an anti-idling clean air campaign

breathe better

2006
Children's Environmental Health
Recognition Award

Status of B^2 in 2008-2009

Contents:

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health
and Environmental Control

Summary of Results:

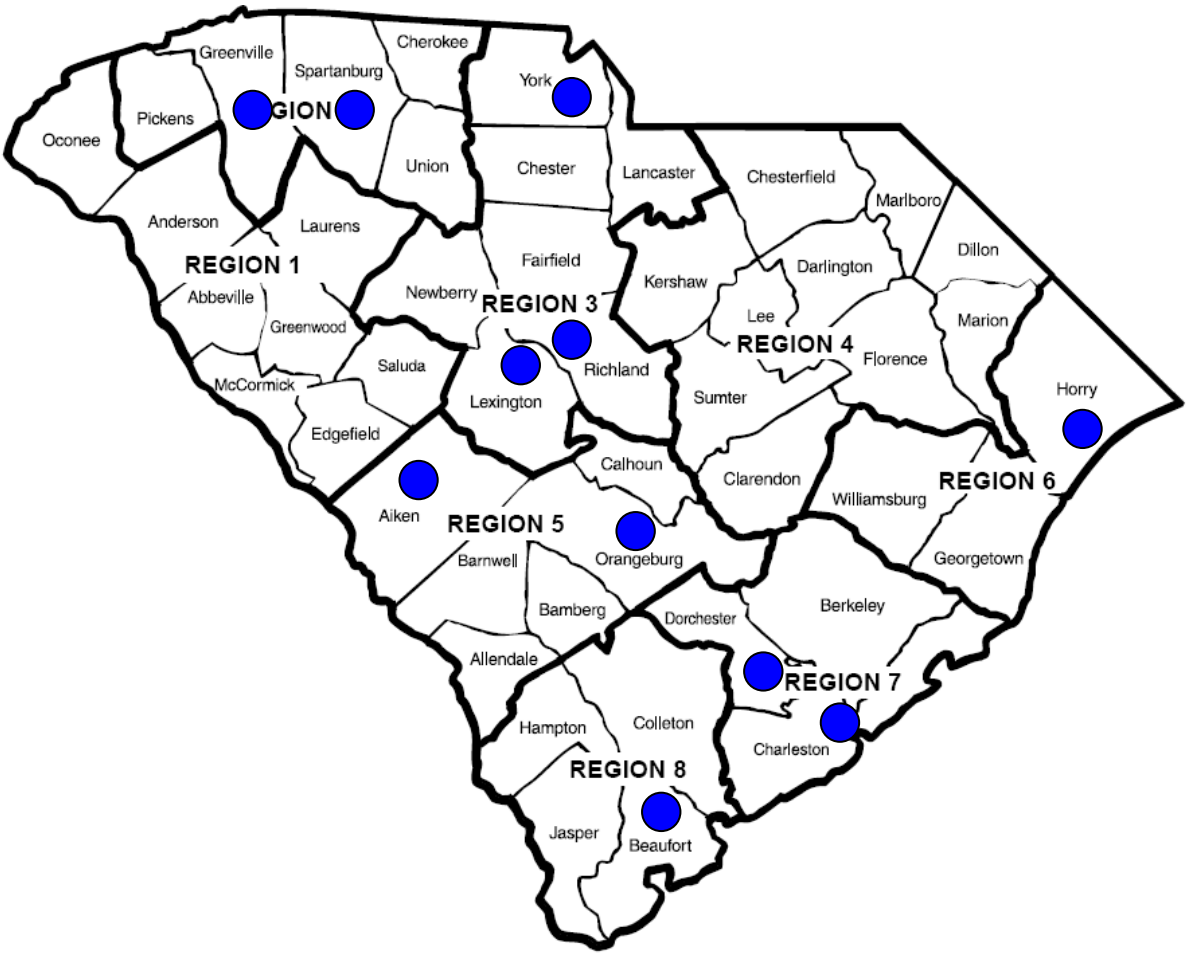
Estimated Emissions Reduced and Fuel Saved:

- 333,660 pounds CO_2
- 5,357 pounds NO_x *
- 146 pounds $PM_{2.5}$ *
- Avoided 60 hours of idling per vehicle
- Saved 30 gallons of fuel per vehicle

*Based on bus emissions only

Audience Reached:

- 21 schools in 11 counties, representing 13 school districts
    - Aiken, Beaufort, Charleston, Dorchester, Greenville, Horry, Lexington 3 and 5, Orangeburg 5, Richland 2, Spartanburg 7, York 2 and 4



