BVSD SUSTAINABILITY MANAGEMENT SYSTEM 2012 Progress Report

A guide to our readers

This 2012 Sustainability Report shares the district's most significant accomplishments in sustainability practices since implementing the Sustainability Management System (SMS) in 2009. This report also provides some measurement of the district's progress toward meeting the five-year goals defined in the SMS and thus acts as a midway checkpoint of the district's progress. Finally, this report reaffirms the district's long-term commitment to sustainability in four topic areas all with cross-cutting theme of climate: Buildings, Materials, Transportation and Education. Information for this report was collected through a review of the SMS and utility data, and through a series of interviews and data collection with district staff to identify accomplishments, room for growth and future strategies. Strategies for moving forward are not limited to what is contained in this report. The Office of Sustainability welcomes suggestions and comments.

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Boulder Valley School District (BVSD) stretches from the peaks of the Continental Divide to the suburbs of Denver.

55 schools made up of 29 elementaries, nine middles, four K-8s, one K-12, two 6-12s, one accredited online 6-12 school and nine high schools, plus a career and technical education program bring total enrollment to approximately 29,500.

The communities calling Boulder Valley their home include Boulder, Broomfield, Gold Hill, Jamestown, Lafayette, Louisville, Nederland, Superior, Ward, as well as parts of the Town of Erie and Boulder and Gilpin counties.

Other district facts:
Meals prepared annually by BVSD Food Services: 1,908,288

Cover photo: *Casey Middle School rooftop garden and Solar Tubes*

Above photo (L-R):
Casey Middle School hallway - reuse of old gym floor;
New Vista High School Earth Task Force;
Nederland Middle/Senior High School wind turbine;
Bear Creek Elementary sunrise

"The Boulder Valley School District is committed to becoming a leader in environmental sustainability by creating healthy learning environments, while providing students with the skills to address the systemic challenges faced by the world in this new century." –SMS Vision Statement

The district and its commitment to sustainability
The Boulder Valley School District (BVSD) is building on 20-plus years of environmental stewardship and embracing environmental sustainability at a new level. The district hired a Sustainability Coordinator in the summer of 2008 and created a Sustainability Management System (SMS) in the 2008-09 school year. In doing this, BVSD is able to coordinate existing efforts, and to define goals and visions around sustainability at a district level for the first time.

In 2010 the Board of Education updated policy ECF, to further support sustainability work in the district, and specifically the SMS. The policy language is as follows:

> ENVIRONMENTAL SUSTAINABILITY - "It shall be the policy of the Board of Education to educate students about lifestyles and technologies that limit our negative impact on the environment and use natural resources in a manner that maintains quality of life and reduces consumption to a sustainable level. In order to lead by example and to be good stewards of the public's trust, the district will establish and operate healthful, safe and productive learning environments while practicing environmental and fiscal responsibility.
>
> To accomplish these goals, the Board of Education directs the superintendent to maintain a Sustainability Management System (SMS). The SMS will define a vision, goals and strategies for achieving district-wide environmental sustainability, and it will serve as a roadmap for integrating these concepts into our curriculum and operations. The board further directs the superintendent to monitor, evaluate and report on the district's progress toward environmental sustainability, including the cost effectiveness of relevant programs. These periodic reports will be presented to the Board of Education and the public.
>
> The Board of Education strongly encourages each district employee and student to work toward environmental sustainability and resource conservation through the implementation of the SMS."

To learn more about the district's efforts around sustainability, go to www.bvsd.org/green or contact the Office of Sustainability at 720.561.5181. *Thank you for your interest in our efforts to greenBVSD.*


Whittier Elementary School's new wing

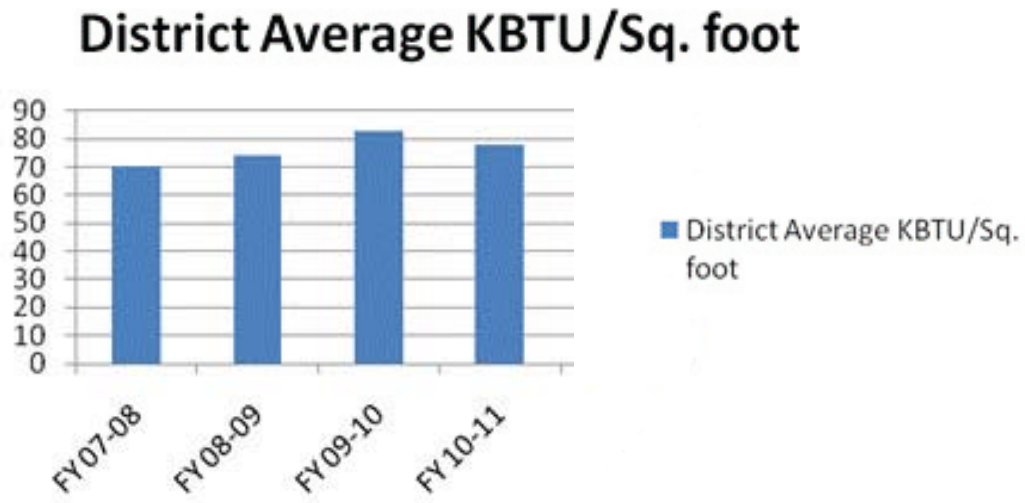
greenBVSD

Buildings

BVSD is striving toward net zero energy* buildings with 100 percent reuse of indoor water and no potable water used for irrigation. Below are the **five-year goals** in the buildings category, and progress toward those goals.

Goal

Five percent improvement in energy operating efficiency (per square foot) of existing buildings.



District-wide energy per square foot increased in 2008-09 and again in 2009-10, and has then begun to decrease. The district added square footage through the 2006 Bond, responding to increased outside air requirements, and adding technology and air conditioning, so the initial increase is not surprising. However, much has been accomplished in terms of energy reduction efforts and we expect the downward usage trend will continue.

*Net zero energy is a term describing buildings with zero net energy consumption and zero carbon emissions annually.

Highlights include:

- Purchased and implemented Verismic software, which gives IT the ability to power down computers after hours and when not in use. Settings are continually monitored and updated by IT staff and the Sustainability Coordinator.
- Created a new position, Project Manager of Energy Systems, who works part time with district utility data and energy projects and part time as a Project Manager.
- Purchased and implemented Utility Manager (UM) software, which gives the district easy access to energy and water data by school and the ability to easily provide and analyze the data and respond to issues. Using UM we conducted an internal benchmark of all schools and district facilities compared to standards set by Energy Star. According to these calculations, 11 schools would qualify for Energy Star.
- Completed re-commissioning at Centaurus High School and on a select unit at Boulder High School.
- Replaced HID lights with High-intensity Fluorescent Luminaires in a few schools. Created list prioritizing lighting replacement based on energy use, age of lights and cost.
- Replaced air handling filters on a regular basis.
- Installed Variable Frequency Drives (VFDs) on appropriate motors throughout the district.
- Boiler optimization using air-fuel ratio controls in select locations.
- Installed and replacing occupancy sensors as needed.
- Installed missing boiler and hot water piping insulation at select locations.
- Installed destratification fans in gyms or spaces with ceilings above 15 feet.
- Completed Occupant Personal Appliance and Equipment Use and Lighting Audits at three schools. Worked with staff and students at the school to create the audit and follow up on recommendations.
- Created and distributed "When not in use turn off the juice" light switch stickers.
- Purchased Thin Clients for the Board Room as a first step in an exploratory phase.
- Completed virtualization of two-thirds of BVSD's 300 servers.
- Established energy competition for high schools in 2010 "Green Month Challenge" and included middle schools in 2011 "Renew our Schools Challenge." This was a partnership with SAAC and Renew Our Schools.
- Implemented vacation shut down policy and communicated best practices district wide for summer, Thanksgiving, winter and spring breaks.
- The district switched to a vending machine provider that offer healthier food options for all schools, and the machines are more energy efficient. As part of this initiative the district reduced the number of machines in each school.
- Established budget for Sustainability and Energy projects, refunded by rebates.
- **Received $117,618 from Xcel rebates to support energy efficiency projects.**
- **Energy and solar projects have resulted in an estimated annual savings of $319,870. This is $703,216 to date.**

Moving Forward:

- Certify all eligible sites as Energy Star Buildings. Promote Energy Star qualified schools and use the certification as an incentive for energy reduction campaigns and competitions in the schools.
- Align data in Utility Management Software with utility data used for budgeting purposes in Business Services.
- Convene quarterly meetings with key operations staff and budget staff to review energy budget using an integrated and whole approach for evaluating energy reduction strategies and budget setting. Monitor City of Boulder decision to municipalize as it relates to BVSD energy budget. Work with other districts on gas pricing. Conduct an Xcel cost review.
- Create ongoing retro-commissioning model; implement by focusing on a few schools each year.
- Establish a policy about personal appliances and heating and cooling devices. Align with BVSD Gift Policy and Heat Mitigation efforts.
- Establish end-of-life policy to shut off unused servers.
- Continue power management of computers and create better reporting mechanism, relying on the software.
- Create district-wide energy competition/audit program involving students and in conjunction with community partners such as the Center for Resource Conservation and Eco-cycle. Focus on plug loads and align with Heat Mitigation efforts.
- Publish monthly energy and water use reports by school. Establish online system so schools can have better access to this data.

