor SGI rooms. The chiller is well past its useful life and could be replaced with a much more efficient chiller up to today's standards.

This ECM includes the installation of a new high efficient air cooled chiller. The chiller is based on a 30 ton Trane Model CGAM030.

Energy Savings Calculations:

$$\text{Electric Usage} = \text{Capacity (tons)} \times \frac{12{,}000\ \text{Btu}}{1000\ \text{W}} \times \frac{1}{\text{EER}} \times \text{Operating Hours}$$

$$\text{Demand Savings} = \text{Capacity (tons)} \times \left(\frac{1}{\text{EER}_{\text{Old}}} - \frac{1}{\text{EER}_{\text{New}}}\right) \times 67\%\ \text{Capacity Factor}$$

$$\text{Energy Cost} = \text{Electric Usage (kWh)} \times \text{Rate} \left(\frac{\$}{\text{kWh}}\right)$$

CHILLER CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Existing Air Cooled Chillers	High Efficiency Chiller	
Operating Capacity (Tons)	30.0	30.0	
Chiller Efficiency (EER)	7.1	10.1	
Full Load Cooling Hrs (Est.)	800	800	
Cooling Energy (kWh)	40,320	28,515	
Chiller Operating Hours (Year Round)	1,500	1,500	
Chiller Part Load Hours Est.	700	700	
Chiller IPLV (EER)	8.9	15.0	
Chiller Part Load %	40.0%	40.0%	
Part Load Cooling Energy (kWh)	11,290	6,720	
Elec Cost ($/kWh)	0.143	0.143	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Electric Energy (kWh)	51,610	35,235	16,375
Electric Demand (KW)	33.8	23.9	9.9
Electric Energy Cost ($)	$7,380	$5,039	$2,342
COMMENTS:	Trane Model CGAM030.		

Energy Savings Summary:

ECM #9 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$130,000
NJ Smart Start Equipment Incentive ($):	$510
Net Installation Cost ($):	$129,490
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$2,342
Total Yearly Savings ($/Yr):	$2,342
Estimated ECM Lifetime (Yr):	20
Simple Payback	55.3
Simple Lifetime ROI	-63.8%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$46,840
Internal Rate of Return (IRR)	-8%
Net Present Value (NPV)	($94,646.95)

ECM #10: Boiler Replacement

Description:

The High School has two large H.B. Smith 4500 Mills hot water boilers are 34 years old all with original equipment, which is at the end of its useful life expectancy. While these units are still in operating condition, as they operate beyond their useful life expectancy their overall efficiency will diminish. The two boilers have a rated input capacity of 8,393 MBH fueled by natural gas, one boiler is redundant capacity.

This ECM would replace the two existing boilers with six (6) condensing style boilers rated at 2,000 MBH each. The new boilers would come with hot water reset and outdoor air reset controls to reduce heating water temperature during low load periods.

Energy Savings Calculations / Results:

Energy Savings were calculated utilizing the New Jersey Board of Public Utilities Protocols to Measure Resource Savings dated July 2011. In order to evaluate the gas usage associated with the heating boilers only calculations were performed to estimate the usage of other heating equipment and domestic hot water. Based on the analysis the resultant breakdown of natural gas usage was determined for the facility.

NATURAL GAS USAGE BREAKDOWN	
Description	**therm**
Utility Bill Usage	117,586.0
Domestic Hot Water	13,887.8
Rooftop Units	18,387.3
Heating Boilers	85,310.8

$$\text{Fuel Savings} = \text{Natural Gas Usage} \times \left(1 - \frac{\text{Existing Efficiency}}{\text{Proposed Efficiency}}\right)$$

CONDENSING BOILER CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Existing Cast Iron Boilers	New Condensing Boilers	
Existing Nat Gas (Therms)	85,311		
Boiler Efficiency (%)	69.9%	90.0%	20%
Nat Gas Heat Value (BTU/Therm)	100,000	100,000	
Equivalent Building Heat Usage (MMBTUs)	5,966	5,966	
Gas Cost ($/Therm)	$1.18	$1.18	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Natural Gas Usage (Therms)	85,311	66,291	19,020
Energy Cost ($)	$100,667	$78,223	$22,444
COMMENTS:	Boiler Efficiency Based on age of boiler and IBR Rating		

Energy Savings Summary:

ECM #10 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$555,000
NJ Smart Start Equipment Incentive ($):	$12,000
Net Installation Cost ($):	$543,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$22,444
Total Yearly Savings ($/Yr):	$22,444
Estimated ECM Lifetime (Yr):	25
Simple Payback	24.2
Simple Lifetime ROI	3.3%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$561,092
Internal Rate of Return (IRR)	0%
Net Present Value (NPV)	($152,184.67)

ECM #11: Digital Energy Management System (DDC EMS)

Description:

The High School currently has a pneumatic control system with no front end computer to operate the HVAC systems on in the building. The system also has thermostats in each of the classrooms; however none of the unit ventilators or hydronic baseboard appears to have control valves to modulate heating. The installation of a Central Management System to control the air handlers, fan coils, unit ventilators, exhaust fans, chillers, boilers and pumps could yield significant savings through setback and scheduling capability, and improvement maintenance response time to outages and breakdowns.

This ECM includes installation of a Building Automation system to include control of the HVAC equipment in the facility. The system will include new air handler controls, new thermostats, new unit ventilators/baseboard control valves, exhaust fan on/off controllers, a front end computer and main controller. With the communication between the control devices and the front end computer interface, the facility manager will be able to take advantage of scheduling for occupied and unoccupied periods based on the actual occupancy of each space in the facility. Due to the fact that the facility has diverse hours of occupancy, including evening and weekend activities, having supervisory control over all of the equipment makes sense. The DDC system will also aid in the response time to service / maintenance issues when the facility is not under normal maintenance supervision, i.e. after-hours.

The Central DDC system installation has the potential to provide significant savings by controlling the HVAC systems as a whole and provide operating schedules and features such as space averaging, night set-back, temperature override control, etc. The U.S. Department of Energy sponsored a study to analyze energy savings achieved through various types of building system controls. The referenced savings is based on the "Advanced Sensors and Controls for Building Applications: Market Assessment and Potential R&D Pathways," document posted for public use April 2005. The study has found that commercial buildings have the potential to achieve significant energy savings through the use of building controls. The average energy savings are as follows based on the referenced report:

- Energy Management and Control System Savings: 5%-15%.

Savings resulting from the implementation of this ECM for energy management controls are estimated to be 15% of the electricity and 15% for the gas utility in this building.

The basis for the DDC system expansion is the Andover Energy Management System or similar.

(Note: There are currently no NJ OCE incentives for upgrading to a DDC controls sytem.)

Energy Savings Calculations:

Energy savings for each utility is calculated with the equation below.

Energy Savings (Utility) = Current Energy Consumption × Estimated Savings, %

Following table summarizes energy savings for this facility via implementation of an Energy Management System:

DDC ENERGY MANAGEMENT SYSYEM CALCULATIONS			
ECM INPUTS	**EXISTING**	**PROPOSED**	**SAVINGS**
ECM INPUTS	Existing Controls w/ Local Thermostats	DDC Controls	
Existing Nat Gas Usage (Therms)	103,698	-	
Existing Electricity Usage for HVAC (kWh)	935,519	-	
Energy Savings, Nat. Gas	-	15%	
Energy Savings, Electricity	-	15%	
Gas Cost ($/Therm)	$1.18	$1.18	
Electricity Cost ($/kWh)	$0.143	$0.143	
ENERGY SAVINGS CALCULATIONS			
ECM RESULTS	**EXISTING**	**PROPOSED**	**SAVINGS**
Natural Gas Usage (Therms)	103,698	88,143	15,555
Electricity Usage (kWh)	935,519	795,191	140,328
Natural Gas Cost ($)	$122,364	$104,009	$18,355
Electricity Cost ($)	$133,779	$113,712	$20,067
Energy Cost ($)	$256,143	$217,721	$38,421
COMMENTS:			

Energy Savings Summary:

ECM #11 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$850,000
NJ Smart Start Equipment Incentive ($):	$0
Net Installation Cost ($):	$850,000
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$38,421
Total Yearly Savings ($/Yr):	$38,421
Estimated ECM Lifetime (Yr):	20
Simple Payback	22.1
Simple Lifetime ROI	-9.6%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$768,429
Internal Rate of Return (IRR)	-1%
Net Present Value (NPV)	($278,386.16)

ECM #12: Air Conditioning Unit Upgrades

Description:

The High School has many aging condensing units that are nearing the end of their useful life and much less efficient then what is commercially available today. Nearly all of these units currently operate on refrigerant R-22, which has been phased out of production, which is resulting in an increase cost to recharge existing units.

This ECM includes one-for-one replacement of the older air conditioning units with new higher efficiency systems, additionally the existing line set and cooling coil in the air handling equipment will require replacement to accommodate the new refrigerant. It is recommended the district evaluate the benefit of either replacing only the coil or potentially the entire air handling unit assigned to each condensing unit. A summary of the unit replacements for this ECM can be found in the table below:

IMPLEMENTATION SUMMARY					
ECM INPUTS	**SERVICE FOR**	**NUMBER OF UNITS**	**COOLING CAPACITY, BTU/HR**	**TOTAL CAPACITY, TONS**	**REPLACE UNIT WITH**
A/C #4	Rm 167,168,169	3	24,000	6.0	Trane 4TTB3024
A/C #5	Rm 170	1	48,000	4.0	Trane 4TTB4048
A/C #3	AH-8	1	120,000	10.0	Trane TTA120E3
A/C #7	Instructional Music	1	150,000	12.5	Trane TTA150E3
A/C #2	AH #9	1	42,000	3.5	Trane 4TTB4042
A/C #1	AH #4 Main Office	1	240,000	20.0	Trane TTA240E3
A/C #12	AH #5 Library	1	300,000	25.0	Trane TTA300F3
Total		**9**	**924,000**	**81.0**	

Energy Savings Calculations:

Cooling Energy Savings:

Seasonal energy consumption of the air conditioners in cooling mode is calculated with the equation below:

$$\text{Energy Savings, kWh} = \text{Cooling Capacity,} \frac{\text{BTU}}{\text{Hr}} \times \left(\frac{1}{\text{SEER}_{\text{Old}}} - \frac{1}{\text{SEER}_{\text{New}}} \right) \times \frac{\text{Operation Hours}}{1000 \frac{\text{W}}{\text{kWh}}}$$

$$\text{Demand Savings, kW} = \frac{\text{Energy Savings (kWh)}}{\text{Hours of Cooling}}$$

$$\text{Cooling Cost Savings} = \text{Energy Savings, kWh} \times \text{Cost of Electricity}\left(\frac{\$}{\text{kWh}}\right)$$

ENERGY SAVINGS CALCULATIONS								
ECM INPUTS	COOLING CAPACITY, BTU/Hr	ANNUAL COOLING HOURS	EXISTING UNITS (S)EER	SPLIT UNITS (S)EER	# OF UNITS	ENERGY SAVINGS kWh	DEMAND SAVINGS kW	ENERGY SAVING
A/C #4	24,000	1,131	8.9 EER	11 EER	3	1,747	1.5	$250
A/C #5	48,000	1,131	10 EER	12 EER	1	905	0.8	$129
A/C #3	120,000	1,131	9.2 EER	12.2 EER	1	3,628	3.2	$519
A/C #7	150,000	1,131	8.7 EER	11.7 EER	1	5,000	4.4	$715
A/C #2	42,000	1,131	9.3 EER	12 EER	1	1,149	1.0	$164
A/C #1	240,000	1,131	8.7 EER	12.1 EER	1	8,767	7.8	$1,254
A/C #12	300,000	1,131	8.3 EER	12.4 EER	1	13,517	12.0	$1,933
Total					9	34,712	30.7	$4,964

Energy Savings Summary:

ECM #12 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$250,000
NJ Smart Start Equipment Incentive ($):	$5,888
Net Installation Cost ($):	$244,112
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$4,964
Total Yearly Savings ($/Yr):	$4,964
Estimated ECM Lifetime (Yr):	15
Simple Payback	49.2
Simple Lifetime ROI	-69.5%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$74,460
Internal Rate of Return (IRR)	-12%
Net Present Value (NPV)	($184,852.09)

ECM #13: Lighting Upgrade

Description:

The majority of lighting throughout the High School classrooms and general areas is comprised of T8 fluorescent fixtures with electronic ballasts. The Main Gym consists of six lamp 40 watt biax fluorescent lamp pendant fixtures, the Auxiliary Gym is fitted three lamp 40 watt biax fluorescent lamp pendant fixtures, and the Gym weight room is fitted with four lamp T5 high output linear fluorescent high bays. The Courtyard wall mounted metal halide globe lights that are used for general area lighting. Exterior lighting consists of high pressure sodium wall packs ranging in wattage from 70 to 175 watts.