- 15,500 students total
    - 330 directly involved in implementation
- 3,200 parent drivers total
    - 1,500 directly interacted with students
- 300 bus drivers

The Idling Problem

Pollutants in vehicle exhaust, both gasoline and diesel, are linked to health problems such as asthma and other respiratory diseases, allergies, heart disease, and increased risk of infections and certain cancers. Children are especially vulnerable to air pollution because their lungs are sensitive and still developing, and they breathe 50 percent more than adults by body mass. According to 2003 DHEC data, about 91,000 South Carolina children have asthma, which may be aggravated by exposure to vehicle exhaust. Asthma is the most common chronic disease in children, a leading cause of children's hospitalizations and a major cause of school absenteeism.

Emissions from idling vehicles accumulate both outside and inside school buildings. Air intake vents draw pollutants into the school, where it can affect the health of both students and faculty. Parents, bus drivers, and faculty or staff assisting with traffic flow may also be exposed to higher levels of pollution during arrival and dismissal procedures.

Pollutants in vehicles contribute to environmental problems such as ground-level ozone formation, regional haze, acid rain, and climate change.

Unnecessary idling can be expensive. Just 30 seconds of idling in cars consumes more gasoline and releases more pollution than restarting the engine. Additionally, idling causes extra wear-and-tear on the engine that can lead to higher maintenance costs over time.

All of these issues can be targeted by implementing anti-idling programs at schools. Anti-idling programs benefit the environment, save money by reducing fuel use, and may have a significant impact on the health and well-being of students.

B^2 Program Goals and Outcomes

The B^2 program's main goal is to help identify solutions to reduce air pollution around schools campuses through enlisting the efforts of students, faculty, staff, community and local agencies. After an initial needs assessment, each individual school can begin to improve air quality around their campus through the following methods:

- Implement a "no idling" policy for buses and cars
- Promote community awareness by educating students and parents
- Improvement of dismissal procedures
- Encourage carpooling and walking/biking to school
- Participation in existing air pollution reduction programs

The B^2 program may bring the following benefits to the school community:

- Reduced vehicle emissions
- Reduced respiratory problems
- Air quality awareness and education
- Reduced traffic volume on and around school campus
- Positive behavioral changes

B^2 Guidelines for Schools: (updated from 2008-09)

These guidelines can be adapted to best fit each school's unique circumstances.

1. Planning

- Arrange a meeting with a B^2 representative to set goals and a timeline for the program.
- Choose a faculty or staff member to coordinate the project.
- Contact the district transportation coordinator if necessary. Check for existing policies.

2. Student Involvement – the "Clean Air Patrol"

- Recruit students to be the Clean Air Patrol. Recommend 3rd grade and older.
- Educate these students on air quality and Patrol activities, which may include:
    - Distribute surveys, flyers, and rewards (when available) to inform and encourage parents
    - Create posters and newsletter articles to raise awareness
    - Data collection (see step 3)
    - Meet with bus drivers to encourage their participation
    - Presentations to fellow students, faculty and/or parent groups
    - Students will receive special reward items for their participation

3. Data Collection

- Don't be scared! Data collection for B^2 is simple but essential for tracking progress.
- Data collection should begin before the project starts, to determine a baseline for measuring success, and be repeated at least twice in the first year of participation.

4. Adopt a Policy

- Another simple but essential step, an official policy will help ensure that B^2 and the practice of "no idling" will continue beyond the first year.
- Place the "no idling" policy in the student/parent handbook and the school website.

5. Getting the Word Out

- Inform families about B^2 by email, flyers, posters, newsletter, surveys, and/or phone.
- Build excitement and teach all students about B^2. Have special "kickoff day" promotions or events. Lesson plans available, as well as "Spare the Air" bookmarks for all students.
- Meet with the bus drivers. Work with the transportation director if necessary. Bus drivers will receive a promotional item as encouragement and to promote B^2 daily.
- Post "no idling" signs (up to 5 will be provided) on campus as a reminder to drivers.