Moving Forward (continued):

- Continue funding Sustainability Budget: Establish "revolving fund" where savings and continued rebates replenish the fund. Continue to capture available Xcel rebates for energy reduction projects. Identify and implement projects for sustainability budget. Establish return on investment (ROI) requirement and other criteria. Example projects include: thermal equalizers in high bay spaces, high efficiency motors for replacement, VFDs, daylighting, delamping and transition to more efficient lighting, Demand Control Ventilation and high efficiency HVAC equipment.
- Establish, implement and enforce universal set points for all sites. Track completed schools (e.g. Pioneer and Superior elementary schools) for energy reductions.
- Revisit fresh air requirements and actual occupancy for equipment installed through Bond.
- Consider load shedding opportunities.
- The district is transitioning to multi-function devices (MFDs) to meet printing, copying, scanning and faxing needs. This transition is in conjunction with reducing and limiting the number of personal printers through the schools, which will no longer be supported by IT. The MFDs are energy efficient, support a paperless environment, make double-sided prints and copies and use environmentally friendly toners.
- Analyze operation of heating, cooling and purge modes to ensure proper function to improve comfort as well as efficiency.
- Look at high energy users such as chillers to make sure they are running when they should and turned off when they are not needed (e.g. Centennial chiller program was changed to cut its run time).
- Change Discharge Air Set Point calculation to modulate the Discharge Air Set Point to cut chilled water use and reduce chiller, boiler load and runtime.
- Determine if Outside Air Temperature sensors are accurate and placed properly as many HVAC functions and set points are based on outside air temps.

Goal

The SMS was created in conjunction with implementing the 2006 Bond Program. As a result, several building goals related specifically to the current and future bond and construction projects. These include:

- New spaces should be 30 percent more energy efficient, and remodeled spaces (which generally involve change of use and significant energy system work) 15 percent more efficient than IBC Energy code (IECC 2006, equal to ASHRAE 90.1-2004) and 30 percent more water efficient than code.
- All projects over 50,000 square feet construction impacted area and new construction should complete energy modeling. Projects under 50,000 square feet and remodels should complete energy modeling if budget allows. If not, these projects should perform a basic energy audit of the building (or use information from existing audits of district buildings if available and relevant) and develop a baseline before construction.
- Projects that include new roof structures with adequate sun exposure for solar power should be built so they are solar ready by adding infrastructure for roof support where necessary, and allowing space for the necessary electrical equipment and hook ups. Projects should scope for a minimum of a 10 kW solar photovoltaic system.
- All projects should commission mechanical systems upon completion. New building projects should strive to have a commissioning agent included early in the design phase and throughout construction, project closeout, and through the warranty period (referred to as —full || or —enhanced || commissioning) to maximize benefits. Very small projects may not justify being commissioned.

- All projects should follow the LEED for Schools or Colorado's Collaborative for High Performing Schools (CO-CHPS) (when adopted) checklists and strive to achieve as many points as possible, particularly in the Water Efficiencies, Energy & Atmosphere, and Indoor Environmental Quality categories. These checklists should be used to help guide and influence green building strategies included in the design. The checklists also will be used as a reporting mechanism upon project completion. Strategies should include maximizing daylighting and increasing insulation.
- Where these alternatives exist, all projects should use materials that are durable, repairable, and reusable or recyclable; limit toxins and indoor air pollutants; are made with high post-consumer recycled content; and are resource and energy efficient in their manufacturing, use, and disposal.
- All projects should divert at least 50 percent of the construction waste from the landfill. Demolition waste including ACM (asbestos-containing materials) cannot be recycled.
- Project design and construction should allow for teachable moments. Examples include displays about the construction work in the school and energy efficient or sustainable features; designing features that teach, such as a truth wall; and including interested student groups and classes in the design and construction process.

Highlights include:

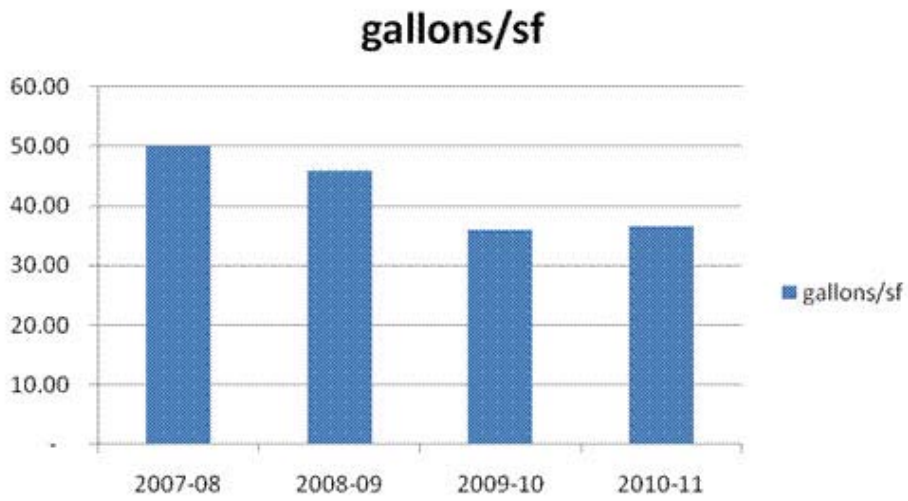
- The district made an effort to implement the guiding principles in the Bond projects to the extent feasible within the identified work and available funds set forth for each project in the Educational Facilities Master Plan. Visit *www.bvsd.org/green/Documents/2012BondFinalReport.pdf* to find the final report of the bond projects, including sustainability features that were considered and implemented in each project.
- The completion of Casey Middle School, which achieved Leadership in Energy and Environmental Design (LEED) Platinum status from the US Green Building Council and GBCI, and the completion of Columbine Elementary School, which was built to LEED Gold standards. For more information regarding Casey, including building performance data, go to http://casey.bvsd.greentouchscreen.com/.
- The Green Building Principles were articulated to all project managers and teams, and the Sustainability Coordinator supported projects as requested.
- Technical specs were updated again in Fall 2009/Spring 2010 to be more inclusive of green strategies and technologies, and to reflect the Green Building Principles.
- In 2011 the Bond Project Managers participated in a Sustainability Roundtable, which was an opportunity to share project successes, challenges and opportunities around sustainability for existing and remaining projects.
- Horizons K-8 received a BEST grant which requires new construction to meet LEED Standards.
- Many of the architects that were awarded contracts were chosen because they had at least one Leadership in Energy and Environmental Design (LEED) Accredited Professional on staff, and/or had designed a LEED Registered or LEED Certified Project as a company. We relied on the expertise of these professionals to incorporate sustainable design into the projects to the extent possible.
- Much of the furniture removed from buildings during remodels was dismantled and the materials were sent to appropriate recyclers.
- Where possible we re-used products and fixtures in remodels. We also partnered with local company "ReSource" to divert waste from landfills by salvaging furniture, fixtures and other materials.
- We established environmental standards for portable classrooms used in the bond program.
- Most new constructions featured windows and skylights to provide natural daylight which enhances learning environments.
- Worked with schools to place signs highlighting the green features of each project.
- Gave many tours of Casey Middle School and Columbine Elementary School to highlight the green features of these projects and expound the living laboratories these schools provide. Audiences ranged from BVSD student groups and teachers, Naropa and CU classes, students and staff from other school districts, BVSD administrators, and the Environmental Policy Advisor for President Obama, Chair Sutley, Jared Polis and staff.
- The bond received **$252,194.50** from Xcel Energy rebates for efficiency measures.

Moving Forward:

The district will begin the process of assessing all buildings post bond for areas still in need of improvement. The Guiding Principles and specifically energy benchmarks will be used as part of this assessment.

Goal

Ten percent overall reduction in consumption for existing spaces on a per square foot basis.



Water use has decreased significantly district-wide. District staff are in the process of separating historical water use data by indoor and outdoor, at which point we will have a better understanding of where the decreases have occurred.

Highlights include:

- Installation of the centrally controlled irrigation system through the 2006 Bond. Sustainability features of this system are weather responsiveness, which turns this system off when raining, indicators of leaks, and evapotranspiration feature.
- All new replacement water devices are low flow.
- The district partnered with the City of Boulder to install low-flow dish sprayers in select schools.

Moving Forward:

- Enable evapotranspiration feature on centrally controlled irrigation system.
- Ensure all new water devices are low flow.
- Separate indoor and outdoor water use data.
- Continue to incorporate water saving suggestions in education campaigns.

Goal

Use non-potable water where possible.

Highlights include:

- Reviewed existing ditch water rights and implementation plans to utilize non-potable where feasible.
- Researched specific opportunities at Baseline Reservoir and Anderson Ditch.
- Improved the use of Anderson Ditch water rights.

Moving Forward:

- Create infrastructure to begin using water at Baseline Reservoir.
- Investigate further opportunities for Anderson Ditch.


"Chair Mountain"

Material Flows

BVSD is striving for non-toxic environments at all school and building sites and properties. Long-term, BVSD would also like all purchases to follow best green practices and zero waste at all sites. BVSD is striving to provide healthy foods for all BVSD students. Following are **five-year goals** associated with the materials category.

Goal

Reduce indoor air pollutant and asthma triggers.

Highlights include:

- Revised BVSD equipment specifications for vacuum cleaners to include a HEPA filter exhaust filtration system. (July 2010) The following link provides information about the vacuum that is being used in the schools: *http://www.pro-team.com/pt/vacuums/default.aspx?style=1&id=106572*
- Provided training module to all custodians regarding proper cleaning techniques for vacuum filters and general vacuum cleaner care in order to provide them with an understanding of how their work product can impact asthma. (January 2011)
- Ongoing replacement of air handling filters.
- Increasing use of green cleaning products.

Moving Forward:

- Continue with ongoing trainings and in-services emphasizing the connection to asthma triggers and reducing indoor air pollutants.
- Continue to identify opportunities for reducing indoor air pollutants and measuring progress.

Goal

Implement Integrated Pest Management (IPM) Practices.

