

Durham Public Schools



Operational Services

Green Initiatives

As of October 13, 2009



Durham Public Schools Operational Services' Green Initiatives

As of Aug 18, 2009

Over the last twelve months, interest, participation, and support of green activities have notably increased within the district both at the schools and within the day-to-day activities of the Operational Services Division and others. Two of the more notable measures of this increased participation have been in the amount of materials recycled and the incorporation of LEED (Leadership in Energy and Environmental Design) standards in the construction and renovation projects.

The 2007/08 school year was the first year of our consolidated waste and recycling contract. In the past, we, as a district, recycled cardboard but little else. As part of the new contract, over 1,200 small office/classroom recycling "blue bins" were issued to more than half of our schools and administrative sites. This year the program has been expanded to all DPS locations.

Currently over 2,050 bins have been delivered to the schools and administrative sites. All of the materials that we recycle, i.e., paper, aluminum, glass, and plastic, can be co-mingled in the "blue bins". As a result of these increased efforts over 340 tons of recycled materials were collected in 08/09: 217 tons of cardboard, 18 tons of cans, 37 tons of paper and 69 tons of plastic.

While the recycling program is supported and operated by the students and teachers at many of the schools, the custodial contract has also been modified such that the custodians will empty the bins at those locations where interest and involvement is still growing. Student participation has developed a sense of ownership and promotes greater involvement both at school and within the community.

Other departments have also increased their participation and support of recycling programs. Internal and Warehouse Services are going green by recycling discarded electronic equipment, discarded adopted textbooks and recycling all test and benchmark booklets. Additionally, Warehouse Services has established a goal of 40% of the stocked items purchased being made of recycled materials. The IT Department is surplussing all non-repairable equipment and the items are shredded by an outside contractor.

Construction and Capital Planning Department has expanded the adoption of LEED standards in the design of new schools and additions or expansions. LEED was created in the mid-90's to accomplish the following:

- Define "green buildings" by establishing a common standard of measurement
- Promote integrated, whole-building design practices
- Recognize environmental leadership in the building industry
- Stimulate green competition
- Raise consumer awareness of green building benefits
- Transform the building market

Buildings represent 38.9% of the United States' primary energy use. Buildings are one of the heaviest consumers of natural resources and account for a significant portion of the greenhouse gas emissions that effect climate change. LEED certified buildings typically use resources more efficiently when compared to conventional buildings which are simply built to code. LEED certified

buildings often provide healthier work and living environments, which contributes to higher productivity and improved employee health and comfort.

When LEED certification is pursued, it may increase the cost of initial design and construction. However, higher initial costs can be effectively mitigated by the savings incurred over time due to the lower-than-industry-standard operational costs which are typical of a LEED certified building. Additional economic payback may come in the form of employee productivity gains incurred as a result of working in a healthier environment. *Studies have suggested that an initial up front investment of 2% extra will yield over ten times the initial investment over the life cycle of the building.*

Currently Construction and Capital Planning has the following projects in some phase of LEED certification:

- Elementary E – seeking LEED New Construction Silver certification; project is registered with USGBC
- Middle B – seeking LEED New Construction Silver certification; project is registered with USGBC
- High School A – discussing LEED New Construction Gold;
- Lakewood Middle (YMCA) – seeking LEED New Construction; project scheduled to be registered in early July 2009
- Holton Career and Resource Center – 40,000 gallon cistern is operational collecting rainwater from the school site for irrigating the athletic fields.

Many of the “green” initiatives being explored to achieve the Silver certification at the new construction sites include the following:

- Development of sustainable sites
- Reducing building water use by up to 40% and landscaping water use by 50% or completely
- Increasing the amount of recycled materials used in the construction of the new building by up to 20%
- Improving the Indoor Air Quality and thermal comfort. Install CO2 monitoring to ensure the “right” amount of fresh air is provided
- Increase the use of “daylighting” to 75% of the classrooms and offices
- Using low VOC emitting materials during construction

Maintenance Services has incorporated many of the same LEED goals in their day-to-day operations by:

- Installing carpets made of recyclable materials
- Using “green” certified floor tile
- Installing rain barrels at Southern High School
- Recommissioning energy management control systems – district-wide
- Replacing Variable Speed Drives (VSDs) at Glenn, Easley, Githens, Bethesda and Durham School of the Arts
- Replacing chillers at Glenn and Easley
- Installing photo cells on exterior lighting at various locations and
- Replacing lighting in the Hillside café.

Facility Support and Services, in addition to overseeing the expanded recycling program, has promoted the use of “green” products and the recycling of fluorescent bulbs into the custodial contract.

The department began the execution phase of the \$10 million Performance Contract in May. By definition, Performance Contracts or Guaranteed Energy Savings Contracts reduce energy consumption by replacing or modernizing building infrastructure systems. The program currently includes 13 schools. At 12 sites, the T-12 lights and other lighting systems are being replaced with T-8s, LEDs, and other low consuming fixtures and bulbs. At all 13 sites various upgrades are being made in the plumbing systems to reduce water consumption. At five sites, seven (7) chillers and one cooling tower are being replaced. At Morehead Elementary a new insulated roof is being installed. Plus there are numerous other upgrades which overall will reduce the district’s energy consumption by over 6.6 million Kilowatt hours, 81,000 therms of natural gas, and 11 million gallons of water per year. This reduces the district’s carbon footprint by over 4,236 tonnes of CO2 each year. All of these improvements are being paid for out of the energy savings.

