Exhibit KK

Central Area Education Advisory Council
Capital Pre-Budget Meeting
Dumbarton Middle School
March 13, 2008 at 7:00 p.m.

Meeting Minutes as recorded by Sharon Elliott
* speakers numbered by sign-in order, but recorded in speaking order

Opening Comments Speaker #12 – Steve Lafferty – Delegate

Speaker Group #1 – Dr. Lori Taylor-Mitchell
(reference handout #1A)

- A/C at Ridgely
- rising temperature increases stress and decreases performance on testing
- thermal comfort 68-75 degrees based on heat stress index
- Baltimore County has no written policy for closing schools for excessive heat
- no County funds in budget for A/C in non-A/C schools
- noted later in the meeting that principal can make request for individual heat related school closings

Speaker Group #1 – Julie Sugar, Ridgely MS PTA President
(reference handout #1A)

- renovations have increased heat problem
- new windows not designed to ventilate
- renovated for A/C but no chiller and not in budget
- heat related symptoms in kids

Speaker Group #1 – Carolyn Cook, Ridgely MS Parent
(reference handout #1B)

- design flaws in recent renovations
- design lowered ceilings; windows don't open much, therefore more heat

Speaker #2 – Dr. Lori Taylor-Mitchell, Parent Loch Raven HS
(reference handout #2)

- had to get feasibility study through Freedom of Information Act

Speaker #3 – George Ward, Loch Raven HS
(reference handout #3)

- had to get feasibility study through Freedom of Information Act

Central Area Education Advisory Council
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Speaker #6 – Halley Mullen, Ridgely MS Student (school government delegate)
(reference handout #6)

- heat factor
- safety – heat stress/migraines
- administrators get A/C, why not students

Speaker #4 – Chris Parts, Rodgers Forge Parent (also an architect by trade)
(reference handout #4)

- referenced Towson UDAT
- wants walkable sites/enhance community

Speaker #5 – Oscar Taube, Dumbarton MS
(reference handout #5)

- A/C and elevator for ADA accessibility and movement of heavy school equipment

Speaker #7 – Yara Cheikh, Hampton ES

- first grade mom with three more under five
- speaking to trailers/need A/C and windows
- overcrowding
- school to have new windows this summer; hope aren't like Ridgely's windows
- requested two more trailers, already have two with no bathrooms
- hope new trailers have bathrooms
- would be great if replace two original trailers too

Speaker #8 – Michael Ertel, VP of Greater Towson Council

- mentioned Towson UDAT
- overcrowding at Rodgers Forge
- has three kids at RF
- has talked to school systems strategic planning office
- Towson resurgence of new families
- two years ago forwarded ideas of new Ridge Ruxton School and reopen Ridge Ruxton as Ruxton Elementary School
- want a community elementary school
- why not Mays Chapel?
- Dulaney Springs site for elementary school?
- back lot of Greenwood or White Oak off Perring Parkway for elementary school?

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Speaker #9 – Alyson Bonavoglia – Parent with two kids at Rodgers Forge
(reference handout #9)

1. 640 students at RF with rated capacity of 396
2. seven trailers – expecting two more in the summer
3. promised another security monitor
4. music classes held on cafetorium stage
5. try getting such large number of kids through bathrooms during school day
6. been asking for four years to address overcrowding; killed by politics
7. how about Mays Chapel site?
8. fiscal year 2010/2012 Towson overcrowding
9. want an entire new school!

Speaker #10 – Cathi Forbes, Parent from RF and Dumbarton

- Chairperson for Towson Families United
- formed about Towson elementary school overcrowding
- want a new school not a wing
- supported Mays Chapel site

Speaker #11 – Kelly Friedman, PTA President for Stoneleigh ES
(reference handout #11)

good short-term and long-term solutions for Stoneleigh (losing Pre-K to alleviate overcrowding and having two mobile computer labs
Stoneleigh is 114 over capacity
support proposals to alleviate overcrowding in Towson area

Speaker #13 – Dennis King, Parent Rodgers Forge (3rd grader)

- 451 students
- against Ridge Ruxton addition
- need funds for REAL, new school
- County didn't solicit parents' opinions to see what they wanted

Speaker #14 – Mike Homa, Loch Raven Booster Club
(reference handout #14)

- looking for private/public partnership
- raised $200,000
- $19,000 contract for engineering recently signed (Baltimore County approved engineering firm) to bring water/sewer to site

Speaker #15 – Josh Glikin, Parent and Member of Towson Families United

- just moved to community a year ago
- want walkable/community school
- no option due to existing senior center; they already have May's Chapel
- potentials Bykota/old Towson Elementary School—reverse 20 year ago decision

Speaker #16 – Maggie Kennedy

- Boast Bill - senate Bill 373; please call and voice concerns; bill for vouchers and income credits
- voucher bill in disguise
- another senate bill in committee, cigarette restitution fund for non-public schools; vote against
- senate bill 933 – take $ and eliminate high school assessments or only 20% of graduation requirement; public high school graduation requirements; legislating what schools take care of
- 20% attendance/attend 80% of time; 20% high school assessment (total score has to be 60); 20% GPA

(1A)

March 13, 2008

Ridgely Middle School Climate Control Issues

The Ridgely PTA has heard from many parents voicing concerns about temperatures, particularly in the second floor classrooms and in the music wing. While Ridgely has always been uncomfortable on hot days because it has never been air conditioned, the recent renovation has turned an uncomfortable environment into an unmanageable one. The lowering of ceilings throughout and the design of the new windows that were installed as part of the renovation appear to have exacerbated the problem to the point where indoor air temperatures have been very high throughout most of the school year. We anticipate the situation getting worse in the spring when the outside temperatures begin to rise. Further compounding the issue is the fact that there are no current plans to install the air chillers needed to make the climate control system at Ridgely fully functional even though accompanying infrastructure was included as part of the existing $13 million renovation.

To put the scope of the problem into perspective, last fall inside air temperatures were typically 10 degrees warmer than the outside, with many classrooms registering temperatures in the 90's and 100's. In other words, when the outside air temperature was 80 degrees, the 2nd floor classrooms typically registered 90 degrees. ***From August-October 2007, Baltimore County had twenty-seven 80+ degree school days, the equivalent of 5.5 weeks of school, and we have yet to experience the spring.*** We think everyone can agree that a 90-104 degree classroom is not an optimal learning environment for our children and many might consider it to be unbearable.

In response, the Ridgely PTA formed the PTA Climate Control Committee. The Committee has been gathering information about the health and learning issues facing our children in an over-heated environment, as well as looking at potential short and long-term solutions to this problem. Numerous studies have shown that the ability to learn and overall school performance decline as classroom temperatures rise.

The Committee believes that the long-term solution to the climate control problems at Ridgely is to install the chillers to make the new climate control system fully functional. BCPS estimates that installation of the chillers at Ridgely will cost $900,000.

In the meantime, Ridgely Principal, Sue Evans, is allowing teachers to move their classes outside and elsewhere in the building where space is available on hot days. This is a stop-gap measure until a short-term or long-term solution can be reached.

The Committee has put together this packet of information to make the Central Area Educational Advisory Council, Board of Education and BCPS aware of the indoor air quality issues facing Ridgely. We urge you to develop an adequate climate control plan for all Baltimore County public schools. We would like to ask for particular emphasis to be placed on those schools, like Ridgely, that have undergone renovations that are exacerbating current indoor temperature issues. We are also urging you to include funding in the 2009 budget cycle to begin fixing the indoor air quality problems caused by these renovation design flaws.

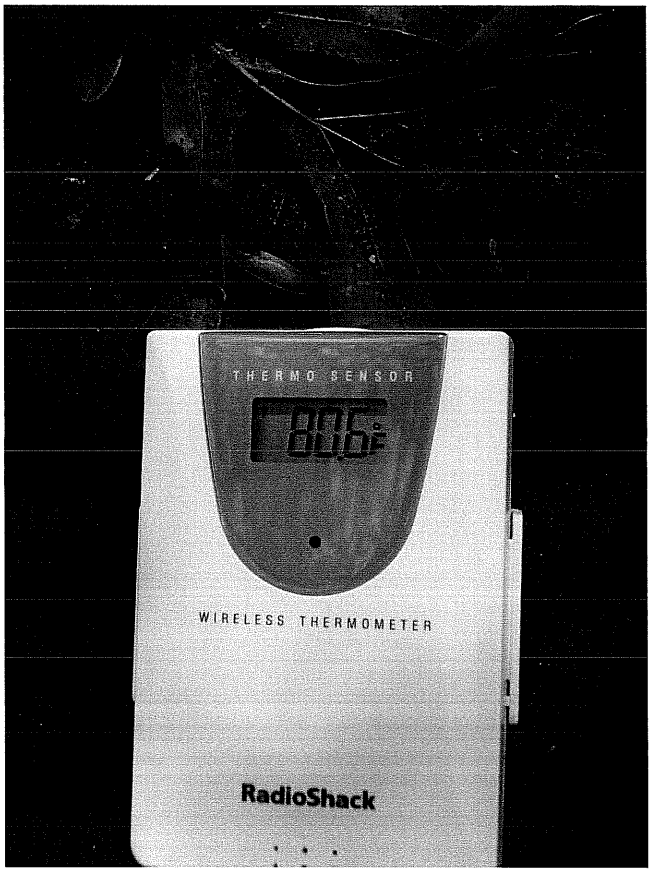
Thank you for your consideration,

Julie Sugar, PTA President
Kay Hardisky, PTA 1st Vice President
Laurie Mitchell, PTA Board member,
Carolyn Cook, PTA Board member,
& Ridgely PTA Climate Control Committee

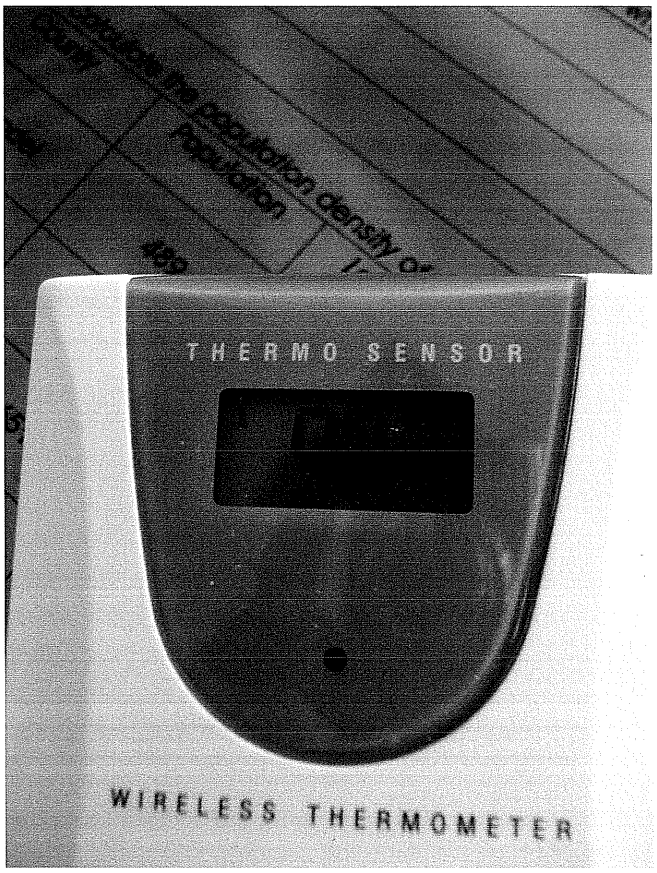
Since the renovation, many Ridgely classrooms are 10 degrees hotter than outside.

These photos demonstrate that when it's 80 degrees outside, it's 90 degrees in these classrooms.

The photo below was taken on 10/10/2007 12:59:16 PM, about 100 steps away from the Ridgely school building.



The photo below was taken 6 minutes later, on 10/10/2007 01:05:47 PM, in a second floor Ridgely classroom. These two photos demonstrate the 10 degree temperature difference between outside and inside an RMS classroom.



We also know that when it's 85 degrees outside, it's 95 degrees in the classrooms. And when it's 90 degrees outside, it's 100 degrees in the classrooms.

We can probably all agree that a 90-100 degree classroom is not an environment conducive to learning.

According to AccuWeather reports, Baltimore County has had 27 school days so far this school year (August 20 - October 31, 2007) in which the temperature was 80-100 degrees.

This means Ridgely has had 27 school days so far this school year with 90-100+ degree classrooms. ***27 school days is the equivalent of 5.5 weeks of school.***

This photo shows the new inward opening windows and lowered ceilings installed throughout Ridgely as part of the current renovation.

In every classroom, half of the windows are fixed (do not open).

Of the new windows that open, they open at a **30-40 degree angle.**

The large portion of the old windows opened outward at approximately a **90 degree angle.**

Note the steel support blocking the full opening of the window. Two windows in this classroom are obstructed by steel support beams.

This new window design seems to be decreasing airflow into the classrooms.

The lowered ceilings in all the classrooms has given the rising heat nowhere to go.

When visiting this classroom on October 9th, the digital thermometer registered that **it was still 92 degrees at 4 PM**.

CAEAC

Pre-Budget Meeting

Speaker Comments

Comments from Julie Sugar, PTA President of Ridgely Middle School
CAEAC Pre-Budget Meeting, March 13, 2008

Ridgely has never been air conditioned. It's always been hot on hot days. But our recent renovation seems to have exacerbated the problem.

The $13M renovation the school is undergoing has prepared Ridgely to be climate controlled, including the installation of a new HVAC unit in every classroom. All that remains is to install the chillers so the new HVAC units can chill air.

To prepare Ridgely for climate control, ceilings have been lowered in all the classrooms and new windows were installed that are not designed to ventilate the classrooms.

Half of the new windows do not open. Those that do open, open about 1/3 as much as the old windows. (see visual)

Because Ridgely has been renovated for air conditioning but has not received it, we are experiencing unprecedented heat issues.

Teachers who have taught at Ridgely for years have said this year has been the hottest in over 18 years at Ridgely. August through October, I heard parents complain that their children were having unusual problems with headaches, nausea, dizziness, and other heat related symptoms. When I contacted our school nurse, she confirmed that she had been treating many students and teachers suffering from heat ailments on hot days.

The PTA began to look into it. We took temperature readings last October and discovered that the 2nd floor classrooms and music wing were a full 10 degrees hotter than outside temperatures.

We are submitting photos to you of digital thermometer readings taken 6 minutes apart where the outside temperature is 80 degrees and the classroom temperature is 90 degrees. (see photos)

90 degrees is by no means the hottest these classrooms get because when it's 85 outside, it's 95 in the classrooms, when it's 94 outside, it's 104 in the classrooms.

It's important to know that 80 degrees outside is 90 degrees inside because we have a lot of 80+ degree days in Baltimore during the school year.

In fact, from August to October 2007, we had TWENTY-SEVEN 80-94 degree school days.

This means that Ridgely has had 27 school days so far this school year where our classrooms were 90-104 degrees.

27 school days is 5.5 weeks of school.

And we expect the problem to be even worse once spring hits.

The chillers are estimated to cost about $900K, less than 7% of the cost of the overall renovation, and are unfortunately not in the current budget.

We would like to ask your Council to speak with BCPS on our behalf to ask that they look into this problem and figure out a solution.

Thank you!

Comments for Pre-Budget Meeting
Central Area Educational Advisory Council, March 13, 2008

I'm Dr. Laurie Taylor-Mitchell, I'm on the Executive Board of the Ridgely Middle School PTA, and my son is in the 8th grade at Ridgely. I'm here to speak about what our children are enduring with regard to high temperatures in classrooms. We're going to present information that we hope will help the Council make the case for having air conditioning as a top priority in the school budget.

Since the 1970s, studies on the effects of higher temperatures on learning have consistently shown that student performance is negatively affected when classroom temperatures are above the mid-70s. The results are summarized in your information packet; a study from 2005 is particularly important, on the effects of classroom air temperature on performance. In Table 2 of this study, lower temperatures allowed 28% faster calculations in math, 9.5% faster work in logical reasoning, and increased the ability to read texts at a constant rate by 24%. These dramatic positive effects were achieved by reducing the classroom temperatures in August and September from outside temperatures ranging from 73-82 degrees, to 68 degrees.

To my knowledge, studies on student performance in classroom temperatures of 85-95 degrees, the temperatures often endured by Ridgely students on hot days, have not been published.
In sum: High temperatures in classrooms result in lower test grade performances and increased stress and fatigue.

Twenty-four years ago, the American Academy of Pediatrics became concerned about heat stress and children in schools. Their Committee on School Health published a paper on heat stress and school closings, using the national standards devised by ASHRAE, or the American Society of Heating, Refrigeration, Air Conditioning Engineers. These standards recommend a temperature for thermal comfort indoors of **68-75 degrees in the winter**, and only slightly higher temperatures in the summer.

