

<b>ALAMEDA UNIFIED SCHOOL DISTRICT</b> <b>BOARD AGENDA ITEM</b>	<b>EXHIBIT</b> <b>F-4</b>
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**Meeting Date:** April 13, 2010

**Item Title:** Proclamation: Earth Week-April 18 through April 24, 2010 and Reduce, Reuse, Recycle-Alameda Unified School District Earth Day Report on our Targets and Improvements

**Item Type:** Information

**BACKGROUND:** In observance of Earth Day, the District is reporting energy use and consumption patterns. Staff will report on waste recycling, diversion performance, recognizing partnerships in these areas, and setting goals for future performance.


**FISCAL IMPLICATIONS:** No General Fund impact.

**RECOMMENDATION:** Receive the District Earth Day Report as submitted.

**AUSD Guiding Principle:** #4-Parental involvement and community engagement are integral to student success.

**Submitted by:** Robert Shemwell, Interim Chief Financial Officer

**Approved for Submission to Board of Education**

  
Kirsten Vital, Superintendent



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# In honor of Earth Week 2010

*Maintenance, Operations & Facilities presents:*

*April 13, 2010*

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- *An update on AUSD's electrical, natural gas and water consumption*
  - *An update on "Go Green" recycling initiatives in the District*
  - *Recommendations based on an energy audit financed through the City of Alameda by the Americans with Recovery Act*

# Our Environmental Stewardship Goals

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*Our 2009 Goals concerning energy and public utility use:*

- *Reduce consumption of*
  - *Energy by 5% annually for three years*
  - *Reduce water consumption by 10%*

*Our 2009 Goals Concerning Recycling:*

- *Increase Recycling up past 70%*
  - *Completed May 2009 RFP for all waste removal services including Mixed Recycling (paper, metal, wood, glass, plastic, rubber, etc..) and added green food scrap recycling*
- *Investigate and develop renewable energy options and energy conservation strategies*

# Our Environmental Stewardship Goals

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Lets take a look at how we are doing as a District.

Electrical Use & Cost for AUSD Primary Schools  
 SPURR Report - School Project for Utility Rate Reduction\*

Site	Electricity '08	Electricity '09	% Chg	Electricity '08	Electricity '09	% Chg
<i>Bay Farm</i>	259,736	246,184	-5.2	\$32,081	\$30,761	-4.1
<i>Earhart</i>	250,183	260,653	+4.2	\$30,895	\$32,548	+5.4
<i>Edison</i>	158,493	143,703	-9.3	\$19,984	\$18,365	-8.1
<i>Franklin</i>	100,668	100,266	-0.4	\$12,751	\$12,841	+0.7
<i>Haight</i>	406,130	392,995	-3.2	\$50,215	\$49,189	-2.0
<i>Lum</i>	230,526	207,874	-9.8	\$28607	\$26,116	8.7
<i>Otis</i>	151,992	152,755	+0.5	\$18,942	\$19,259	+1.7
<i>Paden</i>	157,355	164,693	+4.6	\$19,483	\$20,631	-5.9
<i>Ruby Bridges</i>	482,575	502,199	+4.0	\$60,538	\$62,691	+3.5
<i>Washington</i>	181,773	173,996	-4.3	\$22,488	\$21,785	-3.1
		kWh	-7.6		\$0.125/ kWh	-9.97

Summary: Elementary Schools used -7.6% electricity compared to last year and they are meeting the district energy reduction goal.

Gas Use & Costs for AUSD Primary Schools  
 SPURR Report - School Project for Utility Rate Reduction\*