The Energy Incentive program has completed its second year of rewarding schools monetarily for reducing their consumption of energy. Simply turning off lights and equipment overnight can make a significant difference in utility costs.

The refinement of the Integrated Pest Management (IPM) Program and the associated facility inspections has shifted the emphasis of the pest management program to being pro-active rather than re-active. Potential problems are identified and corrected many times before the occupants become aware of the situations.

Transportation Services is further reducing the district’s carbon footprint by using Bio-Diesel fuel in all school buses and by installing Diesel Oxidation Catalyst on 100 of our older school buses. Additionally, Transportation Services is exploring changes in the school bus routes which will save both energy and dollars. This could have a significant budgetary and energy savings as Durham Public School buses travel over 4 million miles each year at a cost of \$3.27 per mile.

Risk Management Services has developed and is expanding on-line training programs that save both dollars and eliminate the need for employees to travel to and from a centralized training location. The current on-line training for bus drivers is estimated to save \$5,000 to \$8,000 annually and eliminate hundreds of road miles.

Child Nutrition Services has also implemented programs to reduce water consumption by eliminating the use of plastic trays and silverware and has instead purchased biodegradable trays which are environmentally friendly. The use of cooking oil has been reduced or eliminated and where it could not be eliminated, the used cooking oil is being sold for conversion to bio-fuel.

The **Board of Education** has implemented policies that promote “green” activities for all schools and employees. For example, the Idling Policy 6425 designed to limit the amount of time DPS buses and other vehicles are warmed up or sitting idling and Pest Management Policy 6340 which established the Integrated Pest Management to eliminate the routine use of harmful sprays and pesticides. Additionally, the City, County and District established the “Green Team” which works together to address common issues across the community.

In summary, Durham Public Schools has instituted numerous programs across the entire spectrum of energy conservation and environmental preservation and continues to explore new initiatives as a leader within the district and the community. Our goal is not simply to improve our internal operations but to promote these programs to students and staff thereby multiplying their impact across the community for now and into the future.

Operational Services
Green Activities – Facts and Figures
Oct13, 2009

Operational Services has developed and expanded various programs promoting environmentally conscience activities and behavior within its departments and throughout the district.

Construction and Capital Planning has adopted the Leadership in Energy and Environmental Design (LEED) standards in all new construction. LEED promotes integrated, whole-building design practices reducing the use of fossil fuels during construction and the life of the building.

Many of the “green” initiatives being explored at the new construction sites include:

- Development of sustainable sites
- Reduce building water use by up to 40%
- Reduce or eliminate landscaping water use
- Increase the use of recycled materials in the construction by up to 20%
- Improve Indoor Air Quality and thermal comfort.
- Install CO2 monitoring to ensure the “right” amount of fresh air is provided
- Increase the use of “daylighting” to 75% of the classrooms and offices
- Using low VOC emitting materials during construction

Maintenance Services has also incorporated many of these same standards in the maintenance and repair of our existing buildings by:

- Installing carpets made of recyclable materials
- Using “green” certified floor tile
- Installing rain barrels at Southern High School
- Recommissioning energy management control systems – district-wide
- Replacing Variable Speed Drives (VSDs) at Glenn, Easley, Githens, Bethesda and Durham School of the Arts
- Replacing chillers at Glenn and Easley
- Installing photo cells on exterior lighting at various locations and
- Replacing lighting in the Hillside café.

Facility Support Services has focused its efforts primarily on recycling, performance contracting and pest management.

- Recycling program expanded to include all DPS locations
 - Items collected include cardboard, paper, plastic and glass.
 - In 2008-09 over 340 tons of recyclable material was collected.
- Performance contracting at 13 schools will reduce energy consumption by over 6.6 million Kilowatt hours, 81,000 therms of natural gas, and 11 million gallons of water per year and our carbon footprint by over 4,236 tonnes of CO2.
- IPM has virtually eliminated the use of harmful pesticides inside our schools.

Transportation Services is further reducing our carbon footprint by using Bio-Diesel fuel in buses and by installing Diesel Oxidation Catalyst. Additionally, changes in the school bus routes this year will save both energy and dollars. DPS buses travel over 4 million miles each year at a cost of \$3.27 per mile.

Risk Management Services has developed and is expanding on-line training programs that save dollars and eliminate the need for employees to travel to and from a centralized training location. Current on-line training for bus drivers saves \$5,000 to \$8,000 annually and eliminate hundreds of road miles.

Child Nutrition Services has reduced water consumption by eliminating the use of plastic trays and silverware and has instead purchased environmentally friendly biodegradable trays. The use of cooking oil has been reduced or eliminated and where it could not be eliminated, the used cooking oil is being sold for conversion to bio-fuel.