

# Annual Savings Report – School Performance Contracting Program

## State of Ohio Standard Forms and Documents

Project Name New Richmond EVSD

Date December 20, 2017

Project Number 1319

Project Summary	
School District Name	New Richmond EVSD
State Project Number (SN)	1319
Total Project Cost (\$)	\$1,686,036
Length of Contract Term (years)	13.1
Projected Avg. Annual Savings (\$)	\$128,678
Construction Started / Completed	July 2013 – December 2014
Reporting Year (1, 2, or 3)	3
Guaranteed Energy Savings (\$)	\$110,395
ESCO Name	Energy Optimizers USA
ESCO Address	7950 S. County Rd. 25 A Tipp City, OH 45371
ESCO Phone Number	(937) 877-1919
ESCO Contact Person	Shalini Kumaralingam
ESCO E-mail Address	skumar@energyoptusa.com

At a minimum, the following items must be included in the annual report in order to support the summary table above. Additional information may be included and the items below are in no particular order within your report.

Please check that the following are included in the report.

- ✓ Baseline utility tables (gas, electric, water/sewage, etc.) including rates
- ✓ Actual monthly utility data for the current year
- ✓ List of Adjustments from baseline to current year and the supporting documentation
- ✓ Adjusted utility tables for the current reporting year
- ✓ Conclusion as to whether the project has its savings projection
- ✓ Conclusion as to whether the project has met its guarantee (for projects approved after September 2013)
- ✓ In case of shortfall, what measures are proposed to remedy the shortfall (if applicable)

Prepared By:

*K. Shalini*

Shalini Kumaralingam, Sr. Energy Engineer  
Energy Optimizers, USA

12/20/2017

Date

Certified By:

*Michael Mowery*

Mike Mowery, Treasurer  
New Richmond EVSD

12/20/17

Date

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# 1 Annual Savings Summary

Below is a quick overview of the School Performance Contracting project completed at New Richmond Schools.

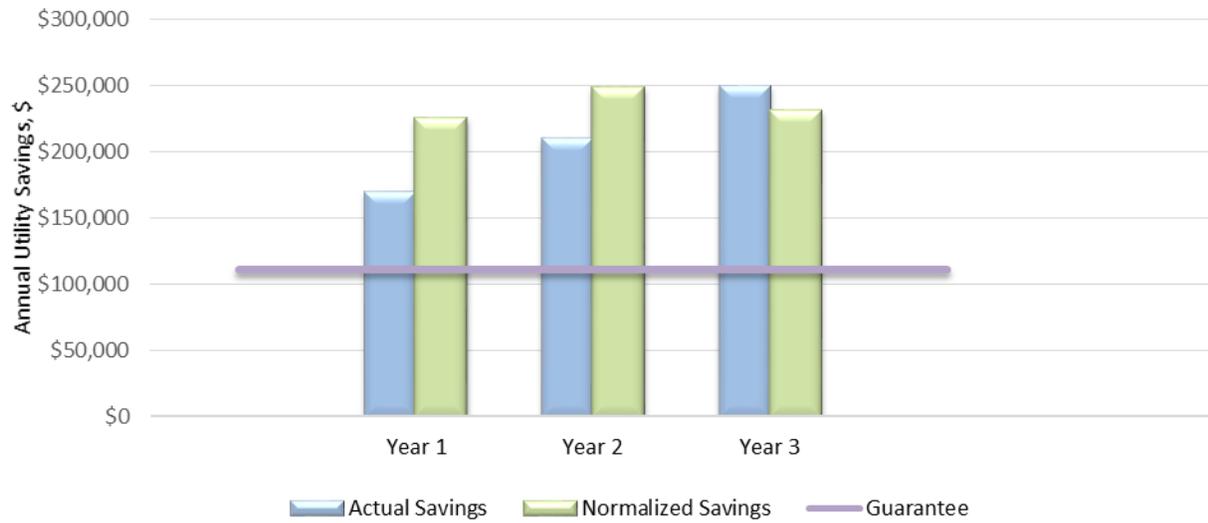
New Richmond Exempted Village Schools	Benchmark	Guarantee		Actual Post-Project			Normalized Post-Project		
	Consumption & Costs	Consumption & Costs	Savings	Consumption & Costs	Savings	% Change to Benchmark	Consumption & Costs	Normalized Savings	% Change to Benchmark
<b>Electric</b>									
Annual Usage, <i>kWh</i>	6,773,710	5,750,359	1,023,351	4,396,276	2,377,434	-35.1%	4,516,308	2,257,402	-33.3%
Annual Cost, \$	\$611,476	\$519,096	\$92,380	\$374,261	\$237,215	-38.8%	\$400,196	\$211,280	-34.6%
<b>Fuel</b>									
Annual Usage, <i>MMBtu</i>	9,183	6,415	2,768	5,519	3,664	-39.9%	6,059	3,124	-34.0%
Annual Cost, \$	\$59,774	\$41,759	\$18,015	\$47,990	\$11,784	-19.7%	\$39,858	\$19,916	-33.3%
<b>Total Annual Utility Cost</b>	<b>\$671,251</b>	<b>\$560,856</b>	<b>\$110,395</b>	<b>\$422,251</b>	<b>\$249,000</b>	<b>-37.1%</b>	<b>\$440,055</b>	<b>\$231,196</b>	<b>-34.4%</b>
<b>Weather</b>									
Cooling Degree Days, <i>CDD</i>	1,298			1,059			-18.4%		
Heating Degree Days, <i>HDD</i>	4,469			4,021			-10.0%		

\*Normalized savings are adjusted for pricing, weather conditions, and major facility changes to ensure an “apples to apples” comparison with benchmark data.