Highlights include:

- Integrated Pest Management information was communicated to teachers and staff through the ELMs (district email), directly to all custodians during an in-service focused on IPM and Sustainability (January 2010) and on an as needed basis, as specific situations arose. For an example, see the Mice Infestation IPM Protocol **(Appendix A).**
- Co-created a Best Practices sheet for Green Star schools with Eco-Cycle. Distributed to all Green Star schools and posted on the bvsd.org/green website. (Fall 2011)
- IPM strategies are used regularly on all BVSD grounds. BVSD stopped using Trimac in 2003/04 on the grounds. BVSD Maintenance uses strategies to promote grass growth and reduce the need for pesticides.

Moving Forward:

- Create an IPM tips and tricks link on the greenBVSD website. This would include the IPM power point presentation, Standard Operation Procedure for mice, Eco-Cycle's tips, and additional and relevant links.

Moving Forward (continued):

- Continue to distribute Eco-Cycle best practices sheet for Green Star Schools.
- Include an article on IPM in the greenProjects newsletter (distribution all staff and parents).
- Collaborate with local partners around IPM best practices and strategies for grounds and buildings.

Goal

Reduce hazardous/higher impact chemical products.

METRIC(S): Green cleaners purchased by Warehouse

	Start Date		
Alpha Multi-Surface Cleaner	2009/10 - 461 cases	2010/11 - 94 cases	2011/12 - 110 cases
Stride Citrus Neutral Cleaner	2009/10 - 203 cases	2010/11 - 249 cases	2011/12 - 175 cases
Floor and Surface Disinfectant	2009/10 - 291 cases	2010/11 - 330 cases	2011/12 - 356 cases

In school environments one issue with chemicals arises because both operations staff and food services staff are purchasing chemicals and both departments are often participating in cleaning tasks in the same proximity but they are managed by different entities and follow separate protocols. During the study of food services in 2008 this problem was identified in BVSD and food services staff had a meeting (during the study period) with the Director of Operations and the Assistant Superintendent of Operations about the two departments working more harmoniously together. At that time the chemical use plan for food services was non-existent and because chemicals were free poured there was an extremely high risk for misuse. In addition, in many kitchens the school's custodial and maintenance staff had other chemicals stored or within reach of food services staff and the lack of clear protocol created unnecessary risks for potential chemical mixing and selecting the wrong chemical for the task, etc. Many measures were taken to mitigate these issues; however, the work is ongoing.

Highlights include:

- Food services changed the chemical company to Northern Colorado Paper and the type of chemicals to Sunburst Chemicals and trained the staff in the 2009-10 school year[1]. Sunburst was chosen because of the product safety and the products did meet some green standards. Food Services staff continues to monitor the product development in the areas that we know are not as green such as dish machine chemicals.
- Food Services banned Chlorax.
- All schools have access to MSDS on site.
- Food Services established the following guidelines in the 2009-10 school year:
  - Ideally we like to use as few products as possible – for example an all-purpose cleaner that can be used on tables in the dining room or on surfaces in the kitchen.
  - Limit "heavy duty" grease cutting products as possible, for example by avoiding buying an oven cleaner, a stainless steel cleaner and a heavy duty floor cleaner if one product can do all three.
  - Chemicals need to be dispensed so they are as employee proof as possible.
  - Chemicals are solids instead of liquids as that reduces risk to employees.
  - Employees need to be trained on how to use them and when to use them.
- Two new cleaning products stocked in the Warehouse have Green Seal Certification[2]. Both products are packaged in ready to use dispensers (RTD).
- Ongoing testing of other green products, including gym floor finishes.
- Custodial In-Services on green cleaning procedures (April 2009) and new green cleaning products (August 2009).
- Annual chemical inventory where the district gathers and properly disposes of hazardous chemicals. (This is a long standing practice.)

Moving Forward:

- BVSD could have a greater impact on green chemical use if there was a unified district-wide program instead of the site-based purchases seen currently. This would lead to cost savings and reduce cross-mixed chemicals.
- Ongoing testing of new products and collection of hazardous chemicals.

[1]Information about Sunburst Chemicals can be found online at http://www.sunburstchemicals.com.
[2]Stride Neutral Cleaner - http://www.johnsondiversey.com/Cultures/en-US/OpCo/Products+and+Systems/Products/JWPFCStrideCitrus.htm?category=JWP%20FC%20Vinyl%20FC%20Neutral and Alpha-Hp Multi Surface Cleaner - http://www.johnsondiversey.com/wcmt/ProductAttachments/en-US/PIS/Spc534B%20Alpha%20HP.pdf

Goal

School foods as close to the source, organic and unprocessed as possible.

METRIC(S): Dollars spent on natural or organic food
FY 08/09 Produce: $99,000; milk - $0 on organic milk
FY 09/10 Produce: $307,397; milk - $350, 000 (all organic no flavored or colored milk)
FY 10/11 Produce: $335,792; milk $375,000 (all organic no flavored or colored milk)

Locally purchased food
FY 08/09: None (except milk was regional, but not organic)
FY 09/10: Apples, peaches, melons, pears; all milk; bagels and bread
FY 10/11: Added winter squash and tortillas

The goal of "organic" as listed in this flow report is not truly a realistic or applicable selection for school food purchases given the margins that are available in food cost and also in availability. The best case scenario is we choose organic when we can afford to do so but large-scale food procurement at the institutional level is not developed enough to offer the selections needed.

The steps begin with a reduction of processed foods – the impact overall to the industrial food system is large and the potential for improving choices available to institutions can change as schools try to clean up their food supply.

Highlights include:

- BVSD now makes foods from scratch so the reduction of processed food purchase is large. We also use our commodity allocation very differently than prior to 2009-10 because now we focus on the recipe components; for example getting raw beef instead of getting beef made into something; getting chicken diced instead of chicken nuggets – these are huge changes at the institutional level.
- Food Services has eliminated High Fructose and Trans Fats from the menus.
- Regionally produced food is always built into our RFPs – However, Colorado is limited with regard to some produce items, but we now have established regular multi-month availability of apples; other things are purchased in season, like Rocky Ford melons.
- BVSD has expressed preference for other local foods when possible, however this too is something that requires large capacities in order to accomplish. For example; BVSD moved from carton milk to organic bulk milk in 2009-10. Though milk may have formerly been produced in Colorado, it was not organic and it was individually packaged. BVSD wrote its RFP to locate an organic and bulk milk provider and Sinton (now Lala/Borden) and Organic Valley were able to supply BVSD bulk milk site by site which is a requirement in milk delivery to schools. BVSD Food Services has increased its use of other local products and seeks out local companies.
- BVSD has also been working with an organic bread company since 2009-10 with mixed results. The perishable quality of the buns is not a good fit for children's palates, however the sliced bread has been more successful. These kinds of shifts are significant as compared to the bread choices before 2009-10.
- This year BVSD had the opportunity to purchase a bulk purchase of Colorado organic chicken. This required more than two years of preparation by Food Services to be able to receive and cook a raw local quartered chicken to use in the menus. The product is more expensive per portion than the conventional chicken purchased last year but through careful menu selection BVSD is able to integrate this into the menus.
- When possible, and when scientific evidence is not refutable, purchase organic foods and drinks and continuously monitor for the ever changing opportunities.
- Food Services has partnered with the Garden to Table Program and the Growe Foundation to make foods available from school gardens. See **Appendix B** for a list of BVSD schools with gardens.

Moving Forward:

- BVSD Food Services will continue to actively monitor the market for opportunities to increase the amount of locally grown and organic food options, with the primary focus of maintaining healthy meals for BVSD students that are cost effective and enjoyed.

Goal

Zero Waste Practices at 50 percent or more of schools.

METRIC(S): Total Number of Green Star Schools by Year
2004/05 - 4; 2005/06 - 9; 2006/07 - 12; 2007/08 - 15; 2008/09 - 17; 2009/10 - 20; 2010/11 - 24 (43% of schools)

Dollars Spent on Recycling and Trash District Wide

FY	**2009/10**	**2010/11**	**2011/12** (as of 1/25/12)
$ Recycling	64,478.72	65,180.96	38,521.70
$ Trash	151,386.41	136,332.69	57,744.38

Note- We switched trash providers which significantly reduced the costs. Any savings in trash is primarily due to the switch in providers. A better analysis would consider changes in trash collection by weight over time.

	Start Date		
Copy Paper (8.5x11 multi use) 30% Post-Consumer Fiber	2009/10 - 7429 cases	2010/11 - 6705 cases	2011/12 - 6659 cases

District Recycling and Compost
FY 2008/2009
376 Tons Recycling
7 Tons Compost

FY 2009/2010
298 Tons Recycling
61 Tons Compost

FY 2010/2011
238 Tons Recycling
67 Tons Compost

BVSD contracts with Eco-Cycle for waste reduction programming in all of the schools and collection of recyclable and compostable materials. Eco-Cycle also supports the Green Star Program in a growing number of BVSD schools. Green star schools are moving toward zero waste by implementing composting school-wide, increasing recycling efforts, hosting special events around waste reduction and implementing other waste reduction activities in the schools. According to Eco-Cycle, "Green Star Schools are the first in the nation to reduce waste in every aspect of school life. As a result of implementing the program, up to two-thirds of the discards from each of the Green Star Schools is kept out of landfills." (Ibid.) Food Services has also taken great measures to reduce waste. According to Eco-Cycle, participation and enthusiasm for these programs has grown over the past several years. Eco-Cycle believes the amount of recycling collected has decreased because schools are decreasing paper use, and doing a better job of reuse. Composting continues to increase as we add composting programming and collections through the Green Star School program.

Highlights include:

- Ongoing work with Eco-Cycle to increase the number of Green Star Schools and facilities within BVSD. See **Appendix C** for a list of BVSD Green Star Schools.
- Food Services expanded reusables (trays, silverware, plates and cups) to all elementary schools in 2009-10 and finished that implementation in 2010-11. District wide the shift to reusables is 100 percent complete, although some schools provide disposables as a to-go option. Reduction of disposables has decreased exceptionally. See **Appendix D** for more details.
- Food Services has eliminated Styrofoam from the kitchens and the BVSD Warehouse has eliminated Styrofoam cups.
- Eco-Cycle and the City of Boulder have piloted a "Resuables Rule at Our School" program, educating students about the benefits of reusable water bottles. This program also provides funding for infrastructure improvements on water fountains which makes filling water bottles easier.
- Food Services has partnered with the Garden to Table Program and the Growe Foundation to make foods available from school gardens.

