



# Guaranteed Energy Savings

Mark J. Gallick – Account Manager

Michael Grochalski, P.E., C.E.M. – Energy Services Specialist



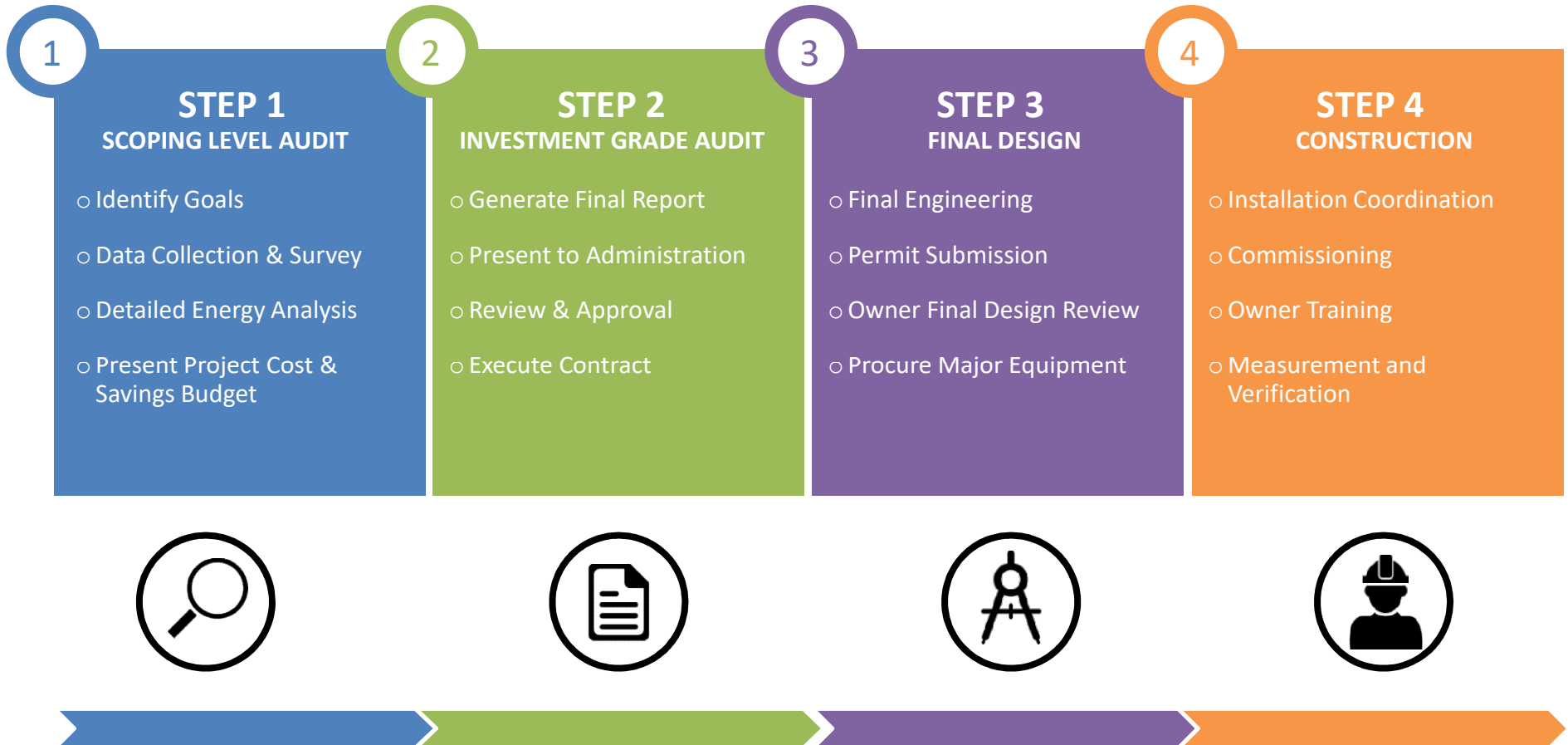


# Timeline

- + Pre-Scoping Audit
  - September
- + Investment Grade Audit
  - November
- + GESA Contract Approval
  - January/February
- + Construction
  - March/April
  - Potential areas for Early Start
- + Major Construction
  - June



