

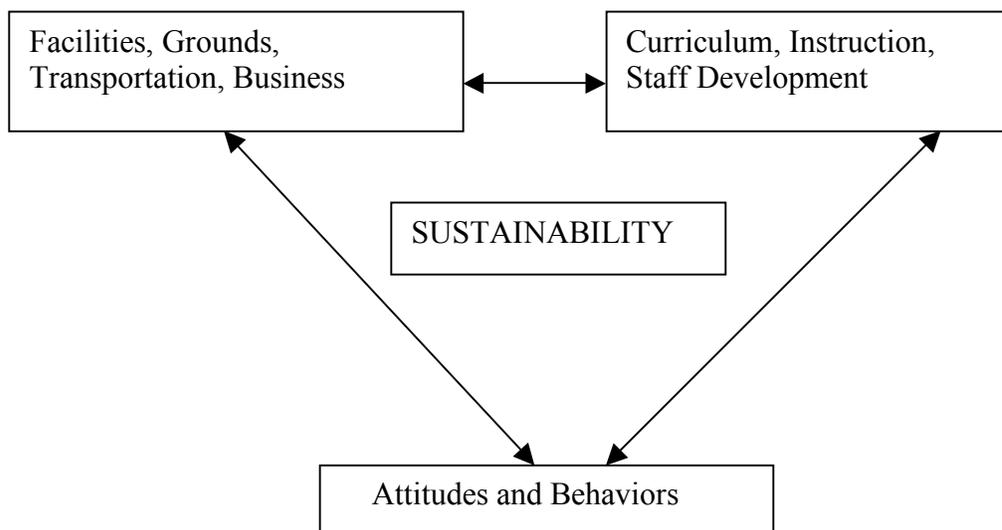
# SUSTAINABILITY EDUCATION REPORT APRIL 30, 2007

## Introduction

Scarsdale School District's Sustainability Education goal is to develop policies, programs and practices that will promote a sustainable future for current and future generations of students. "Historically, the term "sustainable" arose among those with environmental concerns, and most of the literature and assessment instruments reflect this emphasis. However, it is increasingly recognized that sustainability cannot be achieved without addressing social justice issues. There can be no sustainable communities and institutions without social justice. So too is humane consideration toward the whole community of life an essential part of true sustainability. An academic institution committed to sustainability should help students understand the roots of today's injustices and motivate them to seek justice and humaneness in full integration with understanding the roots of environmental degradation and modeling environmentally sustainable practices." (Cobb, 1998)

As a consumer of energy and other resources, the school district produces enormous amounts of carbon dioxide emissions that flow into the atmosphere. We also produce thousand of pounds of waste that end in landfills. It is our responsibility to manage our facilities, grounds, and transportation systems as economically and environmentally efficient as possible.

As an educational institution it is our responsibility to teach students about sustainability in the broad liberal arts tradition. Our students need to know the science, math, economics, politics, and justice of climate change issues. They need the habits of mind, problem solving skills, critical thinking skills and creativity necessary to promote sustainability. Stewardship of the planet is their responsibility too.



The diagram above is one way to view the major components of sustainability education for a K-12 school district. Naturally many topics overlap and are part of more than one area. For example, recycling belongs to all three. Our school maintenance program must provide appropriate bins for students and teachers to use and our custodial staff must make certain the bins are emptied into appropriate dumpsters outside for village pick-up. The science of recycling must be included in our curriculum and systematically reinforced at different levels. Students need to develop behaviors and habits that reflect the importance of recycling to a sustainable future.

Sustainable education practices often reflect strong safety and health practices as well. Using non-toxic insecticides, fertilizers and cleaning products are obvious examples. No idling policies, bio-diesel fuel-efficient buses, and fewer private cars transporting students to and from school are also examples of sustainability education as well as safe/healthy practices.

Some sustainability practices can be done quickly and easily. Some will take years to develop and implement. Some of these practices can save money immediately or over the long run. Other practices may not have a cost benefit but will be so important to the development of a sustainable future that they must be included in our plans.

This past year groups of Scarsdale students, teachers, administrators and parents explored “green” issues and the role each group needs to take to build a sustainable future not only for this generation of students but for future generations as well. Some of our initial thoughts and plans are detailed in this report. This is an evolving plan and will improve as all stakeholders devote more intellectual and creative energy to the task.