\*\*HDD/CDD – Are a measurement of heating and cooling loads and are defined as the amount of degrees per day that the average temperature deviates from 65 F. For example, a cold day with an average temperature of 20 F would have 45 degree-days for that day (65 F – 20 F).

**The School has met its savings!**

### New Richmond EVSD



OFCC Approved Savings	Guaranteed Savings	Actual Savings	Normalized Savings
Electric \$ 94,485	\$ 18,015	\$ 237,215	\$ 211,280
Natural Gas \$ 28,157	\$ 92,380	\$ 11,784	\$ 19,916
<b>Total Savings \$ 122,642</b>	<b>\$ 110,395</b>	<b>\$ 249,000</b>	<b>\$ 231,196</b>

## 2 Introduction

The Reconciliation Report is meant to highlight the energy savings due to the School Energy Performance Contracting Project for New Richmond Schools. There is a slight difference in the initial submittal savings versus the guaranteed savings due to the adjustments in detailed engineering calculations as well as what the true savings are compared to what we guarantee. The implementation of the energy savings measures was completed in December 2014. This report details energy savings only; operations and maintenance savings have not been tabulated.

### 2.1 Energy Savings Summary

It was anticipated that the School Performance Contracting Project would save the district \$110,395 in energy per year. In the third year of post-project energy data considered, it has been calculated that the district saved \$231,196 in energy!

**Reconciliation Report – Energy Savings Summary**

<b>OFCC Approved Savings</b>	<b>Guaranteed Savings</b>	<b>Actual Savings</b>	<b>Normalized Savings</b>
Electric \$ 94,485	\$ 18,015	\$ 237,215	\$ 211,280
Natural Gas \$ 28,157	\$ 92,380	\$ 11,784	\$ 19,916
<b>Total Savings \$ 122,642</b>	<b>\$ 110,395</b>	<b>\$ 249,000</b>	<b>\$ 231,196</b>

Note: The table above only includes Energy Savings; it does not include Operations and Maintenance Savings.

### **3 Project Adjustments**

There are no adjustments. This page was intentional left blank

## 4 Savings Calculations

We at Energy Optimizers, USA find that the most accurate and reliable way of calculating the savings is Option C which is to compare energy usage data from after the project to data from before the project. Energy data from the time period after the project has been completed, or the “post-project period” is measured against the energy data from before the project started, the baseline or benchmark time period. These two time periods are:

Benchmark Time Period: March 2011 – February 2012  
 Post-Project Time Period: January 2017 – December 2017

### 4.1 Normalized Savings

#### 4.1.1 Need for Normalization

Due to fluctuations in weather and prices in energy, the amount of money spent on energy can change drastically from year-to-year. In order to compare “apples to apples,” normalizing the data for the same weather and energy cost baseline is necessary. For example, if the price of electricity increases from \$0.10/unit to \$0.12/unit from one year to the next, and the owner uses 10% less energy, the overall cost will still increase because of the increased cost per unit.

Normalization is accomplished by adjusting the savings figures by a ratio of the benchmark heating or cooling demand and the post-project heating or cooling demand. Also, the benchmark energy cost rate is multiplied by the energy saved. These two steps remove the variables of weather and energy cost from the savings figures so that they are comparable to the anticipated savings. In turn, this allows us to determine the accurate amount of energy that was saved due to the School Performance Contracting project.

#### 4.1.2 Usage Dependency

The first step is separating each respective energy usage by two or three categories, namely Weather-dependent, Occupancy-dependent, and/or Independent use. The percentages will allow the energy usage that is dependent on the weather to be normalized with respect to changes in weather from year to year. The independent portion is separated so it is not normalized for weather or occupancy. These percentages for the district are displayed in the table below.

**Energy Usage Dependence Percentages**

New Richmond Exempted Village Schools	Pre - Project					
	Electric			Natural Gas		
	Ind %	Wea %	Occ %	Ind %	Wea %	Occ %
New Richmond High School	79.0%	21.0%	0.0%	8.0%	85.7%	6.3%
New Richmond Middle School	98.0%	2.0%	0.0%			
New Richmond Elementary School	79.0%	21.0%	0.0%	10.8%	89.2%	0.0%
Monroe Elementary School	98.0%	2.0%	0.0%			
Locust Corner Elementary	77.9%	18.6%	3.5%	12.5%	87.5%	0.0%

Post - Project						
New Richmond Exempted Village Schools	Electric			Natural Gas		
	Ind %	Wea %	Occ %	Ind %	Wea %	Occ %
New Richmond High School	79.0%	21.0%	0.0%	8.0%	85.7%	6.3%
New Richmond Middle School	98.0%	2.0%	0.0%			
New Richmond Elementary School	79.0%	21.0%	0.0%	10.8%	89.2%	0.0%
Monroe Elementary School	98.0%	2.0%	0.0%			
Locust Corner Elementary	77.9%	18.6%	3.5%	12.5%	87.5%	0.0%

### 4.1.3 Weather Differences

To adjust for differences in weather, it is necessary to determine the annual heating and cooling demand. Energy Optimizers, USA chooses to use heating degree days (HDD) and cooling degree days (CDD) for this measurement, as degree days are a great representation of the typical heating/cooling requirements for a building.

For example, the process of calculating the annual heating degree days is:

When the average outdoor air temperature ( $T_{oa}$ ) is less than the balance point temperature ( $T_{bal}$  - the outdoor air temperature at which heating/cooling is initiated), calculate the difference between the balance point temperature and average outdoor air temperature.