6. Keep it Going

- Make a plan for continuing B^2 into the second year. Reinforce the message and track progress. Recruit a new Clean Air Patrol if necessary.
- Consider other projects to improve air quality. Some examples from other schools are:
    - Planting trees/landscaping to reduce mowing area
    - Recycling and waste reduction
    - Start a walk/bike to school program
    - Encourage carpooling to reduce traffic
    - Plants in every classroom (indoor air)
    - Energy conservation at home and school

Contractor:

Angie Perry of Greenleaf Education (VP and H Education, LLC, formerly Unique Promotions), contact (803)-367-1436 or angieperry@greenleafedu.com

Using part of a Clean School Bus USA grant from the SC Department of Education, Angie Perry was contracted to assist with promoting and implementing B^2 programs in schools around the state. The amount of this funding was $19,960.16 (see below for expenditure update) and paid in lump sum in June 2008 to Unique Promotions. The contracted work was originally expected to run through mid-2009 and has assisted with initiating B^2 at 18 schools in ten counties, as well as establishing or strengthening several local partnerships in those counties.

Budget:

	2008-09 Budget	**Actual Expenditure (as April 30, 2009)**
Travel	1,500.00	1,934.11
Promotional Items	4,000.00	2,625.05
Supplies and equipment	5,000.00	138.36
Printing / Copying	1,460.16	0
Utilizing existing contractor	8,000.00	11,942
TOTAL	**19,960.16**	**16,639.50**

The original amounts designated for each category were redistributed as needed by the contractor. DHEC has absorbed all printing costs to date, and BAQ has purchased other promotional items.

Promotional Items:

Item	**Source**	**# Distributed** (Aug 08-Apr 09)
No-Idling signs*	BAQ	63
Bookmarks	Printed in-house	15,600
Dog tags	BAQ	330
Travel mugs	BAQ	201
Window clings	Purchased by BAQ and Angie Perry	1765
Pencils	BAQ	250
Posters	EPA (sent by SEDC)	30
Magic School Bus books	EPA	13
Postcards	Printed in-house	3,250
Clipboards	Purchased by Angie Perry	49
T-shirts	Purchased by Angie Perry	104
Mini-candies	Purchased by Angie Perry	1,500

*Does not include signs provided by Greenville County

Idling Reductions Reported

Based on the data reported by the 21 participating schools in 2008-09, here are the reductions in idling frequency and resulting emissions from school buses and personal vehicles. *Additional details on these calculations are available upon request.*

Several assumptions were necessary to estimate the emissions reductions from both school buses and personal vehicles:

- All participating drivers avoided idling on all 180 days of the 2008-09 school year (although programs started at different times of the year and participation may have varied at times)
- Each driver reduced daily idling time by 20 minutes on average (based on anecdotal observations from participating schools)
- Both schools buses and personal vehicles consume 0.5 gallons of fuel per hour while idling (based on review of several sources)

School Buses

For the 2008-09 school year, 300 bus drivers were involved in anti-idling programs. This number includes the buses at individually participating schools, as well as two districts with non-formal anti-idling policies (Lexington District 5 and Aiken Area 5).

Using the above assumptions and other data, the 300 buses collectively achieved the following (estimated) reductions for the school year:

- Saved 9000 gallons of diesel
- Prevented 199,800 pounds of CO_2
- Avoided 60 hours of idling per bus (18,000 hours total)
- Prevented 5357 pounds of NO_x
- Prevented 146 pounds of $PM_{2.5}$

Personal Vehicles

Even more assumptions were necessary in estimating the emissions reductions from personal vehicles due to multiple variables, inconsistencies in reporting methods, and the fact that parent participation was entirely voluntary. As of June 2009, 13 schools had submitted usable data – that is, one baseline data set before starting B^2 and one final data set in April or May 2009 (at minimum). The data is summarized here:

	Idling Count - Baseline			**Idling Count – Final 2009**		
	Total # vehicles	*# Idling*	*% Idling*	*Total # vehicles*	*# Idling*	*% Idling*
TOTAL (n=13)	1189	416	--	1249	185	--
AVERAGE	--	--	39.4	--	--	11.3

Based on the above assumptions and other data, the 230 drivers that voluntarily avoided idling collectively achieved the following (estimated) reductions for the school year:

- Saved 6900 gallons of gasoline
- Prevented 133,860 pounds of CO_2
- Avoided an equivalent VMT reduction of 172,500 miles

All schools reported (at least anecdotally) a decrease in idling over time. The average baseline for schools prior to B^2 is about 40% of all cars idling (range 22-75%). As of May 2009, the 13 schools that reported data were averaging about 11% of all cars idling (range 0-32%). Although this data is self-reported and somewhat inconsistent, it indicates an initial trend towards anti-idling. Schools will be asked to provide additional data for the 2009-10 school year to determine whether this trend will continue.

