



## Bullitt County Public Schools

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TO: Keith Davis

FROM: Becky Sexton *BSexton*

DATE: March 5, 2018

RE: GESC Proposal Overview

The GESC committee, comprised of Becky Sexton, Lisa Lewis, Mark Mitchell, Kimberly Joseph, George Brock and Joe Stottman, recommend the Board contract with Trane, U.S. Inc. based on a district-defined scope of the project, alignment with district expectations and financial impact to the district.

Responsive proposals were received on February 13, 2018 from Trane, U.S. Inc. and Performance Services, Inc. The committee met on several occasions to review and discuss all aspects of the proposals. The committee developed a collective list of energy conservation measures proposed by each vendor along with the financial impact for these recommendations. A list of these measures is included for your review and consideration along with the proposed financial structures for each proposal.

Based on the GESC committee's review, we recommend the Board enter into a contract with Trane, U.S. Inc. for the Guaranteed Energy Savings project. The final scope of the project will be determined through consultation between Trane, U.S. Inc. and the GESC committee and a contract will be established based on this collaboration.

Attachments: Trane, U.S. Inc. Financial Proposal  
Performance Services Financial Proposal  
GESC Committee Energy Conservation Measures

*OK in  
3-12-18  
Meeting  
(D)*

## **Guaranteed Energy Savings Contract Committee**

Proposal Review Notes from 2/26/2018, 2/27/2018, 2/28/2018 and 3/1/2018

Contributing Committee Members: George Brock, Kimberly Joseph, Mark Mitchell, Joe Stottman

Maintenance staff members have reviewed the GESC proposals, to look at each energy conservation measure (ECM), and evaluate the specific proposals for those ECMs. This review process should help expedite getting to a final contract after the Board selects a company to work with.

### **ECM #1 - OMES HVAC, Controls, Fire Suppression, Lighting, etc.**

- The committee members agree with both proposals on a major, HVAC system replacement, including new building automation controls, lighting and fire suppression.
- The Trane proposal is suggesting new rooftop units and VAV boxes for the HVAC system. The existing cooling tower will no longer be needed. It is our recommendation that if this option is selected, that they also address the roof with a new, spray foam roof. The current roof is in terrible shape, with numerous leaks across the building. With a tremendous amount of mechanical work being proposed to take place on the roof, it only make sense to move forward with replacing the roof - which will also increase the R-value, and improve energy efficiency.
- Mechanical room - we also propose that the selected company address the aging, inefficient domestic hot water heaters.
- The Performance Services proposal is suggesting new WSHP and ductwork in the existing classrooms along with new doors and door frames. Their proposal also includes adding 4 rooftop OAU to provide fresh air for the building excluding the 5th grade hallway. Also, their proposal includes replacing the all horizontal WSHP in the general areas of the building with the exception of the 5th grade hallway corridor and restroom units.

### **ECM #2 - Lighting - Exterior and Interior LED**

- The Trane proposal suggest that they will be using a combination of new fixtures and retrofit and tube LED kits. Per our District construction standards, and per the direction given in Addendum #1, all LED lights shall be completely new, for the interior and exterior.
- Neither proposal specifically address occupancy sensors. Kentucky's energy code is based upon the 2012 International Energy Conservation Code (IECC). Any commercial building that is altering more than 50% of the luminaires must comply with all new construction requirements. Occupancy sensors are part of the code and should be part of the scope of this GESC.

- The Performance Services proposal addressed replacing all fixtures with new, LED lighting throughout the district with the exception of the buildings noted on Addendum #1.

### **ECM #3 - Controls Replacement**

- The committee agrees with the building automation controls replacement/upgrade at the following buildings:
  - Eastside Middle
  - North Bullitt HS (2-story addition, including office and LMC)
  - Bullitt East HS (2-story addition, including office and LMC)
- Both proposals were similar regarding building automation controls.

### **ECM #4 - PGES Boiler Replacement**

- The committee agrees with the replacement of the current HVAC boilers.
- Both proposals were similar regarding the boiler replacement at Pleasant Grove
- The committee also suggests that the chosen company review and consider replacement of the aging, inefficient domestic hot water heaters at PGES, and also at MWMS.

### **ECM #5 - Water Conservation**

- The committee does not recommend any of the proposed, water conservation measures at this time.
- Both proposals were similar regarding replacing large-volume flush water closets with low-volume flush water closets, adding flow restrictions on faucets.