### I. Facilities, Grounds, Transportation and Business

Carbon dioxide emissions are the major component of “greenhouse” gases causing serious climate changes on our planet. The District needs to do as much as possible to reduce the production of carbon dioxide and other harmful pollutants. Scarsdale School District has already updated electrical and heating systems. The bus fleet has also been upgraded on a regular basis. However, these systems need ongoing review to promote the highest level of performance and fuel efficiency. The District consumes hundreds of thousands of pounds of products and materials needed to operate the seven schools. Part of our carbon footprint is the thousands of tons of emissions released while producing and transporting the paper, furniture, books, and cleaning products used in our schools. Purchasing recycled paper, furniture and other products as locally as possible to avoid major transportation costs, dollars and emissions, should be a high priority.

Strict rules govern the use of fertilizers, insecticides and cleaning products used on school grounds and in school buildings. Newer and more effective sustainable products are becoming available each day.

Transportation to and from school each day yields thousands of tons of CO<sub>2</sub> unnecessarily into the atmosphere. The District should consider reducing the distance

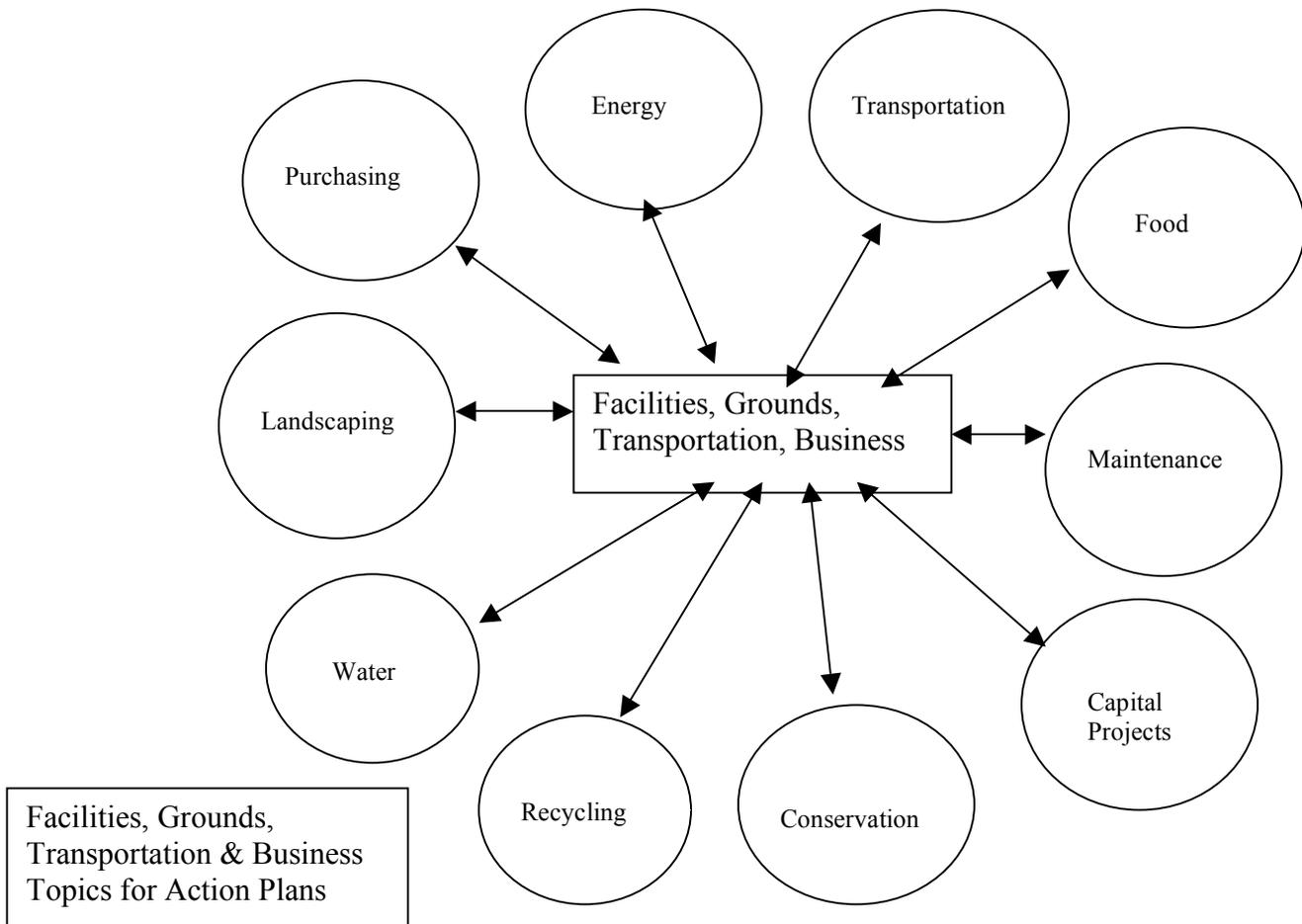
required for bus eligibility. The obvious value of reducing the distance would be the reduction in greenhouse gas emissions from the many cars required to transport students. Another benefit of the plan would be the reduction of traffic issues around the schools.