Sum that difference up for all days in the given year.

This equates to the heating degree days per year, and gives us an estimate of the annual heating energy use for a given location and balance temperature. The calculation for heating degree days is represented in the equation below; the process is nearly identical for cooling degree days.

$$\text{Heating Degree Days} = \sum_{i=1}^{365} (T_{bal} - T_{oa,i})$$

The heating and cooling degree days for the both time periods are displayed in the table below.

Heating and Cooling Degree Days			
Weather Data	Baseline	Post Project	% Change to Baseline
Cooling Degree Days CDD	1,298	1,059	-18.4%
Heating Degree Days HDD	4,469	4,021	-10.0%

Using the heating and cooling degree days for each time period, as well as the Baseline Energy Signature breakdown from the initial analysis of the district's energy use, we were able to determine how much of the total energy was used for heating or cooling the facility. The percentage breakdown allows us to adjust the weather dependent portion of the usage with the ratio of heating/cooling degree days of the two time periods, which enables us to calculate the normalized post-project savings. This, in turn, will allow us to see how well the project has performed in comparison to the anticipated savings.

#### 4.1.4 Electricity

Now that the heating and cooling degree days have been determined, it is possible to normalize the energy savings to determine just how much energy and money the School Performance Contracting project saved the district. To adjust for the electricity cost per unit change from the benchmark to the post-project time frame, we will multiple the weather normalized savings by the benchmark electricity cost per unit. The calculations and results are displayed below.

##### Non-Weather Normalized Electricity Usage Calculations

Non-Weather Normalized Data			
Electricity Usage Data	Baseline	Post-Project	Change from Baseline
Annual kWh Usage	6,773,710	4,396,276	-35.1%
Annual kWh Cost	\$611,476	\$374,261	(\$237,215)
Average Cost per kWh	\$0.090	\$0.085	-5.7%
Annual kW Usage (Demand)	24,464	19,161	-
Average Cost per kWh and kW	\$0.00	\$0.00	-
Electrical kBtu/SqFt	55.23	35.84	-35.1%

##### Weather Normalized Electricity Usage Calculations

Weather Normalized Data			
Electricity Usage Data	Baseline	Post-Project	Change from Baseline
Independent kWh Usage	5,935,570	3,862,707	-34.9%
Weather-Dependent kWh Usage	838,140	533,569	0.0%
Electrical kWh/CDD	645.92	504	0.0%
Weather Normalized kWh	6,773,710	4,516,308	-33.3%
Total Electrical kWh/CDD	5,220	4,263	-18.3%

#### 4.1.5 Natural Gas

The same process that was completed to ascertain the normalized electricity savings has been executed for the natural gas side of the savings venture. The calculations and savings associated are shown below.

##### Non-Weather Normalized Natural Gas Usage Calculations

Non-Weather Normalized Data			
Heating Fuel Usage Data	Baseline	Post-Project	Change from Baseline
Annual MMBtu Usage	9,183	5,519	-39.9%
Annual MMBtu Cost	\$59,774	\$47,990	(\$11,784)
Average Cost per MMBtu	\$6.51	\$8.70	33.6%
Heating Fuel kBtu/SqFt	21.94	13.18	-39.9%

##### Weather Normalized Natural Gas Usage Calculations

Weather Normalized Data			
Heating Fuel Usage Data	Baseline	Post-Project	Change from Baseline
Independent MMBtu Usage	1,190	672	-43.5%
Weather-Dependent MMBtu Usage	7,993	4,848	-39.4%
Heating Fuel MMBtu/HDD	1.79	1.21	-32.6%
Weather Normalized MMBtu	9,183	6,059	-34.0%
Total Heating Fuel MMBtu/HDD	2.05	1.51	-26.7%

#### 4.1.6 Savings Summary

##### Total Summarized Savings

OFCC Approved Savings	Guaranteed Savings	Actual Savings	Normalized Savings
Electric \$ 94,485	\$ 18,015	\$ 237,215	\$ 211,280
Natural Gas \$ 28,157	\$ 92,380	\$ 11,784	\$ 19,916
<b>Total Savings \$ 122,642</b>	<b>\$ 110,395</b>	<b>\$ 249,000</b>	<b>\$ 231,196</b>

## 5 Operation and Maintenance Savings

New Richmond Schools approves that Energy Optimizers, USA has met the operations and maintenance savings of \$18,100.

Treasurer's Signature Michael R. Mower

## **6 Proposed Measures for Shortfall in Savings**

This project does not include any shortfalls.

**The School has met its savings!**

# 7 Appendices

## 7.1 District Reconciliation Analysis

### New Richmond Exempted Village Schools



#### District Summary

#### Reconciliation Report: HVAC, Weather and Price Normalized

Baseline Energy Use Time Period: March 2011 - February 2012

Post-Project Energy Use Time Period: March 2017 - August 2017

Note: Energy savings figures only reflect (12) months of post-project data.