A heat stress index was also published by the Academy of Pediatrics, with guidelines for schools. The Caution, Extreme Caution, and Danger temperature categories listed by the American Academy of Pediatrics were all endured by Ridgely students and teachers last year.

Another policy of interest is that devised by the Dept. of Public Health of the State of Utah, where all schools without air conditioning must monitor and record classroom temperatures between May 1 and September 15. Their categories with temperature ranges from the Caution to Danger Levels - were likewise endured by children in classrooms at Ridgely last year, and are also provided in your information.

Local Policy: in the Baltimore City Public Schools: when the temperature reaches 85 degrees by 9 a.m., schools are dismissed 2 1/2 hours early.

Baltimore County Public Schools have NO written policy for closing schools for excessive heat. The temperatures in the 80s and 90s in classrooms at Ridgely Middle School, and undoubtedly in other County schools without air conditioning,

trigger no official response in the BCPS system to safeguard children's health and maintain effective learning.

Air conditioning rates in schools in nearby Counties: (please see fact sheet)
In Anne Arundel, Howard, and Carroll Counties, 100% of all public schools have full air conditioning. In Harford County, 90% of all schools have it, and AC is **included** in the few remaining renovations.

In Howard County, all older schools were retrofitted with AC at least 22 years ago. If Ridgely Middle school were in Howard County, it would have been fully air conditioned by 1986.

In Baltimore County, only 50% of the public schools have full AC. In the 4 surrounding Counties then, the schools of 3 counties are at 100%, one is at 90%, Baltimore County has 50%. Only Baltimore City schools have less fully air conditioned schools, at 43%.

In Washington D.C., 50% of the schools have full AC. In February, Mayor Adrian Fenty announced that their $120 million renovation funding was being implemented to ensure that **all classrooms in the district were properly air conditioned by May 15 of this year.**

Baltimore County desperately needs this kind of leadership by government and education officials on air conditioning in public schools.

In the 2009 Board Proposed Operating budget for Baltimore County, only 2 schools are listed for AC renovations using **state** money: Sandalwood Elementary, and LRHS
NO funding for AC in schools is provided by the County in the Proposed Operating Budget for FY2009, indeed, as far as I can tell, through 2014. None.

What did these nearby counties and the District of Columbia understand long ago about prioritizing air conditioning in schools that the Baltimore County school system has not? That cooler temperatures in classrooms have a major impact on learning and student performance. Perhaps Baltimore County has decided to emphasize enhancing the curriculum. But the best curriculum in the world will not succeed if it's 90 degrees in the classroom.

Income statistics: Maryland
Highest median household income in nation
Maryland ranks 5th among states in per capita personal income
(Source: U.S. Dept. of Commerce, Bureau of Economic Analysis, data for 2006)

Students and

Heat Stress

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Heat Stress and School Closings
Committee on School Health
Pediatrics 1984;74;313-314

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Committee on School Health

Heat Stress and School Closings

During the last decade, the practice of opening public school in eary August has led to environmental stresses on students and teachers due to extremes of heat and humidity. In the South and Southwest, it is not unusual to have 15 to 20 days of 90°F (32.2°C) and relative humidity of 60% and higher during August. This puts a strain on teachers' and students' adaptability.

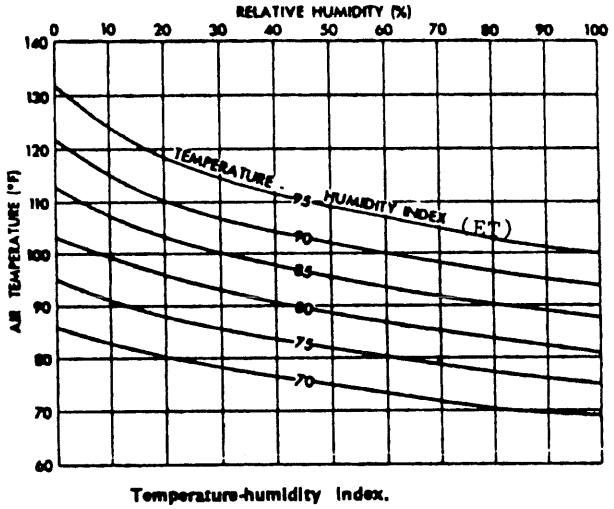
In surveying eight southern states, J. W. Trieschmann (unpublished data, 1983) found that the availability of air conditioning in public schools ranged from 15% in some states to 30% in others. The smaller, poorer, usually rural school districts had the least access to cooling equipment. Thus, a large school population is at the mercy of the elements. This is especially significant because the majority of this population has been acclimatized to air-conditioned homes and stores, and extremes of heat discomfort are not well tolerated.

Heat stress is defined as the overall effect of excessive heat on the human body. The important factors contributing to heat stress are air temperature, humidity, air movement, radiant heat, atmospheric pressure, physiologic factors (handicap or chronic disease), physical activity,[1] and time exposure. Under normal conditions, temperature and humidity are the most important elements influencing comfort. The American Society of Heating, Refrigeration, Air Conditioning Engineers (ASHRAE) has published an index for determining heat stress based on human physiology, clothing, and standard room conditions.[2] This index, called the "ET" or effective temperature (in Fahrenheit), is a measure of what hot weather feels like to the average person at different temperatures and humidities. The ET provides an excellent standard to be used by school superintendents in planning school hours during summer heat waves. The necessary information to calculate this is available from the National Oceanic and Atmospheric Administration (NOAA), which gives weather conditions on radio and broadcasts hourly temperature readings (in Fahrenheit) and relative humidity percentages. Using the nomogram in the Figure, the ET can easily be derived.[3] For example: If the average temperature for the school hours 8 AM to 3 PM is 90°F and the relative humidity is 50%, then the ET would be 81°F.

The ET becomes important when it is subjected to clinical situations. Herrington,[4] in 1951, found that errors increased from an average of 12 per hour to more than 90 per hour as the ET was increased from 79°F to 97°F. Similar findings by Peplar[5] have confirmed that even slight increases in environmental temperature have an adverse effect on learning. Such data are convincing evidence of the undesirable effects of heat stress on school performance.

ASHRAE standards for air-conditioning systems strive to achieve 76°F with 50% relative humidity, or an ET of 70°F for all school environments. Classroom studies have shown maximal comfort for studying to be at an ET between 66°F and 75°F.[6]

The type of clothing and the length of time of exposure to a given environmental condition greatly affect the comfort index. In classroom situations, all data point to the relationship between temperature, the kind of activity conducted therein, and



Temperature-humidity index.

Figure. Temperature-humidity index.

This statement has been approved by the Council on Child and Adolescent Health.

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the amount of concentration needed for the learning situation at hand.

An ET of 85°F for a sustained period of four to six hours is considered the maximum tolerable condition for sedentary educational activity. Fatigue and learning skills deteriorate rapidly beyond this point. At an ET between 93°F and 96°F, extreme caution is recommended. Such effective temperatures may result in heat cramps, heat stroke, and heat exhaustion.[2]

TABLE. General Heat Stress Index*

Category	Effective Temperature (ET) (°F)	Heat Stress Effects
Danger	95	Heat stroke or sun stroke likely (no school)
Extreme caution	85–94	Heat stroke, heat cramps, heat exhaustion possible with long exposure (suggest ½ d—AM hours—or no school)
Caution	75–84	Learning skills decrease with long exposure; increased fatigue after 4–6 h (suggest ½ d AM hours)
Maximum comfort	65–74	Excellent learning skills; all day school (subject to activity and clothing)

* Data from ASHRAE.[2] Additional comfort during summer heat waves can be achieved by allowing students to wear shorts, "cut-offs," or other light clothing. Liberal fluid intake and moderate physical activity (in shade) promote thermal adaptation. If high ET readings are consistent in the area year in and year out, a later school starting date should be considered. NOAA (weather radio) can provide the averages for the year for any region and locale.

Given the above data, the ET derived from the nomogram can be used to assist school authorities in determining when it is healthy and safe to hold school classes. The "Heat Stress Index" (Table) provides a guide based on ET readings.[2]

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Heat Stress and School Closings

Committee on School Health

Pediatrics 1984;74;313-314

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To: All Principals and Head Custodians in Non-Air Conditioned Schools
From: David Gourley, Assistant Superintendent
Date: June 28, 2005
Subject: "Classroom Temperature Health Intervention Plan" Requirements

The Utah Department of Health has established school classroom temperature requirements in "R392-200; Design, Construction, Sanitation and Safety of Schools." **All schools without air conditioning in the classrooms are required to:**

- Monitor and record classroom temperatures on **days when school is in session** between May 1 and September 15 of each year;
- Have a plan for mitigating the effects of excessive heat to students and staff, including an emergency plan for all children with special health care needs; and,
- Immediately notify the local health officer when the level of "Danger" is reached anywhere inside the school where students/staff are present for an hour or longer.

The following is a brief outline to meet these requirements. Attached are monitoring record forms for fall and spring, and a copy of the school plan outline that was mailed to you last year. You will need to resubmit your current plan, along with your monitoring record, or create a new plan using this format. Both documents need to be returned to your School Services Director at your end-of-year evaluation.

Monitoring and Recording Temperatures:

At least one temperature reading must be taken each school day between May 1 and September 15 each year. A representative classroom or a random selection are both appropriate as long as any classroom with a specific concern is also measured when necessary. Submit the attached logs to School Services at your end-of-year evaluation.

School Plan for Mitigating the Effects of Excessive Heat to Students and Staff:

Use the enclosed outline or create your own school plan. This plan should be reviewed with all staff and will likely be requested during inspections conducted by the Utah Department of Health.

Granite School District
Classroom Temperature Health Intervention Plan

School Level Plan for Mitigating the Effects of Excessive Heat to Students and Staff

School Name:_____ **Date Submitted:**_____

Step 1

Measure and record the temperature in a given classroom.

Step 2

Determine the "heat health hazard level" using the "dry bulb index"

▸ Below 79.9° F	No Hazard
▸ 80° to 89.9° F	Caution Level
▸ 90° to 99.9° F	Extreme Caution Level
▸ 100° F or Above	Danger Level

Step 3

Immediately begin mitigating the effects of excessive heat for any students or staff in an area of the school that is at or above the "caution" level by doing the following:

- Review and immediately implement any individualized health care plans for all children with special health care needs.
- **Caution Level** - encourage loose-fitting, light colored, lightweight clothing; encourage wide brimmed hats and sun screen (SPF 15 or higher) during recess and outdoor activities; maintain adequate fluid intake (encourage students to bring water bottles and take frequent water breaks); increase room ventilation (open windows/doors, use fans); provide wet wipes, damp clothes and/or spray bottles to cool forehead, arms, legs, and face; decrease physical activity at recess and in PE classes; and, limit recess to cooler morning hours if necessary.
- **Extreme Caution Level** - all of the above and move students/staff to cooler areas of the building, as often as necessary, to avoid being in the above 90° F areas for longer than 60 to 90 minutes at a time.
- **Danger Level** - all of the above and immediately move the students/staff to cooler areas of the building. If there are no suitable locations below the "danger" level, immediately contact the School Services Office to determine what actions, including the possible dismissal of school, to initiate.

Step 4

Immediately notify the Salt Lake County Sanitation and Safety Department (562-6435) if the heat health level of "danger" is reached anywhere inside the school where students or staff are present for an hour or longer, or on the same day two incidents occur in the school where health symptoms, such as heat stroke, cramps and heat exhaustion may have been caused by heat and a heat hazard level of "caution, extreme caution, or danger" has been recorded in the school.

Granite School District
"Classroom Temperature Health Intervention Plan"

Classroom Temperature Monitoring Log - Non-Air Conditioned Schools

Start of School to September 15th

School Name:_____ **Date Submitted:**_____
Name of person completing this log:_____

Date	Time Measured	Location in Building	Temperature

Comments or Concerns:_____

_____

_____

Turn completed logs into your School Services Director at your end-of-year evaluation

School Services Manual

Granite School District
"Classroom Temperature Health Intervention Plan"

Classroom Temperature Monitoring Log - Non-Air Conditioned Schools

May 1st to End of School Year

School Name:_____ Date Submitted:_____

Name of person completing this log:_____

Date	Time Measured	Location in Building	Temperature

Comments or Concerns:_____

_____

_____

Turn completed logs into your School Services Director at your end-of-year evaluation

School Services Manual

Taken from the OSHA Technical Manual, Section III, Chapter 4, Heat Stress:

OSHA Technical Manual

HEAT STRESS MEASUREMENT. Portable heat stress meters or monitors are used to measure heat conditions. These instruments can calculate both the indoor and outdoor WBGT index according to established ACGIH Threshold Limit Value equations. With this information and information on the type of work being performed, heat stress meters can determine how long a person can safely work or remain in a particular hot environment.

TABLE III:4-2. **PERMISSIBLE HEAT EXPOSURE THRESHOLD LIMIT VALUES**

	---------- Work Load* ----------		
Work/rest regimen	Light	Moderate	Heavy
Continuous work	30.0°C (86°F)	26.7°C (80°F)	25.0°C (77°F)
75% Work, 25% rest, each hour	30.6°C (87°F)	28.0°C (82°F)	25.9°C (78°F)
50% Work, 50% rest, each hour	31.4°C (89°F)	29.4°C (85°F)	27.9°C (82°F)
25% Work, 75% rest, each hour	**32.2°C (90°F)**	31.1°C (88°F)	30.0°C (86°F)

Source: ACGIH 1992.

According to the OSHA Technical Manual, an example of "Light Work" is sitting, using one arm to write which is pretty comparable to a student working in a classroom.

This table shows that OSHA condones continuous work at 86°F but for each degree above this, OSHA recommends that work time decrease and be interspersed with rest time. At 90°F, OSHA recommends that each hour, workers (students in our case) work for 15 minutes then rest for 45 minutes.

OSHA considers 90°F to be a permissible heat threshold which means that at 91°F, work becomes unsafe and is not recommended.

Effects of

Classroom Temperature

on Learning

Summaries Effects of Classroom Temperature on Learning

1: (Summary of results from article, "The Effects of Moderately Raised Classroom Temperatures and Classroom Ventilation Rate on the Performance of Schoolwork by Children," published in *HVAC&R Research*, Vol. 13, Number 2, March 2007, 193-219)

There have been only a few well conducted studies of the effects of classroom temperature on student learning. A pioneering set of studies were carried out on this topic in Sweden in 1970. In a set of experiments reported by Wyon, students aged 9-10 years old in three different classes were exposed to classroom temperatures of 68°, 81°, and 86° for 2 hrs at each temperature. The students were tested on a variety of numerical and language-based tasks. Children's performance on both types of tasks were lower at the two higher temperatures. Higher classroom temperatures were associated with a lower rate of work and reduced reading comprehension, especially in the afternoon when children were fatigued (Wyon, 1970).

A recent study published in 2007 carried out on students in Denmark gave remarkably similar results. This well-designed study was based on students enrolled at an elementary/middle public school in Denmark. Classroom air temperatures were manipulated for 1 week at a time for two classes of 10-12 year old children. Each class was exposed for one week during which the classroom temperature was maintained at low temperature (mean temperature of 68°) and then exposed at a second week during which classroom temperatures were maintained at high temperature (mean temperature of 75°). One set of students received the lower temperatures first while the other set of students received the higher temperatures first. Ventilation rates were held constant. Teachers and pupils were allowed to open windows and doors as usual. The effect of temperature on learning was evaluated by comparing each students' performance on a series of tests administered between the low and high temperature classrooms. The tasks assessed performance on 8 different numerical and language-based tests, from reading to mathematics. The tasks were constructed to resemble standard teaching material (Wargocki and Wyon, 2007).

Results of the experiment are shown in the Figure below. The performance of two numerical and two language-based tests was significantly improved when the temperature was reduced from 77°F to 68°F. The above improvements were mainly in terms of the speed at which tasks were performed, with negligible effects on error rate.

The reduction in test performance associated with the higher temperature classroom was statistically apparent for four of the eight tasks. However, it should be noted that the mean classroom temperatures of the high temperature rooms were only 75°F. The mean outside temperatures during this period were only 60 - 63°. There have been marked concerns raised about the effects of considerably higher classroom temperatures, but effects on classroom learning at these more extreme temperatures have not been systematically studied. This is of particular relevance to the Baltimore area when outside temperatures climb to eighty degrees or higher and classroom temperatures can climb as high as ninety degrees or higher.

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Wyon, D.P. 1970. Studies of children under imposed noise and heat stress. Ergonomics I3(5):598-612.
Wargocki P, Wyon DP. The effects of moderately raised classroom temperatures and classroom ventilation rate on the performance of schoolwork by children. *HVAC&R Research* 13: 193-220.