Features of the plan might include:

- 1) Phase in over 3 years from current 1.5 miles to 1.0 mile to .75 miles to .5 miles.
- 2) Purchase energy efficient buses.
- 3) Collaborate (solicit Village approval) with Village to establish pedestrian/bicycle lanes on designated one-way streets within .5 miles of each school.
- 4) Collaborate with Village to expand vehicle storage area (Village has expressed interest in this plan).
- 5) Minimize number of new buses required by staggering school hours.

The District should also plan longer term capital expenditures that will reduce the consumption of fossil fuels to meet our energy needs. Retrofitting the heating systems of older buildings to be more efficient; e.g., install zoned heating so that areas used at night or weekends can be turned on without heating the rest of the building. The District sent out a Request for Proposals to identify possible energy saving capital projects. Current proposals are being evaluated.

As costs lower and technology improves, the District needs to use renewable forms of energy including solar, wind, and geo-thermal to replace reliance on fossil fuel energy.



The circles in the figure above represent areas for study and the development of short term and long term plans.

## II. Curriculum, Instruction and Staff Development

Scarsdale Schools' Mission statement includes the following phrases:

- to be effective and independent contributors in a democratic society an interdependent world
- to think and express themselves clearly, critically and creatively
- to understand themselves and others within the broad fabric of human experience and the natural universe
- to appreciate their rights and responsibilities as citizens
- to become people of integrity, maturity and generous spirit.

These goals are also part of the mission of sustainability education. Perhaps we should add, "to become stewards of the planet and promote a sustainable future for all, non sibi – not for themselves alone.

The curriculum of sustainability education is interdisciplinary. Students need to understand how nature sustains life and how ecological concepts relate to sustainable human communities and the built environment.

Many teachers and schools have already developed sustainability programs and projects for students. SE programs for teachers were offered through the STI this fall and more are proposed for this spring. The District needs to plan and implement more curriculum and staff development opportunities for teachers at all levels. Also the District needs to support individual schools and teachers in their SE efforts.

- 1) Provide financial support for STI K-12 Summer Sustainability Education Institute planned by District teachers with Children's Environmental Literacy Foundation. (Our goal is to educate 20-30 teachers each summer for next three years.)
- 2) Budget \$3000 for each elementary school, \$10,000 for Middle School and \$15,000 for High School to support sustainability education projects approved by building principal and each school's "green" committee.
- 3) Plan full day (for 2007-08 or 2008-09) Superintendent's Conference Day on Sustainability Education; e.g., Part I: Prominent speaker (David Orr, Edward O. Wilson, or Al Gore); Part II: breakout sessions led by business, university, NGO's, local experts; Part III: K-12 staff (all professional and non-professional) interactive exercise using World Café Model with pre-selected questions/topics.

### **Expand Formal and Informal Opportunities in Natural Environments**

To gain greater respect and understanding of the natural environment, students need more opportunities to interact with the natural world.

- 1) Identify natural environments close to each school; e.g., wooded areas near High School, Heathcote, Middle School, and Fox Meadow (paths exist at FM).

- a) Prepare safe and appropriate “trails” through these areas.
  - b) Provide resources for teachers at different levels to identify and develop sustainability education activities.
- 2) Plan/implement a visit (4-day, 3-night?) to a respected and experienced environmental facility (facilities exist in Westchester, Putnam and Lake George regions.
- a) Determine most appropriate grade level (probably 6<sup>th</sup>, maybe 4<sup>th</sup> or 5<sup>th</sup>).
  - b) Provide resources for teachers to identify and develop sustainability education activities consistent with science program.
- 3) Develop and submit a proposal to Village Government for a School District – Village collaboration regarding management of the Weinberg Nature Center.
- a) Add new classroom structure powered by renewable forms of energy (solar, geothermal, wind) (power entire facility with renewable forms of energy).
  - b) Develop expanded natural programs at the Center (Mr. Terrell, Weinberg staff and District Science teachers)
  - c) Add an “energy center” at the site to teach students and adults about alternative forms of energy.
  - d) Add an “organic farming center” at the site to teach students and adults about organic food production as well as new technologies for food production (e.g., hydroponics).
  - e) Provide opportunities for advanced study by interested MS and HS students.

