

# Coventry Public Schools

## Physical Plant and Facilities

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### December, 2011 – FY2013 Capital Improvement Plan Submittal

Costs are approximate. Actual costs will vary depending on year of implementation.

Project 1: Classroom Computerization/Upgrade..... \$100,000 FY2013-18

This project will provide 77 desktop computers with monitors, and 60 tablets with cart, to be strategically located in all schools for teacher use, and fiber optic upgrades. This project continues to meet the goals of the Long-Range Technology Plan as prepared by the Coventry Public Schools Technology Committee (see Appendix A). The 3-year plan was updated and revised in 2009 and is currently being rewritten, to be completed by June 30.

Project 2: CHS Old Gym Floor ..... \$ 100,000 FY2013  
- 140,000

The wood floor in this gym buckles with humidity, causing humps in the floor. The maintenance department has used dehumidifiers, and heavy objects, such as pallets of paper, along with kerfs sawed into the floor and screws to fasten into the concrete, to try to get the floor to settle back down. Generally, these actions have been successful, but only temporarily. Athletic flooring company representatives contend that our experience with this condition is not unique. Other schools with this 1960's vintage gym floor struggle with the same problems, an inherent flaw in the system that makes it react to high humidity. As the age of the floor is about 50 years old, we now assume that asbestos is present in some form beneath the floor. Therefore, these temporary remedies can no longer be done. The quote is for removal of the old floor and installation of a new athletic flooring system along with lines for sports, and includes a wide cost spread in anticipation that asbestos will be found when removing the floor.

Project 3: Upgrade CGS Boiler Controls to Digital Controls..... \$ 96,000 FY2013  
\$ 29,300 FY2014

CGS currently uses a pneumatic system for controls; digital is the industry standard now. It is becoming harder to find qualified repair people that know how to maintain pneumatic equipment. The current compressor housing is too confined, making the compressor susceptible to overheating. It will be necessary to build or purchase a better environment if we keep this old system,.

Digital controls will allow us to save energy and provide better comfort and will operate supply temperatures relative to outside temperatures to minimize the highs and lows common with pneumatics. The addition of occupancy sensors will gauge the introduction of fresh air to actual requirements, rather than the rule of thumb, setting a percentage to open the dampers based on full occupancy. Tools for Schools and other indoor air quality requirements are addressed by installing these controls.

Strategic Building Services recommends this project begin no later than FY2014. They do not provide an estimate of energy savings, but indicate that data from DDC controls can be used to apply for savings from CLP's retro-commissioning program.

Project 4: Furniture/Equipment Replacement – all schools ..... \$ 30,000 FY2013  
 For purchase of furniture/equipment to replace old, broken or damaged \$ 42,000 FYs14-18  
 furniture/equipment; \$7,500 in FY2013, then \$10,500 per school for replacement furniture.

Project 5: Upgrade GHR boiler controls to digital/DDC ..... \$ 70,000 FY2014  
 Each classroom is individually controlled on site. This project would allow us to upgrade to at least the level of control we have at CHS/CNH. This would give us the capability to have better control and work toward increased energy savings.

Project 6: Phone system for CHS and CNH..... \$ 100,000 FY2015  
 The current system is over 10 years old and requires frequent service. The service technicians advise us that parts are increasingly scarce for this old technology. We are investigating VOIP (Voice Over IP) as the replacement technology. An alternative to outright purchase via CIP is a straight lease or lease/purchase, funded through the operating budget. Costs include IT upgrades as follows:

4 - 48 port switches @ \$3500.00 = \$14,000.00  
 6 - 24 port switches @ \$2500.00 = \$15,000.00  
 10 - gbic fiber mods @ \$252.00 = \$ 2,520.00  
 Total \$34,500.00

Project 7: Pave CHS Parking Lot by Auditorium.....  
 Specs per the Director of Public Works. \$ 95,000 FY2015

Project 8: Carpet replacement..... \$ 25,000 FY2016  
 Approximately 1000 square yards of carpet will be replaced. The following areas are in the greatest need of replacement - CGS Library - 1,500 square feet, CNH Portable classrooms - 2,204 square feet, and the CHS Main Offices/Guidance - 3,230 square feet.

