Hollis Budget Committee
Update Presentation
on
Hollis Schools Energy Project

June 21, 2018

Quick History of Project

- March, 2017 – voters approve Article 1, authorizing HSD to enter into $2.8 million municipal lease purchase to fund energy improvements to HUES and HPS
- May, 2017 – HSD hires Structure Tone as construction manager
- June-November, 2017 – Phase I construction
- December, 2017 – HSD hires David Ely, Windy Hill Architects as Phase II architect
- December-May, 2018 – Phase II planning and contractor specifications
- June-September, 2018 – Phase II construction and project completion

Hollis Primary School
Implementation Priority & Cost Breakdown

Priority Ranking	Measure	Estimated Cost	Comment
1	Wrap building – start with south and east sides of 1952 building *	$522,088*	Potential Eversource rebate - thermal
1	Air source heat pumps – install in phases as building is wrapped *	$204,172*	Potential Eversource rebate - electric?
1	Solar PV 100 kW	$360,100	Potential PUC rebate - $65,000
1	Replace lighting with LEDs	$21,750	Eversource rebate - electric
2	Heat recovery ventilation/control system	$140,200*	Potential Eversource rebate
3	Phase change in classrooms	$97,657	Possible Eversource rebate
	Sub-total	$1,345,967	Potential Rebates $165,000
	Soft-costs 15%	$201,895	Design work, CM, & contingency
	Sub-total	$1,547,862	NPV $528,283; IRR 5.3%; Simple PB 15 years
	Electric work	$300,000	
TOTAL	TOTAL	$1,847,862	*Phasing over multiple years may add cost*

Hollis Upper Elementary School
Implementation Priority & Cost Breakdown

Priority Ranking	Measure	Estimated Full Cost	Comment
1	Propane boilers @$1.20/gal	$245,000	Potential Eversource rebate- thermal
2	Solar PV 100 kW	$360,100	Potential PUC rebate - $65,000
2	Foam insulate "gap"	$20,000	Potential Eversource rebate –thermal
2	Replace lighting with LEDs	$31,425	Eversource rebate - electric
2	Correct faults in building management system (including CO_2 DCV)	$97,200	Potential Eversource rebate thermal
3	Phase Change Materials in all classrooms	$93,435	Possible Eversource rebate in negotiation - thermal
	Sub-total	$847,160	Potential Rebates could total $165,000
	Soft-costs 15%	$127,074	Includes design work, CM, & contingency
TOTAL		$974,234	NPV $1,222,717; IRR 10.8%; Simple PB 10 years

Summary To Date - Hollis Primary School

Description	Priorities	Original Estimated Cost	Year 1 Actual	Year 2		Total Expected Cost	Difference
				Actual	Expected		
Building Wrap	1	$522,508	$0	$0	$1,010,013	$1,010,013	-$487,505
Air Source Heat Pumps	1	$204,172	$0	$0	$279,000	$279,000	-$74,828
Solar Installation	1	$360,100	$236,086	$0	$0	$236,086	$124,014
LED Lighting Replacement	1	$21,750	$0	$0	$0	$0	$21,750
Heat Recovery Ventilation/Controls	2	$140,200	$0	$0	Included in ASHP above	$0	$140,200
Phase Change Materials	3	$97,657	$0	$0	$0	$0	$97,657
Electrical Work		$300,000	$143,121	$0	$47,925	$191,046	$108,954
Design Work/Construction Mgmt.		$201,895	$131,235	$96,718	$204,411	$432,364	-$230,469
Miscellaneous*		$0	$17,587	$163	$0	$17,750	-$17,750
		$1,848,282	**$528,029**	**$96,881**	**$1,541,349**	**$2,166,259**	**-$317,977**

Summary To Date - Hollis Upper Elementary School

Description	Priorities	Original Estimated Cost	Year 1 Actual	Year 2		Total Expected Cost	Difference
				Actual	Expected		
Propane Boilers/Fuel Tanks	1	$245,000	$222,005	$0	$0	$222,005	$22,995
Solar Installation	1	$360,100	$236,690	$0	$0	$236,690	$123,410
Roof Replacement		0	$140,000	$0	$0	$140,000	-$140,000
LED Lighting Replacement	1	$31,425	$0	$0	$0	$0	$31,425
Foam Insulate “Gap”	2	$20,000	$0	$0	$7,500	$7,500	$12,500
Control Systems Retrofit	2	$97,200	$51,157	$0	$0	$51,157	$46,043
Phase Change Materials in Classrooms	3	$93,435	$0	$0	$0	$0	$93,435
Design Work/Construction Mgmt.		$127,074	$130,410	$16,715	$0	$147,125	-$20,051
Miscellaneous*		$0	$16,988	$163	$0	$17,151	-$17,151
		$974,234	**$797,209**	**$16,878**	**$7,500**	**$821,587**	**$152,647**