### **Initiate Use of Solar Energy in Schools**

We need to teach students at all levels about alternative energy and its importance to sustainable development. At this time solar energy is one of the most viable alternatives.

- 1) 2007-08: Install solar demonstration units at each school, approximately \$20,000 each. These units can provide electrical power for purposes determined by each school. Using software such as the one developed by Heliotronics, students can also use the pv cells for purpose of learning about solar energy.
- 2) Plan this year for a more significant project at the HS in 2008-09 (Mercury Solar Systems in New Rochelle submitted a proposal for a 40 KW photo voltaic system for a total cost of \$360,000. With funding assistance from NYPA, the cost could be reduced substantially).
- 3) Plan another substantial project the following year for the Middle School.

### **Develop School Gardens**

Food production is an essential component of sustainability education. We need to teach students about the economics, environmental costs and nutrition of locally grown organic foods compared to traditional choices. It is important that schools provide students with local organic growing experiences.

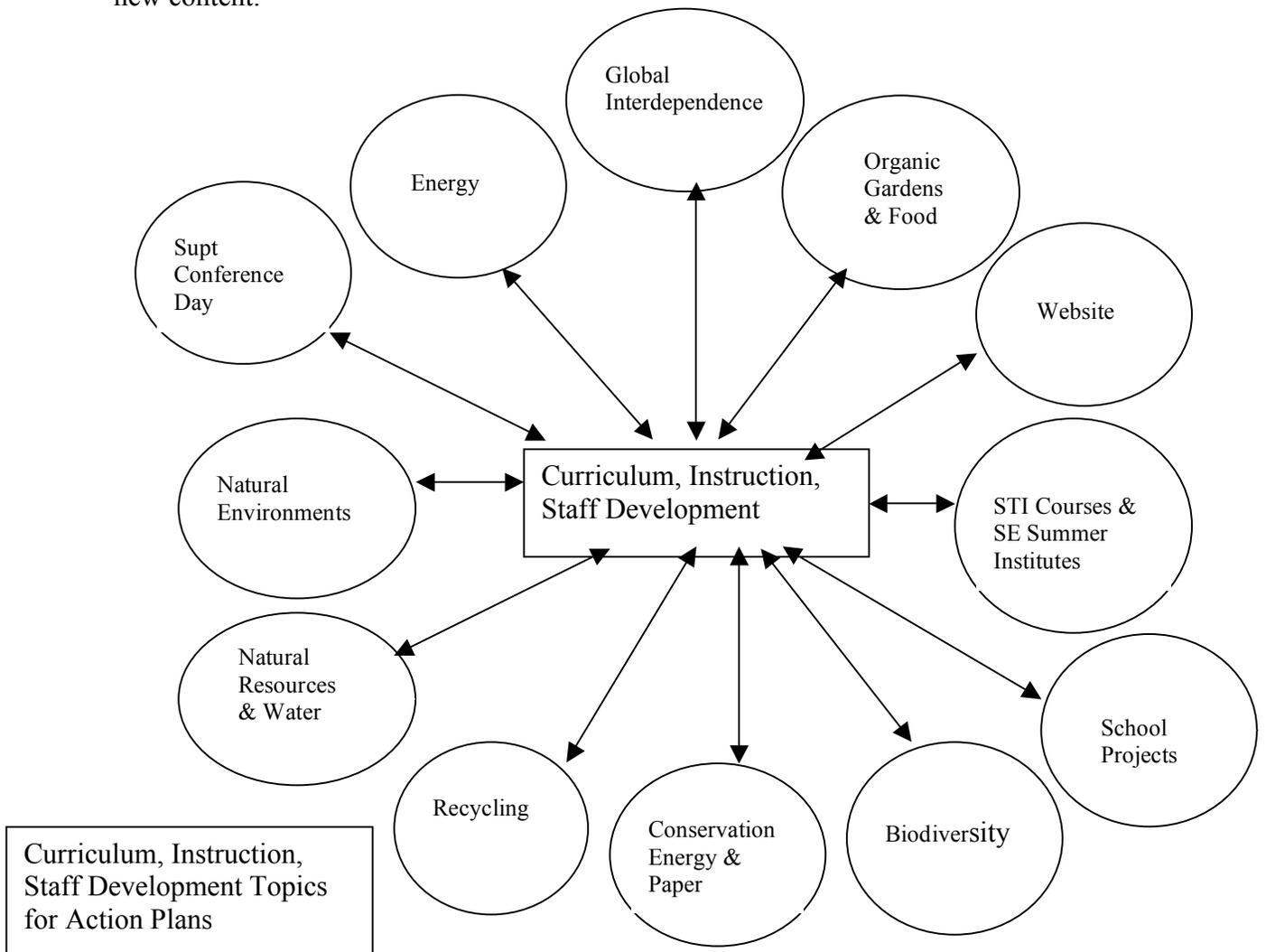
- 1) Contract with Russell Greenleaf of Greenleaf Organics to develop organic gardens with students and teachers at each elementary school; work with students will include hands-on gardening and classroom lessons.
- 2) Support a larger Middle School community garden project.
- 3) Organize interested parents through each PTA to help maintain gardens during the summer as well as school months.