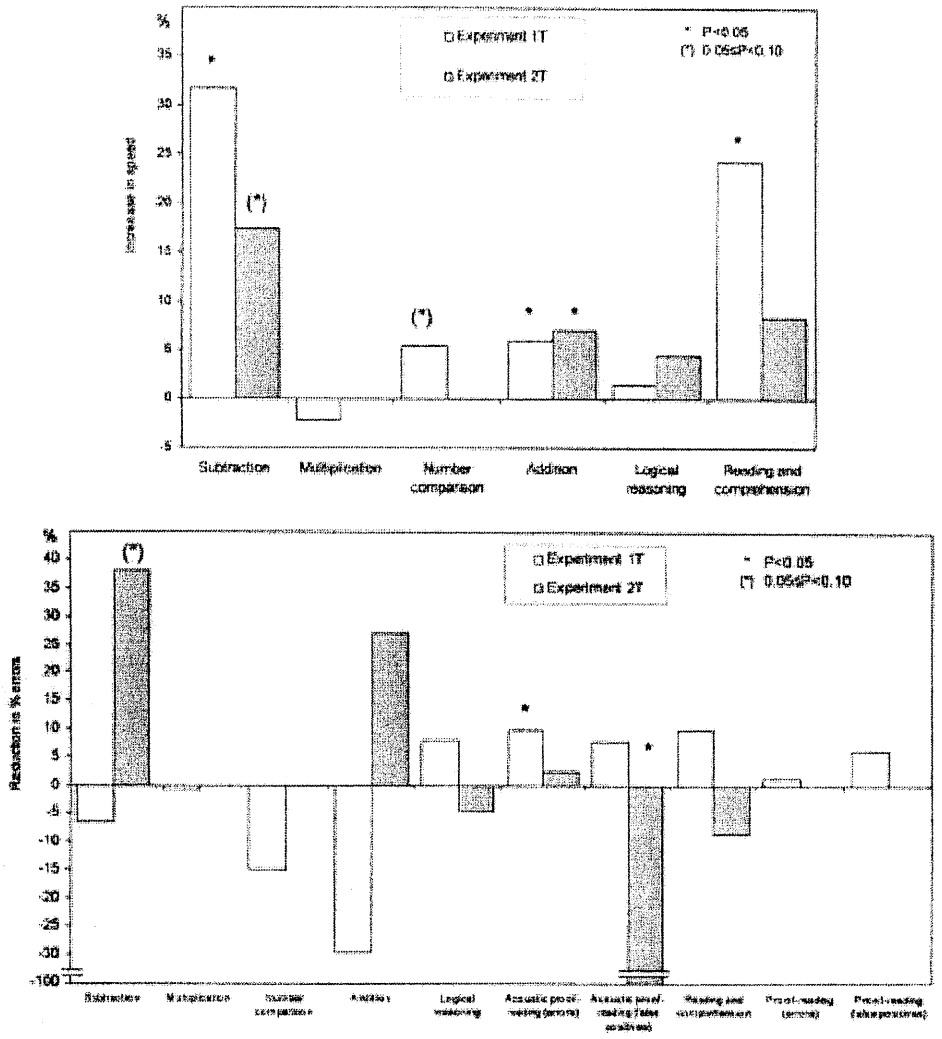

Figure 3. Change in the speed of performing each task and in percentage errors as a result of reducing temperature in Experiments 1T and 2T, relative to the level that normally occurred in the classrooms. In Experiment 1T, the change is shown regardless of ventilation rate.

Previous Page: From Wargocki P and Wyon DP, 2007. The upper panel shows the effect of lowing classroom temperature on increasing the speed at which various tasks are carried out. The lower panel shows the effect of lowing classroom temperature on reducing the number of errors in these tasks.

Summaries of other studies:

Wyon (1970) -- Reported on experiments to test language learning in a language laboratory at different temperatures.
Performance was significantly worse at 27°C (80.6F) than at 20°C (68F), and the effect was more pronounced for less able children. Again, mild heat serves to decrease arousal.

Pepler (1971) - studied 3 pairs of schools near Portland, Oregon
3 schools air-conditioned and maintained 24°C (75.2F)
3 schools unconditioned and variable **up to 29°C (84.2F)**
Students tested twice per week. Test performance was significantly related to temperature. Generally, results showed that test scores were better with temperatures of 22-23°C than >26°C.

Scand J Work Environ Health. 1979 Dec;5(4):352-61.

The effects of moderate heat stress on mental performance.

Wyon DP, **Andersen I**, **Lundqvist GR**.

Moderate heat stress is believed to affect mental performance by lowering levels of arousal. Conscious effort can counteract this effect. In most experiments, raised temperatures are perceived at the start by subjects and can act as a stimulus to exert conscious effort. In practice, temperatures usually rise slowly and may therefore have a more marked effect. Thirty-six male and 36 female 17-year-old subjects in standard cotton uniforms (0.7 clo) were exposed in groups of four in a climate chamber **to rising air-temperature conditions typical of occupied classrooms**, in the range 20--29 degrees C. **[i.e. 68 - 84.2 Farenheit]** The maximum rate of rise was 4 degrees C/h **[i.e.7-8 degrees Farenheit]**. Each group performed mental work during three successive periods of 50 min with 10-min breaks between. During each break the air temperature was reduced by 3 degrees C. **Sentence comprehension was significantly reduced by intermediate levels of heat stress in the third hour. A multiplication task was performed significantly more slowly in the heat by male subjects, showing a minimum at 28 degrees C [82.4 Farenheit]** Recognition memory showed a maximum at 26 degrees C, decreasing significantly at temperatures below and above, and an independent measure of degree of certainty in recall showed a maximum at 27 degrees C. These findings are in accordance with the hypothesis of reduced arousal in moderate heat stress in the absence of conscious effort.
PMID: 538426 [PubMed - indexed for MEDLINE]

- Other studies:

- Differential effects of hot-humid and hot-dry environments on mental functions. [Int Arch Occup Environ Health. 1983]
- The effects of moderate heat stress and open-plan office noise distraction on SBS symptoms and on the performance of office work. [Indoor Air. 2004]

Wargocki, P. and D.P. Wyon. 2006c. "Improving classroom air quality and reducing even quite moderately elevated classroom temperatures can help children to perform better in school." ASHRAE Journal, October, in the press.

THE EFFECTS OF CLASSROOM AIR TEMPERATURE AND OUTDOOR AIR SUPPLY RATE ON THE PERFORMANCE OF SCHOOL WORK BY CHILDREN

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ABSTRACT

A field intervention experiment was conducted in two classes of 10-year-old children. Average air temperatures were reduced from 23.6°C to 20°C and outdoor air supply rates were increased from 5.2 to 9.6 L/s per person in a 2x2 crossover design, each condition lasting a week. Tasks representing 8 different aspects of school work, from reading to mathematics, were performed during appropriate lessons and the children marked visual-analogue scales each week to indicate SBS symptom intensity. Increased ventilation rate increased work rate in addition, multiplication and number checking ($P<0.05$), and subtraction ($P<0.06$). Reduced temperature increased work rate in subtraction and reading ($P<0.001$), and reduced errors when checking a transcript against a recorded voice reading aloud ($P<0.07$). Reduced temperature at increased ventilation rate increased work rate in a test of logical thinking ($P<0.03$). This experiment indicates that improving classroom conditions can substantially improve the performance of schoolwork by children.

INDEX TERMS

Performance; Schools; Children; Outdoor air supply rate; Temperature

INTRODUCTION

It is well-documented that indoor environmental quality (IEQ) in schools is both inadequate and frequently much worse than in office buildings. For example, measurements in 39 schools in Sweden showed that 77% of schools did not meet building code regulations (Smedje and Norbäck, 2000). The most common defects in schools include insufficient outside air supplied to occupied spaces; water leaks; inadequate exhaust air flows, poor air distribution or balance; and poor maintenance of heating, ventilation and air-conditioning (HVAC) systems, as indicated by the analysis of 88 National Institute of Occupational Safety and Health (NIOSH) Health Hazard Evaluation Reports for educational facilities in the USA where the complaints were registered (Angell and Daisey, 1997). The underlying reason is almost always inadequate funding. School facilities are improperly operated and maintained because installation and running budgets have been reduced. As a result outdoor air supply rates per person in classrooms are often so low that carbon dioxide (CO_2) levels are well above the recommended level of 800-1000 ppm (Sowa, 2002), causing poor air quality. There is often no adequate temperature control in classrooms, which especially in warm seasons results in increased temperatures. In spite of the above reports very little is known on how poor IEQ affects schoolwork (Mendell and Heath, 2005), even though performance of schoolwork can have lifelong consequences for a student and society. Most of the available information stems from experiments in 60s and 70s on how classroom temperatures affect school performance (Wyon, 1970; Wyon et al, 1979).

Poor IEQ in office buildings due to increased temperatures and poor air quality s a result of low outdoor air supply rates or poor HVAC maintenance can lead to the reduced performance of office work by adults (Wyon and Wargocki, 2005a,b). It is thus reasonable to suspect that they can also negatively affect school performance by children. Increased temperatures and low outdoor air supply rates can also cause general Sick Building Syndrome (SBS) symptoms such as headache, difficulty in concentrating, fatigue and lethargy (Krogstad et al., 1991; Wargocki et al., 2002) which may have a direct impact on learning. Poor IEQ can affect certain aspects of classroom behaviour that are important for maintaining discipline (Wyon and Holmberg, 1972), and may thus affect learning.

The objective of the present study was to determine whether classroom temperature and outside air supply rate affect schoolwork, to extend knowledge of the effects of poor IEQ on performance from adults in offices to children at school.

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RESEARCH METHODS

The effect of reduced classroom temperature and increased outside air supply rate on the performance of schoolwork was studied in two parallel and identical classes of 10-year-old children (4th grade), in an elementary school providing education for children in the age range from 6 years old to 16 years old. The school is situated in a wealthy community in Northern Zealand, Denmark, and its main building was erected in 1950. The classrooms in which the experiments were carried out were built in 1963. The school buildings are of brick and smoking is not allowed. The classrooms selected for experiments were designed for 28 pupils and have a floor area of 65 m^2 and a volume of 189 m^3. They have typical school furniture and floors covered with linoleum; hooks for overcoats are placed outside the classrooms in the adjacent corridor. The classrooms have south-facing façades that are almost entirely glazed, so that large solar heat gains considerably increase classroom temperatures. Both classrooms are ventilated on weekdays from 7:00 to 16:00 with 100% outdoor air supplied by a mechanical ventilation system that is served by the same air handling unit (AHU), which has pre-heating with a set-point of 20°C and a counter-current heat exchanger but no cooling or humidification. EU7 bag filters are installed in the supply airflow and EU5 in the return. They are changed every 6 months. No other classrooms are served by this AHU. The nominal flow per class is 600 m^3/h to meet the Danish Building Code (BR, 1995) requiring 5 L/s per child, but the actual flow measured prior to the study was 180 m^3/h per class, corresponding to only 1.8 L/s per child. This was probably due to energy reducing measures that had been implemented in the school and to small defects in the AHU. The air is provided to each class through 4 grills placed uniformly on the south façade about 2.5 m above the floor, and it is exhausted through 3 grills close to the floor, in the corridor wall. The ventilation system was installed in the classrooms in 1996 and uses existing bricked shafts to transport the air from the basement, where the AHU is situated, to the classrooms. Its operation is controlled by the computer.

To increase the rate at which outdoor air was supplied to classrooms, the existing electrical motors of the fans in the AHU were replaced with bigger ones and connected to an automated system controlling the ventilation system by a frequency controller, new dampers were installed including butterfly dampers (to perform the airflow measurements), and the grills in the classroom were replaced with bigger ones to increase their effective area. These changes made it possible to increase the airflow to 800 m^3/h per class without a noticeable change in the noise level in the classrooms. To reduce the classroom temperature, wall-mounted split-unit air conditioning was installed in each classroom, consisting of an outdoor unit, situated on the roof, connected to two low-noise indoor units installed on the walls perpendicular to the south façade, above the height of the ventilation inlet grills. Two indoor units were installed to keep the noise level as low as possible. The capacity of the cooling system was sufficient to keep classroom temperature at 20°C with outdoor temperatures up to 30°C.

The experiments were carried out in 4 weeks at the end of August and the beginning of September, 2004. The classroom temperature was reduced from 23-28oC, which would normally occur indoors in this period, down to 20oC and the outside air supply rate was increased from 180 m3/h to 800 m3/h per class in a blind 2x2 crossover design. Each condition was maintained in each classroom for a full week; the new condition was set on Fridays after the last class was over. Prior to the beginning of experiments and after the first 2 weeks of experiments, new supply air filters were installed in the AHU. The fans of the indoor units of the split air-conditioners were operated continuously, independently of whether the cooling was on or off, to create placebo condition. During experiments, the teachers and pupils were allowed to open the windows as usual, and no changes to lesson plan or normal school activities at school were made, so as to maintain the teaching environment and routines as normal as possible.

Each week, in appropriate lessons, the children's usual teachers administered parallel versions of language-based and numerical-based performance tasks representing different aspects of schoolwork, from reading to mathematics. The tasks were selected so that they could be a natural part of an ordinary school day. They included: (1) addition of numbers; (2) multiplication of numbers; (3) subtraction of numbers; (4) checking columns of numbers against each other; (5) sentence comprehension (logical reasoning); (6) proof-reading of text with deliberate errors; (7) acoustic proof-reading of text with deliberate errors when listening to a recorded voice reading it aloud; and (8) reading of text with choice points inserted to determine whether the children understand the text. The tasks were developed to match the difficulty to the age of the children in consultation with the class teachers. They were long enough to ensure that children could not complete them in the time available. Up to 10-15 min was allocated for each test. Four versions of each test were prepared and they were confounded with occasions (i.e. first to fourth week). Performance was measured in terms of speed, i.e. how quickly each pupil worked, and accuracy, i.e. how many errors were committed; in the case of proof-reading, false-positives were also recorded.

Each week the teachers carried out check-list observation of the children's behaviour. Parents and teachers recorded their observations of children's health and mood in logbooks, and the children themselves marked visual-analogue scales each week on the last lesson each Friday to indicate the intensity of various SBS symptoms

and perceptions of environment. CO_2 concentration, temperature, relative humidity and window/door opening behaviour were continuously logged during experiments. Each week spot measurements were made in the classrooms while they were unoccupied of operative temperature, air velocity, airborne particle density and ultrafine particle density, noise, ozone and airflow in the supply air ducts. Weather data for the whole period was registered.

The Statistica software package (version 7) was used for statistical analysis of the data. Shapiro-Wilk's test was used to test whether the data was normally distributed. Repeated measures one-way and 2x2 ANOVA were used for normally distributed data; the least significance difference (LSD) method was used to compare pairs of observations. Friedman two-way analysis of variance was used for not normally distributed data; critical rank was calculated to compare pairs of observations. Wilcoxon matched-pairs signed-ranks test was used to test the effects of main interventions when data was not normally distributed. The P-level was set to 0.05 (2-tail).

The experiment was approved by the Ethics Review Board, Local Authorities and Local School Board.

RESULTS

Table 1 shows the average conditions that were continuously recorded during the period that the classrooms were occupied each day (excluding short breaks between classes) under the four experimental conditions. Spot measurements in empty classrooms showed that the air velocities were <0.11 m/s, turbulence intensity <52% and noise levels 36-38 dB(A); these values did not differ between conditions. Ultrafine particle concentrations in empty classrooms were lower when temperatures were reduced (2100 instead of 3070 counts/cm^3) and at increased outdoor air supply rate (2370 instead of 2800 counts/cm^3). The ratio of indoor-to-outdoor ozone concentration in empty classrooms was about 0.6 at normal (low) outdoor air supply rate and 0.9 at the increased rate; it was not affected by reduced temperature. The average daytime outdoor ozone concentration was 25 ppb during the period of the experiment.