Moving Forward:

- Develop and implement a plan for the collection and proper disposal of lamps.
- In Food Services, 100 percent of the schools will have no disposables by the end of the year.
- Expand composting to the three regional kitchens (Casey MS, Louisville MS and Monarch HS) and track waste reductions. Use Casey MS as a pilot, because Casey is a Green Star School and therefore has on-site composting collection in place.
- Establish system for linking waste reduction efforts in Food Services to a reduction in hauling needs.
- Improve coordination with Green Star Schools and BVSD Kitchen Staff.
- Continue to tighten/evaluate the trash and recycling and compost budgets (e.g. as more recycling and compost service is added, trash budgets should be reduced.) Perform ongoing trash and recycling audits. Compare this with paper purchases district wide.
- Expand the Reusables Rule at Our School program.

Goal

The Communications Division will cut paper use in the division by 30 percent within the next year.

As the main branch for communication district wide and to the community, cutting paper use within the Communications Division is significant.

METRIC(S): 2005: 2 cases; 2006: 3 cases; 2007: 3 cases; 2008: 3 cases; 2009: 2 cases; 2010: 3 cases; 2011: 1 case

1 case = 10 reams = 5000 sheets
1 ream = 500 sheets

Highlights include:

- Switching from print to email for most proof reviews, including Board and Cabinet review of the annual report.
- Printing out fewer items in general, including a switch to 100 percent electronic delivery of On the Inside (beginning in August 2010).
- Switched the Student Rights and Responsibilities Handbooks to primarily electronic delivery in August 2011. Before, 30,000 of those were printed every year. This year Communications printed just 5,000 to last us two years (2011-12 and 2012-13 school years).

Moving Forward:

- Communications will continue to identify areas for paper reduction.
- Communications will take advantage of double-sided printing for most, if not all, publications when the Multi-Function Devices become available.

Goal

Increase reuse of products/equipment.

Highlights include:

- Developed and implemented the following practices for discarded furniture in the schools:
  - » Offer to other BVSD schools
  - » Offer to ReSource (local company that sells unwanted items back to the community)
  - » Recycle through Virco, where old furniture parts are made into new furniture
  - » Recycle metal
  - » Discard remaining items

This practice was particularly successful in light of the 2006 Bond, where we estimate we were able to divert 90 percent of furniture waste from entering the landfill.

- Developed a website to showcase available surplus items in the Warehouse.
- Continue to sell/donate discarded books from schools.
- IT began taking back computers and reselling to the public.

Moving Forward:

- Further formalize communication plan for surplus items.
- Formalize plan for e-waste. Continue to evaluate options based on e-steward certification, price and convenience.
- Create a benchmark and tracking process for volume of recycled equipment.

Goal

100 percent of procurement solicitations for goods and services contain sustainability criteria.

In discussions with BVSD's Purchasing Department representatives, it became clear that this goal should be split into two categories: formal (Request for Proposals and Purchase Orders) and informal procurement (purchases on pro-cards and other).

Highlights include:

- Researched sustainability criteria for procurement solicitations.
- Created sustainability criteria for BVSD's formal procurement solicitations.
- Added sustainability criteria to some specific Request for Proposals.

Moving Forward:

- Create a manual and training for pro-card users on green purchasing. Consider adding a question on green procurement in the quiz taken by all pro-card users.
- Adopt sustainability criteria for 100 percent of all formal procurement solicitations.
- Implement Lawson's Strategic Sourcing Module.
- Create tracking mechanism for procurement solicitations.

Transportation

Long-term visions in the area of transportation include having all students busing, walking, biking or carpooling to school and lowering the emissions of BVSD's fleet through the use of hybrid buses and alternative fuels and efficient busing schedules. Below are the specific **five-year goals** in the transportation category.

Goal

Increase school bus ridership by 2 percent.

METRIC(S): Percent of Students Riding District Buses (BVSD Vehicles)

% of students FY 09/10:	**60% (of eligible)**	**8,453 riders**
% of students FY 10/11:	**71% (of eligible)**	**9,157riders**
% of students FY 11/12:	**58% (of eligible)**	**9,474 riders**

Highlights include:

- Percent of eligible bus riders has fluctuated over the past two years, however, the number of riders has increased.

Moving Forward:

- Survey identified schools for concerns and interests of parents and students regarding school bus service. Possible issues of study are reliability and safety of service, on-time performance and safe "climate" for students.
- Create strategies for a campaign to increase ridership in selected school.
- Track annual ridership on a per school basis to identify specific school populations to be addressed

Goal

Increase the percentage of students walking and biking to schools.

METRIC(S): Percentage of Students Walking and Biking To School
% of students FY 10/11: * 32% of students responding to in-class tally in October 2011 walked or biked to school.

** Data to determine rates of walking and biking is limited to students at schools participating in Safe Routes to School programming. These schools can be said to show more interest in walking and biking programs and the number is probably positively skewed.*

METRICS: Number of students and staff registered online for BVSD Bike to School Day online registration:
2009: 2,254; 2010: 1,640; 2011: 1,976 ; 2012: 3,365

Highlights include:

- Increased participation in International Walk to School Day events. School participation was 33 in 2009, 32 in 2010 and 35 in 2011.
- Participation in BVSD Bike to School Day events has increased this year but has fluctuated over time.
- Provided bicycle education to over 1800 BVSD students through our BLAST (which stands for Bicycle Lesson and Safety Training) program since its inception in 2009.
- Awarded a **$50,000** Safe Routes to School Grant to bring BLAST to 21 schools over the next two years.
- Partnered with the city of Boulder on a **$68,000** grant to improve crosswalk safety at 22 BVSD schools over the next two years. Crosswalk safety is a key issue for parents in determining whether or not to let their children walk or bike to school.
- Produced two promotional videos about the WOW Superior program featuring the development of walking school buses and student safety patrol.
- Students and parents of Superior ES and Foothill ES participated in filming of a State of Colorado (CDOT SRTS) crossing guard training video.
- Continued to plan and cooperate with Boulder County and City of Boulder on Safe Routes to School infrastructure improvements. For example, construction of two key crosswalk additions on 75th Street for Heatherwood ES (March 2011), construction complete at Southern Hills MS (Knox Drive April 2010) and Bear Creek ES (Table Mesa/Lehigh April 2011) marked by special promotions.
- Provided crossing guard training at select schools (Foothill ES Spring 2010, Superior ES Fall 2011). BVSD staff and students participated in training video in August 2011.
- Began discussion of conducting a district-wide Travel Survey with Transportation, Planning and Assessment and Sustainability staff. Considering adding questions to Parent Survey or Climate Survey given annually in Feb/April.
- Trip Tracker, our alternative transportation encouragement and reward program, received funding from the City of Boulder's Climate Action Program for 2011-12 to run programs at Centennial MS, Manhattan MS and Horizons K8. Participating families surveyed reported a total reduction of school driving of 117,000 miles for the school year attributed directly to Trip Tracker.
- Funding for 2012-13 Trip Tracker expansion to 8-10 BVSD schools secured from City of Boulder Climate Action Program.

Moving Forward:

- Initiate cooperative project with City of Louisville and US 36 TMO with aim to submit grant application in December 2012. Enter a partnership to manage activities at four schools in Louisville to bolster the livability and transportation elements of the City of Louisville's Neighborhood Program.
- Introduce Four-Mile Creek Path (ongoing public comment and funding delays could hold up progress).
- Develop best possible baseline data for all modes of to-school transportation.
- Create resource materials for school programs using City of Boulder Crossing Crew grant to research and design a guidelines manual as an educational aid for crossing guard trainings.
- Extend the reach of BVSD's Bike to School event through collaboration with staff at municipalities in the BVSD: City of Lafayette, City of Louisville, City/County of Broomfield, Town of Nederland, Town of Superior.
- Continue partnerships with the BVSD School Food Project and Eco-Cycle for "cross-discipline" promotions to reach greater audiences.
- From Fall 2011 through Fall 2013, BVSD will be a partner with the City of Boulder grant project known as Crossing Crew. It calls for the development of volunteer crossing guards at elementary schools in the City of Boulder.
- Expand Trip Tracker program with funding from City of Boulder and BVSD Transportation Department. Identify new business partners to accept Trip Tracker dollars.
- Respond to requests for evaluation of new bike parking and allocation of bicycle racks at schools in need of additional or replacement bike racks.

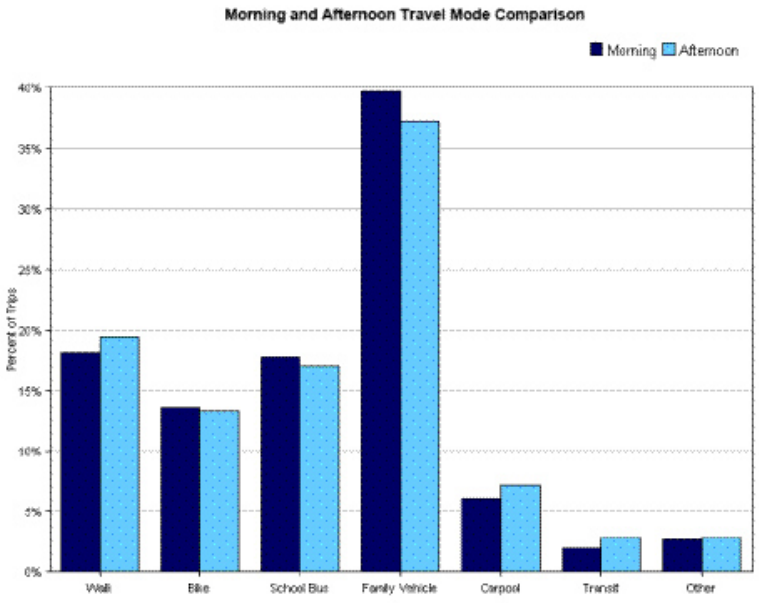
Goal

Increase RTD ridership by 5 percent for those students who do not qualify for District Transportation.