<i>Site</i>	<i>Natural Gas '08</i>	<i>Natural Gas '09</i>	<i>% Chg</i>	<i>Natural Gas '08</i>	<i>Natural Gas '09</i>	<i>% Chg</i>
<i>Bay Farm</i>	<i>2,192</i>	<i>1,623</i>	<i>-26.0</i>	<i>\$2,953</i>	<i>\$1,894</i>	<i>-35.8</i>
<i>Earhart</i>	<i>7,579</i>	<i>6,400</i>	<i>-15.5</i>	<i>\$9,723</i>	<i>\$7,669</i>	<i>-21.1</i>
<i>Edison</i>	<i>17,712</i>	<i>9,863</i>	<i>-44.3</i>	<i>\$22,522</i>	<i>\$11,534</i>	<i>-48.8</i>
<i>Franklin</i>	<i>2,876</i>	<i>2,476</i>	<i>-14.0</i>	<i>\$3,807</i>	<i>\$3,115</i>	<i>-18.1</i>
<i>Haight</i>	<i>0</i>	<i>1,588</i>	<i>n/a</i>	<i>\$96</i>	<i>\$2,032</i>	<i>n/a</i>
<i>Lum</i>	<i>15,673</i>	<i>12,954</i>	<i>-18.0</i>	<i>\$19,954</i>	<i>\$13,519</i>	<i>-32.2</i>
<i>Otis</i>	<i>5,055</i>	<i>3,979</i>	<i>-21.2</i>	<i>\$6,545</i>	<i>\$4,618</i>	<i>-29.4</i>
<i>Paden</i>	<i>6,207</i>	<i>5,826</i>	<i>-6.1</i>	<i>\$7,930</i>	<i>\$6,432</i>	<i>-18.9</i>
<i>Ruby Bridges</i>	<i>8,307</i>	<i>8,006</i>	<i>-3.6</i>	<i>\$10,420</i>	<i>\$8,400</i>	<i>-19.3</i>
<i>Washington</i>	<i>21,763</i>	<i>_729</i>	<i>n/a</i>	<i>\$24,311</i>	<i>\$1,192</i>	<i>n/a</i>
			<i>-12.0</i>		<i>\$1.10/therm</i>	

Summary: Elementary Schools used -12.0% less Natural Gas compared to last year and they are meeting the district energy reduction goal.



Water Use & Cost for AUSD Primary Schools  
 SPURR Report - School Project for Utility Rate Reduction\*

	<i>Water '08</i>	<i>Water '09</i>	<i>% Chg</i>	<i>Water '08</i>	<i>Water '09</i>	<i>% Chg</i>
<i>Bay Farm</i>	5,057*	4,476*	-11.5	\$16,555*	\$18,297*	+14.3
<i>Earhart</i>	9,359*	6,967*	25.5	\$29,177	\$25,398	-12.9
<i>Edison</i>	1,581	1,789	+13.1	\$5,499	\$6,558	+19.2
<i>Franklin</i>	652	621	-4.75	\$4,381	\$4,590	+4.8
<i>Haight</i>	1,673	1,520	-9.1	\$5,596	\$5,446	-2.7
<i>Lum</i>	2,159	2,056	-4.7	\$7,881	\$8,281	+5.0
<i>Otis</i>	869	961	+10.5	\$3,087	\$3,801	+23.1
<i>Paden</i>	418	395	-5.5	\$3,711	\$4,057	+9.3
<i>Ruby Bridges</i>	311	2,960*	n/a	\$4,755	\$14,839*	n/a
<i>Washington</i>	1,089	n/a	n/a	\$4,253	n/a	n/a
		<i>CCF</i>	+6.9	<i>\$4.93/CCF</i>	<i>\$5.51/CCF</i>	-10.1

Summary: Elementary Schools used 6.9% more water compared to last year and they are not meeting the district energy reduction goal.

\*Includes irrigation

Electrical Cost & Use for AUSD Secondary Schools  
 SPURR Report - School Project for Utility Rate Reduction\*

<i>Site</i>	<i>Electricity '08</i>	<i>Electricity '09</i>	<i>% Chg</i>	<i>Electricity '08</i>	<i>Electricity '09</i>	<i>% Chg</i>
<i>Chipman</i>	<i>329,981</i>	<i>316,972</i>	<i>-3.9</i>	<i>\$40,725</i>	<i>\$39,596</i>	<i>-2.7</i>
<i>Lincoln</i>	<i>708,042</i>	<i>733,467</i>	<i>+3.6</i>	<i>\$87,244</i>	<i>\$91,488</i>	<i>+4.9</i>
<i>Wood</i>	<i>248,971</i>	<i>249,094</i>	<i>+0.04</i>	<i>\$30,424</i>	<i>\$31,138</i>	<i>+2.3</i>
					<i>\$</i>	
<i>Alameda High</i>	<i>1,177,925</i>	<i>1,118,118</i>	<i>5.0</i>	<i>\$145,064</i>	<i>\$139,355</i>	<i>-3.9</i>
<i>Encinal High</i>	<i>938,122</i>	<i>918,809</i>	<i>-2.0</i>	<i>\$115,918</i>	<i>\$114,895</i>	<i>-0.9</i>
<i>Island High</i>	<i>365,327</i>	<i>410,427</i>	<i>+12.3</i>	<i>\$45,074</i>	<i>\$51,246</i>	<i>+13.7</i>
	<i>3,768,368kWh</i>	<i>3,746,887kWh</i>	<i>-8.5</i>	<i>\$464,449</i>	<i>\$467,718</i>	<i>+0.7</i>

Summary: Secondary Schools used -8.5% less electricity compared to last year and they are meeting the district energy reduction goal.