Table 1. *Average conditions continuously logged when classrooms were occupied by children*

Parameter	Temperature			
	Reduced (Low)		Normal (High)	
	Ventilation rate			
	Normal (Low)	Increased (High)	Normal (Low)	Increased (High)
Average number of pupils+teacher (per class)	22+1	23+1	22+1	24+1
Classroom temperature, mean ±sd (°C)	19.2±0.8	20.8±0.9	24.6±1.3	22.5±0.9
Classroom temperature range, min-max (°C)	17.7-21.5	18.5-23.0	20.6-26.7	20.6-25.7
Supply (outdoor) temperature, mean±sd (°C)	16.1±1.4	18.8±1.6	18.6±1.8	16.1±1.5
Classroom RH, mean ±sd (%)	54±4	56±8	52±8	49±8
Supply (outdoor) RH, mean ±sd (%)	69±6	70±12	67±12	69±11
Classroom CO_2, mean±sd (ppm)	1049±154	809±148	952±232	744±176
Supply (outdoor) CO_2, mean±sd (ppm)	398±7	406±15	399±17	396±10
Average classroom peak CO_2 (ppm)	1218	843	1138	831
Total time with 1 or more windows opened (h)	10.7	13.3	26.7	23.5
Total time with main door opened (h)	2.7	6.0*	3.3	2.8
Total time with main door and ≥1 window opened simultaneously (cross-ventilation) (h)	1.6	4.7*	3.1	2.5
Ventilation rate supplied by HVAC (m^3/h)	180	800	180	800
Estimated effective ventilation rate** (m^3/h)	402	800	468	881
(L/s per person)	4.7	9.3	5.7	9.9

* the results from one class; ** supplied by HVAC system plus window ventilation; estimation was made using mass-balance model fitted to the measured changes increase of CO_2 concentration in the occupied class assuming CO_2 production rate per person at 17-18 L/h

Tables 2 and 3 respectively show the effects of reduced classroom temperature and increased outdoor air supply rate on the performance of schoolwork, on perception of the environment and on SBS symptom intensity; only effects that at least approached significance (P<0.10) are presented. The analysis of the observational checklists shows that pupils were more often observed to look around (P<0.03, Wilcoxon), to talk to neighbours (P<0.03, Wilcoxon) and to support their head with their hand (P<0.05, Wilcoxon) when ventilation rate was increased

compared with low (normal) ventilation rate, independently of classroom temperature. There was a tendency for pupil to be more often observed to work hard (P<0.12, Wilcoxon) at increased ventilation rate compared with low (normal) rate, and to cough/sneeze more (P<0.10, Wilcoxon) at high (normal) temperature compared with reduced temperature. Due to too the low return rate it was not possible to analyse parental logbooks.

Table 2. *The effects of interventions and their interactions on performance of schoolwork*

Performance test	Summary of effect
Effects of increased ventilation	
Addition	Increased ventilation rate increased by 14% number of units attempted at a constant error rate* (2x2 ANOVA, P<0.016)
Multiplication	Increased ventilation rate increased by 15% number of units attempted at a constant error rate (2x2 ANOVA, P<0.009)
Number comparison	Increased ventilation rate increased by 14% number of units attempted at a constant error rate (2x2 ANOVA, P<0.05)
Subtraction	Increased ventilation rate tended to increased by 14% number of correctly completed units* (2x2 ANOVA, P<0.06)
Effects of reduced temperature	
Subtraction	Reduced temperature increased number of units attempted by 28% at a constant error rate (2x2 ANOVA, P<0.001)
Acoustic proof-reading	Reduced temperature tended to reduce by 10% number of committed errors (Wilcoxon, P<0.07)
Reading and comprehension	Reduced temperature increased by 24% the pace at which text was read at constant error rate (2x2 ANOVA, P<0.001)
Interaction effects between temperature and ventilation	
Logical reasoning	Interaction between ventilation and temperature (2x2 ANOVA, P<0.04): Reducing temperature at increased ventilation rates increased by 9.5% number of units attempted at a constant error rate (paired t-test, P<0.03)

* the results are only from one class in which a complete 2x2 design was made

Table 3. *The effects of interventions on SBS symptoms and perceptions of environment*

Visual analogue scale	Summary of effect
Effect of increased ventilation	
Too much noise – Completely quiet	Classroom was perceived less quiet at increased ventilation rate (Wilcoxon, P<0.009)
Effect of reduced temperature	
Too cold – Too warm	Classroom was perceived less warm at reduced temperature (Wilcoxon, P<0.0001)
Draughty – Air still	The air was perceived less still at reduced temperature (Wilcoxon, P<0.0001)
Poor air – Fresh Air	The air was perceived more fresh at reduced temperature (Wilcoxon, P<0.03)
Too little light – Too much light	Classroom was perceived less bright at reduced temperature (Wilcoxon, P<0.009)
Very hungry - Full	Pupils indicated to be more hungry at reduced temperature (Wilcoxon, P<0.06)

DISCUSSION

The present results support the anticipated negative effect on learning of poor indoor environment in schools. They were obtained in normal classrooms, during normal lessons using exercises that could be a part of a teaching curriculum that were administered by teachers, without introducing any restrictions to daily routines in the school, e.g. concerning the opening of windows/doors. This high degree of realism during the exposures adds validity to the observed results, taking into account that the performance of as many as 7 out of the 8 tests applied was affected by the interventions, all in the expected direction.

Due to lower than normal outdoor temperatures and opening of windows, the high temperature in the classrooms was lower than expected, especially at the increased outdoor air supply rate. This resulted in a difference of 3.5 K between the average temperatures in each condition (3.9 K in terms of maximum registered temperatures). Direct sunshine will have increased the thermal stress experienced in the warmer condition. Opening of windows raised total outdoor air supply rates above what had been intended. The low outdoor air supply rate corresponded to 5 L/s per person, and met the requirements for pupils in educational facilities in Denmark (BR, 1995). The

high rate was about 10 L/s per person, which is the minimum recommended for adults in office buildings in Europe. It should be emphasized that negative effects on performance were observed even though the children were exposed to the classroom environment for only 2.3 h per day on average, which is much shorter than in earlier experiments on adults performing simulated office work (Wyon and Wargocki, 2005b).

CONCLUSIONS AND IMPLICATIONS

- Reduced temperatures in summer and increased outdoor air supply rates have positive effect on the performance of schoolwork by children.
- The present results were obtained with Danish pupils but can be generalized to other countries in Europe and the USA because the conditions in the selected classrooms and the level of education and educational programs in Denmark are quite similar to those in the other developed countries.

ACKNOWLEDGEMENTS

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School Climate Control

in Baltimore and Surrounding Counties

March 2008

Air Conditioning in Public School System in Counties Surrounding Baltimore County, Baltimore City, and in District of Columbia

Prepared by Dr. Laurie Taylor-Mitchell, PTA Executive Board member, Ridgely Middle School

Summary

County	Percentage of schools fully air conditioned
Anne Arundel	**100%**
Howard	**100%**
Carroll	**100%**
Harford	**90%** - 2 schools currently installing A/C; A/C included in remaining school renovations
Baltimore County	**50%**
Baltimore City	**43%**
District of Columbia	**50% - with funding for A/C for 100% of classrooms in use by May 15, 2008** (part of $120 million renovation budget for FY 2008)

Detailed County-specific Information

Howard County Public Schools

Contact: Patty Caplan, Director Public Information 410-313-6680

Schools: 72
Enrollment: 48,571

Top district for MSA scores
90% go beyond high school for further education

100% schools have Air Conditioning - exceptions are school gymnasiums,
All schools have had 100% A/C for at least 22 years
Including 30 schools built in last 20 years
All older schools retrofitted at least 22 years ago

Policy on closing for excessive heat: no fixed policy except for outdoor athletic practices in summer

Anne Arundel County Public Schools

Contact: Abdul Majid, Energy Management Office (hours 7-3)
410-439-8031 e-mail, amajid@aA/Cps.org

Schools: 117
Enrollment: approximately 75,000

100% Schools have Air Conditioning
According to Energy Management Office, A/C has been a priority in their budget plans
Last A/C project completed 2.5-3 years ago
Policy closing excessive heat: No written policy for closings

Carroll County Public Schools

Contact: Mr. Prokop, 410-751-3177

Schools: 41 schools
Enrollment: approximately 29,000

100% schools Air-Conditioned, last one renovated for A/C last year, **major push by Board of Ed for last 4-5 years based on concerns about instruction and learning**

Used "alternative financing" for A/C renovation, i.e. they upgraded without increasing operating costs by generating energy savings and paying bA/Ck money loaned to them for A/C with these savings - did this for 3 school renovations for A/C
2 others renovated recently through capital budget plan

Called a "performance contract" - County pays contractor up front w/money loaned from local bank, then pays back the bank with the energy savings from the renovation
Contractor was Johnson Controls.

Potential issue: state funds were not used for this type of financing
Policy on school closings for excessive heat: no fixed policy

Harford County Public Schools

Contact: Amanda, 410-887-7300

Schools: 54
Enrollment: approximately 40,000

90% have Air Conditioning as of May 2006, 49 schools had A/C; of 5 schools that do not have complete A/C, **through Capital Improvements Program, Harford County has steadily been adding A/C as a separate project, or, as part of replacement/modernization projects**
A/C has been a long-term project over number of years

Wakefield currently undergoing installation of mechanical cooling equipment. A/C will be added at Joppatowne under the current renovation. A/C will definitely be added at Deerfield and Youth's Benefit when they are renovated.

Policy closing excessive heat: Inclement Weather Policy, can consider Heat Advisories, Code Orange, etc., early closings considered on a case-by-case basis

Baltimore County Public Schools

Contacts: Office of Strategic Planning, 410-887-4215; Office of Physical Facilities, 410-887-6435

Schools: 166
Students: 104,037 (projected enrollment, Sept. 30, 2009)

Schools with A/C: 50%

2008 budget: only 2 schools included funding for chillers in Capital Budget with state funds: Millbrook Elementary, Perry Hall Elementary (BCPS FY08 Adopted Operating Budget, p. 220)

2009 budget: only 3 schools listed for renovations including A/C in Capital Projects Fund with **state funding**: Perry Hall Elementary, Sandalwood Elementary, and Loch Raven High School (pp. 208-209 of FY09 Proposed Operating Budget)

NO funds for A/C are listed in the County funds for FY2009 (p. 210)

No fixed policy for closings due to excessive heat; requests must be made by school principal to deputy superintendent, then forwarded on to superintendent for final decision

Baltimore City Public Schools:

Contact: Facilities Management 410-396-8670 Blaine Lipski - blipski@bcps.k12.md.us
(information on number of schools and students from Public School Review site online)

Schools: about 190, According to buildings (i.e. more than one school in one building)
Students: 92,248 (Student Placement Office)

Schools with A/C: 43% (82 have chillers)
Fans used extensively
A/C window units are used if electricity system can handle them

Policy school closings for excessive heat: When temperature reaches 85 degrees by 9 a.m., schools will be dismissed two and one half hours early, and all extended-day and after-school programs are cancelled early (Student and Parent Policies and Procedures, p. 33).

Washington D.C. Public Schools

Contact: Mr. Tony Robinson, Director of Communications for Office of Public Education Facilities Modernization, (202) 698-7703

Schools: approximately 142
Enrollment: approximately 50,000 (generally schools do not have full occupancy)

Schools with central A/C: **50%**
100% of schools have window units in classrooms, although not all of them can be used due to electricity demands (please see below)

February 2008: Mayor Fenty of Washington, D.C., and Executive Director of the Office of Public Education Allen Lew announce that the final stages of the $120 million school stabilization program, for FY 2008, are underway to ensure that **100% all classrooms are properly air conditioned by May 15, 2008**. Capital improvements provided through district's general obligation bonds.
(Source: http://www.dc.gov/mayor/news/release)

Policy school closings for excessive heat: Chancellors Directive (waiting for more information on this policy)

2007-2008 School Year

Baltimore County Weather Data

ACCU WEATHER®
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385 Science Park Road, State College, PA 16803-2215
814-235-8626 fax: 814-235-8769
e-mail: forensics@accuwx.com Forensics.AccuWeather.com

March 10, 2008

Laurie Mitchell
Ridgely Middle School PTA
121 Ridgley Road
Lutherville, MD 21093
FAX= 410-887-7834

Re: Maximum/Minimum Temperatures for Towson, Maryland Area

Dear Ms. Mitchell:

As you requested, enclosed are monthly summaries from the closest hourly reporting sites to Towson, Maryland for the months of August, September and October 2007. These sites are Baltimore-Washington International Airport (BWI) and Aberdeen Phillips Field, Maryland (APG). We felt these two sites would be the most representative of your situation.

Please note that the weather conditions are taken from 12:00 midnight to 12:00 midnight, Eastern Standard Time (EST) (1:00 a.m. to 11:00 a.m. Eastern Daylight Time, EDT) for BWI and at 4:00 p.m. to 4:00 p.m. EST (5:00 p.m. to 5:00 p.m. EDT) for APG. This may result in high temperatures delayed by 1 calendar day for APG, if the high temperature occurred after 4:00 p.m. EST (5:00 p.m. Eastern Daylight Time EDT). BWI has a tally of heating and cooling degree days summarized for the month in the lower left corner of the tables as well as daily heating and cooling degree days for each day within the table. Heating and cooling degree days are not available for APG.

Thank you for choosing AccuWeather as your source for weather information. We hope this information is useful to you. If you should have any additional questions or need further information, please do not hesitate to contact us via email at forensics@accuwx.com or phone at (814) 235-8626. Please reference AccuWeather.com and AccuWeather.com Forensics.

Best regards,

Alex J. Sosnowski
Senior Forensic Meteorologist

AJS

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QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 08/2007

Station Location: BALTIMORE-WASHINGTON INTL AIRPORT (93721)
BALTIMORE , MD
Lat. 39.172 Lon. -76.684
Elevation(Ground): 143 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)		Precipitation (In)		Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees							Date
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC	1800 UTC	2400 LST	2400 LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 5-second Dir	max 2-minute Speed	max 2-minute Dir	
												Depth	Water Equiv	Snow Fall	Water Equiv										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	93	65	79	3	62	68	0	14	0507	1920		0	M	0.0	0.00	29.78	29.95	1.6	09	3.0	20	020	12	110	01
02	95	67	81	5	64	70	0	16	0508	1919		0	M	0.0	0.00	29.84	30.00	3.6	16	4.2	20	150	15	120	02
03	96	71	84	8	66	72	0	19	0509	1918		0	M	0.0	0.00	29.81	29.97	3.2	17	4.6	24	070	18	070	03
04	98	69	84	8	66	72	0	19	0509	1917	HZ	0	M	0.0	0.00	29.78	29.95	0.5	08	3.1	18	320	12	290	04
05	87	72	80	4	65	70	0	15	0510	1915	RA BR HZ	0	M	0.0	0.10	29.80	29.95	5.2	07	6.1	25	190	17	190	05
06	93	72	83	7	72	75	0	18	0511	1914	RA BR HZ	0	M	0.0	0.03	29.68	29.84	3.5	28	4.9	24	270	16	280	06
07	97	73	85	10	72	76	0	20	0512	1913	BR HZ	0	M	0.0	0.00	29.70	29.87	1.9	16	3.4	16	290	13	090	07
08	102*	80	91*	16	72	77	0	26	0513	1912	HZ	0	M	0.0	0.00	29.61	29.77	9.8	27	10.6	29	280	23	270	08
09	94	73	84	9	71	74	0	19	0514	1911	RA BR	0	M	0.0	0.43	29.72	29.86	2.1	07	5.1	41	330	31	330	09
10	91	69	80	5	70	73	0	15	0515	1910	BR HZ	0	M	0.0	T	29.62	29.79	3.2	35	7.3	24	050	21	060	10
11	85	61	73	-2	59	64	0	8	0516	1909		0	M	0.0	0.00	29.82	30.00	4.1	06	6.3	26	020	14	050	11
12	92	61	77	2	61	67	0	12	0517	1907	BR	0	M	0.0	0.00	29.87	30.02	2.6	20	4.2	16	140	14	150	12
13	92	68	80	5	60	68	0	15	0518	1906	BR	0	M	0.0	0.08	29.74	29.90	5.7	32	6.5	24	290	20	320	13
14	87	60*	74	-1	53	62	0	9	0519	1905		0	M	0.0	0.00	29.78	29.95	1.5	32	4.1	17	330	14	330	14
15	92	61	77	3	58	66	0	12	0519	1903		0	M	0.0	T	29.78	29.94	3.4	23	4.8	17	350	12	280	15
16	90	70	80	6	68	71	0	15	0520	1902	RA HZ	0	M	0.0	0.13	29.75	29.91	2.9	24	4.0	36	280	25	290	16
17	94	74	84	10	64	71	0	19	0521	1860	HZ	0	M	0.0	T	29.70	29.88	8.9	27	9.8	28	310	21	310	17
18	82	61	72	-2	45	58	0	7	0522	1858		0	M	0.0	0.00	29.95	30.14	4.0	33	5.5	21	350	15	020	18
19	73	62	68	-6	61	64	0	3	0523	1857	RA BR	0	M	0.0	0.13	29.96	30.12	2.5	05	4.1	22	040	13	050	19
20	70	61	66	-8	62	63	0	1	0524	1855	RA BR	0	M	0.0	0.77	29.91	30.09	3.9	04	4.8	21	030	14	290	20
21	68	62	65	-9	63	64	0	0	0525	1854	RA DZ BR	0	M	0.0	0.76	29.91	30.08	8.4	05	8.7	23	020	16	050	21
22	69	61	65*	-9	61	63	0	0	0526	1853	RA DZ BR	0	M	0.0	0.03	29.98	30.15	5.1	05	5.8	14	030	10	040	22
23	75	66	71	-3	65	67	0	6	0527	1851	DZ BR HZ	0	M	0.0	T	29.98	30.13	1.6	10	2.6	12	020	8	170	23
24	90	70	80	6	72	74	0	15	0528	1850	BR HZ	0	M	0.0	0.00	29.85	30.00	2.7	17	3.3	15	140	12	140	24
25	96	73	85	11	73	76	0	20	0529	1848	TS TSRA RA BR HZ	0	M	0.0	0.62	29.72	29.88	3.2	19	4.8	38	310	26	320	25
26	87	71	79	5	68	71	0	14	0530	1847	RA BR	0	M	0.0	T	29.78	29.96	2.1	33	4.7	25	220	17	230	26
27	87	67	77	3	61	67	0	12	0530	1845		0	M	0.0	0.00	29.93	30.11	3.1	05	4.6	21	340	10	360	27
28	84	65	75	2	64	68	0	10	0531	1844	BR	0	M	0.0	0.00	29.97	30.14	2.1	11	2.5	14	090	10	100	28
29	84	65	75	2	62	67	0	10	0532	1842		0	M	0.0	0.00	29.93	30.09	1.4	15	1.9	16	140	9	150	29
30	88	65	77	4	63	68	0	12	0533	1841		0	M	0.0	0.00	29.81	29.97	1.6	21	3.3	18	120	16	110	30
31	86	70	78	5	64	69	0	13	0534	1839	BR HZ	0	M	0.0	0.00	29.78	29.96	5.1	35	5.8	20	350	13	040	31
	87.6	67.3	77.5		64.1	68.9	0.0	12.7	<----Monthly Averages | Totals---->			M	0.0	3.08	28.93	29.98	0.5	35	5.0	<Monthly Average				
	2.5	3.4	3.0	<----------Departure From Normal---------->									-0.66												