This ECM includes the following:

- Re-Ballasting, and/or Re-lamping of the existing fixtures containing 32w T8 lamps and electronic ballasts with reduced wattage 28w T8 lamps and high efficiency low power electronic ballasts. The new energy efficient, T8 fixtures will provide adequate lighting and will save the owner on electrical costs due to the better performance of the lamp and ballasts.
- Re-ballasting and re-lamping of remaining fixtures containing T12 lamps and magnetic ballasts to new reduced wattage 28w T8 lamps and high efficiency low power electronic ballasts.
- Replacement of existing Main and Auxiliary Gym fixtures with new four and two lamp T5 high output linear high bay fixtures. This includes improving the fixture layout to reduce the required fixture quantity, while maintaining code required light levels.
- Re-lamp and clean the existing Courtyard metal halide globe lights and install 25 watt LED self-ballasted acorn lamp.
- Replacement of all incandescent lamps to equivalent LED lamps.
- Replacement of all incandescent Exit Signs to LED Exit Signs.
- Replacement of exterior fixtures with low wattage LED equivalent wall packs.

Energy Savings Calculations:

The **Investment Grade Lighting Audit Appendix** outlines the hours of operation, proposed retrofits, costs, savings, and payback periods for each set of fixtures in the building.

Energy Savings Summary:

ECM #13 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$365,833
NJ Smart Start Equipment Incentive ($):	$24,285
Net Installation Cost ($):	$341,548
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$43,509
Total Yearly Savings ($/Yr):	$43,509
Estimated ECM Lifetime (Yr):	15
Simple Payback	7.9
Simple Lifetime ROI	91.1%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$652,636
Internal Rate of Return (IRR)	9%
Net Present Value (NPV)	$177,860.47

ECM #14: Lighting Controls Upgrade – Occupancy Sensors

Description:

Some of the lights in the High School are left on unnecessarily. In many cases the lights are left on because of the inconvenience to manually switch lights off when a room is left or on when a room is first occupied. This is common in rooms that are occupied for only short periods and only a few times per day. In some instances lights are left on due to the misconception that it is better to keep the lights on rather than to continuously switch lights on and off. Although increased switching reduces lamp life, the energy savings outweigh the lamp replacement costs. The payback timeframe for when to turn the lights off is approximately two minutes. If the lights are expected to be off for at least a two minute interval, then it pays to shut them off.

Lighting controls come in many forms. Sometimes an additional switch is adequate to provide reduced lighting levels when full light output is not needed. Occupancy sensors detect motion and will switch the lights on when the room is occupied. Occupancy sensors can either be mounted in place of a current wall switch, or on the ceiling to cover large areas.

The U.S. Department of Energy sponsored a study to analyze energy savings achieved through various types of building system controls. The referenced savings is based on the "Advanced Sensors and Controls for Building Applications: Market Assessment and Potential R&D Pathways," document posted for public use April 2005. The study has found that commercial buildings have the potential to achieve significant energy savings through the use of building controls. The average energy savings are as follows based on the report:

- Occupancy Sensors for Lighting Control 20% - 28% energy savings.

Savings resulting from the implementation of this ECM for energy management controls are estimated to be 20% of the total light energy controlled by occupancy sensors (The majority of the savings is expected to be after school hours when rooms are left with lights on)

This ECM includes installation of ceiling or switch mount sensors for individual offices, storage rooms, classrooms, and bathrooms. Sensors shall be manufactured by Sensorswitch, Watt Stopper or equivalent. The **Investment Grade Lighting Audit Appendix** of this report includes the summary of lighting controls implemented in this ECM and outlines the proposed controls, costs, savings, and payback periods. The calculations adjust the lighting power usage by the applicable percent savings for each area that includes lighting controls.

Energy Savings Calculations:

$$\text{Energy Savings} = \left(\%\ \text{Savings} \times \text{Controlled Light Energy}\ \left(\text{kWh/Yr}\right)\right)$$

$$\text{Savings.} = \text{Energy Savings}\ \left(\text{kWh}\right) \times \text{Ave Elec Cost}\left(\frac{\$}{\text{kWh}}\right)$$

Rebates and Incentives:

From the **NJ Smart Start® Program Incentives Appendix**, the installation of a lighting control device warrants the following incentive:

Smart Start Incentive
= (# Wall mount sensors × $20 per sensor)
+ (# Ceiling mount sensors × $35 per sensor)

Energy Savings Summary:

ECM #14 - ENERGY SAVINGS SUMMARY	
Installation Cost ($):	$45,150
NJ Smart Start Equipment Incentive ($):	$420
Net Installation Cost ($):	$44,730
Maintenance Savings ($/Yr):	$0
Energy Savings ($/Yr):	$4,021
Total Yearly Savings ($/Yr):	$4,021
Estimated ECM Lifetime (Yr):	15
Simple Payback	11.1
Simple Lifetime ROI	34.9%
Simple Lifetime Maintenance Savings	$0
Simple Lifetime Savings	$60,321
Internal Rate of Return (IRR)	4%
Net Present Value (NPV)	$3,277.42

REM #1: 692 kW Solar System

Description:

The Pinelands Regional High School has available parking lot space that could accommodate a significant amount of solar generation. Based on the available areas a 692.4 kilowatt solar array could be installed. The array will produce approximately 827,316 kilowatt-hours annually that will reduce the overall electric usage of the facility by 44%.

Energy Savings Calculations:

See **Renewable / Distributed Energy Measures Calculations Appendix** for detailed financial summary and proposed solar layout areas. Financial results in table below are based on 100% financing of the system over a fifteen year period.

Energy Savings Summary:

REM #1 - ENERGY SAVINGS SUMMARY	
System Size (KW_{DC}):	692.40
Electric Generation (KWH/Yr):	827,316
Installation Cost ($):	$3,201,934
SREC Revenue ($/Yr):	$158,087
Energy Savings ($/Yr):	$118,306
Total Yearly Savings ($/Yr):	$276,394
ECM Analysis Period (Yr):	15
Simple Payback (Yrs):	11.6
Analysis Period Electric Savings ($):	$2,200,367
Analysis Period SREC Revenue ($):	$2,290,085
Net Present Value (NPV)	($308,169.64)

V. ADDITIONAL RECOMMENDATIONS

The following recommendations include no cost/low cost measures, Operation & Maintenance (O&M) items, and water conservation measures with attractive paybacks. These measures are not eligible for the Smart Start Buildings incentives from the office of Clean Energy but save energy none the less.

A. Chemically clean the condenser and evaporator coils periodically to optimize efficiency. Poorly maintained heat transfer surfaces can reduce efficiency 5-10%.

B. Maintain all weather stripping on windows and doors.

C. Clean all light fixtures to maximize light output.

D. Provide more frequent air filter changes to decrease overall system power usage and maintain better IAQ.

E. Turn off computers when not in use. Ensure computers are not running in screen saver mode.

F. Ensure outside air dampers are functioning properly and only open during occupied mode.

G. Replacement of older CRT style monitors with newer LCD/LED style monitors. Older CRT style monitors use up to four times more energy than LCD/LED monitor types.

H. Remind Staff to turn off Classroom Televisions after use and at the end of the day.

I. The District should consider the installation of advanced power strips in classrooms that can be used to charge tablet and laptop computers in order to reduce the amount of idle power draw from these devices. (Smart Power Strips Model LPG3, Price ~$30)

J. Educate staff and students on awareness of wasteful energy practices such as leaving lights on unnecessarily, leaving on of non-essential computer and/or equipment at the end of the day, leaving of outside doors/windows open as a means to control room temperature, etc.

APPENDIX A

ECM COST & SAVINGS BREAKDOWN

CONCORD ENGINEERING GROUP

Pinelands Regional School District - High School

ECM ENERGY AND FINANCIAL COSTS AND SAVINGS SUMMARY															
ECM NO.	DESCRIPTION	INSTALLATION COST				YEARLY SAVINGS			ECM LIFETIME	LIFETIME ENERGY SAVINGS	LIFETIME MAINTENANCE SAVINGS	LIFETIME ROI	SIMPLE PAYBACK	INTERNAL RATE OF RETURN (IRR)	NET PRESENT VALUE (NPV)
		MATERIAL	LABOR	REBATES, INCENTIVES	NET INSTALLATION COST	ENERGY	MAINT. / SREC	TOTAL		(Yearly Saving * ECM Lifetime)	(Yearly Maint Svaing * ECM Lifetime)	(Lifetime Savings - Net Cost) / (Net Cost)	(Net cost / Yearly Savings)	$\sum_{n=0}^{N} \frac{C_n}{(1+IRR)^n}$	$\sum_{n=0}^{N} \frac{C_n}{(1+DR)^n}$
		($)	($)	($)	($)	($/Yr)	($/Yr)	($/Yr)	(Yr)	($)	($)	(%)	(Yr)	($)	($)
ECM #1	Vending Miser	$1,000	$500	$0	$1,500	$1,428	$0	$1,428	10	$14,280	$0	852.0%	1.1	95.08%	$10,681.13
ECM #2	Refrigerator Replacement	$3,450	$0	$0	$3,450	$564	$0	$564	10	$5,640	$0	63.5%	6.1	10.10%	$1,361.03
ECM #3	Clothes Washer Replacement	$700	$0	$0	$700	$145	$0	$145	10	$1,450	$0	107.1%	4.8	16.03%	$536.88
ECM #4	Walk-In Evaporator Controls	$2,500	$750	$225	$3,025	$445	$0	$445	10	$4,450	$0	47.1%	6.8	7.71%	$770.94
ECM #5	Kitchen Hood Controls	$17,000	$16,000	$675	$32,325	$2,504	$0	$2,504	15	$37,560	$0	16.2%	12.9	1.94%	($2,432.41)
ECM #6	Kitchen Equipment Gas Conversion	$75,000	$40,000	$3,748	$111,252	$2,111	$0	$2,111	15	$31,665	$0	-71.5%	52.7	-12.73%	($86,051.02)
ECM #7	Premium Efficiency Motors	$30,000	$15,000	$0	$45,000	$1,501	$0	$1,501	18	$27,018	$0	-40.0%	30.0	-4.89%	($24,355.98)
ECM #8	VFD Air Handler Fans	$95,000	$108,000	$3,332	$199,668	$14,915	$0	$14,915	15	$223,725	$0	12.0%	13.4	1.46%	($21,613.70)
ECM #9	AC#1 Chiller Replacement	$60,000	$70,000	$510	$129,490	$2,342	$0	$2,342	20	$46,840	$0	-63.8%	55.3	-8.20%	($94,646.95)
ECM #10	Boiler Replacement	$245,000	$310,000	$12,000	$543,000	$22,444	$0	$22,444	25	$561,092	$0	3.3%	24.2	0.25%	($152,184.67)
ECM #11	DDC Control System	$600,000	$250,000	$0	$850,000	$38,421	$0	$38,421	20	$768,429	$0	-9.6%	22.1	-1%	($278,386.16)
ECM #12	Condensing Unit Replacement	$105,000	$145,000	$5,888	$244,112	$4,964	$0	$4,964	15	$74,460	$0	-69.5%	49.2	-12.14%	($184,852.09)
ECM #13	Lighting Upgrade	$178,753	$187,080	$24,285	$341,548	$43,509	$0	$43,509	15	$652,636	$0	91.1%	7.9	9.45%	$177,860.47
ECM #14	Lighting Controls	$35,700	$9,450	$420	$44,730	$4,021	$0	$4,021	15	$60,321	$0	34.9%	11.1	3.99%	$3,277.42
REM RENEWABLE ENERGY AND FINANCIAL COSTS AND SAVINGS SUMMARY															
REM #1	692 kW Solar Array	$1,921,160	$1,280,774	$0	$3,201,934	$118,306	$158,087	$276,394	20	$5,527,870	$3,161,746	72.6%	11.6	5.88%	$910,103.41

Notes:
1) The variable Cn in the formulas for Internal Rate of Return and Net Present Value stands for the cash flow during each period.
2) The variable DR in the NPV equation stands for Discount Rate
3) For NPV and IRR calculations: From n=0 to N periods where N is the *lifetime of ECM* and Cn is the *cash flow during each period* .

APPENDIX B

Concord Engineering Group, Inc.