# Recommendations





# Bendersville Elementary School

## + LED Upgrades

- Interior & Exterior Fixture Retrofits

## + Building Envelope Upgrades

- Seal Exterior of the Building

## + Mechanical Insulation

- Insulate Exposed Mechanical Heat Sources

## + MEP Upgrades

- Library and Office are not included, currently have cooling
- New Central Hot Water Plant
- New RTU for Multipurpose Room
- VUV Units in all Classrooms
- Control Upgrade

## + Windows & Door Upgrades

- Remove and Replace Existing Windows
- New Storefront Entrance
- Replace Wood Exterior Doors





# Bendersville Elementary School

## + Bathroom Renovations

- Renovate Bathrooms
- New Fixtures
- New Dividers

## + Music Room Carpet Replacement

- New Carpet

## + Generator Replacement

- Direct Replacement of the Generator





# Bendersville Elementary School Costs

Upper Adams School District Energy Conservation Measures				
Description	ECM	ECM	Development	Program
	Cost	20 Year Savings	Status	1
<b><i>Bendersville Elementary School</i></b>				
Bendersville Elementary LED Upgrades	\$42.5K-\$47.0K	\$105K-\$117K	Budget	
Bendersville Elementary Building Envelope Upgrades	\$6.6K-\$7.28K	\$37.6K-\$41.6K	Budget	
Bendersville Elementary Mechanical Insulation	\$9.5K-\$10.5K	\$21.2K-\$23.4K	Budget	
Bendersville Elementary MEP Upgrades	\$1.52M-\$1.68M	\$48.8K-\$54.0K	Budget	
Bendersville Elementary Windows & Doors Upgrades	\$193.6K-\$214.0K	\$7.87K-\$8.70K	Budget	
Bendersville Elementary Bathroom Renovations	\$223.1K-\$246.5K	\$4.5K-\$5.0K	Budget	
Bendersville Elementary Music Room Carpet Replacement	\$3.99K-\$4.41K	\$ -	Budget	
Bendersville Elementary Generator Replacement	\$84.62K-\$93.53K	\$ -	Budget	
<b>Bendersville Elementary School</b>				<b>Program 1</b>
<b>Total Hard Costs</b>				<b>\$2.09M-\$2.31M</b>
Engineering Costs (Mechanical, Electrical, Energy, Structural, Etc.)				\$104.37K-\$115.36K
Construction Management				\$31.31K-\$34.61K
Permits & Bonds				\$33.40K-\$36.91
Commissioning				\$18.79K-\$20.76K
Measurement & Verification				\$14.61K-\$16.15K
<b>Total Soft Costs</b>				<b>\$202.48K-\$223.48K</b>
<b>Total Project Costs</b>				<b>\$2.29-\$2.53M</b>
<b>20 Year Energy and Operational Savings (S):</b>				<b>\$225K-\$250K</b>
<b>Actual Project Cost (TPC-S):</b>				<b>\$2.0M-2.3M</b>



# Arendtsville Elementary School

## + LED Upgrades

- Interior & Exterior Fixture Retrofits

## + Building Envelope Upgrades

- Seal Exterior of the Building

## + Mechanical Insulation

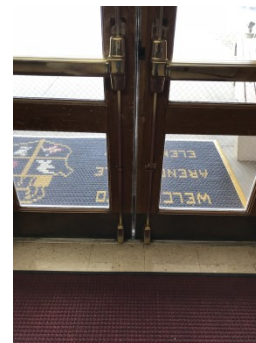
- Insulate Exposed Mechanical Heat Sources