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	0	-1	0	-1
Cooling:	394	83	1163	158

Greatest 24-hr Precipitation: 1.21 Date: 20-21
Greatest 24-hr Snowfall: 0.0 Date: M
Greatest Snow Depth: 0 Date: M

	Sea Level Pressure	Date	Time (LST)
Maximum	30.20	18	2054
Minimum	29.72	08	1529

Number of Days with ---->
Max Temp >=90: 16
Max Temp <=32: 0
Thunderstorms : 2
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 0
Precipitation >=.01 inch: 10
Precipitation >=.10 inch:
Snowfall >=1.0 inch : 0

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

August - 6 days - Baltimore

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 09/2007

Station Location: BALTIMORE-WASHINGTON INTL AIRPORT (93721)
BALTIMORE , MD
Lat. 39.172 Lon. -76.684
Elevation(Ground): 143 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	83	60	72	0	51	60	0	7	0535	1838		0	M	0.0	0.00	29.96	30.15	3.4	02	4.7	25	280	16	060	01
02	81	57	69	-2	54	61	0	4	0536	1836		0	M	0.0	0.00	30.06	30.22	2.0	08	3.9	18	140	13	100	02
03	87	60	74	3	59	65	0	9	0537	1835		0	M	0.0	0.00	29.93	30.08	3.0	22	3.9	16	270	13	280	03
04	91	65	78	7	55	64	0	13	0538	1833		0	M	0.0	0.00	29.83	30.00	2.2	32	3.4	20	360	14	330	04
05	88	61	75	5	60	66	0	10	0539	1832		0	M	0.0	0.00	29.91	30.09	2.2	11	3.2	15	100	10	120	05
06	88	69	79	9	67	70	0	14	0540	1830	BR HZ	0	M	0.0	0.00	30.04	30.21	4.4	15	5.6	23	120	16	130	06
07	91	68	80	10	68	71	0	15	0540	1828		0	M	0.0	0.00	30.00	30.16	4.5	17	5.5	18	150	15	110	07
08	91	68	80	10	64	69	0	15	0541	1827		0	M	0.0	0.00	29.91	30.08	4.3	18	5.2	22	130	14	130	08
09	88	63	76	7	66	70	0	11	0542	1825		0	M	0.0	0.00	29.85	30.00	2.3	12	3.5	16	140	10	150	09
10	90	73	82*	13	71	74	0	17	0543	1824	RA BR	0	M	0.0	0.14	29.78	29.93	0.7	21	2.2	22	330	14	250	10
11	78	67	73	4	69	70	0	8	0544	1822	RA BR	0	M	0.0	0.09	29.60	29.76	4.2	25	5.0	24	250	18	240	11
12	78	56	67	-1	50	58	0	2	0545	1820		0	M	0.0	0.00	29.82	30.01	4.6	27	5.9	22	250	18	280	12
13	80	52	66	-2	55	61	0	1	0546	1819		0	M	0.0	0.00	29.98	30.15	2.2	13	3.1	17	120	12	130	13
14	78	67	73	5	63	66	0	8	0547	1817	RA BR	0	M	0.0	0.10	29.91	30.04	2.6	16	3.0	20	150	13	170	14
15	72	53	63	-5	49	57	2	0	0548	1816	BCFG BR	0	M	0.0	0.02	29.83	30.04	7.7	31	8.2	30	300	21	300	15
16	69	44*	57*	-11	41	49	8	0	0549	1814		0	M	0.0	0.00	30.11	30.29	2.2	36	3.8	20	020	12	350	16
17	71	45	58	-10	45	52	7	0	0550	1812		0	M	0.0	0.00	30.18	30.36	3.5	08	4.0	M	M	15	070	17
18	72	48	60	-7	49	55	5	0	0550	1811		0	M	0.0	0.00	30.18	30.35	3.6	08	4.3	21	070	16	070	18
19	77	50	64	-2	54	59	1	0	0551	1809		0	M	0.0	0.00	30.11	30.26	1.1	06	2.8	16	020	9	160	19
20	74	53	64	-2	58	61	1	0	0552	1807	BCFG	0	M	0.0	0.00	30.01	30.18	0.7	18	0.9	9	180	7	160	20
21	85	57	71	5	58	63	0	6	0553	1806		0	M	0.0	0.00	29.96	30.12	2.0	15	2.8	17	150	14	150	21
22	88	69	79	13	67	70	0	14	0554	1804	BR	0	M	0.0	T	29.90	30.06	3.9	22	4.3	17	180	13	270	22
23	86	59	73	8	51	61	0	8	0555	1803	HZ	0	M	0.0	0.00	29.98	30.17	3.5	34	4.6	21	040	15	020	23
24	84	51	68	3	48	57	0	3	0556	1801		0	M	0.0	0.00	30.06	30.22	1.5	13	2.3	16	020	9	140	24
25	90	53	72	8	58	63	0	7	0557	1759		0	M	0.0	0.00	29.97	30.13	2.8	19	3.4	16	170	12	170	25
26	93	62	78	14	63	68	0	13	0558	1758		0	M	0.0	0.00	29.85	30.01	2.6	20	3.2	17	200	12	190	26
27	87	65	76	12	64	68	0	11	0559	1756	HZ	0	M	0.0	T	29.75	29.91	2.5	18	5.3	20	130	14	280	27
28	83	58	71	7	53	61	0	6	0560	1755	BR HZ	0	M	0.0	T	29.77	29.96	8.8	29	9.0	29	310	24	280	28
29	78	53	66	3	45	54	0	1	0601	1753		0	M	0.0	0.00	30.11	30.31	3.7	33	4.6	23	350	15	340	29
30	78	48	63	1	47	55	2	0	0602	1751		0	M	0.0	0.00	30.26	30.44	1.5	08	2.8	20	110	14	070	30
	82.6	58.5	70.6		56.7	62.6	0.9	6.8	<----Monthly Averages | Totals---->			M	0.0	0.35	30.26	30.12	0.5	22	4.1	<Monthly Average				
	4.4	1.9	3.2	<----------Departure From Normal---------->									-3.63												

Greatest 24-hr Precipitation: 0.23 Date: 10-11
Greatest 24-hr Snowfall: 0.0 Date: M
Greatest Snow Depth: 0 Date: M

Sea Level	Pressure	Date	Time (LST)
Maximum	30.49	30	0948
Minimum	29.69	11	1659

Degree Days	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	26	-16	26	-17
Cooling:	203	74	1366	232

Number of Days with ------>
Max Temp >=90: 6
Max Temp <=32: 0
Thunderstorms 0

Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 0

Precipitation >=.01 inch: 4
Precipitation >=.10 inch:
Snowfall >=1.0 inch : 0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.

Data Version: VER3

September - 12 days - Baltimore

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 10/2007

Station Location: BALTIMORE-WASHINGTON INTL AIRPORT (93721)
BALTIMORE , MD
Lat. 39.172 Lon. -76.684
Elevation(Ground): 143 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)		Precipitation (In)		Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees							Date
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC Depth	1800 UTC Water Equiv	2400 LST Snow Fall	2400 LST Water Equiv	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 5-second Dir	max 2-minute Speed	max 2-minute Dir	
i	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	76	50	63	2	53	58	2	0	0602	1750		0	M	0.0	0.00	30.23	30.40	4.1	12	5.0	20	110	16	110	01
02	79	54	67	7	58	62	0	2	0603	1748		0	M	0.0	0.00	30.12	30.27	3.6	11	5.0	18	140	13	120	02
03	82	64	73	13	65	68	0	8	0604	1747	BCFG BR HZ	0	M	0.0	0.00	29.96	30.12	2.2	14	2.6	16	150	14	150	03
04	84	61	73	13	66	68	0	8	0605	1745	DZ FG+ BCFG BR HZ	0	M	0.0	T	29.99	30.17	0.8	13	1.6	13	110	9	120	04
05	81	65	73	14	66	68	0	8	0606	1744	FG BCFG BR HZ	0	M	0.0	0.00	30.09	30.27	1.1	14	2.0	14	050	10	070	05
06	85	64	75	16	65	68	0	10	0607	1742	FG BR	0	M	0.0	0.00	30.01	30.16	1.7	22	2.2	13	360	8	260	06
07	92	62	77	19	63	68	0	12	0608	1740	BR	0	M	0.0	0.00	29.87	30.04	2.0	33	5.2	18	020	13	080	07
08	91	64	78	20	65	69	0	13	0609	1739	BR HZ	0	M	0.0	0.00	29.82	29.97	3.1	24	4.0	16	240	12	250	08
09	94*	67	81*	23	63	69	0	16	0610	1737	TS BR HZ	0	M	0.0	T	29.64	29.80	3.0	26	4.4	39	310	24	330	09
10	83	61	72	15	56	63	0	7	0611	1736	RA BR	0	M	0.0	0.10	29.54	29.70	0.4	08	4.3	20	340	16	320	10
11	65	50	58	1	43	50	7	0	0612	1734	RA	0	M	0.0	T	29.49	29.65	11.3	30	11.6	30	290	22	290	11
12	68	46	57	1	39	48	8	0	0613	1733		0	M	0.0	0.03	29.59	29.79	10.3	29	10.8	37	280	25	280	12
13	68	43	56	0	37	47	9	0	0614	1731		0	M	0.0	0.00	29.81	30.00	4.6	29	4.7	31	260	18	250	13
14	70	40	55	-1	39	47	10	0	0615	1730		0	M	0.0	0.00	29.93	30.11	3.7	28	4.2	23	270	16	280	14
15	75	43	59	3	44	51	6	0	0616	1729		0	M	0.0	0.00	30.00	30.17	0.9	26	2.0	15	270	12	270	15
16	73	48	61	6	53	56	4	0	0617	1727	BR HZ	0	M	0.0	0.00	29.96	30.13	2.8	09	3.1	15	050	12	070	16
17	81	53	67	12	55	60	0	2	0618	1726	MIFG BR HZ	0	M	0.0	0.00	29.91	30.08	1.9	20	3.1	17	250	13	240	17
18	80	54	67	12	62	64	0	2	0619	1724	FG BCFG BR HZ	0	M	0.0	0.00	29.77	29.91	2.7	16	3.4	18	150	13	140	18
19	78	57	68	14	67	68	0	3	0620	1723	RA BR	0	M	0.0	0.28	29.52	29.67	5.0	19	6.6	39	300	30	300	19
20	74	50	62	8	47	54	3	0	0621	1721		0	M	0.0	0.00	29.64	29.84	7.3	28	7.6	31	290	24	290	20
21	78	44	61	7	45	53	4	0	0622	1720		0	M	0.0	0.00	30.01	30.20	2.0	17	2.9	18	130	13	130	21
22	81	47	64	11	53	58	1	0	0623	1719		0	M	0.0	0.00	30.01	30.17	3.7	18	4.4	20	200	14	180	22
23	79	66	73	20	62	66	0	8	0624	1717	RA	0	M	0.0	0.01	29.72	29.86	6.7	21	8.1	29	170	18	210	23
24	69	55	62	9	60	61	3	0	0625	1716	RA BR	0	M	0.0	0.88	29.72	29.91	3.0	03	4.6	21	350	14	010	24
25	55	51	53	1	51	52	12	0	0627	1715	RA DZ BR	0	M	0.0	0.43	30.02	30.22	12.2	04	12.6	29	070	21	060	25
26	62	54	58	6	56	57	7	0	0628	1714	RA DZ BR	0	M	0.0	2.49	30.11	30.25	10.3	05	10.4	22	050	16	050	26
27	71	53	62	10	54	58	3	0	0629	1712	RA BR	0	M	0.0	1.63	29.89	30.07	6.8	27	8.6	30	280	21	290	27
28	59	39	49	-2	35	44	16	0	0630	1711		0	M	0.0	0.00	30.19	30.39	7.3	31	8.2	28	320	17	340	28
29	57	34	46*	-5	31	39	19	0	0631	1710		0	M	0.0	0.00	30.32	30.49	1.5	27	2.0	18	030	10	360	29
30	65	34*	50	-1	35	42	15	0	0632	1709		0	M	0.0	0.00	30.24	30.41	1.3	24	1.5	9	270	8	280	30
31	67	35	51	0	42	47	14	0	0633	1707		0	M	0.0	0.00	30.12	30.27	3.2	18	3.5	16	150	13	150	31
	74.9	51.9	63.4		52.6	57.5	4.6	3.2	<----Monthly Averages | Totals---->			M	0.0	5.85	29.91	30.08	1.0	28	5.2	<Monthly Average				
	7.9	8.2	8.0	<----------Departure From Normal---------->								2.69													

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	143	-153	169	-170
Cooling:	99	86	1465	318

Greatest 24-hr Precipitation: 4.09 Date: 26-27
Greatest 24-hr Snowfall: 0.0 Date: M
Greatest Snow Depth: 0 Date: M

Sea Level Pressure		Date	Time (LST)
Maximum	30.57	29	0952
Minimum	29.54	19	1854

Number of Days with ---->
Max Temp >=90: 3
Max Temp <=32: 0
Thunderstorms 1

Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 1

Precipitation >=.01 inch: 8
Precipitation >=.10 inch:
Snowfall >=1.0 inch : 0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.

Data Version: VER3

October - 9 days - Baltimore

Station: ABERDEEN PHILLIPS FLD
State: MD **County:** HARFORD **Standard Time:** EASTERN
Observation Time (LST) **Temperature:** 1600 **Precipitation:** 1600 **Evaporation:** **Soil:**

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations

Preliminary	Year	Month	Day	Temperature (°F) 24 hrs. ending at observation time Max.	Min.	at Observation	Precipitation (see **) 24 Hour Amounts ending at observation time Rain, melted snow, etc. (Inches & hundredths)	Flag	Snow, ice pellets, (Inches & tenths)	Flag	At Observation Time Snow, ice pellets, hail, ice on ground (Inches)	Evaporation 24 Hour Wind Movement (miles)	Amount of Evaporation (Inches & hundredths)	Soil Temperature (°F) 4 inch depth Ground Cover (see *)	Max.	Min.	8 inch depth Ground Cover (see *)	Max.	Min.
	2007	08	1	92	67	92	0		0		0								
	2007	08	2	94	69	94	0		0		0								
	2007	08	3	94	77	92	T		0		0								
	2007	08	4	95	72	94	0		0		0								
	2007	08	5	94	71	86	0		0		0								
	2007	08	6	88	73	88	0.93		0		0								
	2007	08	7	94	76	91	0		0		0								
	2007	08	8	99	82	99	T		0		0								
	2007	08	9	99	73	75	1.41		0		0								
	2007	08	10	90	74	90	0.76		0		0								
	2007	08	11	90	59	82	0		0		0								
	2007	08	12	88	62	88	0		0		0								
	2007	08	13	89	69	89	0.03		0		0								
	2007	08	14	89	60	85	0		0		0								
	2007	08	15	88	60	88	0		0		0								
	2007	08	16	88	74	85	0.14		0		0								
	2007	08	17	91	77	91	0		0		0								
	2007	08	18	93	66	99999	0		0		0								
	2007	08	19	81	64	99999	0		0		0								
	2007	08	20	68	61	68	0.54		0		0								
	2007	08	21	68	64	65	1.29		0		0								
	2007	08	22	69	64	69	0.14		0		0								
	2007	08	23	77	66	77	0.01		0		0								
	2007	08	24	88	69	88	0		0		0								
	2007	08	25	94	74	99999	0		0		0								
	2007	08	26	94	72	99999	0		0		0								
	2007	08	27	87	68	87	0.07		0		0								
	2007	08	28	87	64	86	0		0		0								
	2007	08	29	86	62	86	0		0		0								
	2007	08	30	87	66	85	0		0		0								
	2007	08	31	85	72	83	0		0		0								
	Summary			87.9	68.6		5.32		0										

The '*' flags in Preliminary indicate the data have not completed processing and quality control and may not be identical to the original observation

All 9's (e.g. 999999, 99999.9, etc.) in the data column indicate that the value was not received or is missing

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulc; 7=Grass muck; 8=Bare muck; 0=Unknown

**T=TRACE. A=Accumulated amount since last measure. B=Accumulated amount includes estimated values. S=Included in a subsequent value. E=Estimated amount.