METRIC(S): Percent of students who do not qualify for district transportation (using October CDE headcount data)

FY 09/10: 71%
FY 10/11: 69%
FY 11/12: 68%

Table from Safe Routes National Data Center *(data from October 2011 student tally survey at 20 BVSD schools)*



Morning and Afternoon Travel Mode Comparison

	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Morning	15662	18%	14%	18%	40%	6%	2%	3%
Afternoon	14368	19%	13%	17%	37%	7%	3%	3%

Percentages may not total 100% due to rounding.

Highlights include:

- Implemented GObyBus grant project at Southern Hills and expanded to six Boulder middle schools. (June 2011) A reward and encouragement program known as Trip Tracker grew out of this project.
- Partnered with City of Boulder/GO Boulder to subsidize cost of Student Bus Pass sold at middle and high schools (April/Sept 2010). Discounted student bus passes and 10 Ride Ticketbooks sold at six GObyBus schools during "Sale-a-thon" promotions.
- Partnered with the City of Boulder on a successful Safe Routes to School Infrastructure Grant to install a traffic signal at Manhattan and South Boulder Road. This grant was supported by parents of Manhattan Middle School students and will further RTD ridership from Louisville and Lafayette.

Moving Forward:

- At selected schools, make available for sale the 10 Ride Ticketbook as a low-cost alternative to the student bus pass.
- Maintain open communications with RTD route planning staff in order to meet the needs of BVSD student riders.
- Continue travel mode surveys of students who do not qualify for district transportation.

Goal

Decrease community VMT and emissions by 10 percent over 2 years.

METRIC(S): Percentage Reduction in Parent Vehicle Miles Traveled (Vmt) 2009-10 to 2010-11
Not possible to measure district wide at this time, but GobyBus (CMAQ) Program generated 15 percent VMT reduction from 2009-10 to 2010-11 across six schools*

Highlights include:

- Implemented Schoolpool program as part of GObyBus grant project at six middle schools in spring and fall 2010. Experimented with various alternative transportation methods and reduced VMT by 15%.
- With funding from BVSD, Boulder County, and City of Boulder, conducted an Eco Pass trial at nine schools (Aug 2010 - Dec 2011). Survey of staff shows high value placed on Eco Pass as a possible employee benefit. Trial was renewed for year of 2012 for 504 staff at nine schools.
- Representatives of major partners Boulder County, City of Boulder and CU-Boulder met with BVSD Superintendent and Director of Human Resources to discuss benefits and funding course for an employee Eco-Pass program (Fall 2011).
- Successful implementation of Clean Air at Schools Engines Off (CASEO) program, which is a partnership with the American Lung Association. BVSD has had three schools actively participate in this year-long, volunteer-intensive program, and all three schools were able to show a reduction in emissions associated with vehicle idling during pick up times. Participating schools include Superior Elementary (2009-10), Manhattan MS (2010-11) and Horizons K-8 (2011-12). Ryan Elementary was used as a pilot school in 2008-09.

Moving Forward:

- Continue to explore options for funding a district-wide Eco-Pass program. Build on strategic partnerships with Boulder County and the City of Boulder, convene a group of stakeholders to generate financial plans to fund a program, form alliances with leadership of BVSD professional associations and organize district staff who are Eco Pass advocates.
- Develop more convenient method to generate car pool trips through iCarPool and SchoolPool tools of RideArrangers. Continue to refine an interactive, ride share map with ongoing trial at Horizons K8 and perhaps one more school in 2012.
- Investigate methods to collect and analyze transportation data that could be used to determine satisfactory baseline for VMT. (Estimates can be made for parent VMT using Parent Surveys and Student Tallies collected over several years for SRTS grants).
- Seek grant opportunities to create hybrid-automobile loan system to employees. Explore partnership with staff of Boulder County and eGoCarShare.

Goal

Decrease average age of buses to 7.5 years through a 15-year replacement cycle for overall increased fuel efficiency.

METRIC(S): Fleet Vehicle Miles Per Gallon Note:
Unable to compute average miles per gallon at this time but have fuel cost per mile available

Fleet MPG in FY 09/10: $0.37/mile
Fleet MPG in FY 10/11: $0.31/mile

AVERAGE AGE OF FLEET
Average age in FY 09/10: 11.7
Average age in FY 10/11: 11.9

The primary limiting factor for this goal and the following goal is funding. Purchasing new buses is expensive, and often a cost cut during times of tight budgets. There was some thought that funding for new buses would come from the Mill Levy cap increase, however, ultimately that money did not go toward busing.

Highlights include:

- Researched used bus purchasing (May 2010). However, we were unable to determine how to specify used buses for competitive bidding.

Moving Forward:

- Continue to research funding opportunities for new purchases and review relevant legislation.
- Review and revise bus purchasing policies.

"Trip Tracker gives new motivation and pride to carpooling!"

What BVSD parents are saying about Trip Tracker

Goal

Increase the number of hybrids or alternative fuels vehicles in the support fleet, reducing fleet emissions.

METRIC(S): Percentage of Hybrid and Alternative Fuel Vehicles in Fleet (fleet inventory)

% of hybrid/alternative fuel vehicles FY 09/10: 3%
% of hybrid/alternative fuel vehicles FY 10/11: 3%
% of hybrid/alternative fuel vehicles FY 11/12: 4%

Highlights include:

- Ongoing research for available grants.
- Assisted with Regional Air Quality Control grant applications.
- Increased white fleet hybrid purchases in Security.
- Ongoing research on current electric bus statistics and cost/benefit analysis. Director of Transportation attended a demonstration of electric school buses and has ongoing discussions with surrounding districts.
- Purchased first Hybrid buses in 2011.
- BVSD maintains eight compressed natural gas vehicles (purchased in 2001).
- All BVSD diesel fuel vehicles have been using 5 percent Biodiesel since 2007.

- BVSD has an operating procedure that prohibits buses and Transportation Support Vehicles from idling for more than five minutes within any given one hour period. Buses are not to idle while loading or unloading at schools. Drivers are to take care that exhaust from other buses entering the interior of the bus is minimized by closing doors and windows whenever possible.

Moving Forward:

- Continue to look for opportunities that would support alternative fuel buses and vehicles for BVSD's fleet.
- Continue to participate in the CASEO program with select schools, and consider expanding program district wide with possible County partnership.
- Use Transportation GPS system to track idling of BVSD fleet vehicles.

"Trip Tracker encourages my son to ride the bus and saves me 40 minutes each day, plus gas!"

What BVSD parents are saying about Trip Tracker

Goal

Reduce fleet student VMT by 5 percent by the end of 2011.

METRIC(S): Total Student Vehicle Miles Traveled (Vmt's) on Fleet (BVSD Vehicles)

Total VMT's on fleet FY 09/10:	**2,540,407**
Total VMT's on fleet FY 10/11:	**2,504,959 (less than 1% reduction)**

Highlights include:

- Consolidated bus stops as much as possible within expectations of parents. (Spring 2011)
- Reviewed bell time schedules and made some changes for collaboration time, but bell times are still not efficient as they could be. One obstacle to making changes is site-based management at the schools. (Spring 2011)
- Moving crossing guard programs from Driver Training to the Safe Routes to Schools office to increase collaboration opportunities among alternative transportation programs. (September 2011)
- Select Transportation Staff were trained in crossing guard and bike safety techniques and attended a Colorado Department of Transportation crossing guard workshop. (September 2011)
- Continually analyze, revise and eliminate hazardous routes.
- Reviewed preschool program placement and approval process with an eye toward increasing efficiency of transportation, however classroom availability makes changes problematic and the district is building more preschool classrooms to increase participation and availability. Communication between Transportation and Preschool Departments has improved.

Moving Forward:

- Continue strategies highlighted above.

"Trip Tracker increases independence in my student and walking to school helps them wake up in the morning."

What BVSD parents are saying about Trip Tracker

greenBVSD

Education

BVSD is striving to have all students literate in sustainability upon graduation, and all staff incorporating sustainability into their positions and practices. Below are the **five-year goals** in the Education category, and progress toward those goals.

Goal

Develop sustainability curriculum in five years.

Highlights include:

- In the Spring of 2011, BVSD's Office of Sustainability and Curriculum and Instruction created a Task Force with the purpose of providing recommendations for integrating sustainability into BVSD curriculum. The Sustainability Education Task Force met four times in early 2011 and was comprised of teachers, BVSD staff and local and state environmental education experts. The efforts of this Task Force were designed to coincide with BVSD's alignment of district standards to the new state standards, beginning in the summer of 2011.

The goals of the task force were the following:

  - » Address overarching questions: *What should a BVSD student know about sustainability by the time they graduate? What should this look like on a K-12 continuum?*
  - » Identify opportunities and discuss options for integrating sustainability into the BVSD curriculum.
  - » Provide recommendations for updating BVSD Curriculum Essentials Documents to include concepts of sustainability.
  - » Provide recommendations for more training and resources for staff in concepts of sustainability, while leveraging the expertise of community partners.