Weather Data	Cooling Degree Days (CDD)	Baseline: 1,298	Post Project: 1,059	Difference from Baseline: -18.4%
Weather Stn. Location:	Heating Degree Days (HDD)	Baseline: 4,469	Post Project: 4,021	Difference from Baseline: -10.0%

#### ENERGY USAGE COMPARISON

##### Electricity Usage Data

Non-Weather Normalized Data				Weather Normalized Data			
Electricity Usage Data	Baseline	Post-Project	Change from Baseline	Electricity Usage Data	Baseline	Post-Project	Change from Baseline
Annual kWh Usage	6,773,710	4,396,276	-35.1%	Independent kWh Usage	5,935,570	3,862,707	-34.9%
Annual kWh Cost	\$611,476	\$374,261	(\$237,215)	Weather-Dependent kWh Usage	838,140	533,569	0.0%
Average Cost per kWh	\$0.090	\$0.085	-5.7%	Electrical kWh/CDD	645.92	504	0.0%
Annual kW Usage (Demand)	24,464	19,161	-	Weather Normalized kWh	6,773,710	4,516,308	-33.3%
Average Cost per kWh and kW	\$0.00	\$0.00	-	Total Electrical kWh/CDD	5,220	4,263	-18.3%
Electrical kBtu/SqFt	55.23	35.84	-35.1%				

##### Heating Fuel Usage Data

Non-Weather Normalized Data				Weather Normalized Data			
Heating Fuel Usage Data	Baseline	Post-Project	Change from Baseline	Heating Fuel Usage Data	Baseline	Post-Project	Change from Baseline
Annual MMBtu Usage	9,183	5,519	-39.9%	Independent MMBtu Usage	1,190	672	-43.5%
Annual MMBtu Cost	\$59,774	\$47,990	(\$11,784)	Weather-Dependent MMBtu Usage	7,993	4,848	-39.4%
Average Cost per MMBtu	\$6.51	\$8.70	33.6%	Heating Fuel MMBtu/HDD	1.79	1.21	-32.6%
Heating Fuel kBtu/SqFt	21.94	13.18	-39.9%	Weather Normalized MMBtu	9,183	6,059	-34.0%
				Total Heating Fuel MMBtu/HDD	2.05	1.51	-26.7%

#### Savings Summary

	Proposed Savings - Unit	Proposed Savings Cost	Bill to Bill Savings by Unit	Bill to Bill Savings Cost	Normalized Savings - Unit	Normalized Savings Cost
Electrical Savings - kWh	1,023,351	\$92,380	2,627,783	\$237,215	2,257,402	\$211,280
Heating Fuel Savings - MMBtu	2,768	\$18,015	1,810	\$11,784	3,124	\$19,916

#### TOTAL SAVINGS:

Anticipated Savings	\$110,395	Bill to Bill Comparison Savings	\$249,000	Normalized Savings	\$231,196
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## 7.2 District Utility Analysis



# New Richmond Exempted Village Schools

### District Summary

Post Project Period January 2017 - December 2017

FACILITY LOCATION NAME	FACILITY SIZE (S.F.)	ANNUAL ELECTRIC		ANNUAL KW	COST/ KWH	KBTU/ SF	ANNUAL FUEL (Total)		COST/ MMBTU	KBTU/ SF	TOTAL	TOTAL	TOTAL
		KWH	COST				MMBTU	COST (Total)			ANNUAL COST	KBTU/SF	\$/SF
1 New Richmond High School	110,000	1,249,609	\$ 103,071	4907.2	\$ 0.082	38.77	1,600	\$ 15,631	\$ 9.77	14.55	\$ 118,701	53.32	\$ 1.08
2 New Richmond Middle School	66,000	967,136	\$ 76,481	4413.4	\$ 0.079	50.01	-	\$ -	\$ -	-	\$ 76,481	50.01	\$ 1.16
3 New Richmond Elementary School	73,600	547,684	\$ 49,132	2666.9	\$ 0.090	25.40	2,766	\$ 21,003	\$ 7.59	37.58	\$ 70,136	62.98	\$ 0.95
4 Monroe Elementary School	83,000	1,004,393	\$ 81,444	9840.8	\$ 0.081	41.30	-	\$ -	\$ -	-	\$ 81,444	41.30	\$ 0.98
5 Locust Corner Elementary	86,000	627,454	\$ 64,133	3459.2	\$ 0.102	24.90	1,153	\$ 11,356	\$ 9.85	13.40	\$ 75,489	38.30	\$ 0.88
<b>District Totals</b>	<b>418,600</b>	<b>4,396,276</b>	<b>\$ 374,261</b>	<b>25287.6</b>	<b>\$ 0.085</b>	<b>35.84</b>	<b>5,519</b>	<b>\$ 47,990</b>	<b>\$ 8.70</b>	<b>13.18</b>	<b>\$ 422,251</b>	<b>49.03</b>	<b>\$ 1.01</b>

Baseline Period March 2011 - February 2012

FACILITY LOCATION NAME	FACILITY SIZE (S.F.)	ANNUAL ELECTRIC		ANNUAL KW	COST/ KWH	KBTU/ SF	ANNUAL FUEL (Total)		COST/ MMBTU	KBTU/ SF	TOTAL	TOTAL	TOTAL
		KWH	COST				MMBTU	COST (Total)			ANNUAL COST	KBTU/SF	\$/SF
1 New Richmond High School	110,000	2,204,369	\$ 189,595	12039.0	\$ 0.086	68.40	4,889	\$ 30,527	\$ 6.24	44.45	\$ 220,122	112.84	\$ 2.00
2 New Richmond Middle School	66,000	1,350,003	\$ 118,691	4069.9	\$ 0.088	69.81	-	\$ -	\$ -	-	\$ 118,691	69.81	\$ 1.80
3 New Richmond Elementary School	73,600	689,037	\$ 83,414	2705.9	\$ 0.121	31.95	2,726	\$ 17,225	\$ 6.32	37.03	\$ 100,639	68.99	\$ 1.37
4 Monroe Elementary School	83,000	1,609,106	\$ 133,847	8355.1	\$ 0.083	66.17	-	\$ -	\$ -	-	\$ 133,847	66.17	\$ 1.61
5 Locust Corner Elementary	86,000	921,195	\$ 85,930	3241.7	\$ 0.093	36.56	1,568	\$ 12,022	\$ 7.67	18.24	\$ 97,952	54.79	\$ 1.14
<b>District Totals</b>	<b>418,600</b>	<b>6,773,710</b>	<b>\$ 611,476</b>	<b>30411.6</b>	<b>\$ 0.090</b>	<b>55.23</b>	<b>9,183</b>	<b>\$ 59,774</b>	<b>\$ 6.51</b>	<b>21.94</b>	<b>\$ 671,251</b>	<b>77.17</b>	<b>\$ 1.60</b>