August- 6days - Aberdeen

Station: ABERDEEN PHILLIPS FLD
State: MD **County:** HARFORD **Standard Time:** EASTERN
Observation Time (LST) **Temperature:** 1600 **Precipitation:** 1600 **Evaporation:** **Soil:**

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations

Preliminary	Year	Month	Day	Temperature (°F) 24 hrs. ending at observation time Max.	Min.	at Observation	Precipitation (see **) 24 Hour Amounts ending at observation time: Rain, melted snow, etc. (Inches & hundredths)	Flag	Snow, ice pellets, (Inches & tenths)	Flag	At Observation Time: Snow, ice pellets, hail, ice on ground (Inches)	Evaporation: 24 Hour Wind Movement (miles)	Amount of Evaporation (Inches & hundredths)	Soil Temperature (°F) 4 inch depth: Ground Cover (see *)	Max.	Min.	8 inch depth: Ground Cover (see *)	Max.	Min.
	2007	09	1	83	57	80	0		0		0								
	2007	09	2	80	58	79	0		0		0								
	2007	09	3	83	59	83	0		0		0								
	2007	09	4	89	62	89	0		0		0								
	2007	09	5	89	61	87	0		0		0								
	2007	09	6	90	69	90	0		0		0								
	2007	09	7	90	69	90	0		0		0								
	2007	09	8	90	71	90	0		0		0								
	2007	09	9	90	65	88	0		0		0								
	2007	09	10	90	74	90	0		0		0								
	2007	09	11	90	73	74	0.72		0		0								
	2007	09	12	78	60	78	T		0		0								
	2007	09	13	82	57	82	0		0		0								
	2007	09	14	82	69	77	0		0		0								
	2007	09	15	77	60	70	0		0		0								
	2007	09	16	70	46	66	0		0		0								
	2007	09	17	71	48	71	0		0		0								
	2007	09	18	72	50	72	0		0		0								
	2007	09	19	78	55	78	0		0		0								
	2007	09	20	78	53	76	0		0		0								
	2007	09	21	85	57	84	0		0		0								
	2007	09	22	85	63	85	0.17		0		0								
	2007	09	23	85	67	83	0		0		0								
	2007	09	24	83	51	83	0		0		0								
	2007	09	25	85	55	85	0		0		0								
	2007	09	26	87	66	86	0		0		0								
	2007	09	27	88	66	86	0		0		0								
	2007	09	28	86	68	80	0.02		0		0								
	2007	09	29	80	54	75	0		0		0								
	2007	09	30	77	51	77	0		0		0								
			Summary	83.1	60.5		0.91		0										

The '*' flags in Preliminary indicate the data have not completed processing and quality control and may not be identical to the original observation

All 9's (e.g. 999999, 99999.9, etc.) in the data column indicate that the value was not received or is missing

***Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulc; 7=Grass muck; 8=Bare muck; 0=Unknown**

****T=TRACE. A=Accumulated amount since last measure. B=Accumulated amount includes estimated values. S=Included in a subsequent value. E=Estimated amount.**

September – 14 days – Aberdeen

Station: ABERDEEN PHILLIPS FLD
State: MD **County:** HARFORD **Standard Time:** EASTERN
Observation Time (LST) **Temperature:** 1600 **Precipitation:** 1600 **Evaporation:** **Soil:**

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations

Preliminary	Year	Month	Day	Temperature (°F) 24 hrs. ending at observation time Max.	Temperature (°F) 24 hrs. ending at observation time Min.	Temperature (°F) at Observation	Precipitation (see **) 24 Hour Amounts ending at observation time: Rain, melted snow, etc. (Inches & hundredths)	Flag	Snow, ice pellets, (Inches & tenths)	Flag	Precipitation (see **) At Observation Time: Snow, ice pellets, hail, ice on ground (Inches)	Evaporation: 24 Hour Wind Movement (miles)	Evaporation: Amount of Evaporation (Inches & hundredths)	Soil Temperature (°F) 4 inch depth: Ground Cover (see *)	4 inch depth: Max.	4 inch depth: Min.	8 inch depth: Ground Cover (see *)	8 inch depth: Max.	8 inch depth: Min.
	2007	10	1	77	51	77	0		0		0								
	2007	10	2	80	57	79	0		0		0								
	2007	10	3	83	66	83	0		0		0								
	2007	10	4	84	66	84	0		0		0								
	2007	10	5	84	69	75	0		0		0								
	2007	10	6	83	62	82	0		0		0								
	2007	10	7	89	61	87	0		0		0								
	2007	10	8	87	65	86	0		0		0								
	2007	10	9	92	66	89	0		0		0								
	2007	10	10	89	66	80	1.34		0		0								
	2007	10	11	80	55	61	0.44		0		0								
	2007	10	12	68	53	65	0.14		0		0								
	2007	10	13	65	40	65	0		0		0								
	2007	10	14	69	40	68	0		0		0								
	2007	10	15	73	44	73	0		0		0								
	2007	10	16	73	57	72	0		0		0								
	2007	10	17	80	58	79	0		0		0								
	2007	10	18	80	59	78	0		0		0								
	2007	10	19	79	67	78	0.27		0		0								
	2007	10	20	78	50	70	0.80		0		0								
	2007	10	21	77	45	76	0		0		0								
	2007	10	22	79	48	79	0		0		0								
	2007	10	23	79	69	78	0		0		0								
	2007	10	24	78	66	68	0.24		0		0								
	2007	10	25	68	51	55	0.54		0		0								
	2007	10	26	60	54	60	0.61		0		0								
	2007	10	27	70	53	69	2.68		0		0								
	2007	10	28	69	50	57	0		0		0								
	2007	10	29	59	32	59	0		0		0								
	2007	10	30	65	34	65	0		0		0								
	2007	10	31	67	37	67	0		0		0								
	Summary			76.3	54.5		7.06		0										

The '*' flags in Preliminary indicate the data have not completed processing and quality control and may not be identical to the original observation

All 9's (e.g. 999999, 99999.9, etc.) in the data column indicate that the value was not received or is missing

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulc; 7=Grass muck; 8=Bare muck; 0=Unknown

**T=TRACE. A=Accumulated amount since last measure. B=Accumulated amount includes estimated values. S=Included in a subsequent value. E=Estimated amount.

October - 10 days - Aberdeen

(1B)

Central Area Advisory Meeting – March 13, 2008

CAROLYN COOK RIDGELY

Carolyn Cook – 6th & 8th grade – one coming in a few years

I know you can appreciate the role environment plays in the learning process

The data and studies linking classroom temperature and test scores that was presented earlier should not be new to you – this information has been around for many years now.

Our kids at Ridgley are experiencing first-hand how the design flaws in the recent renovations have exacerbated an already environmentally difficult learning atmosphere.

Based on what has happened during the renovations – lowered ceilings, additional piping – it appears from our vantage point that spending the County estimated $900,000 for the chillers to obtain full climate control will solve the environmental problems in the 2nd floor classrooms and the band wing.

Of course there are always more than one way to solve any problem, which makes us open to suggestions – the AC could be phased in with the 2nd floor and band wing receiving priority attention or there could be other alternatives out there of which we are unaware.

But what we do know is that this is not a problem unique to Ridgley – my 8th grader will be heading off to Dulaney next year where I understand they have similar environmental problems. I also understand from speaking with Board personnel that that there is a growing recognition throughout the County that the decisions made not to include AC as part of the renovations were ill advised, especially in light of the nature of the renovations and type of window replacements that have occurred at Ridgley and elsewhere.

Irregardless, we have a serious problem at Ridgely today that must be solved because we cannot expect to achieve excellence when our classroom temperatures soar above 90 degrees every time our outside temperatures rise above 80.

So we have come to you tonight looking for your leadership in developing workable solutions to this very serious health problem so that mother nature does not continue to thwart the enormous efforts of both our teachers and students in keeping Ridgely as a national blue ribbon school.

We have come here tonight to ask that you fund a solution for the environmental problems at Ridgely that our recent renovations have exacerbated. We also ask you to develop a plan of action that protects the health & safety of our children so that ~~our~~ classroom temperatures ~~do not go~~ above 90 degrees.

Our children at Ridgley Middle School and throughout the County have come to you ready to learn and now we need your leadership in providing an environment where that can happen.

Thank you.

(2)

Statement against proposed addition to Loch Raven High School
Central Area Pre-budget hearing, March 13, 2008, Dumbarton Middle School
Dr. Laurie Taylor-Mitchell

I'm Dr. Laurie Taylor-Mitchell, I live near Loch Raven High School, and my son will be in the 9th grade at Loch Raven next year. Those present here today with regard to overcrowding in the elementary schools, should consider that the overall cost for the **addition to Loch Raven High School**, for 400 students, *not* counting the proposed renovation of the heat and air conditioning, is over **$18 million dollars**. The funding amount in the Board Proposed Operating Budget for 2009, for all new elementary school construction, as far as I can tell, is zero.

The conduct of Baltimore County government in the funding and design of this addition has consistently circumvented public scrutiny of this project. As Vice-President of the Chatterleigh neighborhood Association, I started inquiries about the feasibility study for this addition in October of 2007. No one had seen it, or knew what was in it. In mid-January of this year, an official in the Office of Strategic Planning told me that the report had either not been finished or was not available to the public. After sending a letter to Dr. Hairston in January asking about the feasibility study, we finally obtained a copy *this week* through the Freedom of Information Act, for a study published on October 1st of last year. Why has it been unavailable to the public?

This project has been rushed through the budget process and the Board of Education with a remarkable lack of transparency and impropriety in government procedure. The first meeting recorded in the feasibility study was August 22 of 2007 - by September 5, the architectural firm was ordered to shave 2 weeks off the study period to meet an Oct. 1st deadline. Second, a request for funds for the Architectural and Engineering design, presented at the Board of Ed. meeting on Feb. 13 of this year, was made using money taken from other projects in from the Capital Budget *approved last year*. Surveyors have already been at Loch Raven High School this week, but the funding for this addition has not even been approved. Moreover, the Loch Raven addition is contrary to the data in the De Jong report on overcrowding in Baltimore County Public Schools. Five years ago, this report stated that **building a new high school in the northeast area was the best**

way to relieve overcrowding, and the two locations suggested for new schools are nowhere near Loch Raven. A 400-seat addition at Loch Raven does not address the overcrowding in Perry Hall and Parkville. Why was $2 million dollars devoted to a feasibility study for an addition to Loch Raven, and where is funding for this study listed in the 2008 or 2007 budgets?

When government conducts the public's business in an autocratic and opaque way, it erodes the public's confidence and trust, and sets the stage for divisive conflict. Please reconsider this "steamroller" approach, please slow down, and help us find good solutions to these complex issues. Most importantly, please help us to restore good faith, and trust in the relationship between the Central and Northeast communities and Baltimore County Government.

Summary of information for Loch Raven High School addition:

Funds for feasibility study (as reported in *Baltimore Sun*, May 26 2007	**$ 2,000,000**
State and County funds for LRHS addition, proposed budge FY 2009	**$16,370,000**
HVAC renovation, LRHS, FY2009	**$ 1,925,000**
State funds, new elementary school construction, Board Proposed Budget, FY 2009 (pp. 208-209)	**0**
County funds, new elementary school construction, Board Proposed Budget, FY2009 (p. 210)	**0**

Capital Improvement Program, FY2009-FY2014: only $20,500 for entire 6 years Budgeted for new elementary school construction (p. 211, FY09 Board Proposed Operating Budget)

Exhibit S

BALTIMORE COUNTY PUBLIC SCHOOLS

DATE: February 13, 2008

TO: **BOARD OF EDUCATION**

FROM: Dr. Joe A. Hairston, Superintendent

SUBJECT: **ADOPTION OF REVISED FY 2009 STATE AND COUNTY CAPITAL BUDGET REQUEST AND FY 2009 – FY 2014 COUNTY CAPITAL REQUEST**

ORIGINATOR: J. Robert Haines, Deputy Superintendent

RESOURCE PERSON(S): Barbara Burnopp, Chief Financial Officer
Kevin Grabill, Fiscal Analyst, Budget and Reporting

RECOMMENDATION

That the Board of Education adopts the Superintendent's revised FY 2009 state and county capital budget request and the revised FY 2009 – FY 2014 county capital request. Three projects have been moved in the state request from FY 2010 to FY 2009. The projects are to construct additions at Dogwood Elementary School, Cedamere Elementary School, and Loch Raven High School.

* *

Attachment I– Proposed Revised FY 2009 State and County Capital Budget Request
Attachment II- Proposed Revised FY 2009 – FY 2014 County Capital Budget

19. Request to Negotiate: Consultant Services – Architectural/Engineering (A/E) Services for Addition at Loch Raven High School
Contract #: JNI-721-08 (BCDPW #42936)

Term: N/A **Extension:** N/A **Contract Ending Date:** N/A
Estimated annual award value: N/A
Estimated modification amount: N/A
Estimated total award value: N/A

Description:

In order to expedite this addition project, it is necessary to piggy-back Baltimore County's DPW on-call architectural services with the firm of Rubeling & Associates, Inc.

Recommendation:

Approval is recommended to negotiate with:

Rubeling & Associates, Inc.	Towson, MD
Responsible school or office:	Department of Physical Facilities
Contact person:	Michael G. Sines
Funding source:	Capital budget
PDK Audit Alignment:	None
Explanatory Details:	The PDK audit does not address this item.

January 15, 2008

Dr. Joe A. Hairston
Superintendent, Baltimore County Public Schools
6901 Charles Street
Towson, MD 21204

Dear Dr. Hairston:

First, thank you very much for sending my letter dated December 13 regarding concerns about the Board of Education meeting on to Dr. Diaz, who called me last week about those concerns. We had an interesting conversation regarding assessments and the language and assessments in relation to the content being evaluated. I hope that she'll stay in touch with me.

The hat I'm wearing today is that of the Vice-President of the Chatterleigh Association, the neighborhood that borders Loch Raven High School. My son will begin attending Loch Raven next year. Our Association is very concerned about the impact of this expansion on the infrastructure of the school, and also on the surrounding residential area in terms of traffic congestion (in an area with three schools, Loch Raven, Baltimore Lutheran and Notre Dame Prep to the north), and increased need for parking. In a telephone conversation today with Mr. Ghasan Shah of the Office of Strategic Planning, he informed me that the feasibility study for the proposed expansion has not been completed and/or released to the public.

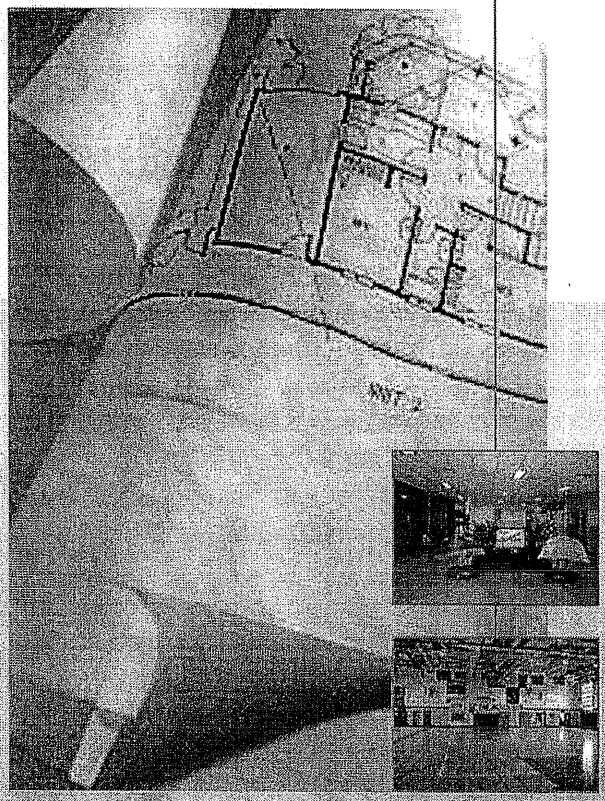
Our Association Board would greatly appreciate it if you could keep us informed regarding the date of completion of this feasibility study and its release to the public, and we would very much like to have a copy. We understand that there are many issues involved with this possible expansion, and no easy solutions.
Thank you very much for your attention.