## + MEP Upgrades

- Cafeteria, Library and Office are not included, currently have cooling
- New Central Hot Water Plant
- New RTU for Multipurpose Room
- VUV Units in all Classrooms
- Control Upgrade

## + Windows & Door Upgrades

- Remove and Replace Existing Windows
- New Storefront Entrance
- Replace Wood Exterior Doors





# Arendtsville Elementary School

## + Bathroom Renovations

- Renovate Bathrooms
- New Fixtures
- New Dividers

## + Library Room Carpet Replacement

- New Carpet

## + Generator Replacement

- Direct Replacement of the Generator







# Arendtsville Elementary School Costs

Upper Adams School District Energy Conservation Measures				
Description	ECM Cost	ECM 20 Year Savings	Development Status	Program 1
<b><i>Arendtsville Elementary School</i></b>				
Arendtsville Elementary LED Upgrades	\$34.79K-\$38.45K	\$94.97K-\$104.97K	Budget	
Arendtsville Elementary Building Envelope Upgrades	\$12.14K-\$13.42	\$20.86K-\$23.06K	Budget	
Arendtsville Elementary Mechanical insulation	\$7.63K-\$8.43	\$18.11K-\$20.02K	Budget	
Arendtsville Elementary MEP Upgrades	\$1.45M-\$1.60M	\$50.47K-\$55.78K	Budget	
Arendtsville Elementary Windows & Doors Upgrades	335.70K-371.04K	\$25.45K-\$28.12K	Budget	
Arendtsville Elementary Bathroom Renovations	\$223.1K-\$246.55K	\$4.57K-\$5.05K	Budget	
Arendtsville Elementary Library Carpet Replacement	\$11.28K-\$12.47K	\$ -	Budget	
Arendtsville Elementary Generator Replacement	\$84.63K-\$93.53K	\$ -	Budget	
				<b>Program 1</b>
<b>Total Hard Costs</b>				<b>\$2.16M-\$2.38M</b>
Engineering Costs (Mechanical, Electrical, Energy, Structural, Etc.)				\$107.89K-\$119.25K
Construction Management				\$32.37K-35.77K
Permits & Bonds				\$34.52K-\$38.16K
Commissioning				\$19.42K-\$21.46K
Measurement & Verification				209.30K-231.34K
<b>Total Soft Costs</b>				<b>\$418.61K-\$462.67K</b>
<b>Total Project Costs</b>				<b>\$2.58M-\$2.85M</b>
<b>20 Year Energy and Operational Savings (S):</b>				<b>\$214K-\$237K</b>
<b>Actual Project Cost (TPC-S):</b>				<b>\$2.36M-\$2.61M</b>