520 BURNT MILL ROAD
VOORHEES, NEW JERSEY 08043
PHONE: (856) 427-0200
FAX: (856) 427-6508

SmartStart Building Incentives

The NJ SmartStart Buildings Program offers financial incentives on a wide variety of building system equipment. The incentives were developed to help offset the initial cost of energy-efficient equipment. The following tables show the current available incentives as of February 11, 2013:

Electric Chillers

Water-Cooled Chillers	$16 - $170 per ton
Air-Cooled Chillers	$8 - $52 per ton

Energy Efficiency must comply with ASHRAE 90.1-2007

Gas Cooling

Gas Absorption Chillers	$185 - $400 per ton
Gas Engine-Driven Chillers	Calculated through custom measure path)

Desiccant Systems

$1.00 per cfm – gas or electric

Electric Unitary HVAC

Unitary AC and Split Systems	$73 - $92 per ton
Air-to-Air Heat Pumps	$73 - $92 per ton
Water-Source Heat Pumps	$81 per ton
Packaged Terminal AC & HP	$65 per ton
Central DX AC Systems	$40- $72 per ton
Dual Enthalpy Economizer Controls	$250
Occupancy Controlled Thermostat (Hospitality & Institutional Facility)	$75 per thermostat
A/C Economizing Controls	≤ 5 tons $85/unit; >5 tons $170/unit

Energy Efficiency must comply with ASHRAE 90.1-2007

Gas Heating

Gas Fired Boilers < 300 MBH	$2.00 per MBH, but not less than $300 per unit
Gas Fired Boilers ≥ 300 - 1500 MBH	$1.75 per MBH
Gas Fired Boilers ≥1500 - ≤ 4000 MBH	$1.00 per MBH
Gas Fired Boilers > 4000 MBH	(Calculated through Custom Measure Path)
Gas Furnaces	$400 per unit, AFUE ≥ 95%
Boiler Economizing Controls	$1,200 - $2,700
Low Intensity Infrared Heating	$300 - $500 per unit

Ground Source Heat Pumps

Closed Loop	$450 per ton, EER ≥ 16 $600 per ton, EER ≥ 18 $750 per ton, EER ≥ 20

Energy Efficiency must comply with ASHRAE 90.1-2007

Variable Frequency Drives

Variable Air Volume	$65 - $155 per hp
Chilled-Water Pumps	$60 per VFD rated hp
Compressors	$5,250 to $12,500 per drive
Cooling Towers ≥ 10 hp	$60 per VFD rated hp
Boiler Fans ≥ 5 HP	$65 to $155 per hp
Boiler Feed Water Pumps ≥ 5 HP	$60 to $155 per hp
Commercial Kitchen Hood up to 50 HP	Retrofit $55 – $300 per hp New Hood $55 - $250 per hp

Natural Gas Water Heating

Gas Water Heaters ≤ 50 gallons, 0.67 energy factor or better	$50 per unit
Gas-Fired Water Heaters > 50 gallons	$1.00 - $2.00 per MBH
Gas-Fired Booster Water Heaters	$17 - $35 per MBH
Gas Fired Tankless Water Heaters	$300 per unit

Prescriptive Lighting

Retro fit of T12 to T-5 or T-8 Lamps w/Electronic Ballast in Existing Facilities (Expires 3/1/2013)	$10 per fixture (1-4 lamps)
Replacement of T12 with new T-5 or T-8 Lamps w/Electronic Ballast in Existing Facilities (Expires 3/1/2013)	$25 per fixture (1-4 lamps)
T-8 reduced Wattage (28w/25w 4', 1-4 lamps) Lamp & ballast replacement	$10 per fixture
For retrofit of T-8 fixtures by permanent de-lamping & new reflectors (Electronic ballast replacement required)	$15 per fixture
T-5 and T-8 High Bay Fixtures	$16 - $200 per fixture
Metal Halide w/Pulse Start Including Parking Lot	$25 per fixture
HID ≥ 100w Retrofit with induction lamp, power coupler and generator (must be 30% less watts/fixture than HID system)	$50 per fixture
HID ≥ 100w Replacement with new HID ≥ 100w	$70 per fixture

Prescriptive Lighting - LED

LED Display Case Lighting	$30 per display case
LED Shelf-Mtd. Display & Task Lights	$15 per linear foot
LED Portable Desk Lamp	$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 Luminaries	$175 per fixture
LED Outdoor Pole/Arm-Mounted Decorative Luminaries	$175 per fixture
LED Outdoor Wall-Mounted Area Luminaries	$100 per fixture
LED Parking Garage Luminaries	$100 per fixture
LED Track or Mono-Point Directional Lighting Fixtures	$50 per fixture
LED High-Bay and Low-Bay Fixtures for Commercial & Industrial Bldgs.	$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)	$100 per fixture
LED Fuel Pump Canopy	$100 per fixture
LED Screw-based & Pin-based (PAR, MR, BR, R) Standards (A-Style) and Decorative Lamps	$20 per lamp
LED Refrigerator/Freezer case lighting replacement of fluorescent in medium and low temperature display case	$30 per 4 foot $42 per 5 foot $65 per 6 foot
LED Retrofit Kits	To be evaluated through the customer measure path

Lighting Controls – Occupancy Sensors

Wall Mounted	$20 per control
Remote Mounted	$35 per control
Daylight Dimmers	$25-$50 per fixture
Occupancy Controlled hi-low Fluorescent Controls	$25 per fixture controlled

Lighting Controls – HID or Fluorescent Hi-Bay Controls

Occupancy hi-low	$75 per fixture controlled
Daylight Dimming	$75 per fixture controlled

Premium Motors

Three-Phase Motors (Expires 3/1/2013)	$45 - $700 per motor
Fractional HP Motors Electronic Commutated Motors (replacing shaded pole motors in refrigerator/freezer cases)	$40 per electronic commutated motor

Refrigeration Doors/Covers

Energy-Efficient Doors/Covers for Installation on Open Refrigerated Cases	$100 per door
Aluminum Night Curtains for Installation on Open Refrigerated Cases	$3.50 per linear foot

Refrigeration Controls

Door Heater Controls	$50 per control
Electric Defrost Controls	$50 per control
Evaporator Fan Controls	$75 per control
Novelty Cooler Shutoff	$50 per control

Other Equipment Incentives

Performance Lighting	$1.00 per watt per SF below program incentive threshold, currently 5% more energy efficient than ASHRAE 90.1-2007 for New Construction and Complete Renovation
Custom Electric and Gas Equipment Incentives	not prescriptive
Custom Measures	$0.16 KWh and $1.60/Therm of 1st year savings, or a buy down to a 1 year payback on estimated savings. Minimum required savings of 75,000 KWh or 1,500 Therms and an IRR of at least 10%.

APPENDIX C

OMB No. 2060-0347

STATEMENT OF ENERGY PERFORMANCE
Pinelands Regional - High School

Building ID: 3509168
For 12-month Period Ending: June 30, 2011[1]
Date SEP becomes ineligible: N/A
Date SEP Generated: May 17, 2013

Facility
Pinelands Regional - High School
565 Nugentown Road
Little Egg Harbor, NJ 08087

Facility Owner
Pinelands Regional School District
520 Nugentown Road PO Box 248
Little Egg Harbor, NJ 08087

Primary Contact for this Facility
N/A

Year Built: 1979
Gross Floor Area (ft²): 219,000

Energy Performance Rating[2] (1-100) 48

Site Energy Use Summary[3]

Electricity - Grid Purchase(kBtu)	6,876,460
Natural Gas (kBtu)[4]	12,214,458
Total Energy (kBtu)	19,090,918

Energy Intensity[4]

Site (kBtu/ft²/yr)	87
Source (kBtu/ft²/yr)	163

Emissions (based on site energy use)

Greenhouse Gas Emissions ($MtCO_2e$/year)	1,624

Electric Distribution Utility
Atlantic City Electric Co [Pepco Holdings Inc]

National Median Comparison

National Median Site EUI	86
National Median Source EUI	161
% Difference from National Median Source EUI	2%
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.

Certifying Professional
N/A

Meets Industry Standards[5] **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.

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	☑
Building Name	Pinelands Regional - High School	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?		☐
Type	K-12 School	Is this an accurate description of the space in question?		☐
Location	565 Nugentown Road, Little Egg Harbor, NJ 08087	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		☐
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.		☐
High School (K-12 School)				
CRITERION	**VALUE AS ENTERED IN PORTFOLIO MANAGER**	**VERIFICATION QUESTIONS**	**NOTES**	☑
Gross Floor Area	219,000 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.		☐
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.		☐
Number of PCs	235	Is this the number of personal computers in the K12 School?		☐
Number of walk-in refrigeration/freezer units	2	Is this the total number of commercial walk-in type freezers and coolers? These units are typically found in storage and receiving areas.		☐
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".		☐
Percent Cooled	50 %	Is this the percentage of the total floor space within the facility that is served by mechanical cooling equipment?		☐
Percent Heated	100 %	Is this the percentage of the total floor space within the facility that is served by mechanical heating equipment?		☐
Months	10(Optional)	Is this school in operation for at least 8 months of the year?		☐

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'.		

ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Atlantic City Electric Co [Pepco Holdings Inc]

Fuel Type: Electricity		
Meter: Electric (kWh (thousand Watt-hours)) **Space(s):** Entire Facility **Generation Method:** Grid Purchase		
Start Date	**End Date**	**Energy Use (kWh (thousand Watt-hours))**
06/01/2011	06/30/2011	197,228.00
05/01/2011	05/31/2011	125,938.00
04/01/2011	04/30/2011	145,091.00
03/01/2011	03/31/2011	159,406.00
02/01/2011	02/28/2011	152,097.00
01/01/2011	01/31/2011	164,240.00
12/01/2010	12/31/2010	158,155.00
11/01/2010	11/30/2010	156,146.00
10/01/2010	10/31/2010	186,710.00
09/01/2010	09/30/2010	193,467.00
08/01/2010	08/31/2010	174,214.00
07/01/2010	07/31/2010	165,524.00
Electric Consumption (kWh (thousand Watt-hours))		**1,978,216.00**
Electric Consumption (kBtu (thousand Btu))		**6,749,672.99**
Meter: Annex Electric (kWh (thousand Watt-hours)) **Space(s):** Entire Facility **Generation Method:** Grid Purchase		
Start Date	**End Date**	**Energy Use (kWh (thousand Watt-hours))**
06/01/2011	06/30/2011	2,554.00
05/01/2011	05/31/2011	2,537.00
04/01/2011	04/30/2011	3,185.00
03/01/2011	03/31/2011	3,507.00
02/01/2011	02/28/2011	3,579.00
01/01/2011	01/31/2011	3,892.00
12/01/2010	12/31/2010	3,840.00
11/01/2010	11/30/2010	3,100.00
10/01/2010	10/31/2010	3,338.00
09/01/2010	09/30/2010	2,485.00
08/01/2010	08/31/2010	2,444.00
07/01/2010	07/31/2010	2,698.00
Annex Electric Consumption (kWh (thousand Watt-hours))		**37,159.00**

Annex Electric Consumption (kBtu (thousand Btu))	**126,786.51**
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))	**6,876,459.50**
Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?	☐

Fuel Type: Natural Gas

Meter: Gas (therms)
Space(s): Entire Facility

Start Date	End Date	Energy Use (therms)
06/01/2011	06/30/2011	462.77
05/01/2011	05/31/2011	602.36
04/01/2011	04/30/2011	1,007.57
03/01/2011	03/31/2011	15,706.71
02/01/2011	02/28/2011	24,896.99
01/01/2011	01/31/2011	22,676.69
12/01/2010	12/31/2010	29,741.04
11/01/2010	11/30/2010	16,871.89
10/01/2010	10/31/2010	8,828.10
09/01/2010	09/30/2010	580.03
08/01/2010	08/31/2010	419.19
07/01/2010	07/31/2010	351.24

Gas Consumption (therms)	**122,144.58**
Gas Consumption (kBtu (thousand Btu))	**12,214,458.00**
Total Natural Gas Consumption (kBtu (thousand Btu))	**12,214,458.00**
Is this the total Natural Gas consumption at this building including all Natural Gas meters?	☐

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.	☐

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.	☐

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
Pinelands Regional - High School
565 Nugentown Road
Little Egg Harbor, NJ 08087

Facility Owner
Pinelands Regional School District
520 Nugentown Road PO Box 248
Little Egg Harbor, NJ 08087

Primary Contact for this Facility
N/A

General Information

Pinelands Regional - High School	
Gross Floor Area Excluding Parking: (ft^2)	219,000
Year Built	1979
For 12-month Evaluation Period Ending Date:	June 30, 2011

Facility Space Use Summary

High School	
Space Type	K-12 School
Gross Floor Area (ft^2)	219,000
Open Weekends?	Yes
Number of PCs	235
Number of walk-in refrigeration/freezer units	2
Presence of cooking facilities	Yes
Percent Cooled	50
Percent Heated	100
Months ◦	10
High School?	Yes
School District ◦	Pinelands Regional

Energy Performance Comparison

	Evaluation Periods		Comparisons		
Performance Metrics	**Current** (Ending Date 06/30/2011)	**Baseline** (Ending Date 06/30/2011)	**Rating of 75**	**Target**	**National Median**
Energy Performance Rating	48	48	75	N/A	50
Energy Intensity					
Site (kBtu/ft²)	87	87	67	N/A	86
Source (kBtu/ft²)	163	163	126	N/A	161
Energy Cost					
$/year	N/A	N/A	N/A	N/A	N/A
$/ft²/year	N/A	N/A	N/A	N/A	N/A
Greenhouse Gas Emissions					
$MtCO_2e$/year	1,624	1,624	1,249	N/A	1,597
$kgCO_2e/ft^2$/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.

