2006 EDITION

Sustainability Management System

POUDRE SCHOOL DISTRICT

THE BRENDLE GROUP, INC.
ENGINEERING CONSULTING

Acknowledgments

This report describes the sustainability management system developed by the Poudre School District and The Brendle Group, Inc. to expand the District's sustainable practices into all aspects of operations and academics as the District continues to lead the way in sustainability.

We would like to acknowledge the efforts of those who participated in developing this system and contributed to the vision it presents.

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Jerry Garretson – Resource Manager
Pete Hall – Director of Facilities
John Holcombe – Safety/Environmental Coordinator
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Jim Knauer – Building Maintenance Supervisor
Frank Rayder – Outdoor Services Supervisor
Stu Reeve – Energy Manager
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Sustainability Management System Team - External Partners
Kathy Collier - Climate Wise, City of Fort Collins
Jill Cooper - Sustainability Program and Environmental Leadership Program, Colorado Department of Public Health & Environment
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Sustainability Management System Interviewees/Goal Setters
Building Maintenance
Channel 10
Communications
Curriculum
Custodial
Customer Support
Finance
Food Services
Human Resources
Information Technology
Outdoor Services
Purchasing and Materials Management
Records
Risk Management
Security
Staff Development
Transportation

Executive Summary

Sustainability involves meeting the needs of the present without jeopardizing the ability of future generations to do the same…

In other words, living off the interest of the earth, not the capital itself.

Sustainability is the future and Poudre School District (PSD) recognizes the importance of incorporating the principals of sustainability into all of its operations by developing this Sustainability Management System (SMS). Built from the Demming quality model 'plan-do-check-act', PSD's SMS is an ongoing cyclical process *(Chapter 1)* aimed at both continuous improvement and long-term thinking surrounding sustainability goals. Specifically, the SMS is the logical next step for an organization that is serious about tangible and measurable long-term sustainability.

The first step in developing this SMS was to craft a sustainability policy *(Chapter 2)* that would guide and inform the rest of the process. PSD's policy, in brief, is as follows:

- Support its educational mission by providing physical spaces that promote the health, productivity, and safety of students and staff.
- Reduce life-cycle costs by conserving energy and natural resources, further supporting educational mission through fiscal responsibility.
- Balance educational, financial, and environmental issues in daily decision-making.
- Consider and incorporate relevant aspects of sustainability into all future policies.
- Inspire commitment to this policy among employees.
- Serve as a community leader in sustainability and partner with other organizations to further common goals.

The next steps of the process involved identifying existing sustainability practices across 18 departments *(Chapter 4)* , crafting a vision to guide future actions, and setting both short- and long-term goals for improvements over time *(Chapter 3)*. These goals are organized into four main vision areas:

- Inspire commitment to this policy among employees.
- Serve as a community leader in sustainability and partner with other organizations to further common goals.
- Sustainable education

- Resource conservation
- Greenhouse gas emissions reduction
- Transportation

Finally, the SMS addresses not only what PSD will be doing to advance sustainability district-wide (policy, goals, etc), but how it will get there *(Chapter 5)*. Specifically, how to institutionalize sustainability so that it is practiced long after the pioneers that captured the District's early wins are retired – in essence, how to sustain the sustainability.

In particular, PSD has committed to the following implementation steps:

- Empower the participants of this SMS process to oversee implementation of the SMS goals and include additional team members with expertise in curriculum issues.
- Develop sustainability indicators to track progress to the four vision statements.
- Publish an annual sustainability report that documents qualitative and quantitative progress toward the indicators.
- Commit to a program of ongoing awareness and training to increase knowledge and competence of staff and students at all levels.

In combination, the policy, vision areas, long-term goals, short-term goals, and commitment to the above list of implementation steps provide a clear path for PSD to extend sustainability broader and deeper into its education and operations at a significant and systematic level. With this SMS, PSD continues to lead the way for school districts nation-wide, while supporting its own mission and focus on student achievement.

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1.0 Background

Poudre School District (PSD) is as an award-winning, nationally recognized leader in energy conservation and green building programs for new construction. With this Sustainability Management System (SMS), PSD seeks to build off the success of its Sustainable Design Guidelines and expand its sustainable efforts into all operational practices. While PSD already is practicing sustainability in many operational areas, an SMS will accelerate PSD's progress in a more coordinated manner with greater outcomes.

For context, note that PSD is the ninth largest school district in the state of Colorado (out of 178). At the time of this publication, PSD serves approximately 24,000 students, encompasses 1,800 square miles, operates 180 buses and 154 fleet vehicles, has 900 total site acres, and contains more than 3.7 million square feet of building space, excluding future building sites. The buildings include the following:

- 30 elementary schools
- 10 junior high schools
- 5 senior high schools
- 3 charter schools
- 2 early childhood centers
- 21 other administrative and maintenance facilities

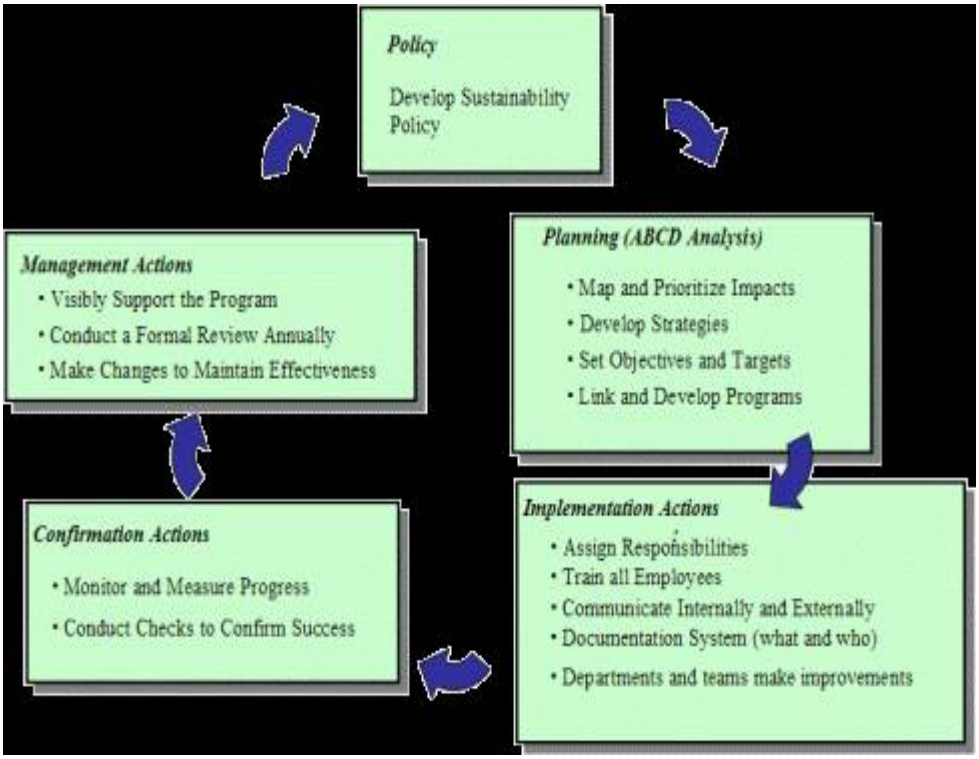
The remainder of this SMS document describes the methodology and expected benefits for developing an SMS, a policy statement illustrating PSD's commitment to sustainability, recommended goals and measurable targets, baseline information, and guidelines for implementing the management system to ensure continued sustainability.

1.1 What is an SMS?

Broadly speaking, an SMS is a vehicle that moves an organization systematically toward *sustainability*, which is *meeting the needs of the present without jeopardizing the ability of future generations to do the same*. An SMS serves to focus attention at all levels on critical environmental, economic, and social issues. An SMS creates efficiencies and consistencies among programs and provides a shared business and problem-solving framework for all employees. Specifically, an SMS is the logical next step for an organization that is serious about tangible and measurable long-term sustainability.

Figure 1 diagrams and describes the overarching tenants of an SMS, including policy, planning, actions of implementation, confirmation, and management. Built from the Demming quality model 'plan-do-check-act', the SMS is an ongoing cyclical process aimed at both continuous improvement and long-term thinking surrounding sustainability goals.

Figure 1. SMS Process Diagram



Motivation for and Benefits of an SMS

An SMS provides an opportunity for a comprehensive and coordinated approach to sustainability that is integrated with standard metrics of performance. The motivation for this SMS is to elevate PSD's sustainability performance using a strategic and systematic path that is designed on the basis of specific District needs and overall vision. As the first known school district in the nation to establish an SMS, PSD seeks to extend its demonstrated leadership in the green building and energy conservation arenas to leadership in the operational sustainability arena.

SMS Benefits

The benefits of this SMS are many and varied. In addition to providing focus and serving as the catalyst for guided action, the SMS accomplishes the following:

- Highlights successes of existing internal sustainability efforts
- Allows PSD to follow through with sustainability ideas
- Enables PSD to use resources strategically
- Positions PSD to take advantage of emerging opportunities
- Enables PSD to adapt to changes as they arise
- Creates efficiencies, synergies, and consistencies among programs leading to cost savings
- Shifts thinking from incremental to breakthrough
- Provides an example for the community and other school districts nation-wide

Project Vision

PSD's vision for its SMS is practical and built upon staff experience and groundwork. It is coordinated with ongoing District activities that have proven to be successful. In addition, the District seeks innovations that reflect best practices nationally, and relies on a broad experience base to generate new and creative ideas that support and enhance sustainability.

PSD's SMS involves all operations, departments, and academic programs to achieve a cohesive focus on environmental, economic, and social sustainability. This means moving beyond basic compliance with standards and regulations into areas such as green building construction, calculated and measurable resource conservation, emissions reduction, transportation efficiencies, and curriculum development that supports sustainability. PSD's goal is to ensure positive impacts for students and staff members, as well as the environment, while reaping the economic benefits of conservation and efficiency.

1.2 PSD's SMS Process

The project boundaries established for the process were to develop an SMS that focused on PSD internal operations. Policies and programs that affect stakeholders external to the District as an educator and employer were not within the project boundary.

The project used a team approach with Operations staff members. The staff members involved in developing the SMS are listed below:

Alan Boatright – Custodial Services Supervisor
Bill Franzen – Executive Director of Operations

Jerry Garretson – Resource Manager
Pete Hall – Director of Facilities
John Holcombe – Safety/Environmental Coordinator
Ed Holder – Construction Manager
Jim Knauer – Building Maintenance Supervisor
Frank Rayder – Outdoor Services Supervisor
Stu Reeve – Energy Manager
Mike Spearnak – Director of Planning, Design & Construction
Tom Weatherly – HVAC Department Head
Nikki Williams – Customer Support Center Specialist

External participants that contributed to the project are included here:

Kathy Collier - Climate Wise, City of Fort Collins
Jill Cooper - Sustainability Program and Environmental Leadership Program, Colorado Department of Public Health & Environment
Brian Dunbar – Institute for the Built Environment, Colorado State University
Hillary Mizia - New Belgium Brewing

In addition, The Brendle Group, Inc. facilitated the team process, providing technical and other support in developing the SMS.

The team met four times between January and June 2006. Two subgroups were created to focus on specific SMS issues of policy and greenhouse gas (GHG) baseline development. The team completed 12 SMS interviews to document existing sustainability practices, identify additional opportunities, and collect information that ultimately served as the basis of the goals established for this effort.

The team developed a website located at www.psdsms.brendlegroup.com . The website's purpose is to provide transparency for the development of PSD's SMS and to facilitate the awareness and involvement of a larger group in the process. The website includes the project objective, a description of an SMS and the associated framework, the benefits of an SMS, project documents, a listing of the external partners involved, useful resources, and contact information for the project. The website also includes meeting minutes from all meetings and other miscellaneous meeting information.

2.0 Sustainability Policy

Policy becomes the driving force for a program, providing both top management support and a unifying theme for staff members. The team reviewed the District's Strategic Plan for 2004-2009, which outlines strategic priority areas and their respective goals (see Figure 2). These strategic priority areas are not distinct from sustainability; rather, sustainability is integral to achieving the goals for overall success.