### **ECM #6 - Solar Array**

- Both proposals offered solar array solutions--albeit at different locations. The payback for each solar array location is close to the end of the 20 year agreement for both proposals.
- The committee does not recommend pursuing any solar arrays that are in either proposal.

### **ECM #7 - Kitchen Hot Water Boosters for Dishwashers**

- After reviewing Trane's proposal, the committee recommends only switching to natural gas hot water boosters for the kitchen dishwashers at the following locations:
  - Bernheim Middle
  - Freedom Elementary
  - Mt. Washington Middle
  - Old Mill Elementary

- Pleasant Grove Elementary
  - Shepherdsville Elementary
- Due to natural gas availability and utility issues at the other proposed sites, we do not recommend pursuing the fuel switching for booster heaters in other locations. In some locations, like the BCHS kitchen, natural gas is not an option (issues that arose during the 2014 renovation/addition).

#### **ECM #8 - Walk in Freezer/Cooler Controls**

- The committee does not recommend pursuing use of freezer/cooler controls proposed by Trane.

#### **ECM #9 - Building Envelope**

- Both proposals addressed similar, building envelope solutions such as weather stripping, caulking and foam infill of gaps in building substrates.
- The committee does not recommend pursuing this option to install weather stripping and other small building envelope issues. These are tasks better performed by BCPS maintenance staff.

#### **ECM #10 - Vending Misers**

- The committee does not oppose the use of vending misers. However, the company that is chosen should be tasked with verifying with our bottling vendor (currently going out for bid) that these do not violate anything in our contract with them for the vending machines. Some companies do not want these installed or attached to their equipment.
- Both proposals were similar regarding the use of vending misers.

#### **ECM #11 - Kitchen Exhaust Hoods**

- The Performance Services proposal addressed retrofitting the kitchen hoods with controls to vary the speed of the exhaust fans.
- The committee does not recommend pursuing this option as the amp draw on the hoods is minimal, usage is limited to a small number of hours each day and adds another component to monitor and maintain.



**TRANE®**

Bullitt County Public Schools  
Request for Proposals  
Guaranteed Energy Savings Contract

**Cash Flow Model for Base Project Option**

Fiscal Year	Debt Service (Total P+I)	Measurement & Verification	Total Cost	Energy Savings	Operational Savings	Total Savings	Capital Cost Avoidance	Total Revenue
Construction / Rebates	\$ -	\$ -	\$ -	\$ 250,000	\$ -	\$ 250,000	\$ -	\$ 250,000
1	715,996	4,500	720,496	440,000	35,000	725,000	-	725,000
2	489,439	4,590	494,029	459,800	35,000	494,800	-	494,800
3	506,166	4,682	510,848	480,491	35,000	515,491	-	515,491
4	532,052	4,775	536,827	502,113	35,000	537,113	-	537,113
5	551,922	4,871	556,792	524,708	35,000	559,708	-	559,708
6	575,697	4,968	580,665	548,320	35,000	583,320	-	583,320
7	598,193	5,068	603,260	572,994	35,000	607,994	-	607,994
8	624,513	5,169	629,682	598,779	35,000	633,779	-	633,779
9	654,473	5,272	659,745	625,724	35,000	660,724	-	660,724
10	682,846	5,378	688,224	653,882	35,000	688,882	-	688,882
11	709,586	5,485	715,071	683,307	35,000	718,307	-	718,307
12	739,660	5,595	745,255	714,055	35,000	749,055	-	749,055
13	773,034	5,707	778,741	746,188	35,000	781,188	-	781,188
14	804,610	5,821	810,431	779,766	35,000	814,766	-	814,766
15	839,297	5,938	845,234	814,856	35,000	849,856	-	849,856
16	876,886	6,056	882,942	851,524	35,000	886,524	-	886,524
17	917,091	6,178	923,269	889,843	35,000	924,843	-	924,843
18	954,678	6,301	960,979	929,886	35,000	964,886	-	964,886
19	999,582	6,427	1,006,009	971,731	35,000	1,006,731	-	1,006,731
20	1,041,381	6,556	1,047,937	1,015,459	35,000	1,050,459	-	1,050,459
<b>Total</b>	<b>\$ 14,587,097</b>	<b>\$ 109,338</b>	<b>\$ 14,696,435</b>	<b>\$ 14,053,426</b>	<b>\$ 700,000</b>	<b>\$ 14,753,426</b>	<b>\$ -</b>	<b>\$ 14,753,426</b>