APPENDIX D

MAJOR EQUIPMENT LIST

Concord Engineering Group

Pinelands Regional High School

AHUs

Tag	UV	AH-1	AH-5
Unit Type	Horizontal Unit Ventilator	Climate Changer	Climate Changer
Qty		1	1
Location	Classroom	1R Electric Room	Mech Room Lvl-2 Media
Area Served	Classroom		Library
Manufacturer	Trane	Trane	Trane
Model #	TUVA15VH5AS11SL 63G18	CC Type M-6 B	CC Type M-14 B
Serial #	S78H-11704	K78K45821	K78L45823
Cooling Type	N/A	Chilled Water	DX
Cooling Capacity (Tons)	N/A	7.5	10
Cooling Efficiency (SEER/EER)	N/A	-	
Heating Type	Hot Water	Hot Water	Hot Water
Heating Input (MBH)	15	80	210
Efficiency	N/A	-	-
Fuel	N/A	N/A	N/A
Approx Age	35	35	35
ASHRAE Service Life	40	40	40
Remaining Life	5	5	5
Comments		1.5 HP SF, No VFD, 3-Way Valves	7.5 HP SF, No VFD, 3-Way Valve

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

AHUs

Tag	AH-19	AH-6, 7	AH-9
Unit Type	Climate Changer	Climate Changer	Climate Changer
Qty	1	2	1
Location	Café' Mezzanine	Café' Mezzanine	176 Print Room
Area Served	Courtyard	Cafeteria	Dark Room
Manufacturer	Trane	Trane	Trane
Model #	CC Type L-12 B	T-17	-
Serial #	K78L45839	K78K48529	-
Cooling Type	N/A	N/A	DX
Cooling Capacity (Tons)	N/A	N/A	3
Cooling Efficiency (SEER/EER)	N/A	N/A	
Heating Type	Hot Water	Hot Water	Hot Water
Heating Input (MBH)	1200	300	50
Efficiency	-	-	-
Fuel	N/A	N/A	N/A
Approx Age	35	35	35
ASHRAE Service Life	40	40	40
Remaining Life	5	5	5
Comments	5 HP SF, No VFD, 3-Way Valve	7.5 HP SF, No VFD, 3-Way Valve	1 HP SF

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

AHUs

Tag	AH-14	AH-21	AH-11
Unit Type	Climate Changer	Climate Changer	Climate Changer
Qty	1	1	1
Location	Mezzanine Mech	Mezzanine Mech	Wood Shop
Area Served	Vocal Music	Music Offices	Wood Shop
Manufacturer	Trane	Trane	Trane
Model #	CC Type L-8 B	CC Type M-6 B	-
Serial #	K78L45825	K78L45826	-
Cooling Type	DX	DX	N/A
Cooling Capacity (Tons)	10	5	N/A
Cooling Efficiency (SEER/EER)			N/A
Heating Type	Hot Water	Hot Water	Hot Water
Heating Input (MBH)	110	60	170
Efficiency	-	-	-
Fuel	N/A	N/A	N/A
Approx Age	35	35	35
ASHRAE Service Life	40	40	40
Remaining Life	5	5	5
Comments	3 HP SF, No VFD, 3-Way Valve	2 HP SF, No VFD, 3-Way Valve	

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

AHUs

Tag	AH-12	AH-13	AH-17, 18
Unit Type	Climate Changer	Climate Changer	Climate Changer
Qty	1	1	2
Location	Autorshop	Stage Mezzanine	Stage Mezzanine
Area Served	Autorshop	Instrumental Music	Auditorium
Manufacturer	Trane	Trane	Trane
Model #	-	CC Type L-10 B	-
Serial #	-	K78L45824	-
Cooling Type	N/A	DX	DX
Cooling Capacity (Tons)	N/A	12.5	24
Cooling Efficiency (SEER/EER)	N/A		
Heating Type	Hot Water	Hot Water	Hot Water
Heating Input (MBH)	300	150	200
Efficiency	-	-	-
Fuel	N/A	N/A	N/A
Approx Age	35	35	35
ASHRAE Service Life	40	40	40
Remaining Life	5	5	5
Comments		3 HP SF, No VFD, 3-Way Valve	

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

AHUs

Tag	HV-3	AH-2	AH-3
Unit Type	Heating & Ventilating	Climate Changer	Climate Changer
Qty	1	4	2
Location	Classoom Extension	Gymnasium	Aux Gym & Weight Room
Area Served	Classoom Extension	Gymnasium	Aux Gym & Weight Room
Manufacturer	-	Trane	Trane
Model #	-	CC Type	CC Type
Serial #	-	-	-
Cooling Type	-	N/A	N/A
Cooling Capacity (Tons)	-	N/A	N/A
Cooling Efficiency (SEER/EER)	-	N/A	N/A
Heating Type	Hot Water	Hot Water	Hot Water
Heating Input (MBH)	-	155	220
Efficiency	-	-	-
Fuel	N/A	N/A	N/A
Approx Age	14	35	35
ASHRAE Service Life	20	40	40
Remaining Life	6	5	5
Comments			

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

AHUs

Tag	AH-4	AH-8	AH-10
Unit Type	Climate Changer	Climate Changer	Climate Changer
Qty	1	1	1
Location	Main Office	D170 Ceiling	Upper Metal Shop
Area Served	Main Office	Child Study Team	Metal Shop
Manufacturer	Trane	Trane	Trane
Model #	CC Type	CC Type	CC Type
Serial #	-	-	-
Cooling Type	DX	DX	N/A
Cooling Capacity (Tons)	18	10	N/A
Cooling Efficiency (SEER/EER)			N/A
Heating Type	Hot Water	Hot Water	Hot Water
Heating Input (MBH)	260	150	170
Efficiency	-	-	-
Fuel	N/A	N/A	N/A
Approx Age	35	35	35
ASHRAE Service Life	40	40	40
Remaining Life	5	5	5
Comments			

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

AHUs

Tag	AH-15	AH-16	AH-22
Unit Type	Climate Changer	Climate Changer	Climate Changer
Qty	1	1	1
Location	Stage	Stage	Classroom A-139
Area Served	Stage	Stage	Classroom A-139
Manufacturer	Trane	Trane	Trane
Model #	CC Type	CC Type	CC Type
Serial #	-	-	-
Cooling Type	DX	DX	DX (Dry-Cooler)
Cooling Capacity (Tons)	12.5	14	8
Cooling Efficiency (SEER/EER)			
Heating Type	Hot Water	Hot Water	Electric
Heating Input (MBH)	150	150	-
Efficiency	-	-	-
Fuel	N/A	N/A	N/A
Approx Age	35	35	35
ASHRAE Service Life	40	40	40
Remaining Life	5	5	5
Comments			Premium Motor

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

AHUs

Tag	AH-20	FC-1	FC-2
Unit Type	Climate Changer	Fan Coil	Fan Coil
Qty	1	3	9
Location		Faculty Office A Floor 1, 2, 3	Faculty Room A, SGI-A Floors 1, 2, 3
Area Served		Faculty Office A Floor 1, 2, 3	Faculty Room A, SGI-A Floors 1, 2, 3
Manufacturer	Trane	-	
Model #	CC Type	-	
Serial #	-	-	
Cooling Type	CHW	CHW	CHW
Cooling Capacity (Tons)	18	1	1.75
Cooling Efficiency (SEER/EER)		N/A	N/A
Heating Type	N/A	N/A	N/A
Heating Input (MBH)	N/A	N/A	N/A
Efficiency	N/A	N/A	N/A
Fuel	N/A	N/A	N/A
Approx Age	35	35	35
ASHRAE Service Life	40	40	40
Remaining Life	5	5	5
Comments			

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

MAJOR EQUIPMENT LIST

Concord Engineering Group

Pinelands Regional High School

Boilers

Tag	B-1, 2	B-3, 4	
Unit Type	Cast Iron Sectional (20)	Cast Iron	
Qty	2	2	
Location	Boiler Room	Classroom Exstention	
Area Served	Whole Building	Classroom Exstention	
Manufacturer	H.B. Smith	Weil McLain	
Model #	LO/G/GLO-4500 Mills	GV-6	
Serial #		-	
Input Capacity (Btu/Hr)	8,393	175,000	
Rated Output Capacity (Btu/Hr)	5,870	133,000	
Approx. Efficiency %	69.9%	76.0%	
Fuel	Natural Gas	Natural Gas	
Approx Age	34	14	
ASHRAE Service Life	30	25	
Remaining Life	(4)	11	
Comments	5 HP, IC Burner		

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

MAJOR EQUIPMENT LIST

Concord Engineering Group

Pinelands Regional High School

Chiller / Condensing Units

Tag	CU-1	A/C #8	CU-?
Unit Type	Condensing Unit	Condensing Unit	Condensing Unit
Qty	1	1	2
Location	3rd Floor Roof	Side Roof	Side Roof
Area Served		AH-21 Music Offices	
Manufacturer	ICP	ICP	Thermal Zone
Model #	N2A036ALA2	ACC060LA	TZAA-360-DA757
Serial #	X062782516	E032723931	8379W261210258
Refrigerant	R-22	R-22	R-22
Cooling Capacity (Tons)	3	5	5
Cooling Efficiency (KW/Ton)	12 SEER	10 SEER	13 SEER
Volts / Phase / Hz	460/60/3	460/60/3	460/60/3
Fuel	Electric	Electric	Electric
Chilled Water GPM / ΔT	N/A	N/A	N/A
Condenser Water GPM / ΔT	N/A	N/A	N/A
Approx Age	7	10	1
ASHRAE Service Life	15	15	15
Remaining Life	8	5	14
Comments			

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

Chiller / Condensing

Tag	A/C #4	A/C #5	A/C #3
Unit Type	Condensing Unit	Condensing Unit	Condensing Unit
Qty	3	1	1
Location	Side Roof	Side Roof	Side Roof
Area Served	Room #167, 168, 169	Room #170 Mech Dwg	AH-8 Room #170
Manufacturer	Trane	Trane	Trane
Model #	RAUC-202-A	RAUC-404A	RAUA-1004-C
Serial #	78F-23429	78C-22815	-
Refrigerant	R-22	R-22	R-22
Cooling Capacity (Tons)	2	4	10
Cooling Efficiency (KW/Ton)	1.34 kW/ton	1.19 kW/ton	1.3 kW/ton
Volts / Phase / Hz	208-230/60/1	460/60/3	208-230/60/3
Fuel	Electric	Electric	Electric
Chilled Water GPM / ΔT	N/A	N/A	N/A
Condenser Water GPM / ΔT	N/A	N/A	N/A
Approx Age	35	35	35
ASHRAE Service Life	15	15	15
Remaining Life	(20)	(20)	(20)
Comments			

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

Chiller / Condensing

Tag	Chiller- Aud	A/C #7	A/C #6
Unit Type	Condensing Unit	Condensing Unit	Condensing Unit
Qty	2	1	1
Location	Side Roof	Front Roof	Front Roof
Area Served	Auditorium North & South	Instructional Music	Room #164
Manufacturer	Trane	Trane	Trane
Model #	RAUCC504BY100B	RAUA-1254-A	2TTA3030A3000AA
Serial #	C05E0406	C78F-1207	9030A3000AA
Refrigerant	R-22	R-22	R-22
Cooling Capacity (Tons)	50	12.5	2.5
Cooling Efficiency (KW/Ton)	1.11 kW/ton	1.3 kW/ton	13 SEER
Volts / Phase / Hz	460/3/60	460/3/60	208-230/60/3
Fuel	Electric	Electric	Electric
Chilled Water GPM / ΔT	N/A	N/A	N/A
Condenser Water GPM / ΔT	N/A	N/A	N/A
Approx Age	13	13	4
ASHRAE Service Life	15	15	15
Remaining Life	2	2	11
Comments			