The Task Force successfully created the vision for a Sustainably Literate Graduate, thoroughly reviewed the new State Standards for preschool through high school in Science and Social Studies, and made recommendations for enhancing BVSD's standards in order to accomplish meeting the vision of a sustainably literate graduate on a K-12 continuum. The task force also made recommendations for following up with teachers regarding available resources. Go to *www.bvsd.org/green/Documents/Memo_SustainabilityEducationTaskForce%20-FINAL.pdf* to see a memo describing the results of this work in detail.

- Most of the recommendations from the task force were incorporated into BVSD's new Science Standards, and many of the recommendations were incorporated into BVSD's new Social Studies Standards.
- Staff members are involved with and are following state progress to create an Environmental Literacy Plan.
- Some BVSD schools are creating outdoor learning spaces or classrooms; for example, Flatirons ES, Whittier ES, Bear Creek ES, Casey MS, Ryan ES, BSCIS and High Peaks. Funding for these projects has come from grants and the 2006 Bond.

Moving Forward:

- Update the matrix of outside organizations and partners offering environmental education programming in BVSD schools, and expand this resource to include a detailed "map" of which schools and grades are receiving specific programs. This information will be helpful to target schools with opportunity for more environmental education, and to recognize those schools actively participating. Partner with Thorne Nature Experience and other key organizations on this project.
- Establish assessments in order to measure growth in understanding of sustainability concepts.

Goal

50 percent of schools have an active green team in five years.

METRIC(S): Upper level schools with active green teams
09/10 -1
10/11- 7
11/12- 9 (16% of schools)

Highlights include:

- The Sustainability Coordinator partnered closely with New Vista High School to create a sustainability action plan and activities at the school. New Vista was chosen as a pilot to see what one school could accomplish in a year. The results were amazing and the student group "Earth Task Force Super Heroes!" flourished. Highlights of their accomplishments included hosting an "eat local" all-school lunch, organizing educational all-school assemblies in conjunction with the Alliance for Climate Education, creating an alternative transportation month, creating successful energy and water reduction behavior strategies, and raising grants to install solar panels and low flow toilets. (FY 09/10) The group has since grown from a few students to dozens of students. The group is sponsored and supported by the Cottonwood Institute. Most of the students in the Earth Task Force take the CAP Class at New Vista HS and receive credit for the class and for continuing as Earth Task Force Members.
- Sponsored the S.U.P.E.R. Summit (SUPER=Students Understanding Personal Environmental Responsibility). More than 70 students and mentors, representing eight high schools, gathered at Casey Middle School to collaborate, celebrate and plan around sustainability at their schools. Highlights of the event included tours of Casey offered by Casey students and CU students; opening remarks by Commissioner Will Toor, Assistant Superintendent Joe Sleeper, and Earth Task Force Mentor Paige Doughty; a presentation by ACE (Alliance for Climate Education); and an announcement from SAAC about the BOE approval of "green month," a competition to reduce energy among high schools. Students introduced themselves and directed the whole day by coming up with topics they wanted to discuss, meeting and reaching out to students from other schools, and coming up with action plans for sustainability. Thirteen community partners were there to offer resources and support the groups. The plans include merging existing environmental groups, beefing up recycling programs, applying for grants to install solar panels, creating five-year plans for sustainability, and increasing education and awareness around sustainability issues. The S.U.P.E.R. Summit was sponsored by New Vista High School's Earth Task Force, the Alliance for Climate Education, the Cottonwood Institute, and BVSD's Office of Sustainability. (November 2010)
- The Student Accountability Advisory Committee (SAAC) created and implemented "Green Month," a month in which all BVSD high schools were encouraged to compete to reduce energy consumption. The idea of "green month" was inspired by students on SAAC and supported by the Board of Education and the Office of Sustainability. The winner was selected by comparing energy data (electric and gas) for February of 2011 and February of 2010. Data were normalized by square footage and by the number of students at each school. The winner of the first green month challenge was Arapahoe Campus, with a 11.85 percent reduction in energy per square foot during the month of February. Five of the seven participating schools were able to reduce electricity during the month. Arapahoe Campus received the travelling trophy from SAAC and **$2,500** from BVSD's Office of Sustainability toward a resource conservation capital improvement project at the school.

Being part of Earth Task Force (ETF), which is sponsored by the Cottonwood Institute, is an inspiring experience. It's unique and amazing to take part in a club that actually does things about the sustainability issues we face in our community. I joined ETF to make a difference through small decisions that we make everyday. At New Vista High School, I'm proud to be in ETF, which wrote a grant to install electric solar panels that do make a difference every day! Where our energy comes from is a key issue in the future of sustainability. Schools are a great place to start. Most have a flat sun-basking roof and this means limitless possibilities. In other words, the future of solar for our schools is very bright.

Ben Converse - Earth Task Force - Solar

Highlights include (continued):

- Nine BVSD schools participated in the newly restructured Renew Our Schools energy challenge, a competition open to all middle and high schools in BVSD and St. Vrain to reduce energy at school and at home. The competition was a partnership between the Student Accountability Advisory Committee (SAAC), the Center for Resource Conservation (CRC) and the City of Boulder. Summit was the first place overall winner of the competition and reduced in-school energy use by 22 percent during the competition and an estimated 68 percent in homes through the promotion of home energy action checklists (based on CRC's calculations.) Thirteen schools participated in the competition and three BVSD schools received prizes for achieving high benchmarks:
  - » Summit Middle School – First prize winner, received solar panels from the CRC, **$3,000** from the City of Boulder for their efforts in the home energy action category, and the SAAC 2012 travelling trophy for best in-school reduction.
  - » Horizons K-8 – Second prize winner, received solar panels from the CRC and **$3,000** from the City of Boulder for their efforts in the home energy action category.
  - » Fairview High School – Winner of the best effort award, received an egauge monitor from the CRC which measures real time energy use in the school and **$3,000** from the City of Boulder for their efforts in the home energy action category.

Moving Forward:

- Expand energy competition and programming ideas to all BVSD schools. This work should be in conjunction with other sustainability programs at the school (e.g. recycling and alternative transportation programs) and with district heat mitigation efforts.
- Continue to offer opportunities for student green teams, particularly at the high school level, to connect with each other. Consider another S.U.P.E.R. Summit event and small, less formal coffee shop meet ups.
- Continue to partner with organizations supporting energy challenges in the schools.
- Continue to identify key people and groups in the schools to start up, maintain and flourish active green teams.

Goal

Develop formal green jobs training program in five years with community partners.

Highlights include:

- BVSD's Technical Education Center (TEC) has an Agriculture Department that offers a Greenhouse Management course which addresses the issues and ideas of sustainability from both a theoretical and a practical standpoint, including water, carbon and nitrogen cycles and the role they play in the health of soils and the role agriculture plays in the addition of surface water pollutants, including a discussion of integrated pest management and chemical storage. In the second year students learn about energy, plants and fuels, carbon sinks and renewable energy. Student participation has increased in these courses over time.
- BVSD's TEC and Lifelong Learning Program also offer a Water Utility Science Program. The Water Utility Science Program introduces high school students and adults to career opportunities in the water and wastewater industry and provides specialized training courses leading to State of Colorado certifications. After completion of the Water Foundations course, students who are interested in pursuing a career in the water industry will have the option to select from one of four programs of study including Water Treatment Operations, Wastewater Treatment Operations, Water Distribution Operations and Wastewater Collections Operations. (High school program launched Fall 2010, adults courses launched in 2011)

Highlights include (continued):

- BVSD's TEC and Arapahoe campus are working to green their operations. *Below are some examples:*
  - Participated in ReNew Our Schools contests 2010-11 and 2011-12, winner of a solar array in 2010-11 due to school's commitment to incorporate lessons regarding energy efficiency and solar energy.
  - "Do One Thing"/ ACE campaign 2010-11
  - Developed a Green Team Committee 2011-12
  - Created a Solar Team 2010-11
  - 2011 Green Month Challenge Winner
  - Energy Audit performed by student leadership classes, identifying major energy offenders within school setting.
  - Continue to identify and implement green operations practices/opportunities including green cleaning supplies, increasing recycling program, using products with recycled content, and increasing energy awareness for each TEC program (e.g. water usage/waste in Greenhouse, Auto/Collision and Cosmo, blow-dryers in Cosmo, computer monitors off each evening in Computer APPS and Graphics, unnecessary lighting in Cosmo and Auto/Collision increase recycled material use in Graphics and use of environmentally friendly materials in all programs).
- Lifelong Learning offered the following courses relating to sustainability:
  Water Foundations: Winter 2011 = 14 students; April 2011 = 4 students; Fall 2011 = 7 students; Winter 2012 = 8 students
  Water Distribution: April 2011 = 10 students; Winter 2012 = 8 students
  Wastewater: Fall 2011 = 6 students
  Preparing For LEEDS: Summer 2012 = 1 student
  An Introduction to Green Jobs (Careers in Water and Energy): Fall 2011 = 24 students; Winter 2012 = 16 students

Moving Forward:

- TEC is considering the following proposed programs:
  - ***Urban Agriculture, 2012-13*** Course Overview: This course will introduce concepts of food production in an urban environment, including vegetable gardening, composting, beekeeping, and chicken raising.
  - ***Biodiversity Conservation and Management (2012)*** Course Description: A year-long interdisciplinary, inquiry-oriented introduction to the field of Natural Resources Management. Focuses of the course will include the study of ecology, forestry, fire science, wildlife management, land use and management, soil, water, and career opportunities. Safety procedures, proper tool techniques, laboratory exercises, field experience, guest speakers, classroom-based scientific inquiry projects, Skills USA, additional leadership tasks, and other assignments will be included. Also, students will receive either five embedded Science or Language Arts credits during this course and CCCS (Colorado Community College System) credits at affiliated colleges.
  - ***Environmental Sustainability*** (Course Name/Description still under review)
- Lifelong Learning will continue to identify and offer courses supporting sustainability.
- Lifelong Learning, TEC and the Office of Sustainability will continue to develop a list of courses, concepts and opportunities to help support a green jobs training program.

