

Response to Questions on the FY 2013 Budget

Request By: Supervisor Gross

Question: How much money is spent on school lighting at night when buildings are not in use? Are there cost (and security) savings if sensor lights, cameras, and automated calls to police are used instead? Additionally, is there any effort made to calibrate the schools' HVAC systems to the occupancy of the building?

Response: The following response was prepared by Fairfax County Public Schools (FCPS):

The estimated potential cost savings from turning off parking lot and security lights at all schools from midnight to dawn is \$175,000 per year. It is difficult to estimate the cost of a system as described in the question. It would require significantly modifying electrical circuits to the outdoor lighting, installing sensors and control switches on all fixtures and poles, installing security cameras (only 37 schools have external video surveillance in place now), installing network connectivity to each camera, and installing an automated control and notification system. However, current Fairfax County Code prohibits the use of automated dialing devices that place calls to 911 centers for alarms. The alarms would still have to be monitored, which is done by FCPS security personnel. Using a conservatively low estimate of \$100,000 per site for 202 school and administrative sites would result in an initial investment of \$20.2 million with a simple payback from electricity savings of 115 years. This estimate does not include ongoing maintenance and equipment replacements costs and the additional nonschool-based maintenance and Information Technology positions that would be required to operate and maintain a system as described.

A significant reduction in security operations costs would likely not be realized as exterior security is only a part of the scope of duties of security officers. With a system as described in the question in place, security officers would still be required to: check that buildings are secured, locked, and alarms are turned on; patrol building interiors, fields and playgrounds for intrusion, vandalism, trespassing and building protection such as flooding, fire, and freeze protection; and be available for crisis management. Officers would continue to be needed on regular patrol in order to rapidly respond to security issues detected by either interior or exterior security alarms. Furthermore, the use of sensors to activate lighting is limited by their detection range, and an unintended consequence may be the construction of large unlit areas that become attractive locations for unwanted behaviors. The timing of such devices would need to be adjusted to ensure adequate lighting for community use activities that regularly extend well into nighttime hours. Surveillance cameras do require some level of lighting to be functional. FCPS currently uses the least amount of lighting necessary to accomplish its goals.

Nearly all schools and administrative centers have automated energy management control systems that set back HVAC systems to unoccupied mode on a schedule. FCPS began installing these systems in 1978 when the energy management program was created and has installed them as a part of renovations or through retrofits over the past 33 years. The few buildings that currently do not have energy management systems have mechanical time clocks that turn systems off at night. FCPS has technicians that program the schedules coordinating with building and community use of each site. These systems, most of which have been in place for decades, save millions of dollars of energy costs per year.