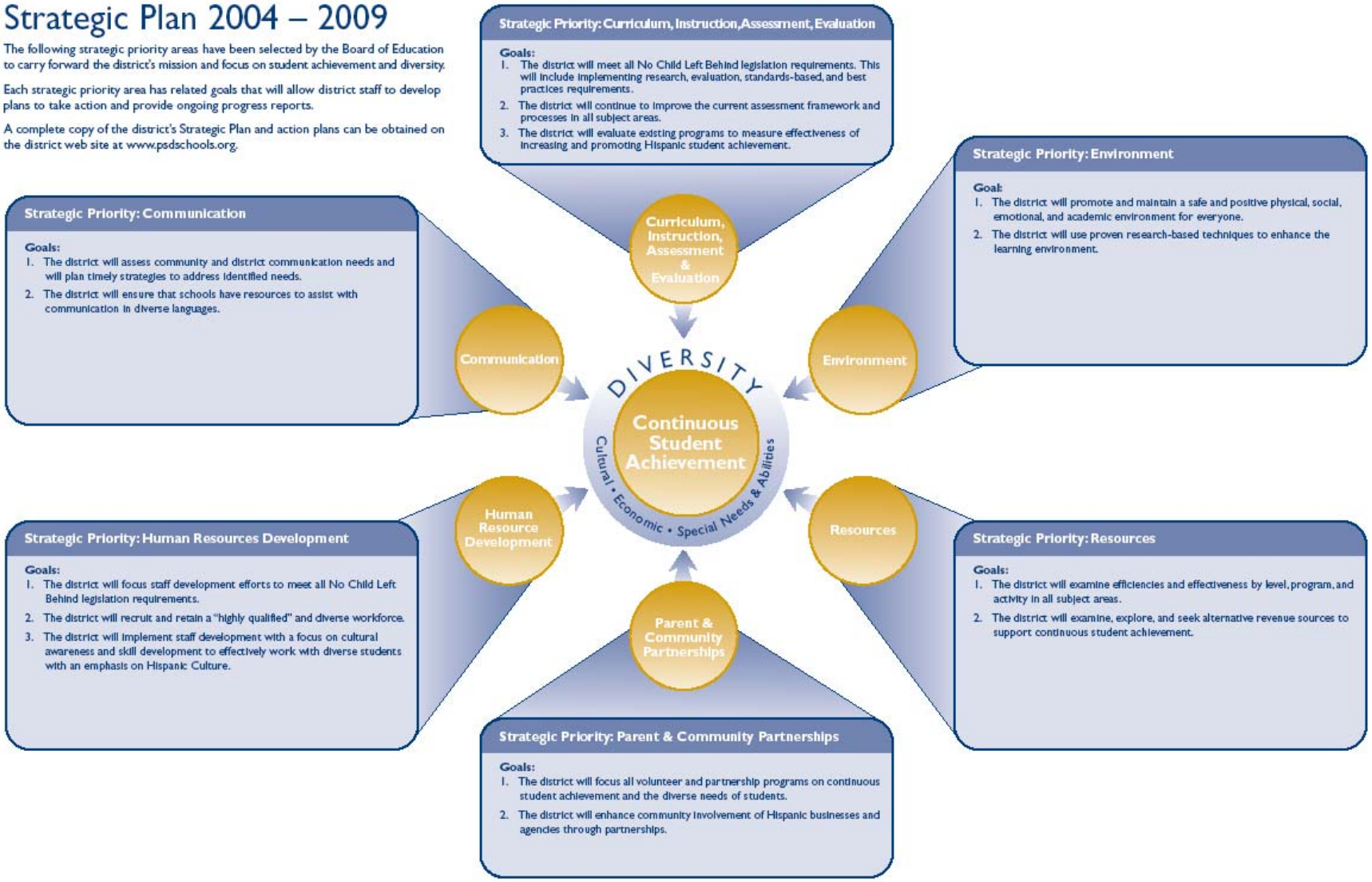
Sustainability as a unifying theme supports the District's mission and focus on student achievement and diversity. For example, while responsible stewardship of the *environment* is important, sustainable design also provides a better physical *environment* for students and staff at lower life-cycle costs for the District. In other words, design decisions determine how a building will perform throughout its operational life from a *resource* consumption and waste generation standpoint, substantially affecting annual operating costs. Savings in operating costs can be redirected into the core business of *educating* students.

Furthermore, over a 30-year period for a commercial building, it is estimated that only 2 percent of life-cycle costs are spent on construction and 8 percent on building energy and maintenance. Ninety-two percent is spent on salaries.[1] Therefore, one of the biggest cost savings from sustainable design stems from improved worker productivity. Improved worker productivity naturally leads to *staff retention* at a time when attracting and keeping a highly qualified workforce is challenging. Similarly, *students learn more*, perform better, and attend more often when they are schooled in a sustainable building. Students simply do better when their school is full of daylight, fresh air, and comfortable temperatures.

In addition, sustainability becomes a partnership with the community itself as students and staff members find ways to learn about and share resource reduction principles, sustainable building design features, and other tools that affect the strategic priority areas presented in Figure 2.

[1] Sustainable Building Technical Manual. *www.sustainable.doe.gov.*

Figure 2. PSD Strategic Plan 2004 - 2009



On the basis of this synergy between the District's Strategic Plan and the concepts of sustainability, the SMS team discussed elements of a strong policy statement that would firmly link the two and provide guidance for moving forward:

- Implies visible management support
- Reflects organizational culture and style
- Is consistent with other organizational policies
- Applies to all major operations
- States beliefs and intentions (what), not ways for meeting intentions (how)
- Provides direction for decision-making
- Provides a foundation for planning and action
- Is documented and clearly communicated to all employees
- Drives change in the workplace
- Inspires commitment
- Serves as a unifying theme

After considering four sample policy statements adapted from other organizations and other districts, the team developed the following policy statement for PSD:

"*Poudre School District is committed to being a responsible steward of our natural resources and believes that public education should lead the way in developing an ethic of sustainability in all of its practices. Building off the successes of applying sustainability in constructing new schools, remodels, and school improvement projects, the District now reaffirms its commitment to sustainability by adopting a Sustainability Management System (SMS) that extends the principles of sustainability to all operations.*

The following tenets serve as the policy foundation for the District's SMS:

- *We will support our educational mission by providing physical spaces that promote the health, productivity, and safety of students and staff.*
- *We will reduce life-cycle costs by conserving energy and natural resources, further supporting our educational mission through fiscal responsibility.*
- *We will balance educational, financial, and environmental issues in our daily decision-making.*
- *We will consider and incorporate relevant aspects of sustainability into all future policies.*
- *We will inspire commitment to this policy among our employees.*

- *We will serve as a community leader in sustainability and partner with other organizations to further our common goals."*

This policy statement was presented to the Policy Subgroup and the SMS Group in June 2006 and was approved by both groups.

3.0 SMS Recommendations

This section presents the key long-term and short-term recommendations that evolved from the planning phase of PSD's SMS process.

3.1 Sustainability Vision Statements and Long-term Goals

The long-term goals identified as part of the SMS process are organized according to four topics – resource conservation, GHG emissions, education, and transportation. Each topic area is prefaced by a vision statement – a forward-thinking declaration of the associated long-term goals' global intent(s).

Note that any long-term goals that directly impact PSD's GHG emissions baseline are organized under Greenhouse Gas Emissions. Goals that will not directly affect the baseline but are sound sustainable practices (e.g., purchasing recycled-content paper) are included under Resource Conservation. The notable exception to this approach is the transportation topic. Transportation goals directly impact PSD's GHG baseline. However, transportation is a topic area that distinctly demonstrates the difference in scope between an SMS and green building criteria. As such, transportation is presented separately with a dedicated vision statement and long-term goals.

1. Resource Conservation

Vision Statement: By reducing resources, employing common sense reuse, continuing to pioneer green building practices, and employing technological solutions in both classrooms and operations, we will measurably demonstrate continuous improvement in our landfill diversion rate and will embrace the principles of the Zero Waste International Alliance to help us reach for higher goals.

Long-term Goals:

- Buy paper products with high recycled content, including toilet paper, hand towels, and office paper.

- Reduce new equipment purchases by recycling/reusing door hardware (closures, locksets, exit devices, overhead stops), using a designated storage area for used equipment, and tracking inventory of used equipment.
- Increase construction waste diversion rate to 80 percent.
- Reduce amount of oil-base paints used at schools, including exterior and interior applications, by using quality water-base paints.
- Convert all wood gym floors from an oil-base finish to a water-base finish within 5 years.
- Create PSD's own version of the LEED (Leadership in Energy and Environmental Design) Green Building Rating System™.
- Purchase locally.
- Employ wireless network technology for modular classrooms.
- Maximize efficient building programming and services offered to students through optimized ratios of building area to student population.
    a. On an annual basis, review building replacements and alterations.
    b. Consider class structure re-alignment on an annual basis.
    c. Plan and relocate support buildings for better operating efficiencies (e.g., the north bus facility and warehouse).

2. Greenhouse Gas Emissions

GHGs are heat-trapping pollutants that influence climate change. There are a variety of GHGs, including carbon dioxide (CO_2), methane, and nitrous oxide. Humans add GHGs to the atmosphere by burning fossil fuels, disposing trash (that decomposes), etc. PSD believes it is important to address GHG emissions as part of its sustainability efforts.

Vision Statement: Recognizing the global environmental impacts of District operations and as a member of the City of Fort Collins Climate Wise program, we are committed to minimizing our GHG emissions. By consuming less electricity and water, using more renewable energy, and increasing recycling, we pledge to reduce District-wide GHG emissions by setting a meaningful reduction target and tracking progress toward the target.

Long-term Goals:

- Reduce the utility (energy and water) portion of the GHG percentage by 1.5 percent per year until the year 2016 for a total reduction of 15 percent in 10 years. Measure this by GHG tons per square foot. Reductions will be achieved in the following ways:

    a. Continue to increase awareness of staff and students about electrical consumption and water conservation using all internal and external resources.

    b. Continue energy/water conservation projects through the Energy Efficiency Team.

    c. Continue to improve internal heating, ventilation, and air conditioning (HVAC) and irrigation conservation procedures. (Focus on high schools and junior highs for the most impact on energy/water use.)

    d. Pursue funding a school site coordinator to champion energy/water and solid waste conservation similar to the chemical inventory person currently under consideration.

- Pursue partnerships to promote a community approach to GHG baseline reporting.
- Evaluate future opportunities to expand/improve GHG baseline reporting and/or purchase future offsets (e.g., Chicago Climate Exchange, etc.), and evaluate financing mechanisms (e.g., reinvested energy-efficiency savings, grant funding, etc.).
- Design standby computer function to limit hours of operation using integrated management software. (Payback not yet determined versus first cost.)
- Replace theater lighting fixtures for 40 percent energy savings. Begin replacements in older theaters in 2007 and extend to newer theaters after 2008.
- Convert all large 80-percent-efficient water heaters District-wide to 98.5-percent-efficient condensing-type water heaters within 5 years.
- Continue to build new schools and remodels with a strong emphasis on energy conservation.
- Investigate and possibly purchase fluorescent studio lights for PSD Channel 10.
- Over the next 5 years, expand the use of synthetic turfs for smaller sites and future athletic fields.

- Expand raw water use and decrease domestic water consumption, including 100 percent raw water irrigation to the Support Service Center by the end of 2008.
- Extend current practices of wind power purchases through Fort Collins Utilities. Wind power accounts for 12.6 percent, or 3,079,260 million kilowatt hours (kWh), of the District's annual electrical consumption of 24,500,000 kWh. The goal is to add 2 percent per year through 2010.
- Develop strategies for self-contained (off the grid) modular classrooms.
- Use electronic documents for bidding all projects.
- Continue to increase the number of paperless records and forms used.
- Recycle scrap copper wire using bins available in the electrical storage shed. Train staff members, track pounds of recycled materials, and schedule recycling center trips every 6 months.
- Continue practices started in the summer of 2006 to recycle all metal removed from PSD projects or repairs and track pounds recycled per year.
- Increase recycling containers outside of schools.
- Redesign District webpage to allow more efficient use and to reduce waste.
- Consider leasing computers and/or including a recycle clause in the original purchase agreement.
- Use recycled/refilled printer cartridges for all printers through replacement on a lifecycle basis, and support local services that offer full warranties on refilled cartridges.
- Reduce the frequency of HVAC air filter changes through improved inspection practices beginning in the next fiscal year (saving landfill waste, money, time, and manpower).