# Biglerville Elementary School

## + LED Upgrades

- Interior & Exterior Fixture Retrofits

## + Building Envelope Upgrades

- Seal Exterior of the Building

## + Mechanical Insulation

- Insulate Exposed Mechanical Heat Sources

## + Transformer Upgrades

- Replace Transformers with Energy Efficient Transformers

## + Windows Upgrades

- Replace Wood Core Windows

## + Gutter System Replacement

- Replace Gutter System





# Biglerville Elementary School

## + Bathroom Renovations

- Renovate Bathrooms
- New Fixtures
- New Dividers

## + Gym/Cafeteria Divider Replacement

- Existing divider is not operational

## + Generator Replacement

- Direct Replacement of the Generator





# Biglerville Elementary School

## + HVAC Upgrades

- Provided 2 Options
- Both include Control Upgrade

## + Option 1 – Direct Replacement

- Air Handler Replacements in Kind

## + Option 2 – VUV Upgrade

- Abandon Air Handling Units and VAVs and install VUV Units in Classrooms





# Biglerville Elementary School Costs

Upper Adams School District Energy Conservation Measures					
Description	ECM Cost	ECM 20 Year Savings	Development Status	Program 1	Program 2
<b>Biglerville Elementary School</b>					
Biglerville Elementary LED Upgrades	\$94.47K-\$104.41K	\$216.79K-\$239.61K	Budget		
Biglerville Elementary Buidling Envelope Upgrades	\$12.58K-\$13.90K	\$48.55K-\$53.66K	Budget		
Biglerville Elementary Mechanical Insulation	\$8.25K-\$9.12K	\$16.62K-\$18.27K	Budget		
Biglerville Elementary Transformer Upgrade	\$52.08K-\$57.56K	\$106.04K-\$117.20K	Budget		
Biglerville Elementary MEP Upgrades (Direct Replacement)	\$678.23K-\$749.62K	\$75.44K-\$83.38K	Budget		
Biglerville Elementary MEP Upgrades (VUV Upgrade)	\$2.97M-\$3.29M	\$94.45K-\$104.39K	Budget		
Biglerville Elementary Windows Upgrades	\$225.91K-\$249.69K	\$7.87K-\$8.70K	Budget		
Biglerville Elementary Bathroom Renvoations	\$111.53K-\$123.27K	\$1.63K-\$1.80K	Budget		
Biglerville Elementary Gutter System Replacement	\$125.71K-\$138.94K	\$ -	Budget		
Biglerville Elementary Gym/Cafeteria Divider Replacement	\$30.69K-\$33.92K	\$ -	Budget		
				<b>Program 1</b>	<b>Program 2</b>
			<b>Total Hard Costs</b>	<b>\$1.34M-\$1.48M</b>	<b>\$3.64M-\$4.02M</b>
			Engineering Costs (Mechanical, Electrical, Energy, Structural, Etc.)	\$66.97K-\$74.02K	\$181.75K-\$200.89K
			Construction Management	\$20.09K-\$22.21K	\$54.53K-\$60.27K
			Permits & Bonds	\$21.43K-\$23.69K	\$58.16K-\$64.28K
			Commissioning	\$12.05K-\$13.32K	\$32.72K-\$36.16K
			Measurement & Verification	\$9.38K-\$10.36K	\$25.45K-\$28.12K
			<b>Total Soft Costs</b>	<b>\$129.93K-\$143.60K</b>	<b>\$352.60K-\$389.72K</b>
			<b>Total Project Costs</b>	<b>\$1.47M-\$1.62M</b>	<b>\$3.99M-\$4.41M</b>
			<b>20 Year Energy and Operational Savings (S):</b>	<b>\$472.94K-\$522.73K</b>	<b>\$491.95K-\$543.74K</b>
			<b>Actual Project Cost (TPC-S):</b>	<b>\$996.43K-\$1.24M</b>	<b>\$3.50M-\$3.86M</b>





# Middle/High School

## + LED Upgrades

- Interior & Exterior Fixture Retrofits

## + Building Envelope Upgrades

- Seal Exterior of the Building

## + Mechanical Insulation

- Insulate Exposed Mechanical Heat Sources

## + Transformer Upgrades

- Replace Transformers with Energy Efficient Transformers

## + MEP Upgrades

- Replace 14 Roof Top Units
- Replace Gym Heating Only Units with Cooling RTUs
- New Cooling Units for the Wrestling Room and Cardio Room
- Control Upgrade
- Federal Pacific Electrical System Upgrade





