

ECM #	ENERGY CONSERVATION MEASURE	SITE	DESCRIPTION	FINAL COST	ESTIMATED SAVINGS	SIMPLE PAYBACK
15 A	ELECTRIC SUBMETERING	SOUTHSIDE, JEWETT, GOSSLER, BEECH SCHOOLS	Install Submeters at selected sites	\$18,178	\$0	
6 A	BOILER AND BURNER UPGRADE	CENTRAL HIGH SCHOOL	Install AutoFlame Controller on existing Burner	\$21,809	\$14,805	1.47
6 B	BOILER AND BURNER UPGRADE	CITY HALL	Replace existing Steam Boiler with New Hot Water Condensing Boiler	\$213,375		
6 D	BOILER AND BURNER UPGRADE	HILLSIDE MIDDLE SCHOOL	Install AutoFlame Controller on existing Burner	\$16,988	\$5,672	3.00
6 E	BOILER AND BURNER UPGRADE	SOUTHSIDE MIDDLE SCHOOL	Install AutoFlame Controller on existing Burner	\$16,988	\$5,672	3.00
6 F	BOILER AND BURNER UPGRADE	CARPENTER LIBRARY	Replace existing Steam Boiler with New Hot Water Condensing Boiler	\$254,250		
1 A	LIGHTING	JFK ARENA	HI-Bay Lighting Retrofit	\$27,180	\$13,084	2.07
1 B	LIGHTING	MCLAUGHLIN MIDDLE SCHOOL	Gym Lighting Retrofit	\$7,949	\$2,209	3.59
1 D	LIGHTING	SOUTHSIDE MIDDLE SCHOOL	Gym Lighting Retrofit	\$9,013	\$2,407	3.74
1 E	LIGHTING	MEMORIAL HIGH SCHOOL	Gym Lighting Retrofit	\$22,436	\$4,440	5.05
4 A	HVAC EQUIPMENT UPGRADE	BEECH ST SCHOOL	VFD on Kitchen Exhaust & Make Up Air	\$8,134	\$4,136	1.23
4 B	HVAC EQUIPMENT UPGRADE	CENTRAL HIGH SCHOOL	VFD on Kitchen Exhaust & Make Up Air	\$7,500	\$2,170	1.89
4 D	HVAC EQUIPMENT UPGRADE	HILLSIDE MIDDLE SCHOOL	VFD on Kitchen Exhaust & Make Up Air	\$7,808	\$1,860	2.59
4 F	HVAC EQUIPMENT UPGRADE	MCLAUGHLIN MIDDLE SCHOOL	VFD on Kitchen Exhaust & Make Up Air	\$8,558	\$1,215	5.18
4 G	HVAC EQUIPMENT UPGRADE	MEMORIAL HIGH SCHOOL	VFD on Kitchen Exhaust & Make Up Air	\$7,898	\$1,780	2.96
4 H	HVAC EQUIPMENT UPGRADE	PARKSIDE MIDDLE SCHOOL	VFD on Kitchen Exhaust & Make Up Air	\$6,648	\$2,407	1.58
4 I	HVAC EQUIPMENT UPGRADE	SOUTHSIDE MIDDLE SCHOOL	VFD on Kitchen Exhaust & Make Up Air	\$7,058	\$1,312	3.04
4 J	HVAC EQUIPMENT UPGRADE	WEST HIGH SCHOOL	VFD on Kitchen Exhaust & Make Up Air	\$8,020	\$2,960	1.59
8 A	VFD HYDRONIC CONTROL	BAKERSVILLE SCHOOL	Convert Constant Volume Hot Water Pumps to Variable Volume	\$11,250	\$1,660	5.51
8 B	VFD HYDRONIC CONTROL	CENTRAL HIGH SCHOOL	Convert Constant Volume Hot Water Pumps to Variable Volume	\$13,750	\$5,992	1.79
8 D	VFD HYDRONIC CONTROL	MCLAUGHLIN MIDDLE SCHOOL	Convert Constant Volume Hot Water Pumps to Variable Volume	\$12,055	\$2,104	4.00
8 E	VFD HYDRONIC CONTROL	MEMORIAL HIGH SCHOOL	Convert Constant Volume Hot Water Pumps to Variable Volume	\$30,058	\$8,943	4.64
8 F	VFD HYDRONIC CONTROL	MANCHESTER SCHOOL OF TECHNOLOGY	Convert Constant Volume Hot Water Pumps to Variable Volume	\$10,598	\$2,329	3.65
8 H	VFD HYDRONIC CONTROL	PARKSIDE MIDDLE SCHOOL	Convert Constant Volume Hot Water Pumps to Variable Volume	\$13,700	\$5,315	2.14
8 I	VFD HYDRONIC CONTROL	SOUTHSIDE MIDDLE SCHOOL	Convert Constant Volume Hot Water Pumps to Variable Volume	\$8,750	\$4,324	1.47
8 J	VFD HYDRONIC CONTROL	WEBSTER SCHOOL	Convert Constant Volume Hot Water Pumps to Variable Volume	\$10,000	\$2,066	3.82

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9 A	DEMAND CONTROL VENTILATION WITH VFD	BEECH ST SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$8,518	\$2,608	2.40
9 B	DEMAND CONTROL VENTILATION WITH VFD	BEECH ST SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$7,280	\$1,153	6.31
9 D	DEMAND CONTROL VENTILATION WITH VFD	BEECH ST SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$9,593	\$3,122	3.07