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

Chiller / Condensing

Tag	A/C #2	CU-?	A/C #1
Unit Type	Condensing Unit	Condensing Unit	Condensing Unit
Qty	1	1	1
Location	Front Roof	Front Roof	Front Roof
Area Served	AH #9 RM #176		AH #4 Main Office
Manufacturer	Trane	ICP	Trane
Model #	RAUC-356-A	ACC060LCA	RAUA-2004-MC
Serial #	78B-16109	E041238309	78F-18665
Refrigerant	R-22	R-22	R-22
Cooling Capacity (Tons)	3.5	5	20
Cooling Efficiency (KW/Ton)	1.28 kW/ton	1.10 kW/ton	1.37 kW/ton
Volts / Phase / Hz	208-230/60/3	460/60/3	460/60/3
Fuel	Electric	Electric	Electric
Chilled Water GPM / ΔT	N/A	N/A	N/A
Condenser Water GPM / ΔT	N/A	N/A	N/A
Approx Age	35	9	35
ASHRAE Service Life	15	15	15
Remaining Life	(20)	6	(20)
Comments			

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

Chiller / Condensing

Tag	A/C #12	Dry Cooler	AC-#1
Unit Type	Condensing Unit	Dry Cooler	Air Cooled Chiller
Qty	1	1	1
Location	Rear Roof	Rear Roof	Upper Roof
Area Served	AH #5 Library	AH #22	AH #1 Offices 1, 2, 3 Flr
Manufacturer	Trane	Trane	Trane
Model #	RAUA-2504-MC	DAUA-0754-0A	CGAA0301MC51CC5 C4G361A
Serial #	77K-14990	77L-12468	L78J16783
Refrigerant	R-22	R-22	R-22
Cooling Capacity (Tons)	25		30
Cooling Efficiency (KW/Ton)	1.44 kW/ton		1.68 kW/ton
Volts / Phase / Hz	460/60/3	460/60/3	460/60/3
Fuel	Electric	Electric	Electric
Chilled Water GPM / ΔT	N/A	N/A	-
Condenser Water GPM / ΔT	N/A	N/A	-
Approx Age	35	35	35
ASHRAE Service Life	15	15	15
Remaining Life	(20)	(20)	(20)
Comments			

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

MAJOR EQUIPMENT LIST

Concord Engineering Group

Pinelands Regional High School

Rooftop Units

Tag	RTU-6	RTU-2	RTU-1
Unit Type	Rooftop	Rooftop	Rooftop
Qty	1	1	1
Location	3rd Floor Roof	3rd Floor Roof	3rd Floor Roof
Area Served	Classroom	Classroom	Classroom
Manufacturer	Trane	Trane	Trane
Model #	YSC072A4RHA	YSC092A4RHA	YSC092ARNA
Serial #	533101705L	525100307L	525100375L
Cooling Type	DX	DX	DX
Cooling Capacity (Tons)	6	7.5	7.5
Cooling Efficiency (SEER/EER)			
Heating Type	Fuel Fired Furnace	Fuel Fired Furnace	Fuel Fired Furnace
Heating Input (MBH)	150	200	200
Efficiency	80%	80%	80%
Fuel	Natural Gas	Natural Gas	Natural Gas
Approx Age	8	8	8
ASHRAE Service Life	15	15	15
Remaining Life	7	7	7
Comments	2 HP SF, Economizer	3 HP SF, Economizer	3 HP SF, Economizer

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

Rooftop Units

Tag	RTU-3	RTU-4	RTU-5
Unit Type	Rooftop	Rooftop	Rooftop
Qty	1	1	1
Location	3rd Floor Roof	3rd Floor Roof	3rd Floor Roof
Area Served	Classroom		
Manufacturer	Trane	Trane	Trane
Model #	YSC092A4RHA	YSC092A4RHA	YSC072A4RHA
Serial #	525100032L	524102471L	533101629L
Cooling Type	DX	DX	DX
Cooling Capacity (Tons)	7.5	7.5	6.0
Cooling Efficiency (SEER/EER)			
Heating Type	Fuel Fired Furnace	Fuel Fired Furnace	Fuel Fired Furnace
Heating Input (MBH)	200	200	150
Efficiency	80%	80%	80%
Fuel	Natural Gas	Natural Gas	Natural Gas
Approx Age	8	8	8
ASHRAE Service Life	15	15	15
Remaining Life	7	7	7
Comments	3 HP SF, Economizer	3 HP SF, Economizer	2 HP SF, Economizer

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

Rooftop Units

Tag	CU-1	H&V-1	A/C #3
Unit Type	Rooftop	Rooftop	AC Only Roofotp
Qty	1	1	1
Location	3rd Floor Roof	Kitchen Roof	Side Roof
Area Served		Kitchen	Youth Services
Manufacturer	ICP	Trane	AircoAire
Model #	N2A036ALA2	GRAA40PFHF0	AMA036H1
Serial #	X062782516	F08F505612	5000017
Cooling Type	DX	N/A	DX
Cooling Capacity (Tons)	3	N/A	3
Cooling Efficiency (SEER/EER)		N/A	10 SEER
Heating Type	N/A	Fuel Fired Furnace	N/A
Heating Input (MBH)	N/A	400	N/A
Efficiency	N/A	80%	N/A
Fuel	N/A	Natural Gas	N/A
Approx Age	7	5	13
ASHRAE Service Life	15	15	15
Remaining Life	8	10	2
Comments	460V 3P	3 HP	

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

Rooftop Units

Tag	
Unit Type	
Qty	
Location	
Area Served	
Manufacturer	
Model #	
Serial #	
Cooling Type	
Cooling Capacity (Tons)	
Cooling Efficiency (SEER/EER)	
Heating Type	
Heating Input (MBH)	
Efficiency	
Fuel	
Approx Age	
ASHRAE Service Life	
Remaining Life	
Comments	

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

MAJOR EQUIPMENT LIST

Concord Engineering Group

Pinelands Regional High School

Domestic Water Heaters

Tag	HWH-1		
Unit Type	Gas-Fired Boiler		
Qty	1		
Location	Boiler Room		
Area Served	Domestic Hot		
Manufacturer	AO Smith		
Model #	HW670-932		
Serial #	932C9949682		
Size (Gallons)	1864 Gallon Tank		
Input Capacity (MBH/KW)	660 MBH		
Recovery (Gal/Hr)	-		
Efficiency %	82%		
Fuel	Natural Gas		
Approx Age	14		
ASHRAE Service Life	20		
Remaining Life	6		
Comments	Separate Tank		

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

MAJOR EQUIPMENT LIST

Concord Engineering Group

Pinelands Regional High School

Pumps

Tag	HWP-1, 2	DWP-1, 2	CHWP-1,2
Unit Type	End Suction	Domesitc Skid	End Suction
Qty	2	2	2
Location	Boiler Room	Boiler Room	1R - Electric Room
Area Served	Whole Building	Whole Building	AH-1
Manufacturer	Bell & Gossett	-	Bell & Gossett
Model #	5BB 9-1/2 BF	-	-
Serial #	-	-	-
Horse Power	20	10	3
Flow	475 GPM @ 85'	-	83 GPM @ 78'
Motor Info	Lincoln	Marathon	Lincoln
Electrical Power	230/460V/3/60	230/460/3/60	230/460V/3/60
RPM	1750	3470	1750
Motor Efficiency %			
Approx Age	18	-	18
ASHRAE Service Life	18	18	18
Remaining Life	0		0
Comments	No VFD		No VFD

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

Pumps

Tag	HWP-3,4
Unit Type	In-Line
Qty	1
Location	Classroom Extension
Area Served	Classroom Extension
Manufacturer	Bell & Gossett
Model #	1-1/4AA 5.25 BF
Serial #	2156052A99
Horse Power	0.3
Flow	21 GPM @ 23'
Motor Info	56Z
Electrical Power	115/208-230
RPM	1725
Motor Efficiency %	
Approx Age	14
ASHRAE Service Life	18
Remaining Life	4
Comments	

Note:
"N/A" = Not Applicable.
"-" = Info Not Available

APPENDIX E

CEG Project #: 1C13017
Facility Name: PR High School
Address: 590 Nugentown Road
City, State, Zip Little Egg Harbor, NJ

EXISTING FIXTURES									PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
1	Health 144A	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	11	0.95	2,176	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	11	0.77	1,771	0.18	405	$58	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	354	$51
1	Health 144B	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
2	Classroom 146	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Parabolic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
1	Classroom 147	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
3	Storage 147	1000	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	1	0.12	116	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	1	0.07	70	0.05	46	$7	0	No New Controls	0	0.0%	0	$0
2	Classroom 149	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Parabolic Lens	3	86	17	1.46	3,363	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	17	1.19	2,737	0.27	626	$89	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	547	$78
2	Classroom 139	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Parabolic Lens	3	86	16	1.38	3,165	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	16	1.12	2,576	0.26	589	$84	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	515	$74
4	Men's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
4	Women's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
5	Storage 1	1000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	2	0.07	68	Existing To Remain	Existing To Remain	2	34	0	0.07	68	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
5	Storage 2	1000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	2	0.07	68	Existing To Remain	Existing To Remain	2	34	0	0.07	68	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
1	TV Studio	3000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	28	2.41	7,224	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	28	1.96	5,880	0.45	1,344	$192	0	No New Controls	0	0.0%	0	$0
1	TV Studio Office	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	2	0.17	396	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	2	0.14	322	0.03	74	$11	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
1	Driver's Ed	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	21	1.30	3,906	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	21	0.95	2,835	0.36	1,071	$153	0	No New Controls	0	0.0%	0	$0
7	Boiler Room	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	27	1.67	1,674	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	27	1.22	1,215	0.46	459	$66	0	No New Controls	0	0.0%	0	$0
8	Lockers	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	20	1.24	3,720	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	20	0.90	2,700	0.34	1,020	$146	0	No New Controls	0	0.0%	0	$0
1	Classroom 122	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 121	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 114A	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	6	0.52	1,187	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	6	0.42	966	0.10	221	$32	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	193	$28
1	Classroom 114B	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	6	0.52	1,187	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	6	0.42	966	0.10	221	$32	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	193	$28
1	Classroom 120	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
9	Storage	1000	2x4, 4 Lamp, T12 40w, Mag. Ballast, Recessed Mnt., Prismatic Lens	4	188	3	0.56	564	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	3	0.21	210	0.35	354	$51	0	No New Controls	0	0.0%	0	$0
3	Corridor	3000	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	6	0.70	2,088	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	6	0.42	1,260	0.28	828	$118	0	No New Controls	0	0.0%	0	$0
1	Classroom 119	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Corridor	3000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	10	0.86	2,580	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	10	0.70	2,100	0.16	480	$69	0	No New Controls	0	0.0%	0	$0
1	Classroom 117	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	4	0.34	791	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	4	0.28	644	0.06	147	$21	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	129	$18

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
5	Classroom 117	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	2	0.07	156	Existing To Remain	Existing To Remain	2	34	0	0.07	156	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	31	$4
1	Classroom 116	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	4	0.34	791	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	4	0.28	644	0.06	147	$21	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	129	$18
5	Classroom 116	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	2	0.07	156	Existing To Remain	Existing To Remain	2	34	0	0.07	156	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	31	$4
1	Classroom 105	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 106	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 107	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 108	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
6	Faculty Work Room	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	0.0%	0	$0
6	Faculty Lounge	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	0.0%	0	$0
10	Women's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Parabolic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
10	Men's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Parabolic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
6	Secretary	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Office VP	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	83	$12
8	Office VP	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	21	$3