## Gas Use & Cost for AUSD Secondary Schools SPURR Report - School Project for Utility Rate Reduction\*

<i>Site</i>	<i>Natural Gas '08</i>	<i>Natural Gas '09</i>	<i>% Chg</i>	<i>Natural Gas '08</i>	<i>Natural Gas '09</i>	<i>% Chg</i>
<i>Chipman</i>	38,662	33,169	-14.2	\$45,667	\$35,124	-23.0
<i>Lincoln</i>	20,712	23,914	+15.4	\$25,300	\$25,315	+0.6
<i>Wood</i>	8,505	5,762	-32.2	\$11,104	\$6,878	-38.0
					\$	
<i>Alameda High</i>	127,126	115,784	-8.9	\$134,649	\$106,155	-21.1
<i>Encinal High</i>	73,444	72,897	-0.7	\$92,852	\$77,494	-16.5
<i>Island High</i>	10,480	11,913	+13.7	\$13,661	\$12,817	-6.2
	278,929 <i>therms</i>	263,439 <i>therms</i>	-5.5		\$1.10/ <i>therm</i>	-28.3

Summary: Secondary Schools used -5.5% less natural gas compared to last year and they are meeting the district energy reduction goal.

# Water Use & Cost for AUSD Primary Schools

## SPURR Report - School Project for Utility Rate Reduction\*

Site	Water '08	Water '09	% Chg	Water '08	Water '09	% Chg
Chipman	926	739	-20.2	\$4,403	\$4,101	-6.8
Lincoln	5,938	4,490	-24.4	\$18,309	\$15,706	-14.2
Wood	n/a	n/a	n/a	\$n/a	\$n/a	n/a
Alameda High	6,756	6,630	-1.8	\$20,231	\$22,527	+11.3
Thompson Field	n/a	n/a	n/a	\$n/a	\$n/a	n/a
Encinal High	12,468*	10,504*	-15.7	\$38,515	\$34,606	-10.1
Island High	n/a	n/a	n/a	n/a	n/a	n/a
	26,088 CCF	22,363 CCF	-14.2	\$4.93/CCF	\$5.51/CCF	-5.5

Summary: Secondary Schools used -14.2% less water compared to last year and they are meeting the district energy reduction goal. \*irrigation included



## What can we control to improve energy efficiencies?

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### *Efficiency opportunities*

- Windows and doors left open - operational
- New high efficient boilers or compressors – engineering

### *Added equipment*

- New Computer systems with automatic power off and on for energy savings

### *Facility Use*

- Diligent facility operations monitoring use of lighting in buildings due to permits. Our sites are used almost 7 days a week by the community. As this use increases, so does the consumption of energy but we can do a better job of reducing lighting when facilities are not in use.
- Lets look at Recycling and see if we are achieving our district goals

## Our first and biggest recycling opportunity: Paper

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*2009 District wide paper facts*

*Big paper use :*

- 1300 cases of paper food trays
- 929 cases of paper towels
- 3300 cases of copy paper that's over 16 million pages

Recycled paper can be diverted in two ways:

- Clean paper which we divert in blue bins to recycled containers - easy to implement as first step in our green waste recycling program at sites
- “Dirty” paper which comes from restroom paper towels – can be diverted into our green waste recycling with our food scraps – not implemented in pilot schools yet. Goal is to initiate this final recycling step in pilot program sites this spring through end of school year in order to establish best “recycling “ practices.

## Recycling Initiatives – Are we recycling yet?

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*The Alameda Unified School District (AUSD) received a three-year grant from the Altamont Education Advisory Board for the Alameda Green Schools Challenge program for recycling infrastructure, teaching tools, equipment, curriculum, and outreach support.*

*The goals of the program are to:*

- Implement comprehensive 4Rs curriculum (reduce, reuse, recycle, rot) and infrastructure at all AUSD school sites and district facilities.*
- Reduce greenhouse gas emissions district-wide through waste prevention, recycling and composting; energy efficiency; and community education.*



## Recycling Initiatives – Are we recycling yet?

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- *Promote cultural change among our students, parents, teachers, maintenance staff, and administrators to “walk the talk” and make Alameda schools the model for sustainability in the community.*
- *The Alameda Green Schools Challenge program is coordinated by the AUSD Maintenance, Operations and Facilities Department (MOF) and supported by volunteers from the Community Action for a Sustainable Alameda and Alameda Schools Go Green. The program also receives in-kind support from Stopwaste.org and the City of Alameda departments of Public Works and Recreation and Park.*

***Lets take a look at our new recycling program.***

## Recycling Initiatives – Are we recycling yet?

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### Year 1 – Pilot Schools

The first year of the program focused on infrastructure. Five pilot schools tested equipment, lessons plans, and procedures in order to identify “best practices” for implementing recycling and composting in Alameda schools.