9 E	DEMAND CONTROL VENTILATION WITH VFD	CENTRAL HIGH	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$7,801	\$2,152	2.60
9 F	DEMAND CONTROL VENTILATION WITH VFD	CENTRAL HIGH	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$7,813	\$2,624	1.21
9 G	DEMAND CONTROL VENTILATION WITH VFD	GOSSLER PARK SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$5,845	\$2,133	1.95
9 H	DEMAND CONTROL VENTILATION WITH VFD	JEWETT ST SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$5,845	\$2,492	2.02
9 I	DEMAND CONTROL VENTILATION WITH VFD	WEST HIGH SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$4,750	\$735	6.46
9 J	DEMAND CONTROL VENTILATION WITH VFD	WEST HIGH SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$6,185	\$956	6.47
9 K	DEMAND CONTROL VENTILATION WITH VFD	WEST HIGH SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$3,318	\$1,312	2.53
9 L	DEMAND CONTROL VENTILATION WITH VFD	WEST HIGH SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$3,318	\$721	4.60
9 M	DEMAND CONTROL VENTILATION WITH VFD	WEST HIGH SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$3,748	\$1,513	2.48
9 N	DEMAND CONTROL VENTILATION WITH VFD	WEST HIGH SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$9,375	\$1,965	4.77
9 O	DEMAND CONTROL VENTILATION WITH VFD	PARKER VARNEY SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$8,480	\$2,000	4.24
9 P	DEMAND CONTROL VENTILATION WITH VFD	SMYTH ROAD SCHOOL	Install VFD - Modulate Fan Speed based on DCV with CO2 Sensor	\$7,980	\$1,749	4.10
9 Q	DEMAND CONTROL VENTILATION WITH VFD	MEMORIAL HIGH SCHOOL	Modulate Dampers based on DCV with CO2 Sensor	\$9,118	\$1,285	6.08
9 R	DEMAND CONTROL VENTILATION WITH VFD	MEMORIAL HIGH SCHOOL	Modulate Dampers based on DCV with CO2 Sensor	\$11,341	\$2,890	3.92
10 A	DEMAND CONTROL VENTILATION WITHOUT VFD	CENTRAL HIGH SCHOOL	Modulate Dampers based on DCV with CO2 Sensor	\$3,250	\$2,290	1.42
10 B	DEMAND CONTROL VENTILATION WITHOUT VFD	CENTRAL HIGH SCHOOL	Modulate Dampers based on DCV with CO2 Sensor	\$6,768	\$995	6.80
10 F	DEMAND CONTROL VENTILATION WITHOUT VFD	NORTHWEST SCHOOL	Install DDC control to Modulate Dampers based on DCV with CO2 Sensor, removing pneumatic stand alone controllers.	\$6,500	\$587	11.07

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10 I	DEMAND CONTROL VENTILATION WITHOUT VFD	WILSON SCHOOL	Install DDC control to Modulate Dampers based on DCV with CO2 Sensor, removing stand alone fixed damper actuators	\$7,250	\$1,200	4.22
11 I	OPTIMIZE CONTROLS	JEWETT ST SCHOOL	Control DHW HTR and Circ Pump	\$2,188	\$800	2.74
11 J	OPTIMIZE CONTROLS	JEWETT ST SCHOOL	Install new Class Room Sensors for Zone Pump Control	\$4,375	\$1,440	1.52
11 M	OPTIMIZE CONTROLS	MEMORIAL HIGH SCHOOL	Interlock Dishwasher Exhaust Fan	\$2,313	\$5,197	0.45
11 O	OPTIMIZE CONTROLS	PARKSIDE MIDDLE SCHOOL	Control DHW HTR & Recirc Pump	\$2,438	\$800	3.05
11 S	OPTIMIZE CONTROLS	WILSON SCHOOL	Install a DDC controller relay for existing time clock on light controls	\$1,875	\$1,000	1.88
11 T	OPTIMIZE CONTROLS	GREEN ACRES SCHOOL	Control DHW HTR & Recirc Pump	\$1,400	\$800	1.75
11 U	OPTIMIZE CONTROLS	HIGHLAND GF SCHOOL	Control DHW HTR & Recirc Pump	\$1,184	\$800	1.48
11 V	OPTIMIZE CONTROLS	MCDONOUGH SCHOOL	Control DHW HTR & Recirc Pump	\$944	\$800	1.18
11 W	OPTIMIZE CONTROLS	NORTHWEST SCHOOL	Control DHW HTR & Recirc Pump	\$720	\$800	0.90
11 X	OPTIMIZE CONTROLS	PARKER VARNEY SCHOOL	Control DHW HTR & Recirc Pump	\$1,288	\$800	1.61