3. Sustainable Education

Vision Statement: With students' achievement as our first priority and recognizing the intergenerational nature of sustainability (using earth's resources today in a manner that does not jeopardize future generations' ability to do the same), we aim to lead the state in creating a sustainability-minded curriculum that not only is brought to life by teachers and students, but also is supported by physical spaces and operations throughout the District.

Long-term Goals:

- Host a high-performance building conference for in-house personnel.
- Work with organizations, such as the Colorado Alliance for Environmental Education (CAEE), National Energy Education Development (NEED), Colorado Energy Science Center, (CESC), and Fort Collins Utilities, to assist in the development of sustainability curriculum/modules for PSD students and staff (and to serve as leaders in this development for districts statewide). (CAEE, NEED, CESC, and Fort Collins Utilities can partner with PSD and provide curriculum/modules development, referring PSD to an extensive network of members, and/or serving as a fiscal agent for any funding/grant sources.)
- Investigate remote educational opportunities for both staff members and students.

4. Transportation

Vision Statement: PSD will become a recognized leader among Colorado school districts by implementing strategies to increase efficiency, reduce demand, and encourage alternative transportation.

Long-term Goals:

- Partner with the City of Fort Collins to advance mutual goals surrounding transportation demand management.
- Network communication among District vehicles.
- Investigate possible vehicle miles traveled (VMT) reduction programs/practices for both staff members and students, including carpooling and remote educational opportunities.

3.2 Short-term Goals

In addition to long-term goals, the SMS team also identified short-term goals to capitalize on and build from early wins. All of the goals outlined here are designed to be in place before the end of 2007 or are considered ongoing activities. At the date of release for this document (November 2006), a number of these goals have been or are in the process of being completed.

The short-term goals followed a S.M.A.R.T. format, ensuring that each goal contained specific, measurable, achievable, realistic, and timely elements. SMART goal guidance is

designed to facilitate goals that are actionable and that can be achieved relatively easily over the short term. Appendix A elaborates on each of the S.M.A.R.T. elements.

While these short-term goals are organized intentionally by PSD department, they all connect to PSD's overall sustainability vision statements discussed in Section 3.1. Following each short-term goal, the related vision statement topic is noted in parenthesis either as resource conservation, GHG emissions, sustainable education, or transportation.

Building Maintenance

1. Carpentry

- Starting in May of 2006, recycle all metal restroom partitions (District-wide) as scrap metal as they are replaced on a lifecycle basis. (GHG emissions)
- Starting in June of 2006, recycle the steel frames of all lunchroom tables that are being replaced on a lifecycle basis. (GHG emissions)

2. Electrical

- Complete the conversion of fluorescent light fixtures to T-8s with electronic ballasts by the end of 2007. (GHG emissions)
- Continue to include motion sensors to control lighting in all new buildings. Install motion sensors in existing buildings on an ongoing basis. (GHG emissions)
- Install emergency generators in remaining 5 percent of buildings to eliminate battery use by the end of 2006. (resource conservation)

3. Heating, Ventilation, and Air Conditioning

- Institute a proactive preventative maintenance program that, on an ongoing basis, locates and numbers all existing equipment and catalogs any new equipment. (GHG emissions)
- On an ongoing basis, input all equipment data into Facility Focus and assign a date for service and operational checks. (GHG emissions)
- Institute a plan to thoroughly clean all univents on a 10-year cycle as capital reserve projects and continue activities on an ongoing basis. (GHG emissions)

4. Locksmithing

- Continue to recycle all scrap brass and sell the scrap twice each year. (GHG emissions)
- Continue to recycle all scrap aluminum and sell the scrap twice each year. (GHG emissions)
- Rebuild door closures instead of purchasing new closures every 2 years. (GHG emissions)

5. Painting

- Use lowest volatile organic carbon (VOC) paints meeting U.S. Environmental Protection Agency (EPA) guidelines for all applications as projects arise. (resource conservation)
- Use latex products on all interior applications as projects arise. (resource conservation)
- Use natural hand cleaners instead of distillates at all times. (resource conservation)

6. Plumbing

- Continue to replace all large, traditional hydronic pumps with fractional horsepower pumps on a lifecycle basis. (GHG emissions)
- Continue to replace all water-cooled refrigeration units with premium efficiency air-cooled condensing units on a lifecycle basis. (GHG emissions)

7. Theater

- Shut down all theaters each summer to save energy and to reduce supervision efforts. (GHG emissions)
- By the fall of 2006, encourage all theater and music instructors to avoid using theater lighting for general purposes and to turn off house lights when not needed. (GHG emissions)
- Reprogram theater lighting at Rocky Mountain High School during the summer of 2006 to have preset reduced options that allow audience access without having to turn the lights to full. (GHG emissions)

Business Services/Finance

Expand partnerships with the City and the County, and coordinate mutual services and operations during 2007 and 2008. For example, an existing intergovernmental agreement with the City of Fort Collins extends the use of the TransFort Bus Facility in south Fort Collins to PSD for fueling and washing busses housed in the District's south Bus Facility. (resource conservation)

Channel 10

Review procedures and revise recycling practices for old technology hardware during 2006 and 2007. (GHG emissions)

- Review and revise shutdown procedures and educate the staff by the end of 2006, with regular reviews and updates ongoing. (GHG emissions)

Communications

- Reduce desk-use paper by 10 percent by the end of 2007. (GHG emissions)
- Analyze the survey for distributing the newsletter by the end of 2006, and determine the best approach for reducing overpublication and distribution. (GHG emissions)

Curriculum

- Make all available curriculum documents, including newsletters, essential instructional standards, curriculum guides, and student assessment frameworks, electronic or web-based documents through the District website or electronic document library by April of 2007. (resource conservation)
- Reduce 50 percent of paper-based documents distributed by curriculum and instruction by April of 2007. (resource conservation)

Custodial

- Continue to identify and use cleaning and finishing products that are Green Seal™ approved with a goal that all products are approved. (resource conservation)
- Switch from the current floor finish and floor stripper to green products for all District facilities by the end of 2007. (resource conservation)

Customer Support

- Use completed SMS to help inform all community, staff, and students about specific policies and procedures during 2006 and 2007. (sustainable education)

Food Services

- Reduce disposable paper and plastic service items by 20 percent by the end of 2006. Food Service will implement a "reduce-reuse-recycle" program with the students and staff by October 2006. (GHG emissions)
- During 2006 and 2007, investigate the opportunities, costs, and benefits of water conservation in kitchens, including dishwasher efficiency applications. (GHG emissions)
- Continue recycling efforts to reduce solid waste by 10 percent each year. (GHG emissions)

Information Technology

- Beginning in 2006, recycle all items that are not repairable at the central office instead of sending them back to schools. Achieve full implementation by the end of 2007. (GHG emissions)
- Expand computer power management and setup training during 2006 and 2007. (GHG emissions)
- Continue the District-wide paperless transition to reduce paper use by half at all facilities. (resource conservation)

Outdoor Services

- Purchase equipment to burn all used engine oil by the end of 2007. (resource conservation)
- Expand use of Larimer County Workender Program to help with ongoing maintenance in 2006 - 2007. (resource conservation)
- Continue education for safety and specialty training/certifications (e.g., arborists) and new product information on an ongoing basis. (sustainable education)

Purchasing

- Review the EPA Environmentally Preferable Purchasing (EPP) guidelines and use the Responsible Purchasing Network (responsiblepurchasing.org) to adopt any measures that will work for the warehouse by the end of 2006. (resource conservation)
- Use paperless procedures to place orders with suppliers.

Planning, Design, and Construction

- Provide recycle facilities on the second floor of the Operations Building by the end of 2006. (GHG emissions)
- Reduce paper on small projects by 20 percent from 2006 to 2007. (resource conservation)

Risk Management

- Implement a wellness program and obtain Wellness Council of America's (WELCOA) "Well Workplace" Bronze designation by the end of the 2007-2008 school year. (sustainable education)

Records

- Beginning in 2006, maximize the number of double-sided copies whenever possible. (resource conservation)

Security

- Develop and implement an online incident reporting system for Campus Service Officer (CSO) activities by July 1, 2007. (resource conservation)

Staff Development

- Implement a new program management software system by the end of 2007 that will eliminate paper for registration processing and course work confirmation. (resource conservation)

Transportation

- Institute more efficient bus routes to reduce the number of bus/transport routes (currently 126) by the end of 2007. (transportation)
- Prepare a request for proposals (RFP) for a GPS/AVL system to track school buses by November of 2006. (transportation)
- Successfully prepare and submit EPA documents for the Clean School Bus grant program by July 1, 2006. (transportation)
- By fall 2007, use the GPS/AVL system to evaluate bus routes and times. Evaluate the data gathered to see where route adjustments can be made to increase efficiency and effective use of vehicles. (transportation)
- By December 2007, install transportation equipment purchased from an EPA grant, train mechanics to maintain the equipment, and educate drivers on the equipment, including a discussion of the benefits. (transportation)

Utilities Management

- Host an Energy and Environmental forum, including District policies/procedures, cost/use data, and PSD partners, in the Johanssen Support Services Center (JSSC) boardroom in October of 2006. (sustainable education)
- Enhance the current energy rebate program ("Energy Rules") to include participation of all schools by the end of 2006 (GHG emissions, sustainable education).
- Continue the Energy Rebate program and expand participation to all facilities by the end of 2006. (GHG emissions, sustainable education)
- Continue proactive energy conservation outreach to the District and community on an ongoing basis. (GHG emissions)

4.0 PSD's Baseline of Existing Practices and Greenhouse Gas Emissions

The goals discussed in Section 3.0 were developed from the baseline of existing PSD sustainable practices. This section summarizes the District's baseline practices, documents existing sustainability achievements (both academic and operational), and presents baseline GHG emission information.

4.1 Existing Practices

PSD already is practicing sustainability in many areas. This section highlights key existing sustainable practices - both academic and operational.

Academic Successes

The SMS team researched previous and ongoing District activities and consulted the PSD website (modified from the original) to construct a list of existing practices, events, awards, and programs that highlight sustainable successes. Some of these efforts are described below.

Student/Faculty Initiatives

- Rocky Mountain High School's Environmental Club students and teacher sponsor purchased 80 blocks (200,000 kWh) of wind energy for a month in support of Earth Day 2005 and their school's environmental stewardship efforts.
- Students at Bacon Elementary learned about their new state-of-the-art building and led tours highlighting the uniquely sustainable features of the building. These efforts earned them the Tim Wirth Chair Award in 2004, which recognizes contributions to the advancement of sustainable development strategies, policies, and programs.
- A first grade class at Dunn Elementary offered a Green Building study and tour.
- Laurel Elementary School celebrated Arbor Day with songs and poems about the earth and the environment. Zach Elementary celebrated by planting eight trees on the school grounds.
- Boltz Junior High School students spent time on National Youth Service Day by clearing brush and trails at the Environmental Learning Center.

- Poudre High School's Science Bowl team finished 9th nationally out of the 2,000 teams competing nationwide (only 63 teams even made it to nationals). The U.S. Department of Energy paid for the team's trip.
- PSD's Ocean Science Team earned second place and a trip to Bermuda at the Ocean Science Bowl in Monterey, California. Four hundred schools competed nationwide.
- Poudre High School's Science Olympiad Team finished 12th overall in the national finals at Indiana University in Bloomington, Indiana. Five thousand schools competed at the outset, and more than 60 teams participated in the national finals.
- The Best of Fair award at the PSD Science Fair went to a student who studied the effect of octane on engine performance.
- Livermore Elementary School students raised $400 for the Livermore Media Center by taking part in the Human-i-Tees for Trees fundraiser. As a result of this effort, students helped preserve 2,380 square feet of threatened forestland in the Jaguar Ecological Reserve in Brazil.
- A teacher at Zach Elementary received a Sustainability Award for recycling.

District-wide Initiatives

- PSD encourages high school students to drive less with the Drive Less Challenge. This challenge requires a pledge to choose biking, walking, busing, and car-pooling over driving to school every day for 2 weeks. The Challenge was initiated in April-May of 2006.
- A Cycle Safety Event in May involved educating children about safe, healthy cycling. The event included a Cycle Education Kit with fun safety activity sheets for all young attendees and was funded by local businesses and PSD.
- Sixth graders experience ECO Week first-hand through ECO Week activities that include a hands-on outdoor experience with trips to Pingree Park, the YMCA Camp of the Rockies, and Rocky Mountain National Park.
- Full Option Science System (FOSS) kits are included in all elementary science curricula. These kits involve active learning where teachers and students do hands-on science, rather than just hear about science.
- PSD introduces microchemistry at the high school level.