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Total
2017-2017 - Heating Degree Days	615	169	130	4	0	0	45	250	417	963	845	584	4,021
2011-2012 - Heating Degree Days	839	639	230	160	0	0	0	107	317	486	783	908	4,469
2017-2017 - Cooling Degree Days	1	39	77	207	338	231	125	40	1	0	0	0	1,059
2011-2012 - Cooling Degree Days	0	5	9	124	241	494	335	80	8	3	0	0	1,298

### 7.3 New Richmond High School Utility Data

<b>New Richmond High School</b>			
1131 Bethel Rd, New Richmond, OH			Facility Size 110,000

Post Project Data	Electricity					Fuel				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/ kWh	Demand (kW billed)	Meter Read Date	Fuel (MMBtu)	Cost (\$)	Cost/ MMBtu	Total (\$)	\$/SF
	03/15/17	91,198	\$8,271	\$ 0.091	399.2	04/15/17	213	\$1,822	\$ 8.56	\$10,094	\$ 0.09
	04/15/17	84,367	\$7,876	\$ 0.093	396.6	05/15/17	189	\$1,664	\$ 8.80	\$9,539	\$ 0.09
	05/15/17	92,784	\$8,265	\$ 0.089	403.0	06/15/17	135	\$1,319	\$ 9.77	\$9,584	\$ 0.09
	06/15/17	102,158	\$9,088	\$ 0.089	458.4	07/15/17	82	\$978	\$ 11.86	\$10,066	\$ 0.09
	07/15/17	101,028	\$8,746	\$ 0.087	419.0	08/15/17	60	\$835	\$ 13.81	\$9,581	\$ 0.09
	08/15/17	102,998	\$6,180	\$ 0.060	435.0	09/15/17	59	\$824	\$ 13.86	\$7,004	\$ 0.06
	09/15/17	121,009	\$9,924	\$ 0.082	437.6	10/15/17	74	\$915	\$ 12.43	\$10,839	\$ 0.10
	10/15/17	116,906	\$9,230	\$ 0.079	426.4	11/15/17	67	\$871	\$ 13.05	\$10,101	\$ 0.09
	11/15/17	105,559	\$8,310	\$ 0.079	368.4	12/15/17	147	\$1,379	\$ 9.38	\$9,689	\$ 0.09
	12/15/17	121,866	\$9,373	\$ 0.077	380.5	01/15/17	279	\$2,415	\$ 8.64	\$11,788	\$ 0.11
	01/15/17	107,875	\$9,106	\$ 0.084	371.9	02/15/17	47	\$749	\$ 15.93	\$9,855	\$ 0.09
	02/15/17	101,861	\$8,701	\$ 0.085	411.4	2/15/2016	247	\$1,858	\$ 7.52	\$10,560	\$ 0.10
	Totals	1,249,609	103,071	\$ 0.082	4,907.2		1,600	15,631	\$ 9.77	\$55,868	\$ 0.51

Baseline Pre-Project Data	Electricity					Fuel				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/ kWh	Demand (kW billed)	Meter Read Date	Fuel (MMBtu)	Cost (\$)	Cost/ MMBtu	Total (\$)	\$/SF
	03/01/11	155,427	\$13,315	\$ 0.086	443.3	03/01/11	723.0	\$4,503	\$ 6.23	\$17,818	\$ 0.16
	04/01/11	132,975	\$11,749	\$ 0.088	526.1	04/01/11	570.0	\$3,798	\$ 6.66	\$15,547	\$ 0.14
	05/01/11	146,274	\$12,640	\$ 0.086	608.7	05/01/11	203.3	\$1,382	\$ 6.80	\$14,022	\$ 0.13
	06/01/11	221,764	\$18,872	\$ 0.085	754.0	06/01/11	197.2	\$1,330	\$ 6.75	\$20,202	\$ 0.18
	07/01/11	190,374	\$16,156	\$ 0.085	563.2	07/01/11	0.0	\$0	-	\$16,156	\$ 0.15
	08/01/11	204,722	\$17,120	\$ 0.084	533.8	08/01/11	4.1	\$28	\$ 6.79	\$17,148	\$ 0.16
	09/01/11	240,083	\$19,757	\$ 0.082	694.6	09/01/11	160.2	\$1,008	\$ 6.29	\$20,765	\$ 0.19
	10/01/11	234,100	\$19,461	\$ 0.083	611.2	10/01/11	177.7	\$1,101	\$ 6.19	\$20,562	\$ 0.19
	11/01/11	207,121	\$17,495	\$ 0.084	612.2	11/01/11	362.5	\$2,163	\$ 5.97	\$19,658	\$ 0.18
	12/01/11	157,070	\$13,297	\$ 0.085	496.4	12/01/11	629.6	\$3,658	\$ 5.81	\$16,955	\$ 0.15
	01/01/12	162,256	\$14,560	\$ 0.090	456.8	01/01/12	850.4	\$4,709	\$ 5.54	\$19,269	\$ 0.18
	02/01/12	152,203	\$15,172	\$ 0.100	533.6	02/01/12	1,011.0	\$6,848	\$ 6.77	\$22,020	\$ 0.20
	Totals	2,204,369	189,595	\$ 0.086	12,039.0		4,889	30,527	\$ 6.24	\$220,122	\$ 2.00