Planning for 2009-2010 School Year

Currently participating schools will hopefully continue their programs, recruiting new students if necessary. Each school will be offered an additional no-idling sign for their delivery bays – schools will be contacted in August 2009 regarding this measure. Some of the elementary schools also have plans to encourage participation from their daycare van drivers.

All currently participating schools will be recommended to do the following in 2009-10:

- Recruit a new Clean Air Patrol if necessary. Remind parents and bus drivers about the policy early in the school year using flyers, posters, announcements, etc. Elementary schools should consider outreach to daycare van drivers.

- Post the new no-idling sign in the delivery bay. Recruit students, cafeteria and/or custodial staff to help enforce the policy with truck drivers.

- Collect first data sample by the end of September.

- Collect second data sample in January, to help remind everyone following the holidays.

- Collect final data sample sometime around Earth Day (April 22) and celebrate.

- Submit final report for the year before leaving for summer vacation in June. Schools participating in SC Green Steps should qualify for an award at this time.

Additional schools will be recruited to participate. Outreach efforts during the summer 2009 will include teacher workshops, website updates, and individual follow-ups.

Data collection will be strongly encouraged with new and continuing schools, due to problems with reporting data in 2008-09. Schools may also be given monthly tasks to perform to help keep their implementation on track.

Statewide Participation 2008-2009:

Audience reached by B^2 in 2008-09 consisted of:

- 21 schools in 11 counties, representing 13 school districts
  - Aiken, Beaufort, Charleston, Dorchester, Greenville, Horry, Lexington 3 and 5, Orangeburg 5, Richland 2, Spartanburg 7, York 2 and 4
- 15,500 students total (330 directly involved in implementation)
- 3,200 parent drivers total (1,500 directly interacted with students)
- 300 bus drivers

B^2 is promoted statewide by South Carolina Green Steps, honoring schools with significant, sustainable, and well-established environmental projects.

The following section contains a brief description of each school program, primary contact (some secondary contacts), important notes or significant accomplishments in B^2, and participation or awards for other environmental projects. *Additional details on each school are available upon request,* and several schools are featured on the B^2 website.

Coastal

Regional contact: Randy Cook COOKRG@dhec.sc.gov

Beaufort County

Bluffton Elementary School
Debra Ryan debra.ryan@beaufort.k12.sc.us

- Student Council members implemented the program.

Charleston County

In response to the USA Today report on air toxics in schools and subsequent EPA testing at Chicora Elementary School, there is a concentrated effort to expand B^2 in the Charleston County School District, so far yielding two additional schools to begin in the fall of 2009. Principals will receive B^2 information by email over the summer, and a presentation at the September 2009 principals' meeting is tentatively planned.

Charleston Day School
Jocelyn Hurley Jocelyn.Hurley@CharlestonDaySchool.org

- Planning stages to begin September 2009

Chicora Elementary School
Kate Simison kate_simison@charleston.k12.sc.us

- Plans to include some anti-idling measures as part of a larger effort to address the problem of air toxics

Moultrie Middle School
Deborah Belflower deborah_bellflower@charleston.k12.sc.us

- 7th grade class project linking B^2 to climate change/polar bears
- 2008 Donna Bates Memorial Award for coastal environmental education
- Member of the South Carolina Environment-based Education School Network

Orange Grove Elementary School
John Clendaniel john_clendaniel@ccsdschools.com

- Planning stages to begin September 2009

Sullivans Island Elementary School
Walker Russell walker_russell@charleston.k12.sc.us

- Helped students develop self-esteem through leadership and participation

Dorchester County

These two schools are in Dorchester School District 2 and have plans to work together at the district level to reach more bus drivers and have a greater impact.

Ashley Ridge High School
Dina Ledford dledford@DORCHESTER2.k12.sc.us

- Champions of the Environment honorable mention
- 19 school bus drivers involved
- School has grades 9-10 only

Rollings Middle School of the Arts
Lucia Dantzler ldantzler@dorchester2.k12.sc.us or gazerof9@aol.com

- B^2 was one part of the school's FIRST LEGO Leauge team project for the 2009 Climate Connections Challenge
- Reduced idling by over 65%

Horry County

Ocean Bay Middle School
Cindy Lilly CLilly001@horrycountyschools.net

- Achieved zero idling in May 2009
- Worked around district idling rules by altering bus parking arrangement

Midlands

Aiken County

Aiken County School District has five Areas, each with a transportation director. Denise Watson (Area 5) instructs all bus drivers (approximately 35) not to idle at any of their five schools.