- PSD encourages curriculum partnerships with environmental providers, such as Fort Collins Utilities (e.g., WaterSHED – water quality and Dr. Waterwise – water conservation) and the Department of Wildlife.
- PSD and Fort Collins Utilities collaborate and offer a voluntary energy rebate program ("Energy Rules") to encourage energy conservation, solid waste reduction, and environmental stewardship. Rebates to the 23 participating schools in fiscal year 2005 totaled $12,600.
- PSD partners with Colorado State University's (CSU's) Natural Resources Ecology Lab on a K-12 program through which graduate students work PSD students to encourage ecosystem system.
- In conjunction with Earth Day 2006, Intel sponsored RECYCLE YOUR COMPUTER DAY. Recyclers were charged $10 per carload of old computer equipment and all funds went to PSD.
- The *I Walk & Ride Safely* Program teaches first graders, Head Start students, and all other children how to walk to school or ride a school bus safely.

Operations Successes

Twelve group interviews were conducted with PSD department staff members. The interview groups included Business and Instructional Services, Information Technology (IT), Transportation, Customer Support Center, Food Services, Custodial, Outdoor Services, Building Maintenance, Human Resources, Risk Management, Curriculum, Purchasing and Materials Management, Planning Design and Construction, Channel 10, Utilities Management, and Finance. The intent of the interviews was to discuss existing practices and future opportunities. The information presented in this section summarizes these interviews, which are presented in their entirety in Appendix B.

Existing successes include, but are not limited to, the following:

- Award-winning green building program for new construction.
- Nationally recognized energy conservation efforts, including the EPA Leadership in Energy Management award in 2001.
- On-going yearly savings from energy efficiency projects amount to $397,000 for a cumulative savings from 1994 through 2005 of over $1,700,000.
- Twenty-one schools given Energy Star label in 2006 and 15 schools progressing toward Energy Star labeling. (These awards are based on each school's energy efficiency and staff and student participation in conservation efforts.)

- Silver LEED (Leadership in Energy and Environmental Design) award for the progressive design of Fossil Ridge High School.
- Recycling inclusive of magazines, newspapers, cardboard, printer cartridges, PCs, and cell phones.
- Transportation efforts to trip chain and optimize bus routing efficiency.
- Transportation mainstreams Special Education students into regular routes.
- Alternative fuel vehicles, such as electric hybrids, ethanol hybrids, and compressed natural gas vehicles are being added to the District fleet.
- An idling policy mandating no idling in school zones.
- Movement toward paperless applications in many departments.

The honors that PSD has received and that are presented below further highlight PSD's operational successes in sustainability.

PSD Sustainability Honors	
2006	**Monarch Award from the Council of Educational Facility Planners International/Southwest Region** – Awarded for Centennial High School addition and remodel. **Walter Taylor Award from the American Association of School Administrators/American Institute of Architects/Council of Educational Facility Planners International** – Awarded for Fossil Ridge High School. **Antron Sustainable Flooring Performance Award Merit Winner** – Awarded for Beattie Elementary School sustainable interior design practices using performance-driven flooring in commercial carpet applications.
2005	**Monarch Award from the Council of Educational Facility Planners International/Southwest Region** – Awarded for Fossil Ridge High School. **LEED-NC v2 Silver Certification from the U.S. Green Building Council** – Awarded for Fossil Ridge High School successfully meeting the sustainable building design and performance standards under the LEED Green Building Rating System. **Friend of Preservation Honor Award from the City of Fort Collins** – Awarded for Centennial High School addition and remodel.
2004	**Merit Award from the American Council of Engineering Companies of Colorado** – Awarded for the Fossil Ridge High School HVAC system. **Renewable Energy in Buildings from the Colorado Renewable Energy Society** - Awarded for Fossil Ridge High School.

PSD Sustainability Honors *(continued from previous page)*	
2004 *(continued from previous page)*	**Colorado Pollution Prevention Champion Award from the State of Colorado.** **Wirth Award, The Wirth Chair in Environmental and Community Development at the University of Colorado, Denver** – Awarded to a Bacon Elementary School students for outstanding sustainable efforts.
2003	**Citation Award, American Association of School Administrators/Council of Educational Facility Planners International/American Institute of Architects** - Awarded to Zach Elementary School. **Sustainable Design Award, American Society of Interior Designers** – First Place awarded to Zach Elementary School. **Media Center Design Award from the American Society of Interior Designers** – Second Place awarded to Zach Elementary School.
2002	**Design Merit Award, AIA Colorado North Chapter** - Awarded to Zach Elementary School for design excellence. **Recognition Award, Colorado Renewable Energy Society** - Awarded to the Operations Center in recognition of excellent use of renewable energy in buildings.
2001	**Environmental Achievement Award, U.S. Environmental Protection Agency** - Awarded to PSD for superior leadership and commitment to energy conservation, environmental performance, and responsible use of tax dollars. **Leadership in Energy Management Award, U.S. Environmental Protection Agency** – Awarded to recognize energy conservation. **Waste Saver Award, North Front Range Solid Waste Action Group** **Recognition Award, Colorado Renewable Energy Society** - Awarded to PSD in recognition of developing sustainable schools.

4.2 Baseline Greenhouse Gas Emissions

As part of the SMS effort, PSD established a District-wide GHG baseline. In addition to the baseline numbers, this section describes the make-up of the GHG baseline, motivations for determining a baseline, and relevant comparisons. GHGs are heat-trapping pollutants that influence climate change. There are a variety of GHGs, including carbon dioxide (CO_2), methane, and nitrous oxide. Humans add GHGs to the atmosphere by burning fossil fuels, disposing trash (that decomposes), etc. To ease GHG discussions and comparisons, a common unit of CO_2 is typically used, and factors are used to convert non-CO_2 GHGs into equivalent CO_2 tons. Establishing a GHG baseline is beneficial to PSD for many reasons:

- Illustrates PSD's commitment to being a leader in sustainability both locally and nationally.
- Serves as a monitoring tool that can help identify efficiency opportunities related to the diverse resources used by the District.
- Places PSD in an optimal position to influence future policy and cost-effective management as an organization that addressed climate change early on.
- Provides a basis for evaluating for the cost-effectiveness of various emissions-trading mechanisms that are available.
- Serves as a risk-management strategy tool to help PSD address potential future GHG regulations.

The approach to evaluate PSD's baseline and related information was developed during SMS group meetings and through the GHG baseline subgroup. While more details on PSD's GHG baseline are included in Appendix C, Table 1 summarizes overall results. Note: while all data represented in the table is a twelve month total, the annual periods for each GHG emission source are not identical (based on availability). For example, some sources may have annual data from a fiscal year period, while others data is from a calendar year period.

For perspective on PSD's GHG baseline, the team collected information on GHG baselines of other organizations. It should be noted that this information is limited since establishing GHG baselines is on the cutting edge for many organizations, let alone school districts. In fact, no GHG baseline data is known for any other K-12 school district nationwide. Additionally, the baselines reported by other organizations may have been established using differing approaches (e.g., disposed waste not included, different emission factors, etc.). Table 2 summarizes the GHG data identified for this effort.

When setting goals related to GHGs, actions to reduce emissions are the preferred first step. Many of the goals and targets in Section 3 address actions that will reduce the District's GHG emissions. Carbon offsets are a mechanism to balance or counteract GHG emissions that continue after reductions have been optimized. Offset options that PSD discussed as part of the SMS process are summarized in Appendix D.

Table 1. GHG Sources

GHG Emission Source	Source Description	Source Quantity	GHG (tons eCO2)	Ton eCO2/ student
Electricity consumption	District-wide electricity use, including schools, support buildings, etc.	21,876,821 kWh	18,573	0.743
Natural gas consumption	District-wide natural gas, including schools, support buildings, etc.	1,491,574 therms	8,807	0.352
Transportation	Reimbursed miles for PSD-related personal vehicle use (note: baseline does NOT include staff/student commuting miles)	673,600 VMTs*	360	0.014
	Staff/student airline travel	3,545,576 miles	1,019	0.041
	Transportation fuel use, including propane, gasoline, and diesel	352,387 gallons	3,630	0.145
Waste disposal	District-wide waste disposal (note: baseline does NOT include construction waste disposal)	3,841 tons	999	0.040
Water	District-wide water use, including consumptive and non-consumptive uses	142,574,900 gallons	58	0.002
Totals			**33,447**	**1.321**

*VMT = vehicle miles traveled

Figure 3 below represents the breakout of GHG emission sources by percentage that makes up the GHG total.

Figure 3. PSD GHG Emission Sources by Percentage

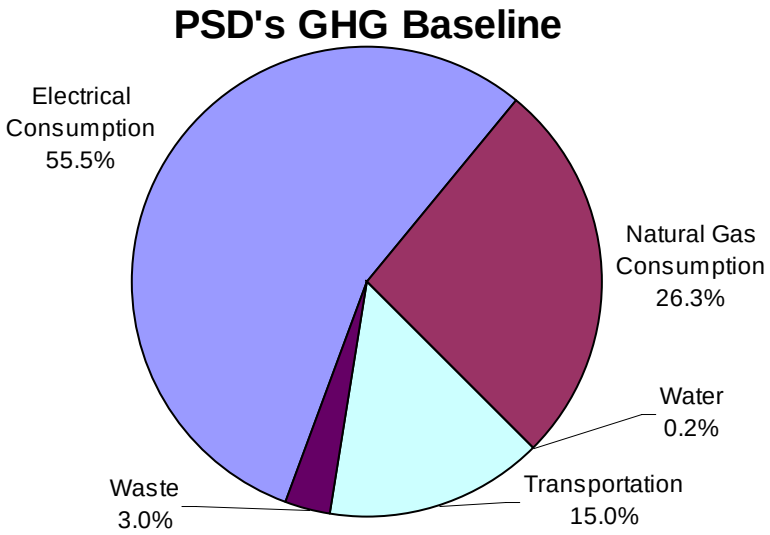


Table 2. GHG Baseline Data for Comparison

Organization/ Business	GHG Baseline CO2 tons	Normalized Metric	Comments
University of Iowa	302,500	10+ ton/student	Although an academic institution, this baseline likely does not include a bus fleet, but does likely include on-campus residential facilities.
University of California – San Diego	167,000	6+ ton/student	See comments for University of Iowa.
University of California – Santa Barbara	43,000	2+ ton/student	See comments for University of Iowa.
City of Fort Collins – 2004	48,225	0.06 tons CO2/ft2	Normalized metric based on building area.
New Belgium	2,200	0.02 tons CO2/ft2	Electricity is 100% wind-powered. Primary GHG emissions are result of process. Normalized metric based on building area.
Aspen – Snowmass (all four mountains)	27,931	N/A	Electricity only related data for all four mountains.

5.0 Sustaining the Sustainability

While the other sections of this SMS address the topic of *what* sustainability is for PSD, this section addresses *how* the District moves forward to achieve sustainability. Specifically, how to institutionalize sustainability so that it is practiced long after the pioneers that captured the District's early wins are retired — in essence, how to sustain the sustainability.