## 7.4 New Richmond Middle School Utility Data

New Richmond Middle School		
1135 Bethel-New Richmond	Facility Size	66,000

Post Project Data	Electricity					Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/ kWh	Demand (kW billed)	Total (\$)	\$/SF
	03/15/17	90,137	\$7,031	\$ 0.078	505.2	\$7,031	\$ 0.11
	04/15/17	83,222	\$6,511	\$ 0.078	488.8	\$6,511	\$ 0.10
	05/15/17	59,886	\$4,729	\$ 0.079	246.8	\$4,729	\$ 0.07
	06/15/17	57,770	\$4,825	\$ 0.084	229.1	\$4,825	\$ 0.07
	07/15/17	56,226	\$4,764	\$ 0.085	213.9	\$4,764	\$ 0.07
	08/15/17	58,180	\$4,876	\$ 0.084	218.7	\$4,876	\$ 0.07
	09/15/17	67,711	\$5,705	\$ 0.084	274.8	\$5,705	\$ 0.09
	10/15/17	64,815	\$5,096	\$ 0.079	256.4	\$5,096	\$ 0.08
11/15/17	66,086	\$5,230	\$ 0.079	416.8	\$5,230	\$ 0.08	
12/16/17	105,629	\$8,527	\$ 0.081	468.8	\$8,527	\$ 0.13	
01/15/17	142,739	\$10,219	\$ 0.072	544.4	\$10,219	\$ 0.15	
02/15/17	114,735	\$8,968	\$ 0.078	549.6	\$8,968	\$ 0.14	
Totals	967,136	\$76,481	\$ 0.079	4,413.4	\$76,481	\$ 1.16	

Baseline Pre-Project Data	Electricity					Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/ kWh	Demand (kW billed)	Total (\$)	\$/SF
	03/01/11	110,111	\$9,841	\$ 0.089	373.1	\$9,841	\$ 0.15
	04/01/11	86,212	\$7,815	\$ 0.091	382.4	\$7,815	\$ 0.12
	05/01/11	101,295	\$8,918	\$ 0.088	311.8	\$8,918	\$ 0.14
	06/01/11	98,828	\$8,633	\$ 0.087	268.1	\$8,633	\$ 0.13
	07/01/11	89,444	\$7,959	\$ 0.089	249.2	\$7,959	\$ 0.12
	08/01/11	106,958	\$9,400	\$ 0.088	280.2	\$9,400	\$ 0.14
	09/01/11	120,201	\$10,272	\$ 0.085	277.1	\$10,272	\$ 0.16
	10/01/11	108,042	\$9,467	\$ 0.088	345.7	\$9,467	\$ 0.14
11/01/11	104,025	\$9,053	\$ 0.087	340.1	\$9,053	\$ 0.14	
12/01/11	126,464	\$10,938	\$ 0.086	386.6	\$10,938	\$ 0.17	
01/01/12	156,172	\$13,693	\$ 0.088	421.7	\$13,693	\$ 0.21	
02/01/12	142,251	\$12,705	\$ 0.089	433.9	\$12,705	\$ 0.19	
Totals	1,350,003	118,691	\$ 0.088	4,069.9	\$118,691	\$ 1.80	

## 7.5 New Richmond Elementary School Utility Data

<b>New Richmond Elementary School</b>			
<b>1141 Bethel Rd</b>			<b>Facility Size</b>
			73,600

Post Project Data	Electricity					Fuel				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/ kWh	Demand (kW billed)	Meter Read Date	Fuel (MMBtu)	Cost (\$)	Cost/ MMBtu	Total (\$)	\$/SF
	03/15/17	41,384	\$3,779	\$ 0.091	173.9	04/15/17	290.3	\$2,182	\$ 7.51	\$5,961	\$ 0.08
	04/15/17	37,843	\$4,370	\$ 0.115	246.7	05/15/17	256.0	\$1,961	\$ 7.66	\$6,331	\$ 0.09
	05/15/17	39,248	\$4,115	\$ 0.105	245.9	06/15/17	104.2	\$983	\$ 9.43	\$5,098	\$ 0.07
	06/15/17	40,890	\$3,712	\$ 0.091	256.8	07/15/17	42.4	\$581	\$ 13.70	\$4,293	\$ 0.06
	07/15/17	39,372	\$3,509	\$ 0.089	147.5	08/15/17	16.9	\$415	\$ 24.50	\$3,924	\$ 0.05
	08/15/17	40,405	\$2,445	\$ 0.061	248.3	09/15/17	16.3	\$410	\$ 25.1	\$2,855	\$ 0.04
	09/15/17	51,204	\$4,681	\$ 0.091	263.2	10/15/17	33.4	\$520	\$ 15.57	\$5,201	\$ 0.07
	10/15/17	50,397	\$4,649	\$ 0.092	258.7	11/15/17	19.7	\$432	\$ 21.89	\$5,080	\$ 0.07
11/15/17	52,161	\$4,836	\$ 0.093	256.5	12/15/17	270.4	\$2,032	\$ 7.52	\$6,868	\$ 0.09	
12/15/17	56,474	\$5,122	\$ 0.091	264.5	12/13/17	599.2	\$4,271	\$ 7.13	\$9,393	\$ 0.13	
01/15/17	51,516	\$3,956	\$ 0.077	136.3	02/15/17	661.8	\$4,573	\$ 6.91	\$8,528	\$ 0.12	
02/15/17	46,791	\$3,957	\$ 0.085	168.3	02/13/16	455.5	\$2,645	\$ 5.81	\$6,602	\$ 0.09	
Totals	547,684	\$ 49,132	\$ 0.090	2,666.9		2,766.2	\$21,003	\$ 7.59	\$70,136	\$ 0.95	