# Middle/High School

## + Locker Room Renovations

- Renovate Existing Space

## + Team Room Renovations

- Renovate Existing Space

## + Admin Board Room Carpet Renovations

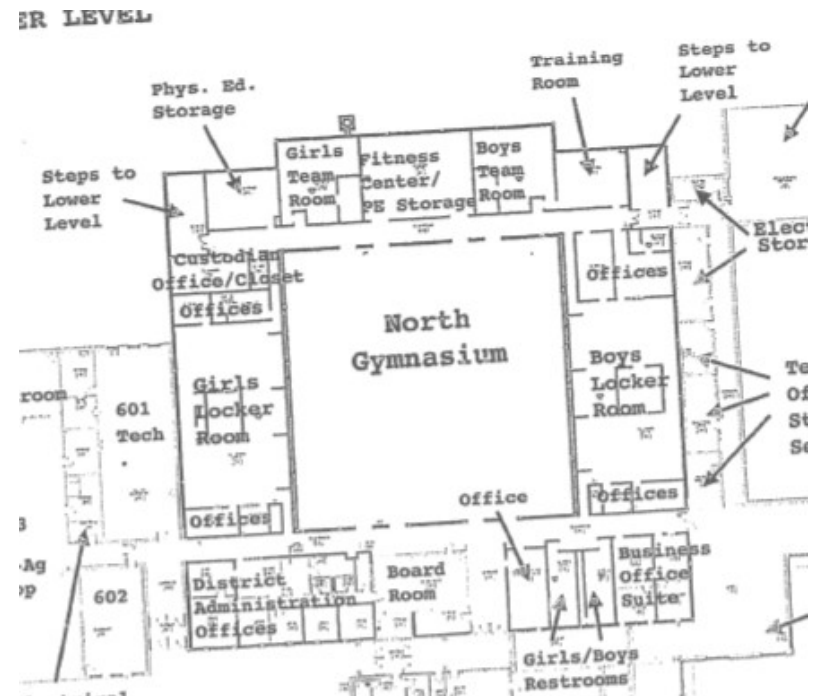
- Replace Carpet

## + Generator Upgrade for IT & Walk-In Coolers

- Upgrade Generator to add capacity

## + Administration Area Fit-out

- Repurpose space for classrooms





# MS/HS Costs

Upper Adams School District Energy Conservation Measures					
Description	ECM Cost	ECM 20 Year Savings	Development Status	Program 1	Program 2
<b>Middle/High School</b>					
MS/HS LED Upgrades	\$272.19K-\$300.84K	\$724.76K-\$801.05K	Budget		
MS/HS Building Envelope Upgrades	\$16.77K-\$18.53K	\$63.97K-\$70.71K	Budget		
MS/HW Mechanical Insulation	\$11.15K-\$12.33K	\$26.04K-\$28.79K	Budget		
MS/HS Transformer Upgrade	\$46.77K-\$51,70K	\$84.79K-\$93.72K	Budget		
MS/HS MEP Upgrades	\$2.38M-\$2.64M	\$ -	Budget		
MS/HS Locker Room Renovations	\$858.54K-\$948.91K	\$ -	Budget		
MS/HS Team Room Renovations	\$290.98K-\$321.60K	\$ -	Budget		
MS/HS Admin Board Room Carpet Replacement	\$3.76K-\$4.16K	\$ -	Budget		
MS/HS Generator Upgrade for IT & Walk-In Coolers	\$127.43K-\$140.85K	\$ -	Budget		
				<b>Program 1</b>	<b>Program 2</b>
			<b>Total Hard Costs</b>	<b>\$4.01M-\$4.43M</b>	<b>\$2.86M-\$3.16M</b>
			Engineering Costs (Mechanical, Electrical, Energy, Structural, Etc.)	\$200.59K-\$221.70K	\$142.92K-\$157.97K
			Construction Management	\$60.18K-\$66.51K	\$42.88K-\$47.39K
			Permits & Bonds	\$64.19K-\$70.94K	\$45.74K-\$50.55K
			Commissioning	\$36.11K-\$39.91K	\$25.73K-\$28.43K
			Measurement & Verification	\$28.08K-\$31.04K	\$20.01K-\$22.12K
			<b>Total Soft Costs</b>	<b>\$389.14K-\$430.10K</b>	<b>\$277.27K-\$306.46K</b>
			<b>Total Project Costs</b>	<b>\$4.40M-\$4.86M</b>	<b>\$3.14M-\$3.47M</b>
			<b>20 Year Energy and Operational Savings (S):</b>	<b>\$900K-\$994K</b>	<b>\$900K-\$994K</b>
			<b>Actual Project Cost (TPC-S):</b>	<b>\$3.50M-\$3.87M</b>	<b>\$2.24M-\$2.47M</b>