Total Project Costs	\$ 9,832,000	Energy Escalation Rate	4.5%
Bond Issuance Costs	\$ 268,000	First Year Operational Savings	\$ 35,000
Cash Down Payment	\$ -	Operational Savings Escalation Rate	0%
Financing Amount	\$ 10,100,000	Average Capital Cost Avoidance	\$ -
First Year Support Services Cost	\$ 4,500	Contract Term in Years	20
Support Services Program Escalation Rate	2%	Net Interest Cost	3.51%
First Year Projected Energy Savings	\$ 440,000	Estimated Bonding Potential Impact	\$ -

Note: Debt service schedule for this proposal was provided by J.J.B. Hilliard, W.L. Lyons, LLC.

**This project is NOT subject to any additional fees associated with purchasing agreements.**



Cash Flow Model for Alternate Project Option

Fiscal Year	Debt Service (Total P+I)	Measurement & Verification	Total Cost	Energy Savings	Operational Savings	Total Savings	Capital Cost Avoidance	Total Revenue
Construction / Rebates	\$ -	\$ -	\$ -	\$ 250,000	\$ -	\$ 250,000	\$ -	\$ 250,000
1	606,519	4,500	611,019	437,000	35,000	722,000	-	722,000
2	375,958	4,590	380,548	456,665	35,000	491,665	-	491,665
3	398,901	4,682	403,583	477,215	35,000	512,215	-	512,215
4	416,053	4,775	420,828	498,690	35,000	533,690	-	533,690
5	442,519	4,871	447,389	521,131	35,000	556,131	-	556,131
6	462,912	4,968	467,880	544,582	35,000	579,582	-	579,582
7	487,284	5,068	492,352	569,088	35,000	604,088	-	604,088
8	515,564	5,169	520,733	594,697	35,000	629,697	-	629,697
9	542,562	5,272	547,834	621,458	35,000	656,458	-	656,458
10	568,200	5,378	573,577	649,424	35,000	684,424	-	684,424
11	597,436	5,485	602,921	678,648	35,000	713,648	-	713,648
12	630,077	5,595	635,672	709,187	35,000	744,187	-	744,187
13	661,059	5,707	666,766	741,100	35,000	776,100	-	776,100
14	690,432	5,821	696,253	774,450	35,000	809,450	-	809,450
15	728,116	5,938	734,053	809,300	35,000	844,300	-	844,300
16	763,738	6,056	769,794	845,718	35,000	880,718	-	880,718
17	802,192	6,178	808,370	883,776	35,000	918,776	-	918,776
18	843,249	6,301	849,550	923,546	35,000	958,546	-	958,546
19	881,673	6,427	888,100	965,105	35,000	1,000,105	-	1,000,105
20	927,399	6,556	933,955	1,008,535	35,000	1,043,535	-	1,043,535
<b>Total</b>	<b>\$ 12,341,840</b>	<b>\$ 109,338</b>	<b>\$ 12,451,178</b>	<b>\$ 13,959,312</b>	<b>\$ 700,000</b>	<b>\$ 14,659,312</b>	<b>\$ -</b>	<b>\$ 14,659,312</b>

Total Project Costs	\$ 8,240,000
Bond Issuance Costs	\$ 235,000
Cash Down Payment	\$ -
Financing Amount	\$ 8,475,000
First Year Support Services Cost	\$ 4,500
Support Services Program Escalation Rate	2%
First Year Projected Energy Savings	\$ 437,000

Energy Escalation Rate	4.5%
First Year Operational Savings	\$ 35,000
Operational Savings Escalation Rate	0%
Average Capital Cost Avoidance	\$ -
Contract Term in Years	20
Net Interest Cost	3.56%
Estimated Bonding Potential Impact	\$ -

Note: Debt service schedule for this proposal was provided by J.J.B. Hilliard, W.L. Lyons, LLC.