Baseline Pre-Project Data	Electricity					Fuel				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/ kWh	Demand (kW billed)	Meter Read Date	Fuel (MMBtu)	Cost (\$)	Cost/ MMBtu	Total (\$)	\$/SF
	03/01/11	58,059	\$7,315	\$ 0.126	165.3	03/01/11	369.7	\$2,347	\$ 6.35	\$9,661	\$ 0.13
	04/01/11	50,704	\$6,877	\$ 0.136	274.4	04/01/11	221.8	\$1,504	\$ 6.78	\$8,382	\$ 0.11
	05/01/11	53,450	\$6,561	\$ 0.123	211.0	05/01/11	79.1	\$547	\$ 6.92	\$7,108	\$ 0.10
	06/01/11	57,307	\$6,381	\$ 0.111	311.1	06/01/11	29.8	\$204	\$ 6.87	\$6,586	\$ 0.09
	07/01/11	46,238	\$5,104	\$ 0.110	148.6	07/01/11	17.5	\$120	\$ 6.90	\$5,224	\$ 0.07
	08/01/11	57,937	\$5,863	\$ 0.101	258.2	08/01/11	17.5	\$121	\$ 6.91	\$5,984	\$ 0.08
	09/01/11	68,900	\$7,866	\$ 0.114	323.0	09/01/11	20.5	\$132	\$ 6.41	\$7,997	\$ 0.11
	10/01/11	60,172	\$7,527	\$ 0.125	276.5	10/01/11	38.0	\$240	\$ 6.31	\$7,767	\$ 0.11
11/01/11	54,021	\$7,085	\$ 0.131	253.4	11/01/11	165.3	\$1,006	\$ 6.08	\$8,091	\$ 0.11	
12/01/11	60,950	\$7,350	\$ 0.121	169.2	12/01/11	395.4	\$2,344	\$ 5.93	\$9,694	\$ 0.13	
01/01/12	61,764	\$7,668	\$ 0.124	151.3	01/01/12	617.2	\$3,491	\$ 5.66	\$11,160	\$ 0.15	
02/01/12	59,536	\$7,817	\$ 0.131	163.9	02/01/12	753.8	\$5,168	\$ 6.86	\$12,985	\$ 0.18	
Totals	689,037	\$ 83,414	\$ 0.121	2,705.9		2,725.7	\$ 17,225	\$ 6.32	\$100,639	\$ 1.37	

## 7.6 Monroe Elementary School Utility Data

Monroe Elementary School		
2117 Laurel-Lindale Rd	Facility Size	83,000

Post Project Data	Electricity					Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/ kWh	Demand (kW billed)	Total (\$)	\$/SF
	03/15/17	96,475	\$7,643	\$ 0.079	1,423.2	\$7,643	\$ 0.09
	04/15/17	75,653	\$6,027	\$ 0.080	1,335.6	\$6,027	\$ 0.07
	05/15/17	58,366	\$4,665	\$ 0.080	801.6	\$4,665	\$ 0.06
	06/15/17	51,474	\$4,796	\$ 0.093	258.0	\$4,796	\$ 0.06
	07/15/17	55,835	\$4,858	\$ 0.087	235.6	\$4,858	\$ 0.06
	08/15/17	61,937	\$5,171	\$ 0.083	235.6	\$5,171	\$ 0.06
	09/15/17	68,889	\$5,563	\$ 0.081	240.0	\$5,563	\$ 0.07
	10/15/17	64,446	\$5,105	\$ 0.079	283.2	\$5,105	\$ 0.06
11/15/17	66,857	\$5,294	\$ 0.079	1,078.8	\$5,294	\$ 0.06	
12/15/17	125,485	\$9,874	\$ 0.079	1335.6	\$9,874	\$ 0.12	
01/15/17	157,924	\$12,875	\$ 0.082	1,190.4	\$12,875	\$ 0.16	
02/15/17	121,052	\$9,573	\$ 0.079	1,423.2	\$9,573	\$ 0.12	
Totals	1,004,393	\$81,444	\$ 0.081	9,840.8	\$81,444	\$ 0.98	

Baseline Pre-Project Data	Electricity					Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/ kWh	Demand (kW billed)	Total (\$)	\$/SF
	03/01/11	151,351	\$12,359	\$ 0.082	911.5	\$12,359	\$ 0.15
	04/01/11	123,466	\$10,182	\$ 0.082	858.0	\$10,182	\$ 0.12
	05/01/11	101,563	\$8,386	\$ 0.083	877.2	\$8,386	\$ 0.10
	06/01/11	100,810	\$8,735	\$ 0.087	388.8	\$8,735	\$ 0.11
	07/01/11	108,488	\$8,904	\$ 0.082	194.4	\$8,904	\$ 0.11
	08/01/11	99,995	\$8,335	\$ 0.083	193.2	\$8,335	\$ 0.10
	09/01/11	112,076	\$9,145	\$ 0.082	284.4	\$9,145	\$ 0.11
	10/01/11	94,237	\$7,720	\$ 0.082	709.2	\$7,720	\$ 0.09
11/01/11	123,439	\$10,095	\$ 0.082	1,104.0	\$10,095	\$ 0.12	
12/01/11	173,454	\$14,162	\$ 0.082	906.0	\$14,162	\$ 0.17	
01/01/12	217,749	\$18,215	\$ 0.084	930.0	\$18,215	\$ 0.22	
02/01/12	202,478	\$17,608	\$ 0.087	998.4	\$17,608	\$ 0.21	
Totals	1,609,106	\$133,847	\$ 0.083	8,355.1	\$133,847	\$ 1.61	