Environmental Education in Our Schools

BVSD is incredibly fortunate to have partners who offer environmental education in our schools. These programs reach thousands of our students each year through in-school and out-of-school offerings and continue to develop creative, new and exciting programs that help us reach our goal of creating environmentally literate students. These organizations prepare detailed annual reports on the number of students, schools, types of programs and funding offered to BVSD schools. Contact the Office of Sustainability if you are interested in seeing these reports.

Goal

Effective staff training will support several of the district's goals related to sustainability, from building operation to material flows and transportation.

METRIC(S): Percent of district employees educated about sustainability through new employee orientation.
Percent of employees in FY 09/10: .074% *(21 out of 282 classified new hires - implemented in May 2010 at end of orientation season)*

% of employees in FY 10/11: 91% *(240 out of 264 classified new hires)*

Highlights include:

- Human Resources and the Office of Sustainability created education materials to include in new employee orientation and the "Getting to Know Us" presentation. (May 2010)
- Sustainability information has been included in 100 percent of new employee orientations (beginning May 2010).
- The Office of Sustainability has developed a green office training and given presentations upon request and delivers sustainability tips via the greenBVSD newsletter, On the Inside and the greenBVSD website.

Moving Forward:

- Create criteria for a green office certificate program and begin roll out to schools. This should be in conjunction with work around energy and heat mitigation.
- Continue to include sustainability slides in new employee orientation.
- Review of sustainability commitment at the beginning of each year.
- Consider adding sustainability into relevant job descriptions.

Goal

Successful communications will support all of BVSD's sustainability goals both long and short term and increase overall visibility of greenBVSD events and sustainability initiatives.

Another component of sustainability and education is communicating our efforts to the BVSD community and beyond.

METRIC(S):

# of media clippings FY 09/10:	**18**
# of media clippings FY 10/11:	**27**
# of news releases sent out FY 09/10:	**11**
# of news releases sent out FY 10/11:	**8**

Highlights include:

- The Communications Division and the Office of Sustainability created the bvsd.org/green website, which is a comprehensive website tracking new sustainability programs, related news clips, recommendations and tips for greening our schools, resources and program specific information relating to education, buildings, waste, transportation and related policy. Staff members have continued to add and update the new multi-page green BVSD website devoted to sustainability initiatives in BVSD.
- Created the Green Projects greenBVSD newsletter (Fall 2010) Began with an all staff distribution, and increased distribution to include staff and parents (Fall 2011) Completed three editions. Newsletter is created and distributed two times a year and includes highlights from sustainability projects district wide. Visit *www.bvsd.org/green/Pages/Newsletter.aspx* to view newsletter editions.
- Continued the greenBVSD column in On the Inside, distributed to all staff roughly twice a month during the school year. The greenBVSD portion includes highlights of sustainability projects in a "did you know?" format, tips on greening schools and offices, and a "kudos!" section, which covers awards and other sustainability accomplishments by staff, students, teachers and community members supporting the schools.

Highlights include (continued):

- Identify all green news or press releases on an ongoing basis in order to update the news section of the BVSD green website. There have been more than 75 related news clips in the past two and half years.
- The Sustainability Coordinator has given many presentations about the work BVSD is doing to incorporate sustainability into operations and education on a local, state and national level. Examples include presentations at the first and second National Green Schools Conferences (2010 and 2012), presentations at the USGBC Colorado Chapter Green School Summit (2010, 2011) the Colorado Association for Environmental Education annual "Thinking Outside the Box" conference (2011), Advanced Facility Management & Engineering Conference (2012) and USGBC's Rocky Mountain Green Conference (2012). The Sustainability Coordinator has also written for the online edition of Growing Greener Schools Magazine and the Alliance for Sustainable Colorado blog about efforts to greenBVSD. In conjunction with the 2012 National Green Schools Conference, BVSD hosted a preconference workshop/tour to an international audience highlighting sustainability in our district at all levels, and important partners such as Eco-Cycle and Thorne Nature Experience.
- The Superintendent has designated the Honor Roll near Earth Day (April 22) for individuals and groups making outstanding efforts to greenBVSD. (Began in 2010). This has proven to be an excellent way to honor and highlight specific efforts to the Board of Education and larger community.
- The Sustainability Coordinator provides updates to the Board of Education on an as needed and project-related basis.
- Added green BVSD logo/link to greenBVSD website to each of the BVSD site's four audience welcome pages: parents, students, community and employees (complete as of July 2011).
- Continued to rally media coverage of sustainability efforts such as the summer 2009 "Chair Mountain" which got high TV visibility.
- See number of news releases and media clippings relating to sustainability above.

Moving Forward:

- We will continue the efforts described above, and look for new opportunities to communicate about our efforts, one example may be "toilet tips" for bathroom reading in stalls.
- We will also design and implement new incentive and reward programs, such as the Green Office Certificate.
- The Office of Sustainability, Transportation staff and Planning and Assessment staff will create a mechanism for measuring the level of community knowledge of BVSD sustainability programs. This could include a question in the annual snapshot survey, working with Omni, or polling the community using School Messenger.


Manhattan Middle School solar panel

Climate

BVSD's long-term goal concerning climate is to have an 80 percent reduction, or be climate neutral by 2050. Many of the goals and strategies outlined in previous sections affect BVSD's greenhouse gas emissions, which is why climate is an overarching theme, rather than a stand alone. The following are two goals specific to climate and greenhouse gasses.

Goal

10 percent below GHG baseline.

BVSD has not conducted another GHG inventory as thorough as the inventory completed with the initial SMS. We plan to do so for the five-year review.

Goal

Minimum or 100 kW increase in renewable (consider third party financing for larger projects).

METRIC(S): Capacity added annually from renewable technologies (wind and solar)

Prior to 2008: 22 kW
2008: 10.7 kW
2009: 21.4 kW
2010: 71.75 kW
2011: 2.4 kW
Total: 128.25 kW

Highlights include:

- At the end of 2011, BVSD had 123.4 KW of installed solar photovaltaic systems on 14 schools. BVSD owns these systems, which have been funded through the Renew Our Schools Program, grants and the 2006 Bond. This was a 460 percent increase in solar electricity generated by the district, compared to 2008.
- In 2011-12, BVSD installed a wind turbine at Nederland Middle/Senior. This project was grant funded.
- BVSD has two schools with geothermal: Summit MS has roughly 30 percent of heating and cooling through geothermal and Casey MS has 90 percent of heating and cooling met from geothermal. These projects were funded by the 2006 Bond.
- BVSD has installed tubular solar in many schools, bringing in natural light to interior spaces.
- We are piloting a Sundolier™ active daylighting system at a Southern Hills Middle School, which was donated to BVSD.
- In June 2011, BVSD entered into a Power Purchase Agreement with Solar City to install large scale systems (roughly 100kW) on 14 additional schools.

Moving Forward:

- Complete two more solar installations in conjunction with the 2011-12 Renew Our Schools challenge (winners were Summit Middle School and Horizons K-8).
- Complete installation of solar panels through the Power Purchase Agreement.
- Follow up with learning opportunities with the solar monitoring and live data available through all renewable systems, including partnerships with Solar City, egauge and the Wind for Schools Program.
- Continue to partner with organizations to identify and implement further opportunities to support renewable technologies within the district.

See **APPENDIX - E** for a list of schools with renewable energy technologies.

Funding, Partners and Awards

GreenBVSD programs are heavily supported by grant funding and community partners. Without both of these, much of our work would not be possible. Below are some of the grants we have received and a list of invaluable partners. We are also honored that many of our programs and schools have received sustainability awards. We have listed some of these awards in this section as well. Please note! These lists are not all-inclusive. Rather, they are an example of what has been achieved.

Grant Funding

Directly to BVSD Schools

- The Center for Resource Conservation Renew Our School's Program has awarded solar panel and monitoring systems to five BVSD schools. Value of the 2009 donation was **$120,652.24** ($51,352.24 from CRC plus Xcel rebates). Value of the 2010 donation was **$151,883** ($78,739 from CRC plus Xcel rebates).
- The Governor's Energy Office granted BVSD **$4,950** to purchase Utility Manager Software.
- The Earth Day Network granted New Vista High School **$15,000** to install a solar panel system for Earth Day 2010.
- The Alliance for Climate Education (ACE) granted New Vista High School **$2,500** in 2010 for the Earth Task Force. This money was used to install low flow toilets and vending machine misers and to support the S.U.P.E.R. Summit and the 2nd Local Lunch in 2010-11.
- The City of Lafayette granted Pioneer Elementary School **$500** for the school's green team in 2010-11.
- Great Outdoors Colorado (GOCO) granted the City of Boulder and BVSD **$83,900** to install an outdoor classroom at BCSIS/High Peaks Elementary Schools Building in 2010-11.
- Xcel Energy's Renewable Energy Trust Fund and the Governor's Energy Office Wind for Schools Program each granted BVSD $10,000, for a total of **$20,000** to install a wind turbine at Nederland Middle/Senior.
- Eco-Cycle granted Douglass Elementary, Eisenhower Elementary, Ryan Elementary and Summit Middle School the Zero Waste-Green Star Schools Grant for the 2011-12 school year to purchase zero waste materials for events.

Grants to Organizations Supporting BVSD Schools

- The City of Boulder's Climate Smart Program and Simple Solar awarded Thorne Nature Experience a total of **$36,788** to install solar panels at Sombrero Marsh.
- Governor's Energy Office (GEO) granted the Center for Resource Conservation the Recharge Colorado Innovation Grant in the amount of **$75,266.00.**
- Governor's Energy Office (GEO) granted Boulder County funds from the Innovation Funding for Energy Efficiency (IFEE) Grant program in the amount of **$13,275.00.**

Partners

BVSD is extraordinarily fortunate to have many community partners supporting programs in our schools. The following list is not all-inclusive, but lists some of the partners who make our work to greenBVSD possible.