Redcliffe Elementary School
Jamie Reynolds JAMIED@aiken.k12.sc.us
- SC Green Steps School participant

Lexington County

Synithia Williams (Lexington County Public Works) has been promoting B^2. David Weismann (District 5 Transportation Director) instructs all bus drivers (approximately 96) not to idle on any of their 19 school campuses and may propose an official District policy.

Batesburg-Leesville Middle School (District 3)
Valerie Steen vsteen@lex3.k12.sc.us
- Working on anti-idling policy for the entire Lexington 3 District (four schools)

Cross Roads Middle School (District 5)
Carri Tucker ctucker@lex5.k12.sc.us
- First B^2 pilot school and 2005 Champions of the Environment winner
- Noted a subsequent decrease in asthma-related visits to the school nurse
- Helped earn B^2 a 2006 Children's Environmental Health Recognition Award
- SC Green Steps School winner

Orangeburg County

Dover Elementary School (District 5)
Jennifer Fanning jbf51@orangeburg5.k12.sc.us
- Champions of the Environment honorable mention

Richland County

EdVenture Children's Museum in Columbia received a 3-year grant for climate change education. Director Susan Bonk sbonk@edventure.org expects after-school programs at six Columbia schools (Richland District 1) in 2009-10 and will propose B^2 as a potential project.

LB Nelson Elementary School (District 2)
Sonja Corley CORLEYSJ@dhec.sc.gov and Maree Price mprice@lbne.richland2.org
- Girl Scout service project
- Troop leader Sonja Corley works in EQC Administration

Upstate

Greenville County

Greenville County is the most active area so far, in B^2 and general air quality improvement. Funding from the County's EPA grants has helped start B^2 at seven schools (to date) as a component of the County's award-winning Improving Air Quality Public Awareness Campaign.

The County received Outstanding Local Government at the 2008 Spare the Air Awards.

County contacts:
Sandra Yudice SYudice@greenvillecounty.org (Assistant to County Administrator)
Dan Powell dpowell@greenvillecounty.org (Greenville County Planning Department)

Christ Church Episcopal Schools
Cynthia Ouzts OuztsC@cces.org and Cathy Foster c4jfos@charter.net

- K-12 school, started implementation on the elementary and middle school campuses, may include high school next year
- SC Green Steps School winner

Fountain Inn Elementary School
Principal Glenn Wile gwile@greenville.k12.sc.us (another staff/faculty member will become the primary contact for 2009-10)

- Second B^2 pilot school in spring 2007
- 2007 Champions of the Environment winner (B^2 and gardening)
- Children's Health Month certificate from the US EPA
- Glenn Wile won Outstanding School Administrator at 2008 Spare the Air Awards
- May assist with carpooling pilot in 2009-10
- Safe Routes to School grant recipient

JL Mann High School
Allison Turza aturza@greenville.k12.sc.us

- Program will pickup in 2009-10 school year

Oakview Elementary School
Kathy Miller kwmiller@greenville.k12.sc.us

- SC Green Steps School winner
- 2007 and 2009 Champions of the Environment winner
- Assisting with transportation survey and carpooling pilot in 2009

Sevier Middle School
Ginger Barbare gbarbare@greenville.k12.sc.us

- Also planting trees to help improve air quality

Sterling School
Robert Copps Robert.A.Copps@irs.gov and David Johnstone djohnsto@greenville.k12.sc.us

- B^2 was one part of the school's FIRST LEGO League team project for the 2009 Climate Connections Challenge

Woodland Elementary School
Melanie Dixon mdixon@greenville.k12.sc.us and Stephanie Trotter hookiet@hotmail.com

- Nearly all 150+ cars in the afternoon line participated

Spartanburg County

Pine Street Elementary School (District 7)
Joyce Morrow JMorrow@spart7.org

- Achieved zero idling in April 2009
- Safe Routes to School grant recipient and example of a neighborhood school
- 2008 Champions of the Environment winner
- Assisting with transportation survey and carpooling pilot in 2009

York County

Crowders Creek Middle School (District 2)
Sarah Harkey harkey@clover.k12.sc.us

- Changing to elementary school 2009-10 with a new principal, program will continue and establish a policy

Gold Hill Elementary School (District 4)
Chris Beasley beasleyc@fort-mill.k12.sc.us

- Idling decreased by over 50%
- Karen Solnick solnickk@fort-mill.k12.sc.us is moving a new school for 2009-10 and hopes to establish B^2 there