Project 9: Lightning Protection at CHS and CHN..... \$ 82,800 FY2018  
 The high school, middle school, emergency generator and associated buildings have sustained damage from lightning and/or electrical surge events on a continuing basis. We have lost circuit boards in electronic devises in the school and controls and circuit boards on the generator that serves the community shelter (high school). These interruptions in service have been both costly and disruptive.

The project includes a complete system of lightning protection in accordance with Underwriters Laboratories Inc., Lightning Protection Institute and The National Electrical Code. Air terminals, ground electrodes, conductors, connectors and fasteners used to ground to water system, power ground, plumbing/heating systems, AC units, antennas and all equipment per code standards, will be installed for the purpose of preventing or lessening the damage due to lightning strikes.

Project 10: CHS Surge Protection..... \$ 25,470 FY2018

This project is related to the Lightning Protection project listed above.

Although power surges can occur from causes other than lightning, such as animal contact, they and can expose the schools to the same types of damage to physical plant and electronic devices.

Project 11: CHS/CNH Expand Generator to Classrooms..... \$ 30,000 FY2015

A study is currently being done to determine how excess capacity that our emergency generator produces can be used to our benefit. Presently, the generator powers only a limited area in the school. It enables use of common areas such as the auditorium, the gyms, main office, cafeteria, halls and kitchen. We anticipate that modifications to use the available capacity would enable us provide lighting in classrooms along with limited power access for computers and other teaching tools to keep the building functioning when school is in session. Along with the benefit of continuing operation of a school day during a power outage event, the modifications would enable us to shed more power than we are able to now when ISO New England calls for an emergency curtailment of power. We participate in this program because we are rewarded with a monthly check based on how much power we are able to shut down.

Project 12: GHR Exterior Door Replacement..... \$ 40,000 FY2015

Classrooms in the older parts of the school have doors leading directly outside. There are 19 of these doors, including 2 from the media center. A number of years ago an aluminum covering was installed over the wood door frames. The wood has since deteriorated. Every year we try to realign the doors so that they open and close properly. The screws don't fully hold the hinges to the frame where the wood is no longer stable. This project calls for replacement of these doors and frames to keep these exits viable and safe for students and staff to operate.

Project 13: Boiler Bypass Modifications (all schools) ..... \$ 40,000 FY2015

We have seen a number of cast iron boiler sections crack in the past. Thermal shock, cooler water hitting hot cast iron, is thought to be the reason for the damage. This project calls for plumbing modifications that would divert a portion of the hot supply water coming out of the boiler to be mixed with water returning to the boiler from the heating loop in the school. This process would temper the water to assure that the temperature returning into the boiler is not different enough from the temperature of the boiler components to cause damage. SBS recommends this project begin no later than FY2014, with the following savings/ payback schedule:

School	Energy Conservation Measure	Estimated Implementation Costs	Estimated Fossil Fuel Savings	Estimated Electricity Savings	Estimated Simple Payback
CGS	Boiler Bypass Modification	\$7,000 - \$12,000	\$600 - \$1,200	\$200 - \$300	8.0 – 8.8
GHR	Boiler Bypass Modification	\$8,500 - \$10,000	\$300 - \$400	\$800 - \$1,000	7.1 – 7.7
CNH	Boiler Bypass Modification	\$8,500 - \$10,000	\$300 - \$400	\$800 - \$1,000	3.5 – 4.8
CHS	Boiler Bypass Modification	\$7,000 - \$12,000	\$1,800 - \$2,200	\$200 - \$300	2.3 – 2.7
	<b>totals</b>	<b>\$31,000 - \$44,000</b>	<b>\$3,000 - \$4,200</b>	<b>\$2,000 - \$2,600</b>	

### Possible Future Projects Currently Being Researched:

#### Project 15: CHS Track Resurfacing

The track was installed as part of the 1999-2000 renovation project, and was considered state-of-the-art at the time. It is now showing wear in some places – the interior lane shows signs of matting – and has needed some patching over the past two years. The track is an integral part of the overall goal to create a true high school varsity grade venue.

#### Project 16: Buried Oil Tank Replacement

New regulations require us to have the supply line to the building inside an outer sleeve – this work may have been done at CHS around 2002 because of a punctured tank issue, however all others will have to be done. In addition, electronic monitoring devices are now required. Estimated cost for 2 - 10,000 gallon tanks, 1 – 6,000 gallon tank and 1 – 3,000 gallon tank is \$ 195,000 to \$ 200,000.