Refering back to the SMS diagram of Section 1.0, this section addresses the *Implementation Actions* step of the process. Key implementation actions to ensure this SMS is not just a document, but truly a functioning management system include the following:

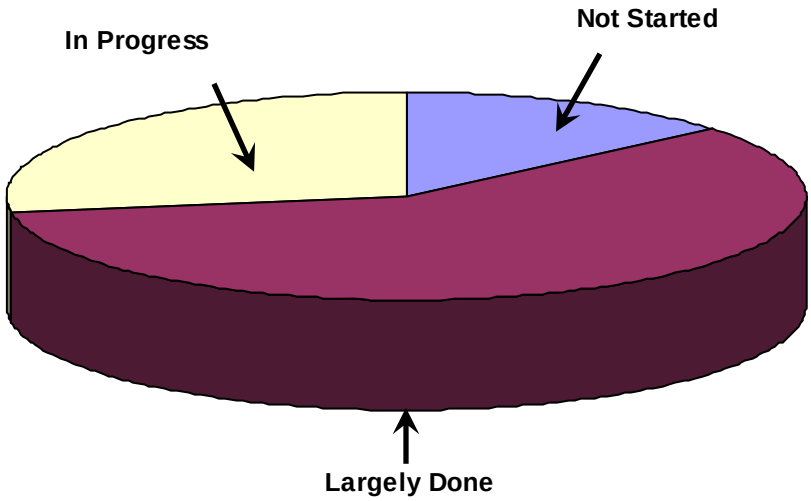
- Identifying implementation barriers
- Developing an overall implementation strategy
- Developing action items to achieve goals
- Developing indicators to measure performance

- Developing programs, timelines, incentives, accountability, and responsibility
- Ensuring ongoing training, awareness, and competence
- Communicating, disclosing, and reporting
- Periodically assessing the SMS and reviewing management

5.1 District Status

One SMS framework rooted in an ISO approach is Macdonald's *An Integrated Framework for Sustainability Management Systems*[2]. A gap analysis was completed to compare the steps of this framework against the status of PSD's SMS at the time of this publication. (Note: there are a number of sustainability frameworks that PSD might apply in moving forward with its management system, and Macdonald's is simply applied here as a metric of progress toward achieving a comprehensive SMS.) While the details of this gap analysis are included in Appendix E, Figure 4 summarizes the overall status of PSD's SMS steps - indicating how many steps are (a) largely done, (b) in progress, and (c) not started:

Figure 4. PSD Gap Analysis Summary



As this figure illustrates, the work in developing this document has put PSD well on its way to achieving a comprehensive system of management for sustainability. Moreover, the initial tasks related to preparing and planning generally are more complete than tasks

that fall later in the system framework, indicating that PSD is proceeding in a logical order as it moves toward sustainability.

5.2 In Summary

The recommendations developed in Section 3 and the gap analysis presented here provide PSD with concrete tasks that will lead to sustainability, as well as a road map to ensure that the concept is institutionalized at all levels. In addition, the team has identified, and committed to doing, the most relevant steps toward implementing the recommendations outlined in this SMS document:

- Empower the participants of this SMS process to oversee implementation of the SMS and include additional team members with expertise in curriculum issues.
- Develop sustainability indicators to track progress (using Section 4.2 baselines).
- Publish an annual sustainability report that documents qualitative and quantitative progress toward the indicators.
- Commit to a program of ongoing awareness and training to increase knowledge and competence of staff and students at all levels.

With these tools in hand, PSD has prepared itself to reach its sustainability goals and carry the momentum into the future.

In combination, the policy, vision statements, long-term goals, short-term goals, and commitment to the above list of implementation steps provide a clear path for PSD to extend sustainability broader and deeper into the education it provides and its own operations at a significant and systematic level. With this SMS, PSD continues to lead the way for school districts nation-wide, while supporting the District's mission and focus on student achievement.

[2] Macdonald, Jamie. *An Integrated Framework for Sustainability Management Systems*. Dalhousie University, School for Resource and Environmental Studies, Halifax, Nova Scotia, November 4, 2001.

Appendix A

S.M.A.R.T. Definitions

This appendix elaborates on the basic elements of S.M.A.R.T. goals applied to the short-term goals of Section 3.1.

S = Specific. Specific goals are more likely to be achieved than general goals. Answer *who*, *what* (to be accomplished), *where* (location, if applicable), and *why* (specific reasons or purpose of goal).

M = Measurable. Establish concrete criteria for measuring progress toward each goal. Answer *how much, how many*, and/or *how will I know when it is accomplished?*

A = Attainable. Set goals within reach in order to garner commitment and to increase the likelihood of success.

R = Realistic. Goals should fit with the overall strategy and priorities of the organization, and the tools needed to accomplish the goals should be available.

T= Timely. Set a time frame for each goal that is measurable, attainable, and realistic (e.g., next month, in 3 months, by fifth grade, etc.).

Appendix B

Successes, Opportunities, Interviews and Information

Customer Support Center

Key Successes to Build Upon

- Information disbursement regarding building operations and product safety
- Self management system
- Pursuing a wellness program
- Recycling paper and reducing use; using scrap paper
- Chairs with recycled PET
- Recycling magazines, newspapers, cardboard, printer cartridges, PCs, cell phones

Key Opportunities

- Site-level fact sheets of green features
- General education on features and benefits of green schools (for use in CSC, etc.)
- Train staff on duplex printers
- Improve lighting while maintaining energy-efficiency
- Assess productivity/environmental quality of existing buildings

Information Technology

Key Successes to Build Upon

- Resources for telecommuting
- Minimizing wiring replacement (reuse material in place)
- Participating in HP buy-back program
- Policy to leave machines on for virus updating except spring break and most of summer
- Power management in effect at 15 minutes
- Power management through Building Technology Coordinator
- Networked printers
- Educating Building Technology Coordinator
- ENERGY STAR audit with tool
- Apple/Mac manual management
- Document library, including how-to
- Recycling policy (Waste-Not for printers, PCs, scanners, TVs, VCRs, projectors, video cameras, faxes)
- Full use before disposal, repair facility
- Recycling more items at school
- Standardizing items that are repairable, including:
  - ENERGY STAR purchases of TVs, projectors, display devices, PCs
  - LCD purchases that have an 18-month payback, are lighter, and save space
- Technology bond includes recycling and refreshing

Key Opportunities

- Encourage telecommuting
- Wireless transition
- Install CAT5 upgrades at outset
- Expand training regarding power management, setup
- Reduce paper through District-wide paperless transition
- Lease/buyback for PCs and printers
- Increase use of document library
- Use streamlined mechanism for donating with reduced liability
- Recycle irreparable items at central office instead of sending them back to school
- Expand related material recycling District-wide, authorize schools to do so, and increase communication
- Expand sustainability aspects of smaller purchases (less than $2,500)
- For local purchases
- ES: printers, faxes

Transportation

Key Successes to Build Upon

- Trip-chaining
- Bus routing (3 tiers/3 schools)
- Total integration: people, profits, vehicles – decreased driver time, decreased mileage
- Integrated buses, part 1 – mix of students: regular, Head Start, special ed, ELL
- Integrated buses, part 2 – mix of peers and siblings to decrease mileage and driver time without cost increase
- Overall goal to decrease cost per student per transported mile
- Balancing buses that are closest to areas and scheduling (balancing hours and miles)
- Implementing GPS system in next 6-12 months tied to routing software and interactive with drivers
- Coordinating with City of Fort Collins/ TransFort on changing bus routes, bus stop placements
- Promoting web/document library use
- Purchasing low-sulfur diesel fuel in bulk that meets 2007 ultra-low requirements; improvement over typical retail diesel (bulk contract saves money, includes service for any issues)
- Extending period between oil changes because of ultra-low diesel (8,000 or 9,000 miles instead of 4,000 or 5,000)
- Only using #2 diesel (summer blend); #2 gets 2-3 mpg better than #1; practice also eliminates storage need (for #1) and reduced number of fuel trips by supplier
- Future unleaded and diesel purchases based on cost projections reduces cost (speculating practice vs. purchase based on storage/need)
- Maintaining fuel levels in vehicle tanks for safety (e.g., avoid vapor lock issues)
- Encouraging public safety (vs. just school district)
- Idling policy in place (no idling in school zones; if outside temp is above 20 degrees, no more than 5 minutes of idling)
- Creating parking areas for bikes
- Using alternative fuel vehicles – electric hybrids, ethanol hybrids, and compressed natural gas vehicles
- Employees take buses home for limited opportunities (assignments based on home location)
- Using vehicles for full serviceable life

Key Opportunities

- Paperless opportunities: route updates
- Integrate portable navigation system with global positioning system (GPS)
- Fuel transporting –
- 2007 requirements (coordinate with transporter) – ultra-low only
- Purchase buses with catalytic converter (advanced)
- Adopt diesel 0.01 particulate traps in next 6-8 months, ahead of 2007/2008 requirements
- Use fuel-fired engine block heaters (vs. idling)
- Eliminate aerosol can use or recycle
- Encourage employee commuting (biking, TransFort, etc.)/VMT reduction program
- Identify ideal seating capacity (vs. just rated capacity)
- Recycle oil filters
- Address, if possible, vehicle warranties that prevent use of recycled oil
- Employ green building techniques for new facility, including daylighting
- Address challenge of recycling diverse varieties of antifreeze
- Use new soaps and materials like the product that cleans magnesium chloride and eliminates heavy salts, decreases wastewater issues
- Purchase own biodiesel (vs. purchases through County or City) and dedicated pump (vs. fueling at City facility)
- Continue biodiesel conversions and expansions pending further evaluation related to initial problems and concerns for student safety (bus breakdowns)

Transportation

Key Successes to Build Upon

- Reclaiming all reusable vehicle parts/pieces from retiring vehicles, then selling remaining material as scrap iron
- Not purchasing limited use vehicles (higher cost over lifetime)
- Using midsize, multiuse (including wheel chair accessible) buses (47 people) for best fit to diverse location needs
- No small engines (e.g., 4 cylinder cars); rather sized to meet demand (last longer, better mileage, user friendly)
- Selecting all fleet vehicles (e.g., outdoor services) for job and balancing with MPGs (vs. cheapest option purchase)
- Interviewing end-users for vehicle use when vehicle is being replaced
- Reviewing inventory for duty-cycling (to increase use, decrease non-use)
- Vehicles never disposed; vehicles auctioned, limited donations
- Using upgraded, ergonomic seats for drivers (decreased workman comp. claims)
- Using deep tinted windows, white roofs for occupant comfort
- No air conditioning in buses
- PSD number on bus roof for safety
- No student seat belts – purposefully
- Compartmentalization to maximize safety (balanced with fleet numbers)
- Outsourcing recycled materials: batteries, paper, recycled oil and other fluids, scrap metal, shop rages
- Draining oil filters before disposal
- Using hot water parts washer
- Using citrus, biodegradable, recycled solvents, cleaners (for carburetors, brakes, etc. cleaning)
- Participating in buy-back system for tire recycling
- Tire changing work contracted out to reduce incidence of worker comp claims and employee injury
- Daylighting in shop with 5 skylights
- Tire wear guarantee (if tire wears out before mileage is reached, replacement is prorated)
- Antifreeze catch basins in place
- Using fuel-fired engine block heater with timers
- Minimizing frequency of bus and shop floor washing
- Recycling water for bus/shop washing
- Draining soap from recycled wash water (two drains per year)

Key Opportunities

Transportation

Key Successes to Build Upon

- Using biodegradable, non-toxic soaps for bus/shop washing (that are effective!)
- Shop floor washing product is biodegradable that separates contaminants
- Converted one third of south bus terminal (1 of 2 terminals) fleet to biodiesel

Key Opportunities

Security, Risk Management and Food Services

Key Successes to Build Upon

Security

- Bikes for security on-site, associated training
- Reducing number of false alarms
- Recycling shredded paper

Risk Management

- Updating crisis plans and training in fall
- Mandatory sexual harassment training for employees
- Conducting ergonomic work evaluations

Food Services

- Online ordering
- Encouraging use of no-disposable items (i.e. silverware, trays, etc.)
- Disposal of food: donating perishables at end of year, allowing second servings, recycling grease, encouraging that "you take what you're going to eat"
- Minimizing packaging
- Recycling pizza boxes
- Kitchen recycling, including cans, cardboard, and commingled
- Composting/vermiculture practices with onsite containers
- PEDs program, donations

Food Services-Catering

- Typically one event per week for larger groups, all other catering is out-sourced by departments
- For limited use, reusable materials
- Minimizing cooking satellites
- Optimizing routes, especially for satellites

General

- Paperless health/dental/vision benefits enrollment process
- Reducing paper, including using duplex printing
- Turning off lights
- Recycling toner

Key Opportunities

Security

- Paperless security incident reporting
- Use electronic signatures
- Use shredding containers
- Train staff on shredded paper
- Address challenges of second waste stream and transport for shredded paper

Risk Management

- Offer new employee orientation to all departments
- Offer training related to crisis plans
- Track workers comp. for preventative actions
- Expand sexual harassment training to include student-student and teacher-student
- Collapse board policies (reduce number)
- Recycle cardboard
- Perform preventative evaluations for ergonomics

Food Services

- Expand PED program, including funding sources and training
- Recycle paperboard and milk containers from lunch program
- Expand composting

Food Services-Catering

- Minimize food and amount provided (e.g. drink only)
- Match requests more to actual needs

General

- Paperless benefit enrollment
- Training and communication on recycling practices
- Expand recycling container distribution and knowledge
- Training on duplex printing
- Expand radiant space heaters

