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"Our Schools"

Energy: A Priority for Our Schools

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Much attention has been paid recently to the high cost of energy in municipal and school budgets, and rightly so. Our school buildings, like our municipal buildings, are showing their age, and as a result, it is critical that we address this issue. When I became Superintendent, I hired Bill Hartigan as Director of Facilities because of his extensive experience in facilities maintenance and energy conservation projects. During the past year, he has developed and begun to implement an aggressive plan to improve the quality of our maintenance program and to reduce energy consumption in our school buildings.

From the moment Bill came on board, he began inspections to evaluate all nine school buildings and undertook immediate repairs, as needed. For example, at Bridge and Bowman, heating controls were repaired to obtain a 10-15% reduction in energy usage. Repairs to remediate water infiltration in Estabrook and Hastings, along with other emergency repairs, have been completed. Roof inspections have been conducted on all buildings to document their condition, establish priorities for repairs (some urgent), and help develop an on-going maintenance plan.

Bill has been systematic in focusing on improving energy efficiency as well. We have embarked on a review of all heating, ventilation, and air conditioning (HVAC) and mechanical systems to evaluate where we stand in terms of energy consumption and performance. We now have an energy benchmarking program that yields monthly energy usage reports on all schools. These reports help us focus our scarce maintenance resources and capital spending to maximize the effectiveness of every dollar.

To ensure that all spaces are heated to proper temperatures throughout a 24-hour day, a Space Use Temperature Policy was implemented in 2006. The policy includes guidelines that allow us to set appropriate HVAC levels to support our educational activities. The goal of the policy is, first, to ensure that all programs have the environment they need to be successful and, second, to eliminate waste from the system.

Clarke Middle School remains our most challenging building in terms of energy consumption. The building is more than 30 years old and has an all-electric heating system. In 1998, a Permanent Building Committee study stated that all mechanical systems at Clarke should be replaced, because these antiquated systems were beyond their useful life and were responsible for extraordinarily high energy costs. In 1999, an override vote to fund that replacement project failed. Since then, the mechanical and HVAC systems have continued to deteriorate.

In 2005, we were able to take full advantage of an NStar rebate program that allowed us to install a modern temperature control system and reduce electric costs by $136,000. In December, we installed new controls at Diamond Middle School, which should tell us how well our energy systems are performing on a real-time basis and produce additional savings.

Even with the new temperature controls at Clarke, 52 of the 72 existing heat pump systems are operating only in their inefficient resistive mode. Based on a recent feasibility study and preliminary design, the School Committee has forwarded to the town's Capital Expenditures Committee a plan to replace Clarke's antiquated systems with modern energy-efficient gas units in 2007. Like a school roof, the existing equipment needs to be replaced because it is at the end of its useful life. The project we are currently considering requires a large capital investment (estimated at $1.7M), but it has an estimated payback period of 9.5 years. Even if the payback period and price prove optimistic, it is clear that energy savings will help offset the cost of the project.

The use of energy consultants from Keyspan, NStar, and Engineered Solutions Inc. has been invaluable. A recent HVAC Retro-Commissioning Report, prepared by Engineered Solutions Inc., identified potential savings of $130,000 per year, with a payback period of 5.1 years, if we invest in repairing existing control problems and installing environmental-management system controls at the high school. The same report found that necessary maintenance to replace ventilation units, upgrade boilers, replace steam pipes, and convert to hot water heating would also increase energy efficiency at the high school and result in associated reductions in energy usage.

The common thread that should come as no surprise is the need to be diligent in investing in upgrades for our aging buildings and systems in order to reduce costly energy usage and realize real savings. As any homeowner knows, proper maintenance is something you need to do deliberately and continually. The Lexington Public Schools have a long history of academic achievement. I hope to extend these achievements to energy-efficient buildings and effective capital plans during my administration. With continued community support, we will realize that goal.