Bay Farm Elementary School (August 09)

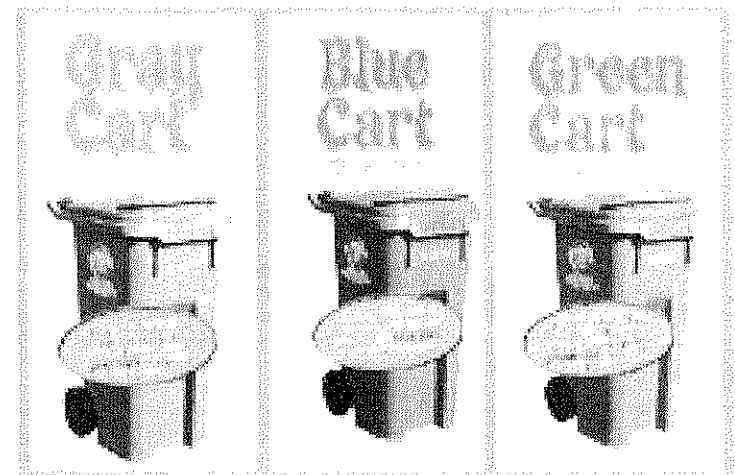
Edison Elementary School (August 09)

Otis Elementary School (October 09)

Paden Elementary School (October 09)

Chipman Middle School (November 09)

Implementation of the recycling and composting programs at each of the pilot schools was supported by the principals, custodians, parents, teachers and students.



## Recycling Initiatives – Yes, we are recycling.

School Name	Ser Type	Ser Level	Old Yds Rcy Mo	Curr Yds Rcy Mo	Old Trash Landfilled Mo	Curr Trash Landfilled Mo	Current Cost	Budget Cost	Difference
Bay Farm	Recycling	3x1	13	13			\$ 128.69	128.69	\$ -
Bay Farm	Organics	10-64 Gal		13			\$ 600.00	389.97	\$ (210.03)
Bay Farm	Trash	4x1			30.33	17.33	\$ 191.07	231.22	\$ 40.15
Chipman	Recycling	6x2	52	52			\$ 289.76	289.76	\$ -
Chipman	Organics	2x1		8.67			\$ 294.78	259.98	\$ (34.80)
Chipman	Trash	7x1			104	52	\$ 299.40	463.1	\$ 163.70
Edison	Recycling	3x1	13	13			\$ 128.69	128.69	\$ -
Edison	Organics	4-64x1		4.333			\$ 240.00	147.39	\$ (92.61)
Edison	Trash	3x1			26	13	\$ 151.50	269.48	\$ 117.98
Otis	Recycling	3x2	26	26			\$ 182.38	182.38	\$ -
Otis	Organics	4-64x1		4.333			\$ 240.00	147.39	\$ (92.61)
Otis	Trash	4x1			69.32	34.66	\$ 191.07	268.62	\$ 77.55
Paden	Recycling	4x2	17.33	17.33			\$ 151.55	151.55	\$ -
Paden	Organics	6-64x1		6.5			\$ 360.00	259.98	\$ (100.02)
Paden	Trash	4x1			69.32	34.66	\$ 191.07	268.62	\$ 77.55
			121.33	158.166	298.97	151.65	\$ 3,639.96	3586.82	\$ (53.14)

This table shows we have increased our recycling efforts by 30.3% and have diverted about 50% of our total waste at these pilot sites. However, we have not yet reached our goal of diverting 70% waste to recycling.

# Recycling Initiatives – Are we recycling yet?

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## Year 1 – Pilot Schools

Our next steps are to include more schools in the recycling program and to roll out the final “dirty paper” recycling at our initial pilot schools. Interested schools take a field trip to a current pilot school to see the program in action and decide what will work best for their site. Then the site administrator or a team lead submits a commitment form to MOF including a list of items needed and a start date.