Security, Risk Management and Food Services

Key Successes to Build Upon	Key Opportunities
	• Central and satellite manufacturing locations to minimize VMTs • Expand campaign against disposable items; coordinate with wellness program • Board policy site representative • Explore wellness program beyond traditional topics • Develop relationship with vendors on green practices (paperless, etc.) • Employee emergency proposal • H&S website • Expand battery recycling • Expand ink cartridge recycling, training • Develop "Well City Initiative" wellness program, tier increase • Align benefit plan with wellness philosophy (i.e., diabetes prevention, smoking cessation)

Custodial Services

Key Successes to Build Upon	Key Opportunities
• Providing material safety data sheets (MSDS) for all products • Maximizing ergonomic and safety practices ("nifty nappers", lobby brooms, etc.) • Evening shift trainers • Providing new employee training, including sustainability practices and safety issues • Using more effective and efficient product dispensing systems • Replacing unsafe ladders • Paperless practices for vacation time application and general communications • Proper training for and handling of hazardous wastes • Adaptable employees (i.e. working in extreme temperature conditions) • Experimenting with soy-based wood floor stripper, despite labor intensity • Using microfiber mops at Kinard (likely easier to use, less water) • Reusing dry mops • Identifying employee language training referrals/resources	• Address storage issues • Improve safety of working conditions with risers (i.e., stages, theatres, etc.) • Identify recycled gym floor material • Research environmentally-safe snow melt (salt alternatives) • Minimize lunchroom food/milk waste, which is bulky and heavy (i.e., smaller portions for younger kids) • Improve school recycling in general • Address compactor systems and related work load (i.e. trash, cardboard, etc.) • Centralize recycling and trash company • Paperless opportunities: timecards (for department and entire district) • Increase attendance at staff development programs, adapt schedules to accommodate custodial schedules • Reduce and recycle newspapers; better match delivery numbers to use) • Use green disinfectant • Experiment with new products (e.g., soy-based graffiti cleaner) • Use wax (resilient floor sealant) • Expand buy-in to products (e.g., include schools, principals, etc.) • Use water-base stripper

Custodial Services

Key Successes to Build Upon

- Approximately 1/3 of gym floors have a water-based finish ('through attrition', 3-4 times more expensive, safer and lower VOCs)
- Using easier to operate lunch tables
- Using dryers for hand washing
- Using green general cleaner for 5 years (e.g., H_2Orange, grout safe citrus, windows, floors, sanitizer, heavy-duty)
- Custodians serve as eyes/ears for recycling
- Reusing trash bags/saving on bas costs
- Motivated employees interested in sustainable practices/products
- Turning lights off when working, closing operable windows
- Monitoring building operations and reporting issues
- Using recycled material for weight room flooring
- Transitioning to green-based linoleum instead of vinyl (i.e., marmoleum, linseed, etc.)
- Using recycled ceramic tile in kitchens and restrooms
- Using reusable/recyclable carpets
- Adhering to regulations outlined in the State permit for the Municipal Separate Storm Sewer System (MS-4) program administered by the Colorado Department of Public Health under the Clean Water Act

Key Opportunities

- Expand use of microfiber mops and rags
- Expand use of water-base gym finishes (2/year)
- Balance staffing levels and service expectations
- Expand use of dryers in the place of paper for hand washing
- Increase number or frequency of kitchen tin recycling containers
- Recycle kitchen pizza boxes
- Expand kitchen, staff, student participation in recycling (sorting, monitoring, ownership)
- Improve response time for recycling "empty requests"
- Purchase custodial machines and equipment that use less product, water, and energy

Outdoor Services

Key Successes to Build Upon

- Conducting preventative maintenance (i.e., leak checks) at seasonal startups
- Using native turf on top of berms
- Using bioswales
- Using raw water systems
- Conserving water through field aeration
- Recycling grass clippings at Hageman's
- Recycling metal, reclaiming oil (shared with transportation)
- Controlling irrigation systems with weather software (two stations)
- Using central irrigation control (avoids time and VMT associated with manual control)
- Using synthetic fields (Rocky Mnt., FRHS, Kinard)
- Harris synthetic playground

Key Opportunities

- Expand use of "Workenders"
- Use irrigation flow sensors/monitoring system for leaks
- Check irrigation systems weekly
- Expand use of drought-tolerant plants and xeriscaping
- Expand use of in-ground trash receptacles
- Use catch basin for equipment wash run off (this summer)
- Minimize lunch trash, including coordinating with vendors
- Educate students through school staff about consequences of littering in terms of clean-up costs, school image, and affects to waterways

Outdoor Services

Key Successes to Build Upon

- Career enhancement (stipends) and in-house tech. education efforts on work-related topics
- $25 gift certificates for employee recognition
- In-house employee recognition
- Website recognition for staff certifications
- Using latex paints on fields
- Recycling pallets
- Providing safety equipment (can elect out of chemical use)
- Water benchmarking exercises in 2004 and coordinating with utility management on use
- Donating limbs to local, private company
- Standardizing technical specifications for new construction and remodeling
- Using mulching practices
- Eliminating small turf areas during drought, minimizing other areas
- Using organic material in top dress (Hageman's)
- Using mulching mowers (25%) and mulching blades
- Balancing needs of customers/communications with customers
- Checking water meters weekly
- Using "Meister" fertilizer, slow-release with only one application per year
- Conducting monthly playground safety inspections (certified employees on staff)
- Avoiding daytime watering altogether (10am – 6pm)
- Conducting weekly irrigation checks to ensure optimal use
- Adhering to in-house, self-imposed watering restrictions
- Using county "Workenders"
- Using drought-tolerant plants (grasses, etc.), xeriscaping
- Using in-ground, large trash receptacles
- Implementing safety switches for mowers
- Maintaining fields and playgrounds in safe, playable manner
- Providing education/training on safety, including lifts, load/unloading, etc.
- Offering staff continuing education on CPR, forklift training, First Aid, etc.
- Employing backhoe, loader, arborist, and BFD certified staff

Key Opportunities

- Expand District recognition of employees for certifications
- Educate regarding departmental best management practices for occupants and community
- Address external rental and use issues for fields to avoid overuse and field degradation
- Expand raw water use for select existing sites
- Use paperless work orders
- Involve teams, coaches in trash management at athletic events
- Recycle oil, including potential energy or heating applications
- Increase outdoor recycling receptacle use and education
- Establish "Go-between" role between District and media on related issues
- Cross pollinate shop practices with transportation shop
- Address upcoming issues regarding field access due to other districts closing off
- Improve timing of career enhancements for Outdoor Services
- Recycle 5-gallon paint buckets, address cleaning
- Troubleshoot weather software
- Expand weather station irrigation control to remaining areas
- Expand synthetic turf use
- Increase percentage of mulching mowers
- Create dedicated position for water management
- Develop own playground safety program beyond state requirements

Outdoor Services

Key Successes to Build Upon

- Installing "Bubblers" irrigation system on new construction
- Using low-emission equipment
- Performing regular equipment service and preventative maintenance
- Using some citrus products (limited use) for parts washing
- Soil preparation for new lawns/turf, specified in standard specifications
- Adhering to regulations outlined in the MS-4 program administered by the Colorado Department of Public Health under the Clean Water Act

Key Opportunities

Building Maintenance

Key Successes to Build Upon

General

- Dedicated resource to review new technologies (through internet research, etc.)
- Existing buildings retro-commissioned: Webber, Lesher, Ft Collins High School, Lincoln, Blevins, Johannsen Support Services Center (admin building)
- Energy study of Boltz
- NEMA premium efficiency motors
- Recycling cardboard; steel; aluminum; copper (including wire); brass; chrome; other misc. and scrap metals; paper, including printed work orders; ballasts; batteries, fluorescent and HID lamps; light fixtures; conduit
- Reusing paint; using unused paint through coordination with John Holcombe
- Recharging/rebuilding cordless tools/batteries
- Stripping old motors of re-usable parts before disposal
- Local purchasing
- Standardizing equipment
- To minimize work-related miles traveled, worked day organized optimally and co-workers carpool when possible
- Using canola oil for elevators
- 25 year life cycle for roofs
- Using minimum R24 latent rated insulation
- Using non-CFC blowing agents
- Selecting light/reflective roof colors (close to ENERGY STAR rating)

Key Opportunities

General

- Existing buildings "certifiable" (following criteria/framework) for LEED EB
- Retro/re-commissioning on needs basis
- Expand local purchases
- Expand equipment standardization
- Add use of canola oil to tech specs
- Aluminum cans and plastic bottles recycling in admin complex area
- ENERGY STAR rated roof durability
- Infrared testing/scanning, including plumbing and electrical
- Breakout of irrigation vs. building water use (e.g., sub-metering of kitchens, water heaters)
- Every technician has personal computing device or wireless technology access for work orders to decrease miles traveled, paper use
- GPS system use for vehicles
- Use of new Fort Collins based *Resource2000* program both for material donations and for materials to be used
- Electrical/water sub-metering for kitchen use
- Specify safety requirements for accessing certain equipment per NEC2007 code
- Comprehensive building conditions assessment

HVAC

- Recycle (or acceptable alternative to), 2-inch pleated filters (material mix of cardboard, cotton, metal)

Building Maintenance

Key Successes to Build Upon

- Employing good safety practices, including 1-on-1 training on equipment, tools, etc.
- Providing good confined spaces training, practices
- Providing good communication, including every department employee having computer access

HVAC

- Good participation, coordination with Energy Department; incentives, and awareness of Fort Collins Utilities Hot Shot Program (to reduce building electric demand costs) for HVAC equipment
- Using washable HVAC filters
- Recycling refrigerants when possible
- Good equipment scheduling assures equipment on when needed, off when not, and any unnecessary operation of equipment identified
- Equipment well documented, including location
- Plans for HVAC PM as part of work order system in-progress
- Proper inspection, operation, and continuous preventative maintenance of HVAC equipment
- Eliminating CFCs/HCFCs (replaced with 410 refrigerants)
- Reusing older HVAC equipment when applicable
- Encouraging new ideas/discussions with staff and other departments using meetings, checklists, etc.
- Good decentralized decision-making authority
- Staff ownership of specific schools
- Retrofitting pneumatic controls with DDC systems to improve control and monitoring
- Coordinating closely with Energy Department.
- Sub-metering water use for 1 cooling tower in use

Plumbing

- Beginning transition to condensing water heaters and boilers in new and existing buildings
- Evaluating waterless urinals
- Beginning fuel switching for new and replacement kitchen booster heaters from natural gas to electricity
- Converting from water-cooled to air-cooled refrigeration condensing units
- Reusing/refinishing plumbing fixtures

Key Opportunities

- Retrofit remaining 5 buildings to DDC from pneumatic control system

Plumbing

- Install dual flush toilets where tank-type models appropriate
- Use waterless urinals as statement to community

Carpentry

- Manpower to keep doors airtight (weather stripping, etc.)