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
11	Elevator Pass	3000	2x2, 3 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	47	3	0.14	423	Existing To Remain	Existing To Remain	3	47	0	0.14	423	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	85	$12
6	Boy's RR	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	0	No New Controls	0	0.0%	0	$0
6	Girl's RR	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	0	No New Controls	0	0.0%	0	$0
12	Janitor's Closet	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
1	Training Room	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	16	0.99	2,976	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	16	0.72	2,160	0.27	816	$117	0	No New Controls	0	0.0%	0	$0
13	Electrical Room	1000	13w CLF, Elect. Ballast	1	0	3	0.00	0	Existing To Remain	Existing To Remain	1	0	0	0.00	0	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
12	Elevator Mechanical Room	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	2	0.12	124	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	90	0.03	34	$5	0	No New Controls	0	0.0%	0	$0
6	Passage	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	0	No New Controls	0	0.0%	0	$0
13	Elevator Mechanical Room	1000	13w CLF, Elect. Ballast	1	0	2	0.00	0	Existing To Remain	Existing To Remain	1	0	0	0.00	0	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
14	Elevator	1000	1x4, 1 Lamp, T8 28w, Elect. Ballast, Surface Mnt., No Lens	1	25	4	0.10	100	Existing To Remain	Existing To Remain	1	25	0	0.10	100	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
1	Classroom 234	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	16	1.38	3,165	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	16	1.12	2,576	0.26	589	$84	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	515	$74
3	Classroom 207	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	9	1.04	2,401	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	9	0.63	1,449	0.41	952	$136	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 206	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
1	Classroom 205	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 204	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
6	Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
3	Corridor	3000	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	12	1.39	4,176	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	12	0.84	2,520	0.55	1,656	$237	0	No New Controls	0	0.0%	0	$0
1	SGI 215	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	8	0.69	1,582	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	8	0.56	1,288	0.13	294	$42	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	258	$37
5	SGI 215	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	4	0.14	313	Existing To Remain	Existing To Remain	2	34	0	0.14	313	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	63	$9
1	Classroom 218	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Corridor	3000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	2,322	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,890	0.14	432	$62	0	No New Controls	0	0.0%	0	$0
1	Classroom 213B	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	5	0.43	989	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	5	0.35	805	0.08	184	$26	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	161	$23
6	Storage	1000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	3	0.19	186	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	135	0.05	51	$7	0	No New Controls	0	0.0%	0	$0
1	Classroom 219	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 220	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 213A	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	6	0.52	1,187	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	6	0.42	966	0.10	221	$32	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	193	$28
6	Faculty Lounge	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
6	Faculty Work Room	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	0.0%	0	$0
1	Classroom 221	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	21	1.30	3,906	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	21	0.95	2,835	0.36	1,071	$153	0	No New Controls	0	0.0%	0	$0
4	Women's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
4	Men's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
1	Classroom 223	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
6	Secretary	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Office VP	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	83	$12
6	Office VP	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	21	$3
5	Elevator Pass	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	3	0.10	306	Existing To Remain	Existing To Remain	2	34	0	0.10	306	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	61	$9
6	Girl's RR	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	54	$8
12	Janitor's Closet	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
6	Boy's RR	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	54	$8
12	Janitor's Closet	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	2	0.12	124	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	90	0.03	34	$5	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
4	Women's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
4	Men's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
6	Storage 1	1000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	124	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	90	0.03	34	$5	0	No New Controls	0	0.0%	0	$0
15	Storage 2	1000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., No Lens	2	62	2	0.12	124	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	90	0.03	34	$5	0	No New Controls	0	0.0%	0	$0
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	744	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	540	0.07	204	$29	0	No New Controls	0	0.0%	0	$0
1	Classroom 247	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
3	Prep Room 247	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	3	0.35	800	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	3	0.21	483	0.14	317	$45	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	97	$14
3	Office 247	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	1	0.12	267	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	1	0.07	161	0.05	106	$15	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	32	$5
1	Classroom 246	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
1	Classroom 245	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
1	Classroom 258	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
3	Prep Room 258	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	3	0.35	800	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	3	0.21	483	0.14	317	$45	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	97	$14
3	Office 258	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	1	0.12	267	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	1	0.07	161	0.05	106	$15	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	32	$5
5	Classroom 258	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	1	0.03	78	Existing To Remain	Existing To Remain	2	34	0	0.03	78	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	16	$2

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	14	0.87	2,604	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	14	0.63	1,890	0.24	714	$102	0	No New Controls	0	0.0%	0	$0
3	Classroom 261	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	12	1.39	3,202	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	12	0.84	1,932	0.55	1,270	$182	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
16	Classroom 261	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	0	1	0.00	0	Existing To Remain	Existing To Remain	2	0	0	0.00	0	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	0	$0
1	Prep Room 261	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	3	0.26	593	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	3	0.21	483	0.05	110	$16	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	97	$14
3	Classroom 262	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	12	1.39	3,202	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	12	0.84	1,932	0.55	1,270	$182	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
16	Classroom 262	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	0	1	0.00	0	Existing To Remain	Existing To Remain	2	0	0	0.00	0	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	0	$0
1	Classroom 265	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
5	Classroom 265	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	1	0.03	78	Existing To Remain	Existing To Remain	2	34	0	0.03	78	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	16	$2
1	Classroom 255	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
5	Classroom 255	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	1	0.03	78	Existing To Remain	Existing To Remain	2	34	0	0.03	78	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	16	$2
3	Prep Room 255	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	3	0.35	800	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	3	0.21	483	0.14	317	$45	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	97	$14
1	Office 255	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	1	0.09	198	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	1	0.07	161	0.02	37	$5	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	32	$5
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	12	0.74	2,232	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	12	0.54	1,620	0.20	612	$88	0	No New Controls	0	0.0%	0	$0
8	Office	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
17	Mechanical Room	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., No Lens	2	62	2	0.12	124	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	90	0.03	34	$5	0	No New Controls	0	0.0%	0	$0
3	Classroom 265 Storage	1000	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	2	0.23	232	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	2	0.14	140	0.09	92	$13	0	No New Controls	0	0.0%	0	$0
1	Classroom 334	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	14	1.20	2,769	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	14	0.98	2,254	0.22	515	$74	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	451	$64
18	Classroom 334 RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Recessed Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
1	Classroom 308	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 307	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 306	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 305	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
6	Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
1	Corridor	3000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	29	2.49	7,482	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	29	2.03	6,090	0.46	1,392	$199	0	No New Controls	0	0.0%	0	$0
1	Classroom 317	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
3	Storage	1000	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	2	0.23	232	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	2	0.14	140	0.09	92	$13	0	No New Controls	0	0.0%	0	$0
1	Conference Room 315	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	4	0.34	791	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	4	0.28	644	0.06	147	$21	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	129	$18
1	Classroom 318	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
1	SGT 314	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	4	0.34	791	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	4	0.28	644	0.06	147	$21	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	129	$18
1	Classroom 319	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
1	Classroom 313	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	11	0.95	2,176	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	11	0.77	1,771	0.18	405	$58	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	354	$51
6	Classroom 313	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	21	$3
6	Office 310	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Office 310	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
1	Classroom 320	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	9	0.77	1,780	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	9	0.63	1,449	0.14	331	$47	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	290	$41
4	Men's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
4	Women's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
1	Classroom 322	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	2,374	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	1,932	0.19	442	$63	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	386	$55
4	Classroom 322 RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
5	Elevator Pass	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	3	0.10	306	Existing To Remain	Existing To Remain	2	34	0	0.10	306	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	61	$9
1	Corridor	3000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	12	1.03	3,096	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	12	0.84	2,520	0.19	576	$82	0	No New Controls	0	0.0%	0	$0
6	Girl's RR	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	54	$8

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
6	Boy's RR	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	54	$8
8	Janitor's Closet	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
3	Faculty 309	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	2	0.23	534	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	2	0.14	322	0.09	212	$30	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	0.0%	0	$0
6	Secretary	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Guidance	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
8	Guidance	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	21	$3
6	Dean	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
19	Girl's Locker Room	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	3	0.19	558	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	405	0.05	153	$22	0	No New Controls	0	0.0%	0	$0
19	Girl's Locker Room	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	3	0.19	558	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	405	0.05	153	$22	0	No New Controls	0	0.0%	0	$0
19	Girl's Locker Room	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	40	2.48	7,440	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	40	1.80	5,400	0.68	2,040	$292	0	No New Controls	0	0.0%	0	$0
19	Girl's Locker Room B140	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	4	0.25	744	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	540	0.07	204	$29	0	No New Controls	0	0.0%	0	$0
19	Girl's Locker Room B141	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	4	0.25	744	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	540	0.07	204	$29	0	No New Controls	0	0.0%	0	$0
19	Girl's Locker Room B124	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	0	No New Controls	0	0.0%	0	$0
5	Girl's Locker Room Corridor	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	1	0.03	102	Existing To Remain	Existing To Remain	2	34	0	0.03	102	0.00	0	$0	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
19	Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	2	0.12	124	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	90	0.03	34	$5	0	No New Controls	0	0.0%	0	$0
19	Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	4	0.25	248	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	180	0.07	68	$10	0	No New Controls	0	0.0%	0	$0
20	Storage	1000	100w Incandescent, Surface Mnt.	1	100	1	0.10	100	Re-Lamp	Phlips Endure LED 22 watt A19	1	22	1	0.02	22	0.08	78	$11	0	No New Controls	0	0.0%	0	$0
19	Coach Office	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	5	0.31	713	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	5	0.23	518	0.09	196	$28	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	104	$15
21	Storage	1000	100w Incandescent, Recessed Mnt.	1	100	1	0.10	100	Re-Lamp	Phlips Endure LED 22 watt A19	1	22	1	0.02	22	0.08	78	$11	0	No New Controls	0	0.0%	0	$0
22	Corridor	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Vapor Tite	2	62	1	0.06	186	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	135	0.02	51	$7	0	No New Controls	0	0.0%	0	$0
5	Corridor	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	1	0.03	102	Existing To Remain	Existing To Remain	2	34	0	0.03	102	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
19	Coach Locker Room	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	0	No New Controls	0	0.0%	0	$0
4	Coach Locker Room RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	0	No New Controls	0	0.0%	0	$0
23	Aux Gym	3000	2x2, 3 Lamp, Bx 40w, Elect. Ballast, Surface Mnt., Prismatic Lens	3	123	13	1.60	4,797	Remove & Replace New Fixture	2x4, 2 Lamp, 54w T5, (1) 2/54 Elect. Ballast, Singlepoint Mnt., High Bay, Wire Guard, Lens	2	117	10	1.17	3,510	0.43	1,287	$184	0	No New Controls	0	0.0%	0	$0
24	Main Gym	3000	2x2, 6 Lamp, Bx 40w, Elect. Ballast, Surface Mnt., Prismatic Lens	6	246	54	13.28	39,852	Remove & Replace New Fixture	2x4, 4 Lamp, 54w T5, (2) 2/54 Elect. Ballast, Singlepoint Mnt., High Bay, Wire Guard, Lens	4	229	36	8.24	24,732	5.04	15,120	$2,162	0	No New Controls	0	0.0%	0	$0
25	Main Gym	3000	1x4, 4 Lamp, T5 54w, Elect. Ballast, Pendant Mnt., Vapor Tite	4	229	22	5.04	15,114	Existing To Remain	Existing To Remain	4	229	0	5.04	15,114	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
17	Weight Room Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., No Lens	2	62	4	0.25	248	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	180	0.07	68	$10	0	No New Controls	0	0.0%	0	$0
19	Boy's Locker Room	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	6	0.37	1,116	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	6	0.27	810	0.10	306	$44	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
19	Boy's Locker Room	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	4	0.25	744	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	540	0.07	204	$29	0	No New Controls	0	0.0%	0	$0
19	Training Room	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	4	0.25	744	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	540	0.07	204	$29	0	No New Controls	0	0.0%	0	$0
19	Coach Locker Room	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	0	No New Controls	0	0.0%	0	$0
5	Coach Locker Room RR	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	1	0.03	102	Existing To Remain	Existing To Remain	2	34	0	0.03	102	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
20	Storage	1000	100w Incandescent, Surface Mnt.	1	100	1	0.10	100	Re-Lamp	Phlips Endure LED 22 watt A19	1	22	1	0.02	22	0.08	78	$11	0	No New Controls	0	0.0%	0	$0
19	Locker Room RR	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	0	No New Controls	0	0.0%	0	$0
19	Locker Room	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	3	0.19	558	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	405	0.05	153	$22	0	No New Controls	0	0.0%	0	$0
19	Locker Room Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	2	0.12	124	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	90	0.03	34	$5	0	No New Controls	0	0.0%	0	$0
19	Coach's Office	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	83	$12
19	Coach's RR	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Vapor Tite	2	62	1	0.06	186	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	135	0.02	51	$7	0	No New Controls	0	0.0%	0	$0
4	Coach's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	0	No New Controls	0	0.0%	0	$0
21	Coach's RR	3000	100w Incandescent, Recessed Mnt.	1	100	1	0.10	300	Re-Lamp	Phlips Endure LED 22 watt A19	1	22	1	0.02	66	0.08	234	$33	0	No New Controls	0	0.0%	0	$0
7	Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	4	0.25	248	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	180	0.07	68	$10	0	No New Controls	0	0.0%	0	$0
1	Gym Corridor	3000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	2	0.17	516	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	2	0.14	420	0.03	96	$14	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
6	Gym Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	186	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	135	0.02	51	$7	0	No New Controls	0	0.0%	0	$0
4	Gym Corridor	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	2	0.08	252	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	2	0.07	204	0.02	48	$7	0	No New Controls	0	0.0%	0	$0
6	Gym Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	3	0.19	558	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	405	0.05	153	$22	0	No New Controls	0	0.0%	0	$0
26	Media Center	3000	4x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	37	3.18	9,546	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	37	2.59	7,770	0.59	1,776	$254	0	No New Controls	0	0.0%	0	$0
8	Media Center	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	83	5.15	15,438	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	83	3.74	11,205	1.41	4,233	$605	0	No New Controls	0	0.0%	0	$0
6	Media Center	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	8	0.50	1,488	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	8	0.36	1,080	0.14	408	$58	0	No New Controls	0	0.0%	0	$0
6	Office C110	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	83	$12
3	A/V	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	8	0.93	2,134	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	8	0.56	1,288	0.37	846	$121	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	258	$37
26	IT Office	2300	4x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	2	0.17	396	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	2	0.14	322	0.03	74	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	64	$9
8	IT Office	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	3	0.19	428	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	311	0.05	117	$17	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	62	$9
6	Office C107	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	3	0.19	428	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	311	0.05	117	$17	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	62	$9
6	Office C108	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	3	0.19	428	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	311	0.05	117	$17	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	62	$9
4	Men's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
4	Women's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
6	Media Center Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	7	0.43	1,302	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	7	0.32	945	0.12	357	$51	0	No New Controls	0	0.0%	0	$0
1	Office C108	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	1	0.09	198	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	1	0.07	161	0.02	37	$5	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	32	$5
1	Storage	1000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	3	0.26	258	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	3	0.21	210	0.05	48	$7	0	No New Controls	0	0.0%	0	$0
6	Media Center Vestibule	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	0	No New Controls	0	0.0%	0	$0
6	Kitchen	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	10	0.62	1,426	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	10	0.45	1,035	0.17	391	$56	0	No New Controls	0	0.0%	0	$0
27	Kitchen Storage	1000	1x4, 2 Lamp, T12 40w, Mag. Ballast, Surface Mnt., No Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
6	Cafeteria	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	38	2.36	7,068	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	38	1.71	5,130	0.65	1,938	$277	0	No New Controls	0	0.0%	0	$0
5	Cafeteria	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	4	0.14	408	Existing To Remain	Existing To Remain	2	34	0	0.14	408	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
13	Cafeteria	3000	13w CLF, Elect. Ballast	1	0	51	0.00	0	Existing To Remain	Existing To Remain	1	0	0	0.00	0	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
28	Mechanical Mezzanine	1000	150w Incandescent, Surface Mnt.	1	150	4	0.60	600	Re-Lamp	42w CFL Screw Base	1	42	4	0.17	168	0.43	432	$62	0	No New Controls	0	0.0%	0	$0
29	Cafeteria	2300	150w Parabolic, Recessed Mnt.	1	150	6	0.90	2,070	Re-Lamp	Par 38 20w Dimmable LED	1	20	6	0.12	276	0.78	1,794	$257	0	No New Controls	0	0.0%	0	$0
8	Kitchen Hood	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	0	No New Controls	0	0.0%	0	$0
5	Cafeteria Corridor	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	2	0.07	204	Existing To Remain	Existing To Remain	2	34	0	0.07	204	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
22	Kitchen	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Vapor Tite	2	62	29	1.80	4,135	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	29	1.31	3,002	0.49	1,134	$162	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
8	Kitchen Hood	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	0	No New Controls	0	0.0%	0	$0
6	Kitchen Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	0	No New Controls	0	0.0%	0	$0
6	Kitchen Locker	1000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
4	Kitchen RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	0	No New Controls	0	0.0%	0	$0
7	Kitchen Pantry	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	6	0.37	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	6	0.27	270	0.10	102	$15	0	No New Controls	0	0.0%	0	$0
30	Kitchen Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., Vapor Tite	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
20	Kitchen Walk-ins	1000	100w Incandescent, Surface Mnt.	1	100	3	0.30	300	Re-Lamp	Phlips Endure LED 22 watt A19	1	22	3	0.07	66	0.23	234	$33	0	No New Controls	0	0.0%	0	$0
6	Attendance Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	83	$12
8	Attendance Office Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
7	Display Case	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	1	0.06	186	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	135	0.02	51	$7	0	No New Controls	0	0.0%	0	$0
1	Main Office	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	10	0.86	1,978	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	10	0.70	1,610	0.16	368	$53	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	322	$46
6	Main Office Work Room	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Principal	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	5	0.31	713	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	5	0.23	518	0.09	196	$28	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	104	$15
5	Main Office	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	2	0.07	156	Existing To Remain	Existing To Remain	2	34	0	0.07	156	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	31	$4