# Total Project Costs/Options

Description	ECM	ECM	Development	Program	Program	Program
	Cost	20 Year Savings				
<b>Bendersville Elementary School</b>						
Bendersville Elementary LED Upgrades	\$42.5K-\$47.0K	\$105K-\$117K	Budget			
Bendersville Elementary Building Envelope Upgrades	\$6.6K-\$7.28K	\$37.6K-\$41.6K	Budget			
Bendersville Elementary Mechanical Insulation	\$9.5K-\$10.5K	\$21.2K-\$23.4K	Budget			
Bendersville Elementary MEP Upgrades	\$1.52M-\$1.68M	\$48.8K-\$54.0K	Budget			
Bendersville Elementary Windows & Doors Upgrades	\$193.6K-\$214.0K	\$7.87K-\$8.70K	Budget			
Bendersville Elementary Bathroom Renovations	\$223.1K-\$246.5K	\$4.5K-\$5.0K	Budget			
Bendersville Elementary Music Room Carpet Replacement	\$3.99K-\$4.41K	\$ -	Budget			
Bendersville Elementary Generator Replacement	\$84.62K-\$93.53K	\$ -	Budget			
<b>Arendtsville Elementary School</b>						
Arendtsville Elementary LED Upgrades	\$34.79K-\$38.45K	\$94.97K-\$104.97K	Budget			
Arendtsville Elementary Building Envelope Upgrades	\$12.14K-\$13.42	\$20.86K-\$23.06K	Budget			
Arendtsville Elementary Mechanical Insulation	\$7.63K-\$8.43	\$18.11K-\$20.02K	Budget			
Arendtsville Elementary MEP Upgrades	\$1,45M-\$1.60M	\$50.47K-\$55.78K	Budget			
Arendtsville Elementary Windows & Doors Upgrades	\$35.70K-\$71.04K	\$25.45K-\$28.12K	Budget			
Arendtsville Elementary Bathroom Renovations	\$223.1K-\$246.55K	\$4.57K-\$5.05K	Budget			
Arendtsville Elementary Library Carpet Replacement	\$11.28K-\$12.47K	\$ -	Budget			
Arendtsville Elementary Generator Replacement	\$84.63K-\$93.53K	\$ -	Budget			
<b>Biglerville Elementary School</b>						
Biglerville Elementary LED Upgrades	\$94.47K-\$104.41K	\$216.79K-\$239.61K	Budget			
Biglerville Elementary Building Envelope Upgrades	\$12.58K-\$13.90K	\$48.55K-\$53.66K	Budget			
Biglerville Elementary Mechanical Insulation	\$8.25K-\$9.12K	\$16.62K-\$18.27K	Budget			
Biglerville Elementary Transformer Upgrade	\$52.08K-\$57.56K	\$106.04K-\$117.20K	Budget			
Biglerville Elementary MEP Upgrades (Direct Replacement)	\$678.23K-\$749.62K	\$75.44K-\$83.38K	Budget			
Biglerville Elementary MEP Upgrades (VUV Upgrade)	\$2.97M-\$3.29M	\$94.45K-\$104.39K	Budget			
Biglerville Elementary Windows Upgrades	\$225.91K-\$249.69K	\$7.87K-\$8.70K	Budget			
Biglerville Elementary Bathroom Renovations	\$111.53K-\$123.27K	\$1.63K-\$1.80K	Budget			
Biglerville Elementary Gutter System Replacement	\$125.71K-\$138.94K	\$ -	Budget			
Biglerville Elementary Gym/Cafeteria Divider Replacement	\$30.69K-\$33.92K	\$ -	Budget			
<b>Middle/High School</b>						