11 Y	OPTIMIZE CONTROLS	WEBSTER SCHOOL	Control DHW HTR & Recirc Pump	\$773	\$800	0.97
11 Z	OPTIMIZE CONTROLS	WESTON SCHOOL	Control DHW HTR & Recirc Pump	\$1,579	\$800	1.97
12 D	RETRO COMMISSIONING	CENTRAL FIRE STATION	IR T-STATS for Truck Bays & New HW Boiler Reset Controls	\$17,269	\$3,113	4.56
16 A	REDUCE AIR FLOW IN HRUs	WEBSTER SCHOOL	Rebalance HRUs 25 to 15 CFM	\$2,528	\$4,446	0.57
16 B	REDUCE AIR FLOW IN HRUs	PARKER VARNEY SCHOOL	Rebalance HRUs 25 to 15 CFM	\$2,830	\$5,289	0.40
16 D	REDUCE AIR FLOW IN HRUs	MCLAUGHLIN MIDDLE SCHOOL	Rebalance HRUs 25 to 15 CFM	\$1,649	\$1,573	1.05
16 E	REDUCE AIR FLOW IN HRUs	GOSSLER SCHOOL	Rebalance HRUs 25 to 15 CFM	\$2,830	\$6,887	0.41
16 F	REDUCE AIR FLOW IN HRUs	GREEN ACRES SCHOOL	Rebalance HRUs 25 to 15 CFM	\$2,528	\$2,005	1.26
17 A	KITCHEN WALK IN REFRIG CONTROLS	WEST HIGH SCHOOL	Replace Evaporator fan Motors and install controllers	\$11,538	\$1,873	4.44
5 B	DOMESTIC HOT WATER REPLACEMENT	GREEN ACRES SCHOOL	Replace the existing Oil Fired DHW Heater Burner with a New Gas Fired High Efficiency Model	\$4,946	\$1,600	2.97
5 D	DOMESTIC HOT WATER REPLACEMENT	HIGHLAND GF SCHOOL	Replace the existing Oil Fired DHW Heater Burner with a New Gas Fired High Efficiency Model	\$4,946	\$1,600	2.97
5 E	DOMESTIC HOT WATER REPLACEMENT	MCDONOUGH SCHOOL	Replace the existing Oil Fired DHW Heater Burner with a New Gas Fired High Efficiency Model	\$4,946	\$1,600	2.97
5 F	DOMESTIC HOT WATER REPLACEMENT	NORTHWEST SCHOOL	Replace the existing Oil Fired DHW Heater Burner with a New Gas Fired High Efficiency Model	\$4,946	\$1,600	2.97

ENERGY CONSERVATION						
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5 G	DOMESTIC HOT WATER REPLACEMENT	PARKER VARNEY SCHOOL	Replace the existing Oil Fired DHW Heater Burner with a New Gas Fired High Efficiency Model	\$4,946	\$1,600	2.97
5 H	DOMESTIC HOT WATER REPLACEMENT	WEBSTER	Replace the existing Oil Fired DHW Heater Burner with a New Gas Fired High Efficiency Model	\$5,304	\$1,600	3.19
5 I	DOMESTIC HOT WATER REPLACEMENT	WESTON SCHOOL	Replace the existing Oil Fired DHW Heater Burner with a New Gas Fired High Efficiency Model	\$4,946	\$1,600	2.97
3 A	PIPE INSULATION	CENTRAL HIGH SCHOOL	Install missing and damaged pipe insulation on both steam and hot water piping	\$4,250	\$2,515	1.69
3 E	PIPE INSULATION	WEBSTER SCHOOL	Install missing and damaged pipe insulation on both steam and hot water piping	\$1,856	\$1,500	1.24
3 F	PIPE INSULATION	PARKSIDE MIDDLE SCHOOLS	Install missing and damaged pipe insulation on both steam and hot water piping	\$2,375	\$1,500	1.58
2 A	VENDING MISER	CITY WIDE	Install power controls on Vending Machines	\$16,600	\$15,726	1.50
7 A	BUILDING ENVELOPE	BEECH ST SCHOOL	Weatherstrip 13 single, 2 dbl, on overhead doors, seal 800+ ft of roof/wall joint and roof top ventilators.	\$16,803	\$4,559	3.69
7 E	BUILDING ENVELOPE	PARKSIDE MIDDLE SCHOOL	Replace and install weatherstripping around 4 single & 10 dbl doors. Seal 1200 ft of roof/ wall joints, seal perimeter of 13 roof ventilators and lubricate dampers to reduce infiltration.	\$25,646	\$3,948	6.50
7 F	BUILDING ENVELOPE	WEST HIGH SCHOOL	Weatherstrip 12 sgl & 21 dbl doors, 33 rooftop ventilators-seal perimeter & lube dampers, seal 150ft of roof/wall joint, seal 7 duct penetrations. Seal 6 abandoned relief louvers.	\$28,505	\$3,963	7.19
18 A	WIRELESS TEMPERATURE CONTROL	GREEN ACRES SCHOOL	Install 48 wireless T-Stats in place of pneumatic stats	\$28,156	\$4,830	5.83
TOTALS				\$1,145,447	\$225,108	3.08