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
6	Office B167	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Office B168	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Office B169	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Office B170	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Storage	1000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
4	Men's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
4	Women's RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
6	Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	9	0.56	1,283	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	9	0.41	932	0.15	352	$50	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	186	$27
6	Office B155	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Office B156	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	Office B157	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	3	0.19	428	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	311	0.05	117	$17	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	62	$9
6	Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	21	$3
6	Women's RR	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	54	$8
7	Janitor's Closet	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
6	Men's RR	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	54	$8
3	Athletic Office	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	3	0.35	800	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	3	0.21	483	0.14	317	$45	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	97	$14
6	Athletic Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	21	$3
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	12	0.74	2,232	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	12	0.54	1,620	0.20	612	$88	0	No New Controls	0	0.0%	0	$0
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	10	0.62	1,860	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	10	0.45	1,350	0.17	510	$73	0	No New Controls	0	0.0%	0	$0
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	25	1.55	4,650	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	25	1.13	3,375	0.43	1,275	$182	0	No New Controls	0	0.0%	0	$0
13	Corridor	3000	13w CLF, Elect. Ballast	1	0	3	0.00	0	Existing To Remain	Existing To Remain	1	0	0	0.00	0	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
7	Display Case	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	1	0.06	186	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	135	0.02	51	$7	0	No New Controls	0	0.0%	0	$0
4	Nurse RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
4	Nurse RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
6	Nurse Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	6	0.37	856	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	6	0.27	621	0.10	235	$34	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	2	20.0%	124	$18
4	Nurse Exam	2300	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	2	0.08	193	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	2	0.07	156	0.02	37	$5	0	No New Controls	0	0.0%	0	$0
4	Nurse Exam	2300	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	2	0.08	193	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	2	0.07	156	0.02	37	$5	0	No New Controls	0	0.0%	0	$0
7	Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	6	0.37	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	6	0.27	270	0.10	102	$15	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
28	Corridor	3000	150w Incandescent, Surface Mnt.	1	150	8	1.20	3,600	Re-Lamp	42w CFL Screw Base	1	42	8	0.34	1,008	0.86	2,592	$371	0	No New Controls	0	0.0%	0	$0
31	Corridor	3000	150w Incandescent, Recessed Mnt.	1	150	12	1.80	5,400	Re-Lamp	Par 38 20w Dimmable LED	1	20	12	0.24	720	1.56	4,680	$669	0	No New Controls	0	0.0%	0	$0
1	Classroom 164	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	8	0.69	1,582	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	8	0.56	1,288	0.13	294	$42	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	258	$37
1	Classroom 161	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	15	1.29	2,967	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	15	1.05	2,415	0.24	552	$79	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	483	$69
12	Classroom 161 Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
4	Classroom 161 RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
3	Classroom 161 Laundry	1000	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	1	0.12	116	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	1	0.07	70	0.05	46	$7	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	0.0%	0	$0
7	Display Case	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	1	0.06	186	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	135	0.02	51	$7	0	No New Controls	0	0.0%	0	$0
1	Classroom 162	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	8	0.69	1,582	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	8	0.56	1,288	0.13	294	$42	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	258	$37
1	Classroom 163	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	15	1.29	2,967	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	15	1.05	2,415	0.24	552	$79	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	483	$69
1	Classroom 180	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	20	1.72	3,956	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	20	1.40	3,220	0.32	736	$105	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	644	$92
32	Classroom 179	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., Prismatic Lens	2	62	24	1.49	3,422	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	24	1.08	2,484	0.41	938	$134	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	497	$71
2	Classroom 179 Storage	1000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Parabolic Lens	3	86	1	0.09	86	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	1	0.07	70	0.02	16	$2	0	No New Controls	0	0.0%	0	$0
1	Classroom 165	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	18	1.55	3,560	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	18	1.26	2,898	0.29	662	$95	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	580	$83

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
5	Classroom 165	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	2	0.07	156	Existing To Remain	Existing To Remain	2	34	0	0.07	156	0.00	0	$0	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	31	$4
12	Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	4	0.25	248	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	180	0.07	68	$10	0	No New Controls	0	0.0%	0	$0
3	Practice Room	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	1	0.12	267	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	1	0.07	161	0.05	106	$15	0	No New Controls	0	0.0%	0	$0
6	Practice Room	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	0	No New Controls	0	0.0%	0	$0
3	Practice Room	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	1	0.12	267	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	1	0.07	161	0.05	106	$15	0	No New Controls	0	0.0%	0	$0
6	Practice Room	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	0	No New Controls	0	0.0%	0	$0
6	Practice Room	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	0	No New Controls	0	0.0%	0	$0
6	Storage D131	1000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	124	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	90	0.03	34	$5	0	No New Controls	0	0.0%	0	$0
6	Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	5	0.31	713	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	5	0.23	518	0.09	196	$28	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	104	$15
5	Passage	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	3	0.10	306	Existing To Remain	Existing To Remain	2	34	0	0.10	306	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
32	Classroom 178	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., Prismatic Lens	2	62	24	1.49	3,422	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	24	1.08	2,484	0.41	938	$134	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	2	20.0%	497	$71
3	Classroom 178 Storage	1000	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	1	0.12	116	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	1	0.07	70	0.05	46	$7	0	No New Controls	0	0.0%	0	$0
3	Classroom 166	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	18	2.09	4,802	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	18	1.26	2,898	0.83	1,904	$272	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	580	$83
12	Classroom 166 Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
8	Display Case	3000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	0	No New Controls	0	0.0%	0	$0
32	Classroom 177	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., Prismatic Lens	2	62	24	1.49	3,422	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	24	1.08	2,484	0.41	938	$134	0	No New Controls	0	0.0%	0	$0
3	Classroom 177 Storage	1000	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	1	0.12	116	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	1	0.07	70	0.05	46	$7	0	No New Controls	0	0.0%	0	$0
1	Dark Room	1000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	4	0.34	344	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	4	0.28	280	0.06	64	$9	0	No New Controls	0	0.0%	0	$0
33	Classroom 176	2300	1x4, 3 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., Prismatic Lens	3	86	28	2.41	5,538	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	28	1.96	4,508	0.45	1,030	$147	0	No New Controls	0	0.0%	0	$0
3	Classroom 176 Lab	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	2	0.23	534	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	2	0.14	322	0.09	212	$30	0	No New Controls	0	0.0%	0	$0
34	Classroom 176 Loft	1000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., Prismatic Lens	2	62	4	0.25	248	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	180	0.07	68	$10	0	No New Controls	0	0.0%	0	$0
3	Classroom 176 Office	2300	2x4, 4 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	4	116	2	0.23	534	Reballast & Relamp, Delamp 1, Install Reflector	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC; Specular Reflector	3	70	2	0.14	322	0.09	212	$30	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	64	$9
32	Classroom 175	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., Prismatic Lens	2	62	41	2.54	5,847	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	41	1.85	4,244	0.70	1,603	$229	0	No New Controls	0	0.0%	0	$0
8	Classroom 175 Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	248	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	180	0.07	68	$10	0	No New Controls	0	0.0%	0	$0
6	Classroom 175 Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
34	Classroom 175 Loft	1000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., Prismatic Lens	2	62	4	0.25	248	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	180	0.07	68	$10	0	No New Controls	0	0.0%	0	$0
12	Janitor's Closet	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
35	Janitor's Loft	1000	75w Incandescent, Pendant Mnt.	1	75	4	0.30	300	Re-Lamp	Par 30 15w Dimmable LED	1	15	4	0.06	60	0.24	240	$34	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
1	Classroom 167	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	6	0.52	1,187	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	6	0.42	966	0.10	221	$32	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	193	$28
5	Men's RR	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	1	0.03	102	Existing To Remain	Existing To Remain	2	34	0	0.03	102	0.00	0	$0	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
5	Women's RR	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	1	0.03	102	Existing To Remain	Existing To Remain	2	34	0	0.03	102	0.00	0	$0	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
1	Classroom 168	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	6	0.52	1,187	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	6	0.42	966	0.10	221	$32	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	193	$28
1	Classroom 169	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	6	0.52	1,187	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	6	0.42	966	0.10	221	$32	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	193	$28
12	Classroom 174	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	42	2.60	5,989	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	42	1.89	4,347	0.71	1,642	$235	0	No New Controls	0	0.0%	0	$0
6	Classroom 174 Office	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
7	Classroom 174 Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	1	0.06	62	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	45	0.02	17	$2	0	No New Controls	0	0.0%	0	$0
17	Classroom 174 Loft	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Pendant Mnt., No Lens	2	62	6	0.37	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	6	0.27	270	0.10	102	$15	0	No New Controls	0	0.0%	0	$0
12	Classroom 173	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	43	2.67	6,132	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	43	1.94	4,451	0.73	1,681	$240	0	No New Controls	0	0.0%	0	$0
1	Classroom 173 Office	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	2	0.17	396	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	2	0.14	322	0.03	74	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	64	$9
1	Classroom 173 Storage	1000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	1	0.09	86	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	1	0.07	70	0.02	16	$2	0	No New Controls	0	0.0%	0	$0
12	Classroom 173 Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., Prismatic Lens	2	62	3	0.19	186	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	135	0.05	51	$7	0	No New Controls	0	0.0%	0	$0
7	Classroom 173 Loft	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	8	0.50	496	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	8	0.36	360	0.14	136	$19	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
4	CST RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
4	CST RR	3000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	126	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	102	0.01	24	$3	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	20	$3
6	CST 1	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	CST 2	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	CST 3	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	83	$12
6	CST 4	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	83	$12
6	CST 5	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
8	CST 6	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	1	0.06	143	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	1	0.05	104	0.02	39	$6	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	21	$3
6	CST 7	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	3	0.19	428	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	311	0.05	117	$17	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	62	$9
6	CST 8	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	285	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	207	0.03	78	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	41	$6
6	CST 9	2300	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	4	0.25	570	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	414	0.07	156	$22	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	83	$12
5	CST Corridor	3000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	4	0.14	408	Existing To Remain	Existing To Remain	2	34	0	0.14	408	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	13	0.81	2,418	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	13	0.59	1,755	0.22	663	$95	0	No New Controls	0	0.0%	0	$0
1	Youth Services 171	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	6	0.52	1,187	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	6	0.42	966	0.10	221	$32	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	193	$28