**This project is NOT subject to any additional fees associated with purchasing agreements.**



## Preliminary Cash Flow Analysis

FOR

### Bullitt County Schools

February 13, 2018



Year	Annual Energy Savings (3% escalation)	Annual Operation & Maintenance Savings (0% escalation)	Measurement and Verification Cost (0% escalation)	Net Savings	General Funds Bond Payment	Capital Funds Bond Payment	Total Debt Service
Construction	\$ 124,623	\$ 10,500	-	\$ 135,123			
1	\$ 415,411	\$ 35,000	(included in cost)	\$ 450,411	\$ (531,534)	\$ (261,871)	\$ (793,405)
2	\$ 427,873	\$ 35,000	\$ (12,000)	\$ 450,873	\$ (396,873)	\$ (261,552)	\$ (658,425)
3	\$ 440,710	\$ 35,000	\$ (12,000)	\$ 463,710	\$ (409,709)	\$ (260,536)	\$ (670,246)
4	\$ 453,931	\$ 35,000	\$ (12,000)	\$ 476,931	\$ (422,931)	\$ (258,412)	\$ (681,342)
5	\$ 467,549	\$ 35,000	\$ (12,000)	\$ 490,549	\$ (436,549)	\$ (260,233)	\$ (696,782)
6	\$ 481,575	\$ 35,000	\$ (12,000)	\$ 504,575	\$ (450,575)	\$ (260,729)	\$ (711,304)
7	\$ 496,022	\$ 35,000	\$ (12,000)	\$ 519,022	\$ (465,022)	\$ (259,850)	\$ (724,872)
8	\$ 510,903	\$ 35,000	\$ (12,000)	\$ 533,903	\$ (479,902)	\$ (257,690)	\$ (737,592)
9	\$ 526,230	\$ 35,000	\$ (12,000)	\$ 549,230	\$ (495,230)	\$ (259,214)	\$ (754,444)
10	\$ 542,017	\$ 35,000	\$ (12,000)	\$ 565,017	\$ (511,017)	\$ (259,216)	\$ (770,233)
11	\$ 558,278	\$ 35,000	\$ (12,000)	\$ 581,278	\$ (527,277)	\$ (257,660)	\$ (784,937)
12	\$ 575,026	\$ 35,000	\$ (12,000)	\$ 598,026	\$ (544,025)	\$ (259,516)	\$ (803,542)
13	\$ 592,277	\$ 35,000	\$ (12,000)	\$ 615,277	\$ (561,276)	\$ (959,715)	\$ (1,520,991)
14	\$ 610,045	\$ 35,000	\$ (12,000)	\$ 633,045	\$ (579,044)	\$ (985,263)	\$ (1,564,307)
15	\$ 628,346	\$ 35,000	\$ (12,000)	\$ 651,346	\$ (597,346)	\$ (962,167)	\$ (1,559,514)
16	\$ 647,197	\$ 35,000	\$ (12,000)	\$ 670,197	\$ (616,197)	\$ (936,866)	\$ (1,553,063)
17	\$ 666,613	\$ 35,000	\$ (12,000)	\$ 689,613	\$ (635,612)	\$ (954,188)	\$ (1,589,800)
18	\$ 686,611	\$ 35,000	\$ (12,000)	\$ 709,611	\$ (655,611)	\$ (952,517)	\$ (1,608,128)
19	\$ 707,209	\$ 35,000	\$ (12,000)	\$ 730,209	\$ (676,208)	\$ (1,492,288)	\$ (2,168,496)
20	\$ 728,426	\$ 35,000	\$ (12,000)	\$ 751,426	\$ (697,425)	\$ (1,488,957)	\$ (2,186,382)
<b>Sum</b>	<b>\$ 11,286,872</b>	<b>\$ 710,500</b>	<b>\$ (228,000)</b>	<b>\$ 11,769,372</b>	<b>\$ (10,689,362)</b>	<b>\$ (11,848,439)</b>	<b>\$ (22,537,801)</b>

Assumptions	Value
Total Project Cost	\$ 14,546,830
Term (years) =	20.0
Interest rate =	3.58%
Estimated Construction Period Savings	30.0%
Energy Escalation Rate	3.0%
O&M Escalation Rate	0.0%
Estimated Financial Cost/Fees	2.8%
Estimated Bond Total Amount (rounded)	\$ 14,920,000
Estimated General Funds Bond	\$ 7,491,894
Estimated Capital Funds Bond	\$ 7,428,106