#### Project 17: Window Replacement at All Schools

State funding may (as an energy efficiency project) be available in combination with CIP funds to begin replacement of windows and window wall systems. CHS is in the greatest need, as its window systems are fifty years old.

#### Project 18: Preschool Relocation

The Board currently pays lease costs of \$16,778 to support the Coventry Early Childhood Center. In addition, Board staff provides maintenance services for the CECC. In recent years, the CECC has experienced more numerous operational problems associated with the leased space, which have increased the maintenance support requirements. The Board will investigate other leased space or the use of portable classrooms on existing school property as alternatives.

#### Project 19: Fence Replacement

Fences are generally in good shape, but should be included in any discussion of long-term physical plant needs.

#### Project 20: Repaving Plan

The total paved square yardage at all schools currently exceeds 31,157. This project will include a repaving schedule if more costly total replacement is needed (as in the case of the CHS Auditorium lot) and a less costly resurfacing schedule if the decision is reached to keep up with the natural deterioration of paved areas.

#### Project 21: Vehicle/Equipment Replacement Plan

Most vehicle and custodial equipment is maintained to avoid replacement. However, certain battery powered custodial equipment and snow blowers are approximately 11 years old. Replacing these items would cost \$76,500.

Project 22: Other projects recommended by SBS

Strategic Building Systems recommends the following initiatives in the Energy Audit:

<u>School</u>	<u>Energy Conservation Measure</u>	<u>Estimated Implementation Costs</u>	<u>Estimated Fossil Fuel Savings</u>	<u>Estimated Electricity Savings</u>	<u>Estimated Simple Payback Period</u>	<u>Priority - no later than</u>
CGS	Install occupancy controls on multi-purpose room and media center	\$10,500 - \$17,500	\$850 - \$1,650	\$1,300 - \$1,750	4.5 - 4.9	2014
CGS	Install occupancy sensors to control lights and HVAC	\$18,000 - \$22,000	\$400 - \$800	\$600 - \$900	18.0 - 12.9	2016
GHR	Optimize make-up-air units 3rd and 4th grade rooms	\$13,000 - \$14,500	\$300 - \$400	\$800 - \$1,100	11.8 - 9.7	2014
GHR	Install occupancy sensors in Media Center	\$7,500 - \$9,000	\$200 - \$400	\$400 - \$800	12.5 - 7.5	2014
GHR	Enhance controls in Admin area	\$7,500 - \$9,800	\$450 - \$640	\$600 - \$900	7.1 - 6.3	2016
GHR	Install variable frequency drives (VFDs) and occupancy controls in Gym	\$8,500 - \$13,000	\$350 - \$450	\$800 - \$1,400	7.4 - 7.0	2016
GHR	Optimize combustion air fan control	\$4,000 - \$4,500	\$0	\$200 - \$350	20.0 - 12.9	2017
GHR	Upgrade fin-tube heat to digital controls	\$10,000 - \$12,000	\$300 - \$400	\$0	33.3 - 30.0	2017
GHR	Install occupancy controls on multi-purpose room	\$8,500 - \$10,000	\$200 - \$300	\$340 - \$450	15.5 - 13.3	2017
GHR	Install hydronic heating in media center	\$25,000 - \$30,000	\$0	\$700 - \$900	35.7 - 33.3	2017
CNH	Install variable frequency drives and occupancy controls in Gym, CADD lab, woodshop, computer lab, LGI, and cafeteria	\$55,000 - \$65,000	\$1,700 - \$2,700	\$1,800 - \$2,200	15.7 - 13.3	2016
CNH	Install occupancy controls for classroom ventilators	\$16,000 - \$19,000	\$400 - \$600	\$680 - \$920	14.8 - 12.5	2017
CNH	Install individual controls in Admin area	\$13,000 - \$20,000	\$800 - \$1,200	\$0	16.3 - 16.7	2017
CNH	Install digital control valves on classroom unit ventilators and VFDs on heat pumps	\$35,000 - \$45,000	\$500 - \$800	\$750 - \$1,200	28.0 - 22.5	2017
CHS	Optimize and add occupancy controls for Media Center	\$12,000 - \$16,000	\$900 - \$1,300	\$1,800 - \$3,000	4.4 - 3.7	2014
CHS	Investigate and optimize hot water system for shared addition	\$6,000 - \$8,000	\$500 - \$1,200	\$2,100 - \$3,400	2.3 - 1.7	2014
CHS	Install variable frequency drives and occupancy controls in gyms	\$24,000 - \$32,000	\$900 - \$1,800	\$4,800 - \$5,800	n/a	2014
CHS	Repipe freeze protection pumps on hot water coils	\$15,000 - \$20,000	\$0	\$200 - \$400	75.0 - 50.0	2014
CHS	Install variable frequency drives and occupancy controls in auditorium, stage, band/choral	\$22,000 - \$28,000	\$950 - \$1,300	\$2,800 - \$3,200	5.9 - 6.2	2016