Sincerely yours,

Laurie Taylor-Mitchell, Ph.D.
Vice-President, Chatterleigh Association
1106 Chatterleigh Circle
Towson, Maryland 21286
e-mail: ltmitch@juno.com

HIGH SCHOOL FACILITY UTILIZATION STUDY

THE BALTIMORE COUNTY PUBLIC SCHOOLS



Carver Center
Catonsville
Chesapeake
Dulaney
Dundalk
Eastern Tech.
Franklin
Hereford
Kenwood
Lansdowne
Loch Raven
Milford Mill
New Town
Overlea
Owings Mills
Parkville
Patapsco
Perry Hall
Pikesville
Randallstown
Sollers Point
Sparrows Point
Towson
Western Tech.
Woodlawn

November 19, 2003

DeJONG *an educational planning firm*

Executive Summary

According to current projections, by the year 2007 the overall high school enrollment in Baltimore County Public Schools will be at 33,904, or 98% of capacity. Because the population is not evenly distributed in Baltimore County, some high schools will be significantly overcrowded while other schools will have enrollments below 98% of capacity.

In 2007, the following six high schools will have significant overcrowding, based on current projections. All of these schools are overcrowded today.

- *Milford Mill Academy*
- *Perry Hall High School*
- *Kenwood High School*
- *Towson High School*
- *Pikesville High School*
- *Sparrows Point High School*

The Southwest Area is the only area of the County where overcrowding does not exist and is not anticipated. Projections show there may be as many as 584 seats available in 2007, but most will be in the Southwest. Even if these 584 seats could be evenly distributed throughout the County, it would result in an excess of less than one classroom per high school. This is beyond the 95% capacity the State of Maryland defines as overcrowded and is even further from the 90% capacity that the BCPS Board of Education defines as overcrowded.

This report compares capacity and projected enrollment, reviews current housing development data, analyzes potential boundary solutions, and provides potential overcrowding solutions, including both build and non-build options.

Boundary Recommendations

A district-wide boundary shift would not be an effective way for BCPS to manage high school enrollment. Keeping in mind that no boundary solution will reduce high school enrollment lower than 98% of capacity, hypothetical district-wide attendance boundaries were drawn to see if a boundary adjustment would equitably distribute enrollment. This exercise demonstrated that schools were no longer central to their attendance boundary, boundaries were shaped in ways too unconventional to be efficient for the transportation of students, and the new boundaries compromised neighborhood integrity. Smaller scale boundary shifts in the Northeast and Southeast Areas, coupled with other strategies could provide short-term relief for a limited number of schools. Further analysis of a district wide boundary solution can be found on page 4 of this report.

New Construction Recommendation

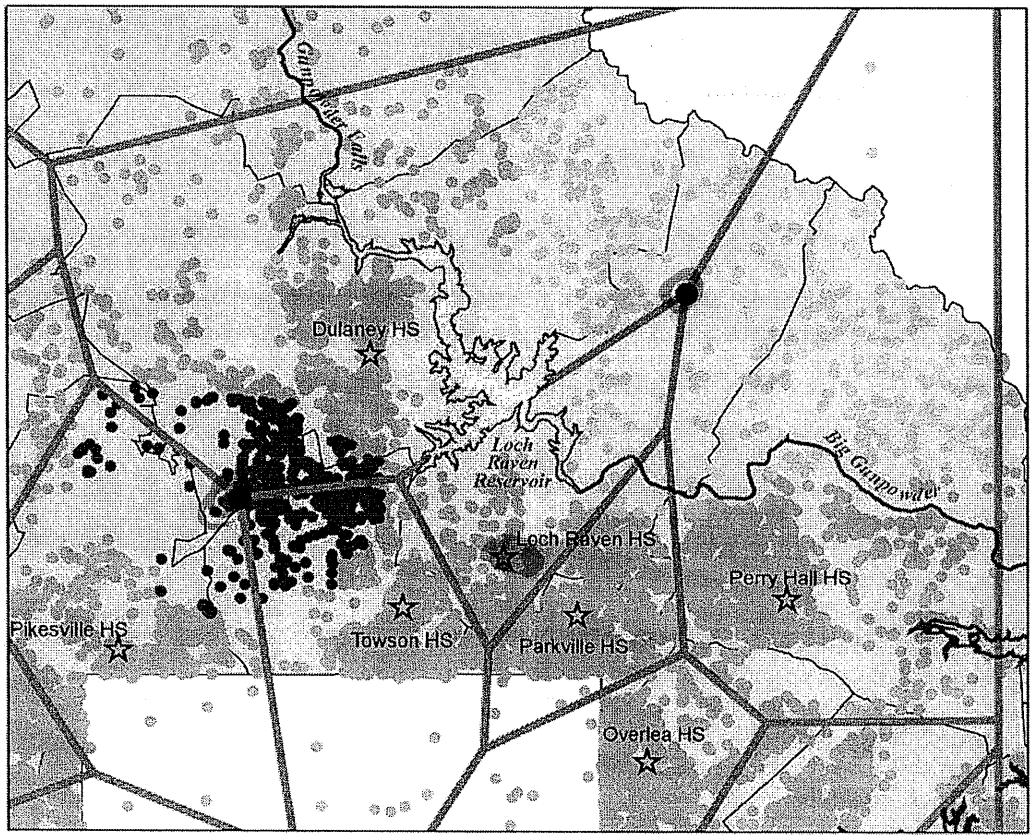
To reach a 95% capacity goal based on the State's definition of overcrowded, 1,200 additional seats would be required. Based on current projections, the Central and Northeast Areas of the County combined will be 850 seats short by 2007. In addition, the May 2003 Subdivision List [S-List] provided by the Baltimore County Office of Planning, indicates 3,342 single and multi-family housing units approved for development in the Central Area and 5,114 units in the Northeast Area. **This provides significant support to build a new high school that would relieve both Areas.** Further analysis of this option is provided on page 18 of this report.

New Construction

Four of the top six overcrowded schools are located within the Central and Northeast Areas of the County. According to the most recent S-List, May 2003, received from the Baltimore County Office of Planning, there are over 8,000 single and multi-family housing units approved for development in the Central and Northeast Areas. In addition, it is projected that there will be at least 850 more students than seats in the Central and Northeast high schools. That being the case, construction of one new high school to alleviate overcrowding in both the Central and Northeast Areas is recommended as the best solution for the future of BCPS.

The map on the next page illustrates two potential high school locations based on proximity of the current student enrollment. By using Theissen polygons, the map points out the best geographical locations to look for a school site based on the distance students would have to travel.

Hypothetical High School Locations



DeJONG

August 2003

EXPLANATION

- High school attendance boundary
- Lake or reservoir
- Thiessen* boundary based on school points
- River or stream
- High school
- Sample high school location
- High school student

0 2 4 6 MILES

0 2 4 6 KILOMETERS

High school students in sample areas

- Urban area student (690)
- Rural area student (700)

*Thiessen polygons can be used to apportion a group of points into regions known as Thiessen or Voronoi polygons. Each region contains only one point. Each region has the unique property that any location within a region is closer to the region's point than to the point of any other region. (ESRI ARC/INFO electronic Help file)

www.baltimoresun.com/news/local/brac/bal-md.ar.meade26may26,0,3656386.story

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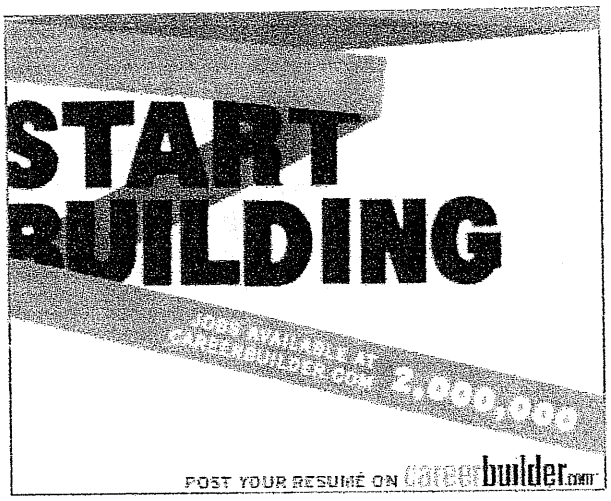
Governor visits school at BRAC ground zero

West Meade Elementary already squeezed while officials plan for influx

By Phillip McGowan

sun reporter

May 26, 2007



West Meade Elementary School is in an enrollment crisis, jamming in twice as many students as it was designed to fit.

With six portable classrooms parked outside and a multipurpose room that's used for all PE, music classes and lunch periods, school officials are pressed to be creative with limited space - and that's before an onslaught of students is projected to arrive as part of the planned military expansion.

On his first tour of Fort Meade, Gov. Martin O'Malley expressed confidence yesterday that many of the school and road projects needed to handle an influx around the Army post in western Anne Arundel County and elsewhere will be built by 2011, the deadline when at least 45,000 workers must settle in Maryland.

"Many of the things we need to get done will be done" by 2011, O'Malley said. "How many projects will get done - that will be seen."

While officials in nearby Baltimore and Howard counties say they've either been building schools or have chairs to spare in classrooms, Anne Arundel County officials are worried that they don't have the money to replace or upgrade aging schools at Fort Meade to serve the children of newly arrived military families.

"I look at what we have done, and I can't help but think we are behind," said County Councilman Jamie Benoit, whose district includes Fort Meade.

Anne Arundel County is expected to bear the brunt of the school crunch brought by the base realignment process, known as BRAC. Nearly 4,500 households are expected to land there, translating into approximately 1,700 students, said a state report.

Many children of military families will attend schools on the post, since these middle-class households are more likely to live there than in more upscale neighborhoods elsewhere in the region.

Baltimore County considers itself "uniquely positioned" to handle the influx, said Donald I. Mohler, a

county spokesman.

He pointed to Vincent Farm Elementary, which is expected to open in the White Marsh area in time for the 2008-2009 school year, a 400-seat addition under construction at Kenwood High School in Essex, and $2 million budgeted to study and design an addition to Loch Raven High School.

Howard County public schools Superintendent Sydney L. Cousin said that his school system is prepared for any influx that BRAC might cause.

As home to Aberdeen Proving Ground, Harford County is in a more precarious position. Harford is expected to absorb about 60 percent of the new families coming to APG.

Still, Harford officials are planning expansions, and in some cases new buildings, for nearly all the schools closest to the installation.

Anne Arundel schools Superintendent Kevin M. Maxwell said his staff has an appropriate plan to accommodate BRAC growth, particularly at the Meade schools.

"Our intentions are there," he said. "If the county executive doesn't fund the programs, then the school district's hands are tied. We don't control purse strings."

At the beginning of the month, County Executive John R. Leopold yanked the school district's request for feasibility studies for West Meade and Pershing Hill elementary schools in his fiscal 2008 budget, but county lawmakers restored it this week after conferring with him. They also set aside $2.5 million for school planning.

While acknowledging the need to improve education to train the work force of the future at Fort Meade, Leopold said he has to balance many spending priorities.

If planning for West Meade proceeds as hoped, the 38,000-square- foot school will be replaced by a 65,501-square-foot building opening in 2011 - the peak year of BRAC growth.

In the meantime, the school holds 336 students, 159 more than its capacity. School officials project that enrollment will climb to 403 within four years.

As O'Malley and his point man on the military expansion, Lt. Gov. Anthony G. Brown, were wrapping up their tour of the school, Principal Carole Janesko made one last attempt to convey the need for state help: "I don't know what we're going to do if we don't get going," she told him.

"That's one of the things we're going to wrestle with," O'Malley said.

phill.mcgowan@baltsun.com
Sun reporters John-John Williams IV and Gina Davis contributed to this article.

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Good evening. My name is George Ward, and this is my wife, Ann.

We live on Concordia Drive, a few blocks from Loch Raven High School.

We are concerned that the proposed 400-student expansion at the school is penny-wise and pound-foolish.

The consultants' report that, cost taxpayers $2 million, puts the expansion cost at $16,979,952, about $20,000 shy of $17 million.

It has been our experience that publicly funded projects are subject to cost overruns, sometimes massively so.

The report proposes scheduling any construction that would create noise and disruption to be done when school is not in session. Wouldn't that be almost the total job?

The consultants' report also addresses the need for additional parking, and how to contain storm water. The cheaper storm water management plan would sacrifice a play field, while the more expensive plan would add $400,000 to the project.

Nowhere does the report address additional play fields for the additional students.

It does, however, call for the overhaul of every subsystem in the school, including heating and cooling, fire alarm and fire control, backup generator, public-address system and phones.

This report has been very difficult to obtain, with many in the school system professing no knowledge of its existence, even though it is dated Oct. 1, 2007. It took a Freedom of Information request to get BCPS to release it.

We believe it would be to everyone's advantage for the county to build a new school. The need for it surely will increase, especially as families move to Maryland because of BRAC.

A new high school could take advantage of the latest technical advances, include "green" thinking, and wouldn't need to built in non-school hours.

We suggest that the county look into obtaining some or all of the 220 acres that comprise the Hickey School property. It is ludicrous for the state to spend $37 million dollars to house 48 juvenile offenders, as proposed by Governor O'Malley, on that property when it can be put to a far, far better use.

The site probably has room for more than just a high school, which could help with other county needs. And while the site currently is state property, shouldn't the needs of our students outweigh state or county ownership? That property really belongs to the taxpaying citizens.

Thank you.

(4)

March 13, 2006

Baltimore County Board of Education
Central Area Advisory Council
FY 2009-2010 Capital Budget Hearing
Meeting at Dumbarton Middle School

Re: Central Towson Elementary School Design

Eight years ago my wife and I made a difficult decision, to move out of the city after investing years of sweat equity in a home and living in Baltimore for 10 years. We and many of our neighbors moved to Towson to enable our children to have what we saw as the best opportunity for a great education in our local public school system. We now have 4 children in grades 7, 4, 2 and Kindergarten, our oldest going to Dumbarton Middle school and our younger three children attending Rodgers Forge Elementary School. I can't talk enough about how pleased we have been with the dedication of the teachers, the administration and the staff at Rodgers Forge.

All of us here tonight are passionate about providing the best education we can offer to our children. We care deeply abut the value of diversity in public education, to understand an appreciate views of others. By the time any of the designs being considered are built, most of my children will have passed through an overcrowded school, but this is an issue vital to our community health and it can't be treated lightly. I have outlined my key concerns with the process of the school site selection and design process in the following three items.

1. *Community input is vital.* Thank you for the opportunity to express our opinions on decisions made about our schools. Selecting a site and designing a school is a long term commitment. As the school board, the superintendent, the county executive, teachers move on from their positions, we as a community are affected by that decision for the useful life of the structure and often beyond the life of the buildings, in the way that site is used. I would suggest to you that site is selected, needs to have community input, it needs to make sense in serving the current population and look to the future. Ultimately a school that can be a core of a community will enhance the dedication of the people who surround it, to make it the best environment possible for its children.

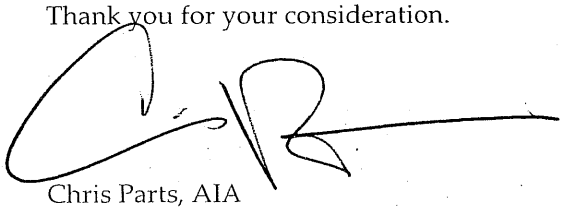
2. *Schools are social centers of community and location is critical for a school to perform well.* I look to the Towson masterplanning process, where the county brought in planning consultants and put forth a great effort, including community charrettes to understand what is important to business owners and residents. Days of planning efforts were spent to understand what will make our business community succeed and how we can make a friendly environment for people to be in Towson. The key

and playground for the students. This is one small example of many similar projects that prove a creative approach may be a viable solution on a site thought too small.

We have sites available in the Central Towson area, such as the former Towson Elementary School, partnering for shared use with the YMCA on a 16 acre site,, or the Towson Manor Village Neighborhood development a 9 ½ acre site at York Rd and Burke Ave. All are sites that given the right model, have sufficient open space for children, they are connected and walkable for a large part of the student population.

I am confident that the design team selected to develop the elementary school can design a project that will provide a great learning environment for our children. What I have seen thus far, causes me and I believe the greater Towson community great concern about site selection and the model being considered for the school design. Please consider the duration of impact the site selection may have, focus on how it can best be connected to the community it serves and please consider creative options on how to work with available sites.