Paint Shop

- Use alternatives to oil-based exterior paints

Theater

- Use equivalent quartzite bulbs for lighting fixtures when applicable
- Use Electronic Theatre Source 4 brand for replacing lighting fixtures
- Replace/substitute new wood with reused/recycled wood when possible

Electrical

- Participate and coordinate with Energy Department for Fort Collins Utilities Hot Shot Program (to reduce building electric demand costs) for electrical equipment
- Power back to grid from emergency generators in place

Building Maintenance

Key Successes to Build Upon

- Using most efficient plumbing fixtures available – faucets, values (e.g., 0.5 gpm aerators, 1.0 gpm urinals, power-assisted tank type toilets,)
- Replacing larger, traditional hydronic pumps with fractional horsepower pumps
- Insulating heating equipment, piping, tanks
- Detecting water leaks through use monitoring
- Mountain school water treatment
- Internal water quality license, operations
- Adhering to regulations outlined in the MS-4 program administered by the Colorado Department of Public Health under the Clean Water Act

Carpentry

- Minimizing paper using electronic work orders and electronic filing
- Reusing existing laminate when practical
- Using water-based laminate glue
- Sharpening dull drill bits instead of disposing of them
- Increasing use of products with high recycled content
- Using recycled material content in replacement rest room partitions
- Considering using recycled material content in replacement ceiling tile purchases
- Building/repairing with quality products for longer life
- Donating wood, Plexiglas to tech eds
- To minimize work-related miles traveled, stocking trucks with supplies and proper tools
- Turning off shop and office lights when unoccupied
- Rebuilding/recycling dead batteries
- Using low VOC brick sealing in tech spec

Locksmithing

- Reusing lockshop materials (doors, etc.)
- Rebuilding closures

Paint Shop

- Using lowest VOC paints, meeting EPA requirements
- Using Health Kote paints with no VOC in sensitive applications
- Using latex maintenance products on all interior surfaces (compared to thinner based paints)
- Avoid using synthetic sundries that are not reusable

Key Opportunities

Building Maintenance

Key Successes to Build Upon

- Drying or properly disposing of leftover paint at County landfill
- Using natural hand cleaners (vs. thinners)
- Reusing thinners for cleaning
- Properly ventilating work areas
- Reusing rags until no longer usable
- Using lambs wool rollers (easier cleaning, longer lasting)
- Using airless guns
- Using air-assisted air guns in 1 spray booth

Theater

- Recycling set shop paint
- Good reuse and coordination to borrow materials (vs. new purchases)
- Shutting down theater stages during summer months
- Standardizing lamps
- Encouraging Theater/Music instructors to avoid using theatre lighting for general purposes and to turn off house lights when not needed

Electrical

- Converted 85% of fluorescent lighting fixtures to T8s with electronic ballasts
- Installed emergency generators in 95% of buildings, eliminating battery use
- Reusing lighting fixtures when possible
- Using electronic files to eliminate paper use
- Controlling 99% of exterior lighting fixtures by time clocks or photocells
- Using motion sensors for lighting fixture control in new and some existing buildings
- Using lighting control systems in six schools (Zach, Bacon, Fossil Ridge H.S., and Ft Collins H.S.)
- Using energy management systems

Key Opportunities

Human Resources, Curriculum and Staff Development

Key Successes to Build Upon

- Energy Rules program
- Offering incentives for energy programs
- Recycling toner cartridges, laser printer cartridges, and other computer supplies
- Promoting cultural change that paper recycling is part of daily activity
- Ecoweek program
- Foss kits – elementary science curriculum

Key Opportunities

- Student education on sustainability through informal curriculum (recycle, lighting/equipment operation, energy conservation issues, communicating BMPs – carpet, desks, etc.)
- Using recycled materials in desk tops
- Offer staff development on telecommuting
- Expand job sharing (situational)
- Leadership team awareness of job sharing

Human Resources, Curriculum and Staff Development

Key Successes to Build Upon

- Numerous curriculum partnerships with environmental providers – e.g., Fort Collins Utilities (WaterSHED, Waterworks), Dept of Wildlife, etc.
- Lesher Jr. High has teachers' night with environmental providers
- CSU/Natural Resources Ecology Lab: GK12 program – grad student does work with energy flow of materials and program also incorporates Cathy Fromme prairie
- Committees on diversity (Kathy Smith – HR)
- Good systems in place for job sharing
- Material recycling: paper, AL, catalogs
- Latino Education Task Force (D. Votipka)
- Training for sexual harassment, discrimination
- Recycling paper and aluminum (HR)
- Conducting diversity hiring (including recruitment practices, etc.)
- Reusing products and materials: cardboard
- Coordinating staff development with safety
- Using blackboard (online classroom) use
- Offering staff development classes/programs online
- World Aware – teachers
- Offering Spanish emersion program to staff
- HR certified applicant process
- Support high school environmental clubs
- Support Doc library
- Encourage job-sharing for single individuals to multiple sites
- Working to improve safety issues related to chem ed rooms
- Small scale chem

Key Opportunities

- Offer paraprofessionals and classified in general a comprehensive orientation to District, including safety, harassment, diversity, etc.
- Expand teacher share fair
- Increase web doc library use
- Convert web doc library use to online submission
- Conduct safety inspections and increased awareness/communication of findings, including IAQ, ergo prevention practices
- Publish notice on conditions/injury prevention
- Expand small scale chemistry use
- Offer diversity training
- Include building occupants at individual schools in processes and education as much as possible
- Maximize on buildings that teach
- Encourage telecommuting from other buildings, home, and promote cultural change of acceptance toward telecommuting
- Perform cost analysis of paper benefits
- Paperless opportunities: electronic student handbook, emailed parent communications, curriculum specs, applicant systems, evaluation
- Invest in IT support and resources for developing paperless opportunities
- Expand HP application to classified and administrative
- Expand HR recycling in general, including administration building
- Expand cardboard recycling, glass, and plastic bottles
- Provide education/information on recycling opportunities
- Place additional recycling containers
- Provide training opportunity to show how to use online forms (both those developed and future)
- Encourage computer recycling and info/education on opportunities
- Employ sustainability strategies based on building age
- Educate staff on paper use/reduction – duplex printers, copiers
- Expand "Blackboard" (paperless)
- Expand staff development on sustainability issues

Communications and Channel 10

Key Successes to Build Upon

- Recycling: cardboard boxes for white/office paper, aluminum cans
- Using duplex copiers
- Generally extensively reusing material/products/equipment
- Recycling old technologies by offering them to schools, reducing waste by 80 to 90 percent.

Key Opportunities

- Conduct energy efficient audits of equipment
- Educate staff on all costs of decisions/actions (in a measurable and understandable terms)
- Use paper more efficiently
- Paperless opportunity: District newsletter and others from the 8 major publications every 2 years – e.g., directories (note: 85% of community has web access)
- Provide education/awareness to community and staff related to paperless practices – "how to go seek out"
- Provide consistent and visible recycling containers – and signage!
- Provide purchasing equipment guidelines (in sustainable terms)
- Expand duplex options (e.g., printers), use and education
- Address "color of money" issues (departmental $s vs. district $s)
- Provide District-wide education on equipment ON/OFF (vs. continuous operation)
- Provide education and awareness of easy to do sustainable practices
- Maximize use of electronic mediums for meetings/presentations – and have tech assistance close by and available
- Prove operations/practices are both cost effective and "right thing to do"

Purchasing & Materials Management and Records

Key Successes to Build Upon

- Looking at life cycle costs for 'best' purchase decisions (e.g., maintenance, repair, operations)
- Using foam hand soap, less waste
- Using less packaging
- Using recycled content
- Recyclability
- Leasing copiers
- Purchasing: electronic bids.
- Purchase orders now only 1 copy (down from 6)
- Online forms for warehouse ordering
- Using ENERGY STAR labels on appliances
- Switched forklift from propane to electric

Key Opportunities

- Work on a standardizing EPP procedure (support current PSD Board policy)
- Go further on paperless records (e.g., active and inactive cumulative records)
- Receive bids electronically
- Evaluating lease vs. purchase for copiers
- Reuse accounting procedure to allow leasing of a fixed asset
- Install solar tubes in warehouse
- Look at multifunctional peripheral devices
- Offer waste reduction, recycling education
- Raise consciousness/awareness – what is District stance
- Link sustainability to student benefit
- Coloradoan and waste reduction

Purchasing & Materials Management and Records

Key Successes to Build Upon

- Using alternative fuel vehicles (hybrids, CNG trucks)
- Using boilerplate language in bids, RFP re: products, packaging, recycling, etc.
- Working cooperatively bidding with other districts
- Centralized text book – better inventory mgmt (only in state)
- Providing route optimization for delivery trucks
- General inventory management – rotate stock, just-in-time delivery, etc. to reduce surplus materials
- Some supplies/desks to early childhood

Key Opportunities

Planning, Design & Construction and Utility Management

Key Successes to Build Upon

- Retro-co completed on select buildings
- Major effort into Energy Star – every building benchmarked every year; 22 of 45 buildings certified
- Established new benchmark/water baseline/tracking efforts
- Using virtual metering
- Hot Shot program participation
- Using District-wide procedure for building systems equipment scheduling
- Average energy use of 58 kbtu/yr
- Water management check sheets developed as part of MS-4 program (monthly)
- Developed energy curriculum for summer 06 conference presentation; Energy Rules – school energy rebate program
- Tools for Schools
- Providing watershed education with Fort Collins Utilities
- Sending mail/packages from mountain schools with buses
- Recycling hazardous waste (T12s, ballasts)

Key Opportunities

- Using performance contracting for financing efficiency projects
- Hold in-house event similar to upcoming 2006 summer conference for PSD staff
- Make 2006 summer conference climate-neutral
- Do trial run with one building comparing various programs for existing building – e.g., LEED-EB, Green Globes, CHiPs (non-certification)
- Develop PSD's own LEED-type criteria
- Expand re/retro-cx practices (establish goal of x% of new and existing buildings by 2015)
- Establish a zero waste initiative (including sewage, grass, etc.)
- Extend stormwater plan documentation beyond HSs
- Expand Hot Shot sequence of operation to more buildings
- Achieve goal of below 58 kbtu/yr energy use for all schools
- Achieve Climate Wise platinum tier goal
- Provide water use benchmarking (2 year)
- Expand water management check sheets to all building water uses and other buildings
- Review building maintenance process for efficiency – e.g., boiler air-fuel ratio checks
- Evaluate demolition plans/practices; keep in mind on case-by-case basis, develop goal/policy for future opportunities
- Use HEALTHYSeat

Planning, Design & Construction and Utility Management

Key Successes to Build Upon	Key Opportunities
	• Conduct Facility Survey – conditions and purpose • Water – standard plan • Water – rationing down • Water – cost/benefits of various products • Water for cooling (CT and/or indirect evaporative cooling could be expanded) • Ponds and related for aesthetic and also utilitarian use (cooling, recreational, etc.) • Admin Building, especially downstairs, itself is overall opportunity (office locating, etc.) • IAQ • Influence or segregate combined materials management (typ first cost driven, somewhat dictated by other entities: CSU, UNC, TVSD, etc.) • Carpenters use certified wood • Computer recycling management, track and expand • Central chemical procurement (better monitoring, control, etc.) • Develop transport benchmarks, goals (transport fuel use, mileage, etc.) • Extend/develop education component – operations share info with academic staff • Determine cost/benefits of take home vehicles • Optimize trip-chaining • Optimize paint use, waste exchange, etc.

Business Services/Finance

Key Successes to Build Upon	Key Opportunities
• Accounting system conversion – department heads elect reports as desired • Reducing general paper use • Donating majority of old textbook to developing countries (some recycling) • Decreasing paper use through email • Using raw and less water (district wide change) • Using less energy in new buildings (e.g., Kinard) • Limiting excess, increased recycling of construction material, debris • Gas heating of vehicle engine blocks • Balancing facilities/services to students across district	• Paperless: 1 risk mgmt benefits (open enrollment), 2 payroll with info – convert leave/earnings statement • Longer term: paperless textbooks; student online options • Paperless textbook updates • Provide education/awareness/training on paperless applications • Expand raw water use and decrease water • "community courage" to replace building, including alternatives – "building recycling" • Use buildings more efficiently – too much area for number of students (tied to offered services); realignment of class structures

Business Services/Finance

Key Successes to Build Upon

- Increased service for students with increased needs (include diversity)
- Increasing diversity
- Select student online learning
- Recycling office materials (keep process easy!)
- Offering healthier food options through salad bars and their contents for student
- Using recyclable paper (e.g., avoid colors that are not recyclable)

Key Opportunities

- Limit number of bus/transport routes; most efficient routes
- Determine best location of support buildings (e.g., bus center, warehouse, etc.)
- Maximize efficient supply delivery, including food
- Provide employee exercise areas (benefits outweigh costs)
- Offer telecommuting for select positions (e.g., IT)
- Make transport and other activities more efficient: piggybacking services, operations (avoiding duplicate activities)
- Create bike paths
- Balance cost and benefits of sustainable practices (e.g., wash aluminum cans)
- Assess paper use (are people using paper)
- Expand PSD website to include sustainability options
- Provide natural food vending machines
- Continue being a leader

Appendix C

Greenhouse Gas Emissions Baseline Details

The following table provides a more detailed breakout of baseline results organized by energy, water, transportation and landfilled solid waste.

	GHG Source (unit)	Total Quantity (unit)	GHG (tons eCO2)
Utilities	Electrical Consumption (kWh)	21,876,821	18,573
	Natural Gas Consumption (therms)	1,491,574	8,808
	Water (consumptive Use) (kgal)	31,489	32
	Water (non-consumptive use) (kgal)	111,086	26
Transportation	Vehicle (or fleet) 1 (miles)	673,600	360
	Vehicle (or fleet) 2 (miles)	0	0
	Fuel 1 (gal)	14,001	94
	Fuel 2 (gal)	89,685	929
	Fuel 3 (gal)	248,701	2,607
	Airline Trip 1 (miles)	3,545,576	1,019
	Landfilled Solid Waste (tons)	3,841	999
		TOTAL	**33,447 tons**

For each greenhouse gas (GHG) source, the following table provides the usage/material quantity and associated unit, information source and any comments on or qualifications for the data.