Project Financial Summary

Description	Original Estimated Cost	Year 1 Actual	Year 2		Total Expected Cost	Difference
			Actual	Expected		
Hollis Primary School	**$1,848,282**	**$528,029**	**$96,881**	**$1,541,349**	**$2,166,259**	**-$317,977**
Hollis Upper Elementary School	**$974,234**	**$797,209**	**$16,878**	**$7,500**	**$821,587**	**$152,647**
TOTALS	**$2,822,516**	**$1,325,238**	**$113,759**	**$1,548,849**	**$2,987,846**	**-$165,330**
Market Opportunity Funds					-$36,000	
PUC/Eversource Rebates					-$129,849	
TOTAL ANTICIPATED PROJECT COST					**$2,821,997**	

Changes in Project Scope

Project Component	School	Change from Original Plan	Reason for Change	Implications to Energy Savings
Insulating shell, window replacement	HPS	Total surface area of building treated will be reduced +/- 16%; identified wall gap in HPS that will need to be foam sealed	Reduce cost to stay within budget	Reduction in wall wrap minor impact; gap sealing will provide improvement
LED lighting	HPS and HUES	Postponed from plan	Reduce cost to stay within budget	Energy savings will be realized when implemented, delays payback
Phase change materials	HPS and HUES	Postponed from plan	Reduce cost to stay within budget	Energy savings will be realized when implemented, delays payback
Air source heat pumps	HPS	Scaled back 30% from plan	Reduce cost to stay within budget	Full energy savings will be realized when 100% complete, minor delay in payback; will mean some oil usage until complete

Phase I Operating Cost Savings (FY18, 6 mo.)

Project Component	Summary	Est. Cost Savings for FY18 from study	Actual Cost Savings to June 30, 2018	Difference
Replace oil with propane heat	Eliminated inefficient oil usage and replaced with more efficient propane usage	($1,000)	($1,557)	-$557
Solar PV electric generation	Self generate electricity, most of which is used “behind the meter” during school day	$9,720 estimate plus $1,200 for SRECs 1/1/18 – 6/30/18 Total: $10,920	$11,640 through June 30, 2018 plus $1,200 for SRECs Total: $12,840	$1,920

Phase I&II Operating Cost Savings Projections (FY19, 12 mo.)

Project Component	Summary	Estimated cost savings (from study)	Projected Cost Savings	Difference	Explanation
HUES Replace Oil with Propane Heat	Eliminate inefficient oil usage and replaced with more efficient propane usage	$20,107	$12,998	-$7,109	Entirely dependent on Oil to Propane cost spread
Solar PV Electric Generation (and RECs)	Self generate electricity, most of which is used “behind the meter” during school day	$43,680	$51,516	$7,863	Cost of electricity has risen so savings are greater
Foam HUES Gap	Air seal gap between old/new construction	$7,155	$7,155	$0	
HUES Ventilation Controls	Re-commission building controls to optimize building ventilation and heating	$12,853	$6,000	-$6,853	Being conservative on controls improvements
HPS Wrapping/ Windows	Wrap 84% of building exterior walls and replace windows	$16,031	$13,466	-$2,565	Lowered overall coverage to make budget
HPS Air Source Heat Pumps	Replace oil heat with air source heat pumps	$14,008	$9,806	-$4,202	Lowered number of ASHPs to make budget
HPS Heat Recovery Ventilation	Replace inefficient rooftop ventilation units with high efficiency HRV units	$8,038	$8,038	$0	
HPS and HUES Lighting	Replace all lighting with modern LED lighting, interior and exterior	$12,657	$0	-$12,657	Possible alternative funding to make budget
HUES and HPS Phase Change Materials	Install PCM in all classrooms to retain and modulate heat/cool temp swings	$9,814	$0	-$9,814	Eliminated to make budget
TOTALS		**$144,343**	**$108,978**	**-$35,364**	Savings shortfall from FY19 budget of $138,000 is **-$29,022**