Thank you for your consideration.



Chris Parts, AIA
West Towson Resident

(5)

To: Chairperson, Central Area Advisory Council for FY 10 Capital Pre-Budget Meeting
From: Oscar Taube, MD (Parent of DMS student; Legislative Liaison, DMS PTSA).
Re: Testimony on Dumbarton Middle School (DMS) need for air conditioning, and an elevator.
Date: 3/13/08

Thank you for letting me speak on these two subjects; I'll be brief.

1. Air Conditioning. The lack of air conditioning at DMS violates the mission of BCPS's Dep't of Public Facilities: to maintain safe, clean and productive educational environments that are conducive to high student achievement. School days at DMS are lost due to heat-related school closings. Students have fainted in school from excessive heat. Students are listless and lack focus on these days, which may affect test scores.
2. Elevator: DMS cannot properly serve its many disabled students without an elevator. In addition, the school library is on the second floor, and heavy materials-such as computers- have to be hand carried, one by one, to the second floor.

Thank you for your consideration of these issues.

Hello my name is Hayley Mullen and I am a 6th grader at Ridgely Middle School and delegate of the Student Government Association. I am here tonight to speak to you about the temperature issues at Ridgely. Basically whatever the temperature is outside, its ten degrees warmer in the school. One time last year it hit 106 degrees, needless to say I didn't learn any English that day. When students are this hot it is extremely difficult to concentrate let alone do our best work. That brings me to my next point.

MSA's are coming up real soon and come late March early April it could hit 80-90° in the classrooms and if the county expects us to do good on the most important assessments of the year, it would be good if the kids weren't falling asleep.

Next, I have one word to say, safety. If facilitators want to provide the safest learning environment possible, then why are the students put at risk for heat stroke, dehydration, migraines, and more. I think that the county and the school are both going to get in a lot of trouble if a child gets severely sick.

If administrators get their offices air conditioned why don't the students? Are our voices not strong enough? Are we not important enough? If you really want to know what it feels like, turn your a/c off during a hot day, than maybe you'll see our perspective.

(9)

Capital Pre-budgert hearing
March 13, 2008
Alyson Bonavoglia
Rodgers Forge Elementary School
Member of PTA and Towson Families United

Today the enrollment of Rodgers Forge Elementary School is 640. The school's stated-rated capacity is 396. Rodgers Forge Elementary School is at 162% capacity. We have seven trailers and expect two more this summer. Over 200 children will be moving between the trailers and the main building throughout the day. We've been promised one more security monitor, to be watched by our already overworked office staff. Music class is held on the cafetorium stage. Simply getting the younger children in and out of the bathrooms is a major undertaking.

After four years of Rodgers Forge parents asking Baltimore County Public Schools to address this overcrowding in a concrete way, finally a good proposal was put forth by BCPS and passed by the Board of Education—build a new special education school and convert Ridge Ruxton back to an elementary school. Then it got to County Executive Jim Smith's office where it was killed. Why? Politics.

This past Tuesday the Board of Education said no to a slapdash proposal to put a 400 seat addition onto Ridge Ruxton. They openly condemned Jim Smith's bullying tactics to get them to vote for his projects. The 400 seat addition came from Jim Smith's office—not BCPS. BCPS are the experts in school building, not the county executive.

The Board called for further research into other possible solutions, and we applaud this. There are other, better solutions, namely Mays Chapel. We know there is $2 million in the budget request for Towson overcrowding for FY 10 and $18 million more in FY 12. We want enough money for a whole school—whether it be a new special ed school and a renovated Ridge Ruxton, or a new elementary school in Towson. We need classrooms and adequate shared space—cateteria, gym, fields, offices, library etc.

Hello, my name is Kelly Friedman and I am the PTA President at Stoneleigh Elementary School. Tonight I am here to represent our PTA Executive Board and say that we were pleased with the BCPS response to the overcrowding at Stoneleigh Elementary. Both the short term solutions and the long term solutions offered to date seem viable and reasonable for our school community. It is our intent as a PTA to follow the protocols of the capital budget meeting process. We are grateful to have the opportunity to speak. We would like to go on record supporting any BCPS request for funding designated for school addition project proposals to alleviate the overcrowding in Towson Area Schools. We would also like to respectfully request, if Stoneleigh Elementary is the school chosen for an addition, that air conditioning our entire building be a part of that addition project. Thank you for your time.

Kelly Friedman
PTA President

PTA Secretary

Jacquie Meyer

Sally Mozilnicki
PTA Member

Christine B. Warner, Principal

Melissa O'Brien, AP

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Request for Funding Contribution

February 11, 2008

Presented by the Loch Raven High School Booster Club
by Co-Presidents Ken Dunphy, Mike Homa and Project Chair Lee Friant

Loch Raven High School Booster Club
1212 Cowpens Avenue, Loch Raven, Maryland 21286

Request for Funding

Date: February 11, 2008

To: Baltimore County Government

From: Loch Raven High School Booster Club
Co-President: Ken Dunphy & Mike Homa
Project Chair: Lee Friant

CC: Principal of Loch Raven High School Mrs. Jacqueline Lamp
Athletic Director Dr. David Hoch
BCPS Engineer Mark Camponeschi

Re: Loch Raven High School "Stadium Water Project"

Problem with the Athletic Stadium/Fields:

- A wonderful stadium with stands, lights but NO WATER OR SEWER for a facility that is a 1/3 of mile (6 football fields) away from the school building/locker rooms resulting in under utilization because:
  - NO WAY TO MAINTAIN FIELD CONDITIONS RESULTING IN LIMITED USE OF FIELD FOR FOOTBALL AND OCCASIONAL SOCCER AND LACROSSE GAMES. Other County schools, such as Pikesville Senior High School, with water source can irrigate and therefore enjoy maximum use of stadium field for all games.
  - The fields are unsafe due to the inability to properly maintain them without water, resulting in unnecessary injuries to the student athletes.
  - Lack of lavatory facilities; discourages attendance, is inconvenient and unsanitary for everyone involved.
  - All water and ice must be manually transported 1/3 of mile (6 football fields away) from the school for every stadium event.
  - Poor stadium field conditions limit the access of the girls and boys soccer/lacrosse teams. This forces them to practice and play games on their deplorable alternate fields instead of playing in the stadium with lights and stands as intended.
    - Girls and boys soccer/ lacrosse practice/game fields never have a chance to regenerate due to their constant use.
    - The situation is compounded because these same fields are also utilized by the Greater Loch Raven Recreational Council and community groups.

Loch Raven High School Booster Club

1212 Cowpens Avenue, Loch Raven, Maryland 21286

Booster Club Objectives:

- To seek a public - private partnership to obtain funding for:
  - Irrigation to enable proper care and full utilization of stadium/practice fields and to improve the safety of the student athletes.
  - To bring water and sewer to enable permanent bathroom facilities to be built.
  - To bring water to the stadium and practice fields so safe drinkable water supply is available to the student athletes and visitors.

Initiatives of Booster Club:

- The Loch Raven High School Booster Club has raised and spent its own money to kick off the engineering study to finally, after 34 years, bring water and sewer to this Baltimore County high school facility.
  - We have entered into an approximate $19,000 contract with a local Baltimore County approved engineering firm to conduct a thorough feasibility study to develop the best approach and the estimated cost for this project.
- The Loch Raven High School Booster Club has created several approaches to raise money for this public - private partnership:
  - Sale of our Stadium Water Project logo bottled water.
  - Booth at the Towsontowne Festival to increase awareness and target alumni donations and community contributors.
  - Creation of the first Loch Raven High School Arts and Crafts Show. This is designed to be an annual event with 100% of the proceeds going to fund our project.
  - Proceeds have been raised from concession stand sales at the limited stadium events, spirit wear sales and other fundraising events.

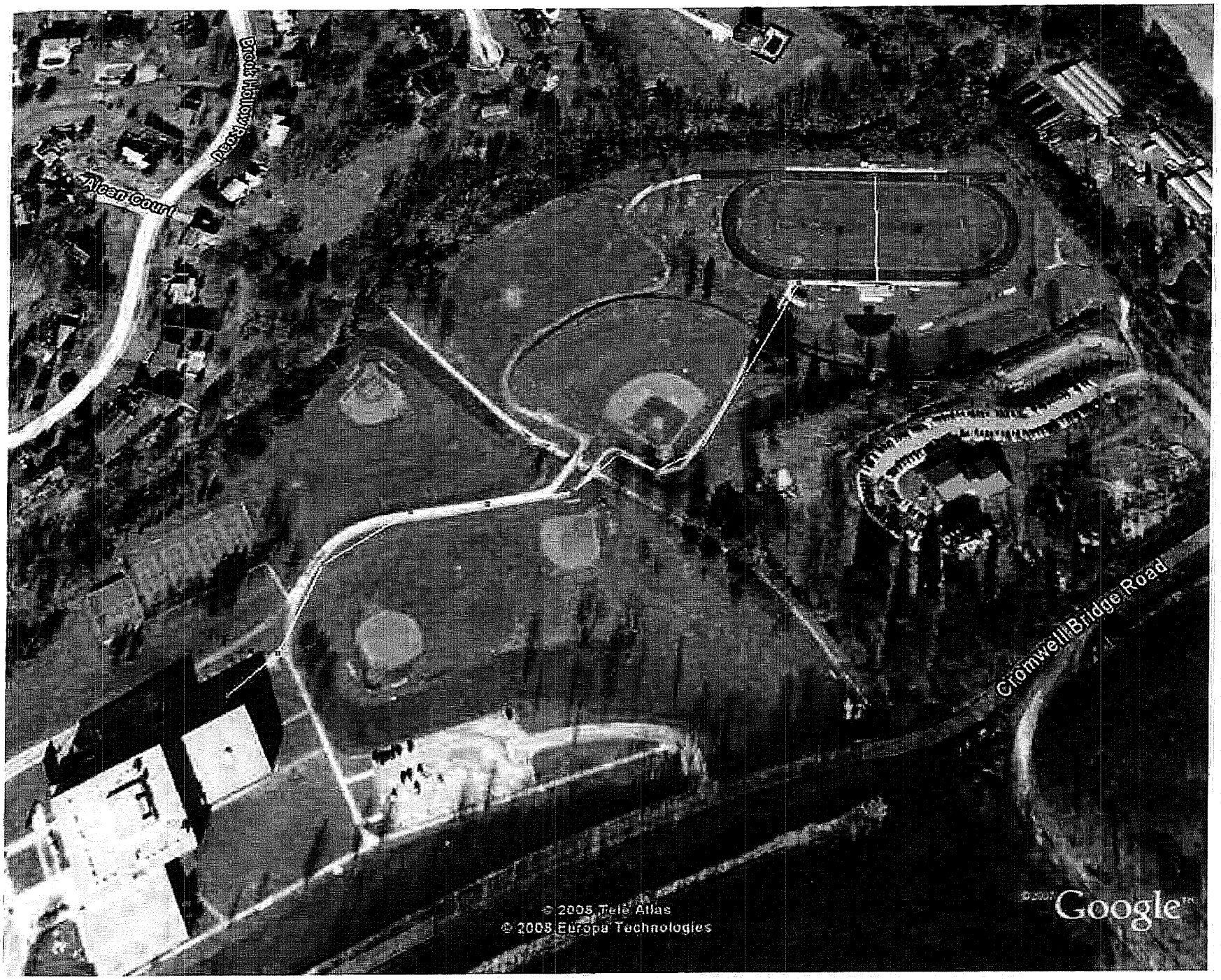
Master Plan for Completing Project:

- Phase 1 of this plan is underway to complete the feasibility study and to generate a total cost for the project. A preliminary projection (feasibility not complete) is in excess of $200,000. This is due to the distance to obtain water and topography of the site, along with the construction costs of the bathroom facilities.
- Phase 2 is to obtain construction documents suitable for obtaining bids for the construction phase and to secure public - private funding.
- Phase 3 is to begin construction BASED ON THE AMOUNT OF CAPITAL WE HAVE SECURED FOR THESE COUNTY PROPERTY IMPROVEMENTS. Construction will then be phased based on the cost of completing the different tasks of this project.

Request for Funding:

- We are requesting $75,000 for the initial phase of bringing water and sewer to the stadium facility. A subsequent funding request to complete the project will be submitted next year based on final confirmed costs and result of fundraising efforts.

THANK YOU FOR YOUR CONSIDERATION!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From: Heidi Bunes [mailto:HeidiBunes@comcast.net]
Sent: Friday, March 14, 2008 9:41 AM
To: Jan560@comcast.net
Subject: BCPS Capital Pre-Budget Hearing

I'm Heidi Bunes, Treasurer of the Stoneleigh PTA. I believe you were not present at the hearing last night, but I'm sending this to you in your capacity as BCPS Central Area Education Advisory Council Chair. Please include this with the other information that was received last night as I was unable to stay long enough to make this clarification because of my sitter.

It pains me to not stand alongside others I work closely with on the Stoneleigh Elementary School PTA executive board, but I cannot honestly say that I support the position that the Stoneleigh PTA has taken. I made that clear at our meeting just prior to the hearing last night, yet Kelly Friedman failed to state that our board is not united in supporting the position she presented. Although the concept of school additions to solve the overcrowding problem could theoretically be viable, it could also be problematic as we saw with the Ruxton Ridge addition proposal that has thankfully been tabled and should be voted down. That is only one example of an unacceptable solution.

The details of the BCPS long term plans for school additions have been intentionally kept from us in spite of repeated requests, leading me to suspect that there's something unpalatable about them. Otherwise it would obviously be in the BCPS interest to share the plans and gain the community's support in working to see them implemented. Please convey to the BCPS that this practice of secrecy is appalling. Without the details I cannot associate my name with a position supporting the BCPS additions plan.

Stoneleigh's having gotten an addition only a few years ago calls into question BCPS's accuracy in planning and its willingness to address the growing number of students head on with adequate funding. If not for that addition, we would now be in the same position as Rogers Forge. However, had there been better, more accurate planning and funding, the addition would also have accommodated the third grade that currently uses four cramped trailers for classrooms. Next year the Pre-K program will be moved to another school and the computer lab put on a cart so we will have two more regular classrooms to accommodate additional students. After that, it's back to adding more trailers.

In addition to my concern about overcrowding, I'd like to request funding for air conditioning the entire school. We have yet to measure temperatures like some of the other schools, but we are in the same situation. Especially on the west side of the school where there are no tall trees, classrooms are sweltering early and late in the school year, even with multiple fans running at top speed.

Overall, I'm asking that BCPS as well as the county be more forthcoming with both information and funding to address the rapidly growing elementary age population in Towson. Plans should not be tailored to the 451 students over capacity today, but look to the future when the projects are completed to ensure that solutions remain effective. If you have any questions or could use assistance from our school in addressing this issue, please let me know.

Claire Holmes & David Wizer
cholmes@towson.edu & dwizer@towson.edu
6436 Blenheim Road, Baltimore, MD 21212

Pre-Budget Hearing, BCPS
Dumbarton Middle School
March 13, 2008, 7:00 p.m.

As Gaywood (a section of Rodgers Forge) homeowners, community board members, active Rodgers Forge Elementary School volunteers and participants in the BCPS Special Education Citizens Advisory Committee, as well as being TU educators, our family is actively engaged in supporting this extraordinary community we live in, and we feel very fortunate to be a part of it. Like others in the community, we are very worried about the physical state of our son's school building and the toll the large student body is taking on its personnel and infrastructure. We need to find a solution for the immediate time and we need a solution for the future.

But as the parents of a child with disabilities who thrives in this community in part because he attends our neighborhood school, we are compelled to publicly oppose the Mays Chapel School plan that has been discussed. For those of us with a personal stake in holding the state of Maryland accountable and helping Maryland move forward in education policy and services, building a segregated school would be a hugely offensive step backward and a major disservice to the children of Baltimore County. Segregated schooling for kids with disabilities is an antiquated notion and does not exemplify educational best practices. Maryland's track record is already poor in this area. Maryland is a wealthy state, but yet is one that does not rank highly in terms of LRE (least restrictive environment) placement statistics. According to the report entitled *Inclusive Education in Maryland: A Blueprint for Change* published in 2003, MD ranks #34 of 50 and was judged "non compliant" by the US Dept of Education's Office of Special Education Programs (OSEP) monitoring reports as recently as 2001, in LRE requirements, among other areas.
[See http://www.mcie.org/docs/publications/BlueprintforMaryland.pdf for the full document.]

These are two very distinct issues: One is overcrowding as related to future demographic and community planning in the ageing Towson area school buildings and the other is improving special education service delivery in Baltimore County and Maryland. Both are critically important, but they are unrelated. Blending these 2 issues does justice to neither.

In this forum, our family urges the community advocates, school board members and our legislators to address the critical issue of overcrowding and facilities planning directly.