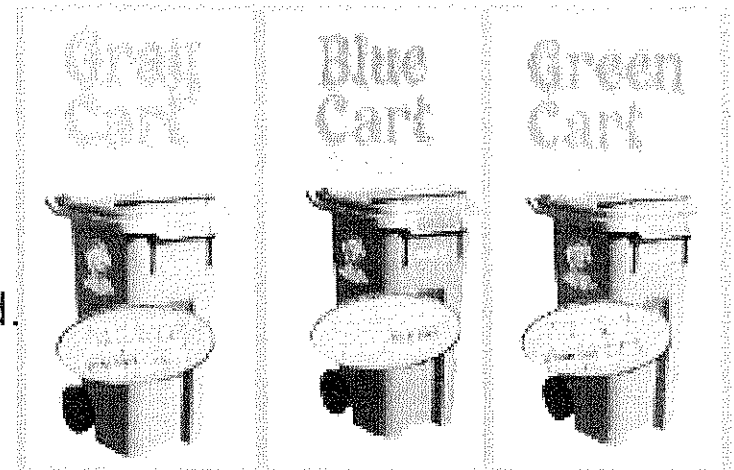
Next sites to start this Spring

Franklin Elementary School (April 10)

Lum Elementary School (April 10)

Ruby Bridges Elementary School (April 10)

Implementation of the dirty paper recycling in the first five pilot sites will involve additional support by the custodians and must be negotiated.



## District wide - Are we recycling yet?

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For the school year 7-2008 thru 6-2009 total cost for waste removal was \$154,161.34 The table below shows the District had a diversion level of 56.2% for that school year.

<i>Waste</i>	<i>Recycling</i>	<i>% diverted</i>
<i>5,476 cu yds</i>	<i>2,400 cu yds</i>	<i>56.2%</i>

Based on the data, it shows we are not yet meeting our district goal of 70% diversion of recycled waste material. By increasing the number of schools on the lunch waste green recycling program as well as instituting recycling of clean paper waste at all sites, we would be on our way to achieving our goal.

## How else can we improve our energy efficiency?

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- Recommendations based on a recent energy audit completed in the district and financed through the City of Alameda by the Americans with Recovery Act.
- We appreciate the expertise shared with our partners including
  - Alameda Municipal Power (known as the Greenest Little Utility in America)
  - kW engineering (energy engineering consultants)
  - Mr. Jeff Kessler, Lighting Consultant

Lets look at some recommendations from our energy audit findings

## Recommendations from district wide energy audits

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### High-Potential, low-cost HVAC measures

- Computer Power Management Software
- 3,000 computers across the district (740 just in media centers and libraries per kW Engineering's counts)
- Current power management settings: monitors turn off after 20 minutes, systems never go on standby.
- Recommendation: install network-based power management software to ensure that systems go on standby after a certain idle period (typically 20 minutes), but still enables IT staff to perform remote updates
  - This could save at least \$23,000 and up to \$65,000 per year, depending on how many computers this is implemented on (just media centers / all computers etc). AMP would likely provide an incentive of up to \$25 per computer (based on estimated energy savings), capped at 100% of measure costs

## More Opportunities from our recent district wide energy audits

- High-Potential, low-cost HVAC measures
- Pool pump Variable Speed Drive
- Two pool pumps (Alameda HS, Encinal HS)
- 15 hp each, currently costing \$23,000 / year total in energy  
Install Variable Speed Drive (VSD - aka Variable Frequency Drive, VFD),  
slow down pumps to 50% speed when pools not in use
- Potential savings of \$6,800 / year total  
Measure cost estimated at \$22,000, potential AMP rebate of \$2,400  
Payback of 2.5 years after incentives



## Additional recommendations from district wide energy audits

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### Optimize settings of existing Building Management Systems

- Six schools currently have Building Management Systems (Alameda HS, Chipman MS, Ruby Bridges ES, Otis ES, WCDC, Wood MS)
- The programming of these systems can be improved to save energy. For example, none of the systems are programmed to turn off the boilers or HVAC systems during summer break.
- Combined gas bills for these 6 schools, July-August: \$4,000
- Electric bills at Ruby Bridges, July-August: \$8,000 (the BMS at Ruby Bridges also controls lighting and packaged HVAC units)
- There are other low impact improvements that could further reduce our AUSD energy costs. The final energy audit report findings will be available for the public by

## Other Opportunities for energy efficiency measures and how solar energy may work for AUSD

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- AUSD Energy Efficiency measures(windows, HVAC, lighting improvements) and Solar generation could be funded through the Stimulus bill.
- “Solar Teaching” opportunity could be created (where feasible) in all AUSD schools around Green school activities, EE measures for action at home for all school levels.

## Our Future Goals

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- Maintain our 2009 goals to reduce energy and water usage.
- Develop district standard sustainable recycling program including infrastructure and processes for primary and secondary schools.
- Utilize more technology to help our facilities become more efficient.
- Look into potential savings in electric costs. This may depend on our ability to extract federal stimulus grants and additional energy saving rebates.