Data Type	Quantity	Unit	Data Source	Comments or Qualifications
Electrical Usage				
Total Reported	24,462,421	kWh/yr	FY2005 Annual Report, S Reeve	Presumed to include wind energy purchases; PSD FY is July 1 - June 30
Zach Elementary	183,040	kWh/yr	FY2005 utility database printout, S Reeve	100% wind
Operations Building	57,500	kWh/yr	FY2005 utility database printout, S Reeve	100% wind
Fossil Ridge	1,989,440	kWh/yr	FY2005 utility database printout, S Reeve	100% wind
Bacon Elementary	355,620	kWh/yr	FY2005 utility database printout, S Reeve	100% wind
TOTAL FOR GHG	21,876,821	kWh/yr		Applied PRPA mix emission factors globally, incl. 5 schools served by Xcel
Natural Gas Usage				
Total Reported	1,637,408	CCF/yr	FY2005 Annual Report, S Reeve	Total includes mountain school propane
Stove Prairie	3,513	gallons/yr	FY2005 utility database printout, S Reeve	propane
Red Feather	4,300	gallons/yr	FY2005 utility database printout, S Reeve	propane
Livermore	6,188	gallons/yr	FY2005 utility database printout, S Reeve	propane
TOTAL NG for GHG	1,623,407	CCF/yr	Subtracts out mountain school propane	
Converted to Therms	1,491,574	therms/yr		Applied PSD standard CCF->therm conversion
TOTAL PROPANE for GHG	14,001	gallons/yr	See above notes for Stove Prarie, Red Feather, Livermore.	Emissions calculated under transportation section
Water Usage				
Irrigation water	111,085,574	gallons/yr	Email from S Reeve, 2/22/06	Irrigation Review FY2005 (Nov 04 - Oct 05); FY defined differently for water
TOTAL IRR FOR GHG	111,086	kgal/yr		
Domestic water	2,624,112	gallons/mo	Email from S Reeve, 2/22/06	FY2005 winter quarter average
	31,489,340	gallons/yr		
TOTAL WTR FOR GHG	31,489	kgal/yr		
Transportation				
Airline miles	See separate project file - *PSD Air Travel,* July 2004 - June 2005			Includes student for official school functions only
Reimbursed VMT	673,600	miles	S Reeve, 5/3/06	
Total Unleaded	89,685	gallons	Email from T Chaffin, 02/27-28/06	
Fleet Diesel	248,376	gallons	Email from T Chaffin, 02/27-28/06	
Generator Diesel	325	gallons	Email from R Smith, 2/28/06	
TOTAL DIESEL FOR GHG	248,701	gallons		
Total Biodiesel	699	gallons		Likely B20, which has ongoing questions about carbon content; minimum quantity not included in baseline.
Solid Waste				
Landfilled	7,682,147	lbs	T Morse, 3/9/06	Mountain schools not included
TOTAL for GHG	3,841	tons		

Appendix D

Greenhouse Gas Offset Options

Carbon offsets are a mechanism to balance or counteract GHG emissions that continue after reductions have been optimized. The following table summarizes the offset options that PSD discussed as part of the SMS process.

Organization	Emissions Calculator	Offset Purchases?	Baseline Certification	Cost	Notes
Reporting Only					
CARROT	Yes	No	Yes	$7,000 – 10,000/yr	PRPA is a member
Offsets Only					
Native Energy	Yes	Yes	No	~$12-15/ton	Strong social, marketing components
Bonneville Env. Foundation – Green Tags	Yes	Yes	No	$5/1,400 lbs CO_2	
Carbonfund.org	Yes	Yes	No	$5/ton	
FCU Wind Power	No	Yes	No	$0.01/kWh	Local; applicable for electricity emissions only
Community Energy	No	Yes	No	$0.003/kWh (reportedly)	Applicable for electricity emissions only
Terrapass	Yes	Yes	No	~$10/ton	Applicable for vehicle emissions only
Reporting and Offsets					
Climate Neutral Network	No	Yes	Yes	Minimum of $10k/yr	
Chicago Climate Exchange	Yes*	Yes	Yes*	Minimum of $10k/yr for top membership	Three member levels; legally binding agreement

*Depending on membership level

Appendix E
Implementation Gap Analysis

	Category	Content/Steps	Status (Not Started, In Progress, or Largely Done)	Documentation Notes
1	**Preparation (A)**			
1.1	**Introduction to sustainability**	Introduce The Natural Step framework; the four system conditions, the resource funnel; systems thinking; basic science; and backcasting.	Largely Done	Covered in 1st meeting on 1/10/06 only brief introduction given PSDs familiarity with Sustainability, introduced The Natural Step, Natural Capitalism, Eco-Footprint, and cradle-to-cradle concepts
1.2	**Determination of stakeholder participation**	Identify direct and indirect stakeholders (employees; community; shareholders; members; customers; future generations; etc.). Consult them (where possible) to determine an appropriate level of involvement, and prepare an acceptable framework for engagement throughout the process.	Largely Done	Established SMS team; project lead; external sustainability expert participation/review; discussion about future plans for expanding to include more educational stakeholders
1.3	**Preparation of implementation plan**	Prepare an implementation plan to guide the process of developing and implementing a SMS through to completion.	Largely Done	Project proposal and Meeting 1 Project Plan (outline for 4 meetings and activities between meetings) served as Implementation Plan for project
2	**Baseline Analysis (B)**			
2.1	**Identification of environmental aspects (system condition #1, #2, #3)**	Identify products, processes and services the organization delivers, and the processing stages that make up each process.	Largely Done	Included in draft SMS with identification of current Academic Successes and the development of a GHG Baseline including Water, Transportation, Waste, Electric Consumption, and Natural Gas Consumption; Based on interviews with all operational departments
2.2	**Identification of social aspects (system condition #4)**	Identify the contribution of products, services, processes and operations in meeting human needs or inhibiting the meeting of human needs in communities both near and remote.	Largely Done	Social aspects were integrated into departmental interviews
2.3	**Determination of significant environmental and social aspects**	Conduct a system condition #1 analysis of each process step in product or service delivery.	Not Applicable	Hasn't adopted TNS, so hasn't specifically analyzed operations in terms of system condition violations.
3	**Planning (C/D)**			
3.1	**Articulation of core values and purpose**	Revisit organizational core values and identify and clarify the fundamental value, utility or quality of the organization's product or service. Ensure this is not at odds with the requirements for a sustainable society.	Largely Done	As part of policy development dialogue included revisiting educational mission and positioning sustainability within this mission. They are not at odds, but are very complimentary -- education and sustainability.
3.2	**Envisioning a sustainable organization**	Create a vision for the organization in a sustainable society by developing alternative options for delivering your current product or service within the boundaries of the system conditions, or by offering a different product or service to meet clients' needs.	Largely Done	Visioning was indirectly integrated into teams meetings as well as the policy subgroup meetings. Development of policy and long-term goals is intrinsincally linked to visioning. The main vision for the SMS is to leave a legacy from early pioneers that institutionalizes and comprehensively integrates sustainability into all operations.

3.3	**Creation of a sustainability policy**	Articulate a sustainability policy based in part on the system conditions and other organization-specific information to serve as a guiding compass for the management system.	Largely Done	Drafted in Meeting 2 of the PSD SMS Group and Policy Subgroup on 3/22/06, will be reviewed on 6/28/06 at Meeting 4
3.4	**Identification of key leverage areas and priorities**	Identify key leverage areas based on system condition analysis and prioritization.	Not Applicable	The Natural Step (and therefore system conditions) was not employed as a sustainability framework. Key leverages areas were not specifically discussed or planned as part of this SMS.
3.5	**Creation of ultimate objectives and interim targets**	Set and document the ultimate objective of aligning the organization's value chain with system condition #1, and interim targets (based on key leverage areas) to move toward that objective by eliminating your organization's contribution to violations of it.	Not Applicable	Again, TNS was not employed. This step was not specifically included in SMS but indirectly addressed/integrated into the development of short and long term goals.
3.6	**Internal strategy development**	Internal strategy formulation requires the development of an appropriate mix of dematerialization and substitution strategies (given the nature of the organization's product or service) to align it with the four system conditions over the long term. Different organizations will require emphasis on different strategies (within the mechanisms of dematerialization and substitution below), and not all will apply or be necessary in order for the organization to meet the conditions for	Largely Done	The majority of the short term SMART goals employ dematerialization and substitution strategies.
3.7	**Barrier identification**	Identify internal and external barriers that are preventing the organization from moving into alignment with the system conditions.	Not Started	Meeting 4 Discussion
3.8	**External strategy development**	Create strategies to overcome the external barriers preventing the organization from moving into alignment with the system conditions.	Not Started	Meeting 4 Discussion
3.9	**Strategy testing and decision-making**	Strategy testing and decision-making require a balanced evaluation of the spectrum of strategies identified earlier against the following criteria: high ROI, flexibility, high likelihood of success, precautionary approach, and critical to prevent system collapse	Not Started	Meeting 4 Discussion
3.10	**Action development**	Develop concrete actions consistent with strategies to align with the system conditions.	Not Started	Meeting 4 Discussion
3.11	**Indicator development**	Create management indicators that focus on evaluating how actions comply with the overall plan.	In Progress	GHG baseline could lead to indicators as well contributing data such as energy use, water use, transportation, etc. Needs to be discussed in Meeting 4 -- the role of indicators for PSD SMS

3.12	**Tool selection**	Select tools to assist in the implementation and monitoring of strategies and actions to meet ultimate objectives.	Not Applicable	Seems to be occuring by default as the specific goals and indicators are addressed.
3.13	**Sustainability program development**	Articulate timelines, incentives, responsibilities and accountability for achieving objectives and targets through strategies.	Not Started	Meeting 4 Discussion
3.14	**Identification of legal and other requirements**	Identify legal and other requirements of the organization, and develop a process for keeping this list up to date.	Not Applicable	SMS doesn't include legal requirements - covered separately by EHS.
4	**Implementation and Operation**			
4.1	**Training, Awareness and Competence**	Build a deeper understanding of The sustainability frameworks and their application.	In Progress	Some awareness building was integrated into project through web-site and departmental interviews. Will need to determine in Meeting 4 whether/how to expand as SMS builds.
4.2	**Communication, disclosure and reporting**	Develop a sustainability reporting framework for internal and external stakeholders using The Natural Step framework as an umbrella.	In Progress	SMS will be available through PSD web-site and presented at regional conference. However, need to discuss in Meeting 4 ongoing plans for annual reporting, if any.
4.3	**Documentation, document control, and records**	Develop documentation that outlines the basic elements of the management system and responsibilities in ensuring they remain current and that records are maintained where required.	Largely Done	Would be incorporated into annual reporting protocol in 4.2 above.
4.4	**Operational control**	Create procedures for monitoring significant environmental and social aspects corresponding to strategies where their absence might lead to non-conformances.	Largely Done	Tied to indicators above. Significant systems already in place for monitoring environmental aspects.
4.5	**Emergency preparedness and response**	Create and test (where possible) an emergency preparedness and response plan.	Not Applicable	SMS doesn't include legal requirements - covered separately by EHS.
5	**Checking and Corrective Action**			
5.1	**Monitoring and measurement**	Create procedures for monitoring significant environmental and social aspects and appropriate management indicators (as developed in the Planning section).	In Progress	Tied to indicators above. Significant systems already in place for monitoring environmental aspects.
5.2	**Non-conformance and corrective and preventive action**	Develop a procedure for recording, reporting and analyzing non-conformances in the management system.	Not Started	Meeting 4 Discussion
5.3	**Sustainability management system audit**	Create a written procedure that defines the scope, schedule, frequency, methodologies, and responsibilities for conducting and reporting SMS audits.	Not Started	Meeting 4 Discussion
6	**Management Review**			
6.1	**Management review**	Prepare a management review procedure and retain records of meetings.	Not Started	Discuss in Meeting 4 -- tie to audit procedure (5.3 above)