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
1	Youth Services 2	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	2	0.17	396	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	2	0.14	322	0.03	74	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	64	$9
1	Youth Services 3	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	2	0.17	396	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	2	0.14	322	0.03	74	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	64	$9
1	Youth Services 4	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	1	0.09	198	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	1	0.07	161	0.02	37	$5	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	32	$5
1	Youth Services 5	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	4	0.34	791	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	4	0.28	644	0.06	147	$21	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	129	$18
1	Youth Services 6	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	4	0.34	791	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	4	0.28	644	0.06	147	$21	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	129	$18
1	Youth Services 7	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	2	0.17	396	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	2	0.14	322	0.03	74	$11	6	Dual Technology Occupancy Sensor - Switch Mnt.	1	20.0%	64	$9
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	22	1.36	4,092	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	22	0.99	2,970	0.37	1,122	$160	0	No New Controls	0	0.0%	0	$0
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	11	0.68	2,046	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	11	0.50	1,485	0.19	561	$80	0	No New Controls	0	0.0%	0	$0
6	Corridor	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	17	1.05	3,162	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	17	0.77	2,295	0.29	867	$124	0	No New Controls	0	0.0%	0	$0
1	Drama	2300	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	10	0.86	1,978	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	10	0.70	1,610	0.16	368	$53	0	No New Controls	0	0.0%	0	$0
5	Drama	2300	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	2	0.07	156	Existing To Remain	Existing To Remain	2	34	0	0.07	156	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
28	Stage Loft	1000	150w Incandescent, Surface Mnt.	1	150	4	0.60	600	Re-Lamp	42w CFL Screw Base	1	42	4	0.17	168	0.43	432	$62	0	No New Controls	0	0.0%	0	$0
28	Stage Loft	1000	150w Incandescent, Surface Mnt.	1	150	2	0.30	300	Re-Lamp	42w CFL Screw Base	1	42	2	0.08	84	0.22	216	$31	0	No New Controls	0	0.0%	0	$0
36	Auditorium	2300	10" Dia. 150w HID, Mag. Ballast, Recessed Mnt., Prismatic Lens	1	180	105	18.90	43,470	Replace	Neptun Par 56 50w LED Self Ballasted Retrofit Lamp #LED95650-UNV	1	51	105	5.36	12,317	13.55	31,154	$4,455	0	No New Controls	0	0.0%	0	$0

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
39	Auditorium	2300	150w Recessed Mnt. Inciandescent	1	150	80	12.00	27,600	Re-Lamp	Par 38 20w Dimmable LED	1	20	80	1.60	3,680	10.40	23,920	$3,421	0	No New Controls	0	0.0%	0	$0
39	Auditorium	2300	150w Recessed Mnt. Inciandescent	1	150	2	0.30	690	Re-Lamp	Par 38 20w Dimmable LED	1	20	2	0.04	92	0.26	598	$86	0	No New Controls	0	0.0%	0	$0
28	Auditorium Catwalk	2300	150w Incandescent, Surface Mnt.	1	150	5	0.75	1,725	Re-Lamp	42w CFL Screw Base	1	42	5	0.21	483	0.54	1,242	$178	0	No New Controls	0	0.0%	0	$0
6	Projection Booth	1000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	124	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	90	0.03	34	$5	0	No New Controls	0	0.0%	0	$0
7	Stage Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	4	0.25	248	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	180	0.07	68	$10	0	No New Controls	0	0.0%	0	$0
7	Stage Storage	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	4	0.25	248	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	4	0.18	180	0.07	68	$10	0	No New Controls	0	0.0%	0	$0
7	Receiving	2300	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	6	0.37	856	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	6	0.27	621	0.10	235	$34	0	No New Controls	0	0.0%	0	$0
5	Janitor's Locker	1000	2x2, 2 Lamp, T8 17w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	34	2	0.07	68	Existing To Remain	Existing To Remain	2	34	0	0.07	68	0.00	0	$0	0	No New Controls	0	0.0%	0	$0
4	Janitor's Locker	1000	1x2, 2 Lamp, T12 20w, Mag. Ballast, Surface Mnt., Prismatic Lens	2	42	1	0.04	42	Reballast & Relamp	Sylvania Lamp FO17/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	2	34	1	0.03	34	0.01	8	$1	0	No New Controls	0	0.0%	0	$0
1	Women's RR	3000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	2	0.17	516	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	2	0.14	420	0.03	96	$14	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	84	$12
1	Men's RR	3000	2x4, 3 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	3	86	2	0.17	516	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE3x32T8/UNV ISL-SC	3	70	2	0.14	420	0.03	96	$14	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	84	$12
7	Main Electrical Room	1000	1x4, 2 Lamp, T8 32w, Elect. Ballast, Surface Mnt., No Lens	2	62	3	0.19	186	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	3	0.14	135	0.05	51	$7	0	No New Controls	0	0.0%	0	$0
37	Courtyard	4000	Courtyard 150w HID, Mag. Ballast, Surface Mnt.	1	180	95	17.10	68,400	Re-Lamp /Clean	Neptun 25w LED Self Ballasted Acorn Retrofit Lamp #LED148025-UNV-741-Base	1	25	95	2.38	9,500	14.73	58,900	$8,423	0	No New Controls	0	0.0%	0	$0
6	Boy's RR	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	54	$8

			EXISTING FIXTURES						PROPOSED FIXTURE RETROFIT							RETROFIT ENERGY SAVINGS			PROPOSED LIGHTING CONTROLS					
Fixture Reference #	Location	Average Burn Hours	Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Work Description	Equipment Description	Lamps per Fixture	Watts per Fixture	Qty of Fixtures	Total kW	Usage kWh/Yr	Energy Savings, kW	Energy Savings, kWh	Energy Savings, $	Control Ref #	Controls Description	Qty of Controls	Hour Reduction %	Energy Savings, kWh	Energy Savings, $
6	Girl's RR	3000	2x4, 2 Lamp, T8 32w, Elect. Ballast, Recessed Mnt., Prismatic Lens	2	62	2	0.12	372	Reballast & Relamp	Sylvania Lamp FO28/841/SS/ECO Sylvania Ballast QHE2x32T8/UNV ISL-SC	2	45	2	0.09	270	0.03	102	$15	4	Dual Tech. Occupancy Sensor w/2 Powerpacks - Remote Mnt.	1	20.0%	54	$8
40	Exterior	4000	Exterior 150w HID, Mag Ballast, Surface Mount Globe	1	180	35	6.30	25,200	Replace	RAB Exterior 26w LED Wall Pack #WPLED26NMSS	1	26	35	0.91	3,640	5.39	21,560	$3,083	0	No New Controls	0	0.0%	0	$0
41	Exterior	4000	Exterior 175w HID, Mag Ballast, Surface Mount wall pack	1	180	11	1.98	7,920	Replace	RAB Exterior 26w LED Wall Pack #WPLED26NMSS	1	26	11	0.29	1,144	1.69	6,776	$969	0	No New Controls	0	0.0%	0	$0
42	Exterior	4000	Exterior 70w HID recessed downlight	1	94	21	1.97	7,896	Re-Lamp	Neptun Par 56 30w LED Self Ballasted Retrofit Lamp #LED-95630-UNV	1	31	21	0.65	2,604	1.32	5,292	$757	0	No New Controls	0	0.0%	0	$0
43	Exterior	4000	Exterior 175w HID, Mag Ballast, Pole Mount	1	180	19	3.42	13,680	Re-Lamp	Neu-Tech NT-4293-TR-HO, 57w LED Retrofit	1	57	19	1.08	4,332	2.34	9,348	$1,337	0	No New Controls	0	0.0%	0	$0
38	Exit Signs	8760	Exit Signs	1	36	113	4.07	35,636	Replace	LED Exit Sign SureLites #LPX70RWH	1	3	113	0.34	2,970	3.73	32,666	$4,671	0	No New Controls	0	0.0%	0	$0
	TOTAL					**2,687**	**241**	**663,094**					**2,529**	**141**	**358,835**	**100**	**304,259**	**$43,509**			**189**	**36**	**28,122**	**$4,021**

APPENDIX F

Location Description	Area (Sq FT)	Panel	Qty	Panel Sq Ft	Panel Total Sq Ft	Total KW_{DC}	Total Annual kWh	Total KW_{AC}	Panel Weight (41.9 lbs)	W/SQFT
PR High School	48000	SHARP ND-240QCJ	2885	17.5	50,605	692.40	827,316	560.8	120,882	13.68

= Proposed PV Parking Layout

Notes:

1. Estimated kWH based on the National Renewable Energy Laboratory PVWatts Version 1 Calculator Program.

Project Name: **LGEA Solar PV Project - PR High School**
Location: **Little Egg Harbor, NJ**
Description: **Photovoltaic System 100% Financing - 15 year**

Simple Payback Analysis

	Photovoltaic System 100% Financing - 15 year
Total Construction Cost	$3,201,934
Annual kWh Production	827,316
Annual Energy Cost Reduction	$118,306
Average Annual SREC Revenue	$158,087

Simple Payback: **11.58** Years

Life Cycle Cost Analysis

Analysis Period (years): 15
Discount Rate: 3%
Average Energy Cost ($/kWh) **$0.143**
Financing Rate: 6.00%
Financing %: 100%
Maintenance Escalation Rate: 3.0%
Energy Cost Escalation Rate: 3.0%
Average SREC Value ($/kWh) $0.191

Period	Additional Cash Outlay	Energy kWh Production	Energy Cost Savings	Additional Maint Costs	SREC Revenue	Interest Expense	Loan Principal	Net Cash Flow	Cumulative Cash Flow
0	$0	0	0	0	$0	0	0	0	0
1	$0	827,316	$118,306	$0	$206,829	$188,421	$135,815	$898	$898
2	$0	823,179	$121,855	$0	$205,795	$180,045	$144,192	$3,413	$4,312
3	$0	819,064	$125,511	$0	$204,766	$171,151	$153,086	$6,040	$10,352
4	$0	814,968	$129,276	$0	$203,742	$161,709	$162,528	$8,782	$19,133
5	$0	810,893	$133,155	$8,352	$202,723	$151,685	$172,552	$3,289	$22,422
6	$0	806,839	$137,149	$8,310	$161,368	$141,042	$183,195	($34,030)	($11,608)
7	$0	802,805	$141,264	$8,269	$160,561	$129,743	$194,494	($30,681)	($42,289)
8	$0	798,791	$145,502	$8,228	$159,758	$117,747	$206,490	($27,205)	($69,494)
9	$0	794,797	$149,867	$8,186	$158,959	$105,011	$219,225	($23,597)	($93,091)
10	$0	790,823	$154,363	$8,145	$118,623	$91,490	$232,747	($59,396)	($152,487)
11	$0	786,869	$158,994	$8,105	$118,030	$77,135	$247,102	($55,318)	($207,805)
12	$0	782,934	$163,763	$8,064	$117,440	$61,894	$262,343	($51,098)	($258,903)
13	$0	779,020	$168,676	$8,024	$116,853	$45,713	$278,524	($46,732)	($305,634)
14	$0	775,125	$173,737	$7,984	$77,512	$28,535	$295,702	($80,972)	($386,606)
15	$0	771,249	$178,949	$7,944	$77,125	$10,296	$313,941	($76,107)	($462,713)
	Totals:	11,984,670	$2,200,367	$89,611	$2,290,085	$1,661,619	$3,201,934	($462,713)	($1,933,512)

Net Present Value (NPV) **($308,170)**