MS/HS LED Upgrades	\$272.19K-\$300.84K	\$724.76K-\$801.05K	Budget			
MS/HS Building Envelope Upgrades	\$16.77K-\$18.53K	\$63.97K-\$70.71K	Budget			
MS/HW Mechanical Insulation	\$11.15K-\$12.33K	\$26.04K-\$28.79K	Budget			
MS/HS Transformer Upgrade	\$46.77K-\$51.70K	\$84.79K-\$93.72K	Budget			
MS/HS MEP Upgrades	\$2.38M-\$2.64M	\$ -	Budget			
MS/HS Locker Room Renovations	\$858.54K-\$948.91K	\$ -	Budget			
MS/HS Team Room Renovations	\$290.98K-\$321.60K	\$ -	Budget			
MS/HS Admin Board Room Carpet Replacement	\$3.76K-\$4.16K	\$ -	Budget			
MS/HS Generator Upgrade for IT & Walk-In Coolers	\$127.43K-\$140.85K	\$ -	Budget			
<b>Hybrid Project</b>						
MS/HS District Administration Area Fitout	\$866.00K-\$957.16K	\$ -	Budget			
Arendtsville Elementary Addition	\$7.34M-\$8.11M	\$ -	Budget			
Arendtsville Elementary Addition w/DAO	\$8.29M-\$9.16M	\$ -	Budget			
Bendersville Elementary Repurposed at DAO	\$952.60K-\$1.05M	\$ -	Budget			
				<b>Program 1</b>	<b>Program 2</b>	<b>Program 3</b>
<b>Total Hard Costs</b>				<b>\$18.52M-\$20.47M</b>	<b>\$15.51M-\$17.14M</b>	<b>\$17.80M-\$19.68M</b>
Engineering Costs (Mechanical, Electrical, Energy, Structural, Etc.)				\$926.15K-\$1.02M	\$729.13K-\$805.89K	\$843.92K-\$932.75K
Construction Management				\$277.84K-\$307.09K	\$218.74K-\$241.77K	\$253.18K-\$279.83K
Permits & Bonds				\$296.37K-\$327.56K	\$233.32K-\$257.88K	\$270.05K-\$298.48K
Commissioning				\$166.71K-\$184.25K	\$131.24K-\$145.06K	\$151.91K-\$167.90K
Measurement & Verification				\$128.66K-\$143.31K	\$102.08K-\$112.82K	\$181.15K-\$130.59K
<b>Total Soft Costs</b>				<b>\$1.80M-\$1.99M</b>	<b>\$1.50M-\$1.66M</b>	<b>\$1.73M-\$1.91M</b>
<b>Total Project Costs: (TPC)</b>				<b>\$22.12M-\$24.44M</b>	<b>\$17.01M-\$18.80M</b>	<b>\$19.53M-\$21.59M</b>
<b>20 Year Energy and Operational Savings: (\$)</b>				<b>\$1.81M-\$1.99M</b>	<b>\$1.59-\$1.75M</b>	<b>\$1.61M-\$1.77M</b>
<b>Actual Project Cost: (TPC-S)</b>				<b>\$20.31M-\$22.45M</b>	<b>\$15.46M-\$17.05M</b>	<b>\$17.93M-\$19.81M</b>

**+ Program #1:** Addition on Arendtsville and make Bendersville the new DAO

- Square foot budgeting
- Includes existing DAO budgeting

**+ Program #2:** Addition on Arendtsville which includes a DAO

- Square foot budgeting
- Includes existing DAO
- Like for like HVAC replacement at Biglerville E.S.

**+ Program #3:** Addition on Arendtsville which includes a DAO

- Square foot budgeting
- Includes existing DAO
- VUV HVAC upgrade at Biglerville E.S.



# Recommendations





# Questions

**Contact:**

**Mark J. Gallick**

**[markgallick@mcclureco.com](mailto:markgallick@mcclureco.com)**

**(717) 574-6539**