CHS	Install individual controls in Admin area	\$6,800 - \$12,000	\$800 - \$1,200	\$0	n/a	2017
CHS	Install air unit for kitchen	\$35,000 - \$55,000	\$0	\$0	n/a	2017
CHS	Install occupancy controls for classroom ventilators	\$18,000 - \$22,000	\$500 - \$800	\$800 - \$1,200	13.8 - 11.0	2017
All Schools	Install digital timer on kitchen hood exhaust	\$6,000 - \$10,000	\$0	\$1,200 - \$2,250	5.0 - 4.44	2016
All Schools	Install occupancy sensors to control corridor lights	\$45,500 - \$63,000	\$0	\$6,000 - \$8,000	7.6 - 7.9	2016
All Schools	Install IT software for automatic computer/smartboard shutdown	\$39,000 - \$58,000	\$0	\$6,500 - \$11,500	6.0 - 5.0	2017
All Schools	Replace original classroom ventilators	\$440,000 - \$500,000	\$0	\$0	n/a	2017
totals of highlighted items		\$171,500 - \$230,500	\$3,500 - \$6,000	\$21,780 - \$34,250	6.8 - 5.7	

The Board approves funding the highlighted initiatives subject to achieving FY2012 forecasted operating budget savings.

Appendix A – Classroom Computer Upgrade and Other Technology Infrastructure Maintenance/Improvement

<b>12-13 CIP (PROPOSED)</b>				
<b>TOTAL</b>	<b>\$ 100,000.00</b>			
<b>SPENT/ALLOCATED</b>	<b>\$ 99,569.04</b>			
<b>REMAINDER</b>	<b>\$ 430.96</b>			
<b>ITEM</b>	<b>PART NUMBER</b>	<b>AMOUNT</b>	<b>PRICE</b>	<b>TOTAL PRICE</b>
				\$ -
HP PROCURVE SWITCH 2900 48P	J9050A#ABA	2	\$ 3,212.00	\$ 6,424.00
PROCURVE SX-LC GBIC	J4858C	4	\$ 245.00	\$ 980.00
FIBER OPTIC CBL LC MM	N458-001-50	4	\$ 28.00	\$ 112.00
FIBER OPTIC CBL LC MM	N316-01M	4	\$ 20.00	\$ 80.00
HPDESKTOP REPLACEMENTS	HP 8000 ELITE	77	\$ 750.00	\$ 57,750.00
HP LASERJET P3015DN	CE528A	1	\$ 450.00	\$ 450.00
HP LASERJET P2055DN	CE459A	2	\$ 386.52	\$ 773.04
TABLETS	450 WI	60	\$ 500.00	\$ 30,000.00
TABLET CART		2	\$ 1,500.00	\$ 3,000.00

**NETWORK INFRASTRUCTURE AND DESKTOP MAINTENANCE/REPLACEMENT**

- We currently have 400 computers that are 6 years old or older (400 \* \$710 =\$284,000)
- We currently have 25 switches that are 11 years old or older (25 \* \$3,212 = \$80,300)
- Our portable labs (55 laptops) are 4 yrs old (55 \* \$800 = \$44,000)

**CIP PURCHASING ALWAYS FALLS ROUGHLY INTO THREE CATAGORIES:**

- Network infrastructure
- Desktops/laptops/printers
- Technology tools and replacement for classroom instruction

F. LAMBERT 11/16/11