**Develop a Website for Sustainability Education**

Initially the website should include information and resources for all stakeholder groups: students, teachers, parents, and residents. It will be accessed through the District’s website.

**Long Term Curriculum Development and Teaching Strategies**

Teachers should look at existing curriculum, particularly in Science and Social Studies, to determine what sustainability education content is already in place or needs minor additions/revision to be included. This existing curriculum should be the springboard for sustainability instruction the first few years. At that point, teachers should do a new curriculum audit to determine whether or not the District needs to add new content.

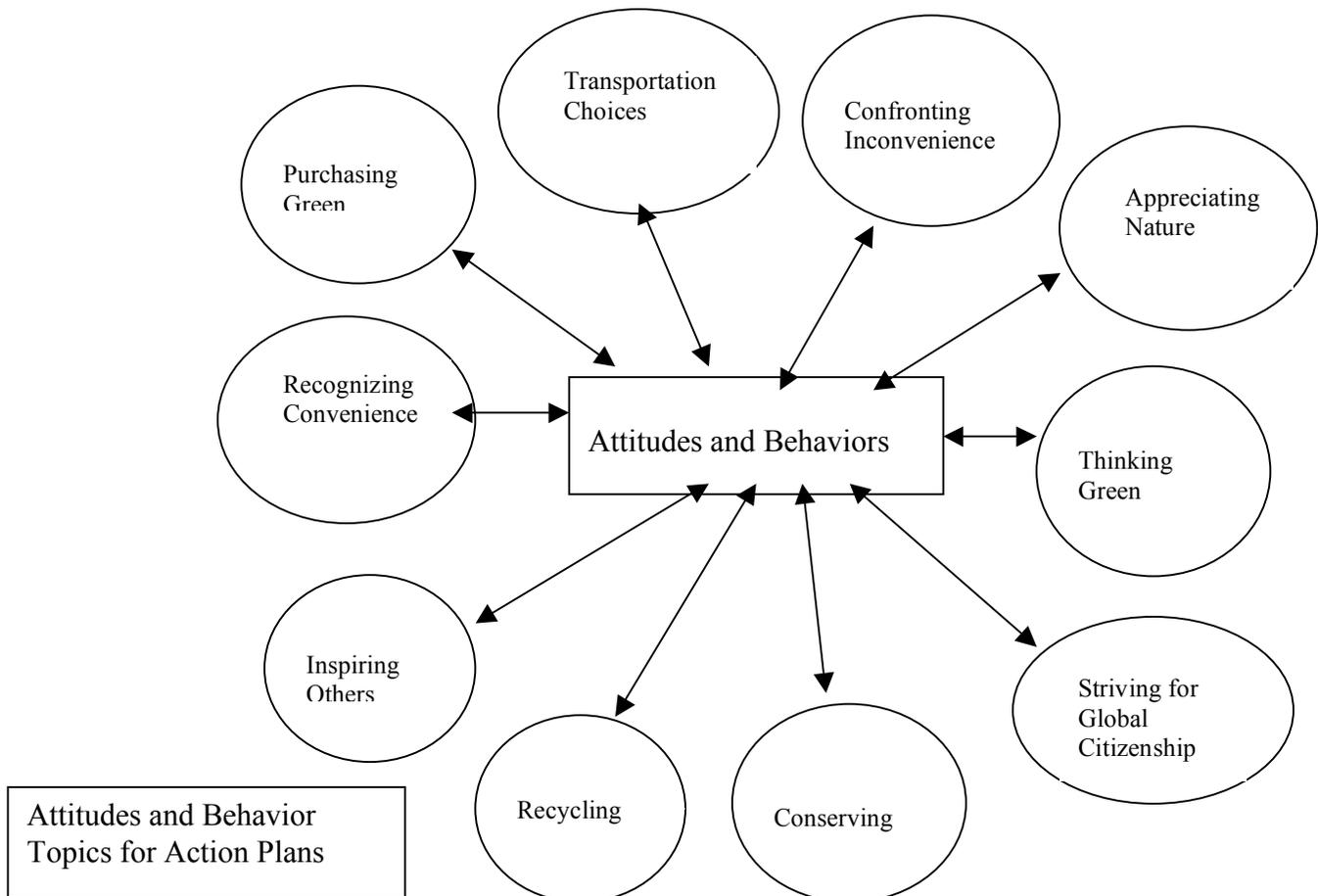


The circles in the figure above represent some of the areas identified for study and the development of short term and long term plans.

### III. Attitudes and Behaviors

To promote sustainability means we have to change lifestyles. We need to confront inconvenient truths and often make different choices that are more environmentally sound. We need to make these choices daily until they become automatic, natural and no longer inconvenient. By inspiring students through our example and a “Learning it by Living it” approach to sustainable development, socially, environmentally, and economically, our students will be inspired to preserve the planet for their generation as well as generations to come.<sup>1</sup>

Recycling, conserving energy, purchasing “green” products, making inconvenient choices, and knowing the difference must become part of our citizenship fabric. Good citizenship will include behaviors, attitudes and habits that promote sustainability. We need to do our best to prepare students for this type of global citizenship.



<sup>1</sup> Language adapted from website, Upper Canada College, <http://www.ucc.on.ca/podium/default.aspx?t=7932>

## Implementation

The Board of Education will be asked to adopt a policy statement on sustainability. The policy is consistent with the Mission and should become a guiding principle for the District.

The proposed policy statement (**resolution passed June, 2007**) is:

**As part of the global community and as educators of future leaders and global citizens, the Scarsdale Public Schools will encourage and show leadership in using ecologically sustainable practices that will help preserve our environment for current and future generations. The District will develop conservation measures, educational programs, and other efforts aimed at promoting behavior that is consistent with an ethic of sustainability.