## 7.7 Locust Corner Elementary School Utility Data

<b>Locust Corner Elementary</b>			
<b>3431 Locust Corner Rd</b>			<b>Facility Size</b>
			86,000

Post Project Data	Electricity					Fuel				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/kWh	Demand (kW billed)	Meter Read Date	Fuel (MMBtu)	Cost (\$)	Cost/MMBtu	Total (\$)	\$/SF
	03/15/17	40,121	\$5,143	\$ 0.128	307.0	03/15/17	191.4	\$1,558	\$ 8.14	\$6,701	\$ 0.08
	04/15/17	40,034	\$5,201	\$ 0.130	307.0	04/15/17	92.4	\$910	\$ 9.85	\$6,111	\$ 0.07
	05/15/17	50,867	\$5,687	\$ 0.112	307.0	05/15/17	24.3	\$466	\$ 19.16	\$6,154	\$ 0.07
	06/15/17	55,210	\$5,393	\$ 0.098	307.0	06/15/17	17.4	\$420	\$ 24.21	\$5,813	\$ 0.07
	07/15/17	53,347	\$5,323	\$ 0.100	307.0	07/15/17	6.7	\$350	\$ 52.39	\$5,673	\$ 0.07
	08/15/17	55,584	\$5,438	\$ 0.098	307.0	08/15/17	5.6	\$343	\$ 60.75	\$5,781	\$ 0.07
	09/15/17	69,372	\$5,739	\$ 0.083	257.5	09/15/17	8.7	\$407	\$ 46.61	\$6,146	\$ 0.07
	10/15/17	68,946	\$5,582	\$ 0.081	248.8	10/15/17	10.5	\$374	\$ 35.67	\$5,956	\$ 0.07
11/15/17	49,249	\$4,610	\$ 0.094	248.8	11/15/17	29.7	\$499	\$ 16.80	\$5,109	\$ 0.06	
12/15/17	48,486	\$4,567	\$ 0.094	248.0	12/15/17	204.2	\$1,745	\$ 8.55	\$6,312	\$ 0.07	
01/15/17	52,493	\$6,145	\$ 0.117	307.0	01/15/17	237.0	\$1,856	\$ 7.83	\$8,001	\$ 0.09	
02/15/17	43,745	\$5,303	\$ 0.121	307.0	02/15/17	324.7	\$2,428	\$ 7.48	\$7,732	\$ 0.09	
Totals	627,454	\$64,133	\$ 0.102	3,459.2		1,152.7	\$11,356	\$ 9.85	\$75,489	\$ 0.88	

Baseline Pre-Project Data	Electricity					Fuel				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/kWh	Demand (kW billed)	Meter Read Date	Fuel (MMBtu)	Cost (\$)	Cost/MMBtu	Total (\$)	\$/SF
	03/01/11	61,135	\$5,756	\$ 0.094	203.8	03/01/11	258.8	\$1,934	\$ 7.47	\$7,689	\$ 0.09
	04/01/11	58,616	\$5,660	\$ 0.097	203.8	04/01/11	123.2	\$1,061	\$ 8.61	\$6,721	\$ 0.08
	05/01/11	73,789	\$6,879	\$ 0.093	351.6	05/01/11	17.5	\$242	\$ 13.87	\$7,121	\$ 0.08
	06/01/11	98,300	\$8,467	\$ 0.086	336.9	06/01/11	15.4	\$138	\$ 8.94	\$8,604	\$ 0.10
	07/01/11	72,676	\$6,540	\$ 0.090	296.7	07/01/11	12.3	\$99	\$ 8.00	\$6,638	\$ 0.08
	08/01/11	100,121	\$8,489	\$ 0.085	325.2	08/01/11	10.3	\$88	\$ 8.54	\$8,576	\$ 0.10
	09/01/11	109,648	\$9,390	\$ 0.086	384.4	09/01/11	14.4	\$108	\$ 7.53	\$9,499	\$ 0.11
	10/01/11	79,753	\$7,111	\$ 0.089	296.7	10/01/11	30.8	\$218	\$ 7.07	\$7,329	\$ 0.09
11/01/11	68,454	\$6,355	\$ 0.093	236.5	11/01/11	135.6	\$924	\$ 6.82	\$7,279	\$ 0.08	
12/01/11	70,941	\$6,521	\$ 0.092	208.0	12/01/11	248.5	\$1,829	\$ 7.36	\$8,350	\$ 0.10	
01/01/12	61,856	\$6,571	\$ 0.106	198.5	01/01/12	263.9	\$2,242	\$ 8.49	\$8,813	\$ 0.10	
02/01/12	65,906	\$8,191	\$ 0.124	199.6	02/01/12	437.5	\$3,140	\$ 7.18	\$11,331	\$ 0.13	
Totals	921,195	\$85,930	\$ 0.093	3,241.7		1,568.2	\$ 12,022	\$ 7.67	\$97,952	\$ 1.14	