- Alliance for Climate Education (ACE)
- American Lung Association (CASEO)
- Boulder County
- Cal-Wood Education Center
- Center for Resource Conservation
- Cities of Boulder, Lafayette, Louisville, Broomfield and Nederland
- Colorado Association of School District Energy Managers
- CottonWood Institute
- Eco-Cycle
- Governor's Energy Office
- Growe Foundation
- Impact on Education
- Safe Routes to School
- Thorne Nature Experience
- University of Colorado, Boulder
- United States Green Building Council, Colorado Chapter
- Virco
- Xcel Energy
- Community members and parents

Awards

- BVSD was awarded **Xcel Energy's Efficiency Partner** Recognition in 2010.
- New Vista High School was awarded the **Green Prize in Public Education** from the **National Environmental Education Foundation** in February 2011. This award included **$10,000** for the school's sustainability efforts.
- New Vista High School was awarded the **Youth Conservation Award** from the **Center for Resource Conservation** in November 2011.
- New Vista High School received the **Award for Secondary Education** from the **Colorado Alliance for Environmental Education** in 2012.
- BVSD's IT Department received **InfoWorld's Green 15 Award** in 2011.
- Fairview High School received the **President's Environmental Youth Award** from the **Environmental Protection Agency** in 2011.
- Boulder Community School of Integrated Studies, Douglass Elementary, Horizons K-8 and High Peaks Elementary received **Boulderganic's Sustainability Award** in 2011 for their participation in the Green Star Schools Program.
- Century Link awarded BVSD **$4,193** through the **Go Green for Schools** cell phone recycling program in 2011.


Crestview student artwork

greenBVSD

Looking to the Future

BVSD has made great strides in the past few years to incorporate sustainability into operations and education and many more opportunities exist. We are proud of and excited about how district staff and students have embraced sustainability as an organizational value. This report illustrates the district's progress at the halfway point toward the five-year goals defined in the SMS. We will continue to work toward meeting (and hopefully exceeding) these goals. The achievements and lessons learned will inform our path moving forward and the development of new goals as we progress toward our long-term sustainability mission.

Acknowledgements

The district's progress towards sustainability has truly been a team effort, with the help and support from staff, teachers, and students. The district would like to thank the following departments for providing their valuable time and ideas in preparing this report.

Arapahoe Campus
Benefits
Bond
Business Services
Communications
Community Schools
Curriculum and Assessment
Custodial Services
Food Services
Human Resources
Information Technology
Maintenance
Operational Services
Purchasing
Security
Sustainability
Transportation
Warehouse

Report Layout and Design by Allison Maurer

Columbine Elementary's new entrance

greenBVSD

Appendices

- A -Mice Infestation IPM Protocol (Example of IPM)
- B- List of BVSD Schools with Gardens
- C- List of Green Star Schools
- D- Food Services - Comparison of NCP purchases
- E- List of Schools with Renewable Technologies

Integrated Pest Management - Mice Infestation Protocol (2010)

From: Director of Operations Steve Hoban
To: BVSD District Leadership and Custodians

Mice come into buildings because it is a safe, comfortable and affluent environment – plenty of warmth and available food, and relatively free of predators. The Boulder Valley School District follows an Integrated Pest Management approach to these problems. What that means is we start with a strategy that has the least impact on the environment. The effort to get the problem under control will require a school wide effort; all staff must be on board for this to work. Trapping is included as a starting point; trapping can be very effective in reducing the population to the point of elimination, but other steps must also be taken:

Mice can get into the building through very small openings, so it is important that the custodian(s) identify any openings and submit a work order to have those access points sealed. I cc'd the Maintenance Department Zone Supervisor so he will know this is an important issue and to look for those work orders as you submit them. While this effort won't solve the current infestation, it will help keep the problem under control in the future.

All easy food sources need to be eliminated. All food that is kept in the building must be in a sealed container similar to Tupperware—closed boxes of crackers or plastic baggies just won't do. Anything mice might like to eat must be stored in these sealed containers, including candy, bird seed, etc. Food spills, crumbs, etc. must be cleaned up and removed from the building daily.

Traps should be set everywhere mice have been seen or where there is evidence they have been (mouse scat). Timely communication with the custodians about where mice signs have been seen is one of the keys to success. Traps should be set in the evening and checked in the morning to protect the human occupants of the building from an accidental snapping of the traps. If a mouse is caught one night, two traps should be set in that same area the next night. The goal the first week is to catch all the active adults. The following week will catch the current adolescents as they grow big and hungry enough to go out looking for food. The following several weeks will catch any stragglers and their offspring. The trapping program needs to be systematic, building-wide, and consistent for about two months. Teamwork and communication between teachers, the night custodian and day custodian is critical to the effectiveness of trapping and to the safety of students and staff.

If this all fails, an exterminator can be called. They will monitor the trapping program and may recommend adding poison bait stations to the program. It is very expensive, often several hundred dollars a month. When BVSD schools have done this in the past, we often get concerned calls from parents, usually expressing general concern about poison in a building with their child. Truthfully, the concern is valid; while the bait stations are set in areas not accessible to kids, the mice may move the poison bait, hoarding it for later in an area frequented by students, and die before using the stashed "food." Because of the risk, the cost and the potential community upset due to the use of poisons, the decision to go to an outside exterminator must be made only when all other actions have been implemented and failed, and is then the Principal's decision. Extermination costs must be borne by the school.

Regardless of the methods used, it is not a problem that can be solved overnight. Aggressive trapping tonight, tomorrow night and even this weekend can significantly reduce the population, but is unlikely to totally eliminate all mice. The bait traps are also unlikely to completely eliminate the population immediately. My recommendation is to do the things described above to make the environment less attractive to the mice, and to aggressively trap for the next month or so.

Once the infestation is under control, diligence is required by teachers and custodians to prevent a repeat. Food must always be stored in hard containers. Food spills must be cleaned up quickly, and never left overnight. Any sign of mice should be communicated to the custodians quickly, and must generate a trap that night in that area. As the weather turns colder, our buildings will become even more attractive to the creatures that can get in. Keeping the outside accesses plugged and either eliminating food in classrooms, or at least keeping it sealed in hard containers, will help prevent a re-infestation.

Schools with Gardens and participating in the Growe Program (unless noted)

Arapahoe Campus High School(Garden, not in Growe)

Bear Creek Elementary

BCSIS Elementary

Casey Middle (Garden, not in Growe)

Coal Creek Elementary

Columbine Elementary

Community Montessori Elementary

Creekside Elementary

Crest View Elementary

Fireside Elementary

Flatirons Elementary

Foothill Elementary

High Peaks Elementary

Lafayette Elementary

Louisville Elementary

Mesa Elementary

Pioneer Bilingual (Garden, not in Growe)

Ryan Elementary

Superior Elementary

University Hill Elementary

Whittier International

Green Star Schools added each year

2004-2005
BCSIS
Douglass Elementary
High Peaks Elementary
Horizons K-8

2005-2006
Bear Creek Elementary
Creekside Elementary
Foothill Elementary
Mesa Elementary
Nederland Elementary

2006-2007
Columbine Elementary
Eisenhower Elementary
Heatherwood Elementary

2007-2008
Community Montessori
Summit Middle School
Louisville Elementary

2008-2009
University Hill Elementary
Ryan Elementary

2009-2010
Southern Hills Middle School
Lafayette Elementary
Education Center

2010-2011
Fireside Elementary
Crest View Elementary
Manhattan Middle School
Casey Middle School

Comparison of Northern Colorado Paper (NCP) purchases by Food Services

Comparisons	2007-08 Cases	07-08	2010-11 Cases	10-11	% Reduction in Quantity
Styrofoam (All types)	5,165.00	$46,713.00	0.00	$-	1.00%
Foil Rolls	240.00	$11,144.29	114.00	$3,795.00	0.53%
Plastic Eating Utensils (All types)	6,534.00	$18,936.00	772.00	$4,747.00	0.88%
Paper Food Trays (boats) (All types)	4,459.00	$36,301.00	957.00	$15,791.00	0.79%
Cups* (All types)	37.00	$2,071.00	118.00	$7,139.00	-2.19%
Pan Liners - Paper	470.00	$10,272.00	152.00	$4,248.00	0.68%

**Cups increased because of a switch to bulk milk and an elimination of milk cartons.*

BVSD Schools/Facilities with Renewable Energy Systems (As of December 2011)

School	System Type	Capacity (kW)
Prior		
Crest View ES	PV	1.2
Jamestown ES	PV	2.0
Mesa ES	PV	10.0
Sanchez ES	PV	7.0
Sombrero Marsh	Wind	1.8
2008/2009		
Manhattan MS	PV	10.0
Manhattan MS	PV and Wind	0.7
Summit MS	Geothermal	30% Heating and Cooling needs of school
2009		
BCSIS/High Peaks	PV	10.0
BVCTEC HS	PV	9.8
Nederland ES	PV	1.6
2010		
Sombrero	PV	10
Casey MS	PV	26.8
Casey MS	Geothermal	90% Heating and Cooling needs of school
New Vista HS	PV	4.95
Fireside ES	PV	10
Flatirons ES	PV	10
Monarch K8	PV	10
2011		
Nederland Middle/High	Wind	2.4 kW

2012

Installing 100 kW systems on 14 BVSD schools through a Power Purchase Agreement and three smaller systems.

BVSD Schools/Facilities with Solatubes

Boulder Community School of Integrated Studies (BCSIS)/High Peaks Elementary

Summit Middle

Fairview High

Louisville Middle

Casey Middle

Southern Hills Middle (Sundolier™ active daylighting system and solatubes)

Pioneer Elementary