\***

**The Schools also recognize our impact on the environment, and we understand that we must take a systematic approach to avoid or limit negative impacts. We hereby adopt as a goal the reduction of our greenhouse gas emissions by ten percent below the District's 1990-91 emissions level by the year 2020.**

\*Sustainability is an attempt to provide the best outcomes for the human and natural environments now and in the future. The Brundtland Commission, headed by Norwegian Prime Minister Gro Harlem Brundtland, defined sustainable development as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs.”

The District has established the part-time/consultant position of Sustainability Coordinator. In so doing, the Board of Education has recognized the importance of directing focused, sustained, and coordinated long term attention to the multiple facets of the sustainability initiative. In collaboration with other staff, parents and students, the Sustainability Coordinator:

1. Develops long and short range plans for building operations, student education, and individual behavior that will further the ethic of sustainability.
2. Maintains contact with external institutions, groups and agencies concerned for sustainability; actively seeks information about sustainability and best practices related thereto; develops organizational and individual relationships to support local sustainability initiatives; disseminates information about sustainability.
3. Seeks grants and other resourcing to support local sustainability initiatives.
4. In collaboration with the Assistant Superintendent for Business, promotes practices that reduce the District’s carbon footprint
5. In collaboration with the Assistant Superintendent for Instruction, promotes the coordination and development of curricula and instructional practices that further the District’s sustainability goals.

6. In collaboration with building principals, promotes and supports student and student-faculty organizations and activities aimed at reducing the carbon footprint and influencing individual behavior consistent with an ethic of sustainability.
7. Serves as the public “face” of the District with regard to sustainability initiatives.

Going forward, the Sustainability Coordinator will:

1. Identify priorities in each main area of responsibility (operations, educational program, behavior)
2. Recommend “ownership” for priorities (who will be responsible for what actions)
3. Work with principals to develop the student and/or student faculty action groups that have been established in each building. The Coordinator will recommend possible activities for these groups, including activities to measure and reduce carbon emissions within the building.
4. Advocate for and support work on the main priorities, as well as the activities of the action groups.

(Written by Steven Frantz, Sustainability Education Coordinator)