EPA Disclaimer

Notice: This document has been provided as part of the U.S. Environmental Protection Agency Resource Conservation Challenge Web Academy Recycling and Solid Waste Management Educational Series. This document does not constitute EPA policy or guidance and should not be interpreted as providing regulatory interpretations. Inclusion within this document of trade names, company names, products, technologies and approaches does not constitute or imply endorsement or recommendation by EPA. Information contained within this document from non-EPA presenters has not been screened or verified. Therefore, EPA has not confirmed the accuracy or legal adequacy of any information provided by the non-EPA presenters and used by EPA on this web site. Finally, links to non-EPA websites are provided for the convenience of the user; reference to these sites does not imply any official EPA endorsement of the opinions, ideas, data or products presented at those locations nor does it guarantee the accuracy of the information provided.

Recycling & Energy Efficiency at Poudre School District

John Holcombe
Environmental Coordinator

Stu Reeve
Energy Manager

June 19, 2008

POUDRE SCHOOL DISTRICT

PSD Fast Facts

- Fort Collins, CO Community of ~150,000
- 48 Schools, 3.9 Million Sq.Ft.
- 24,000 Students
- $200 Million Annual Budget
- Annual Utility Budget of ~$5 Million
- Energy Conservation Program Started in 1994
- Recycling Program Started in 1996
- Energy Conservation Program has saved $1.8 Million Total
- $437,000 Annually
- 140 Projects Complete to Date
- HVAC & Irrigation Procedures Save ~$500,000 per Year
- 307 Tons Recycled in FY 2007

PSD Board Policy

- Poudre School District shall set an example of stewardship of our natural resources and shall make resource conservation an integral part of the its physical plant operation
- Adopted: September 9, 1996

PSD Recycling Sites (2007)

- 48 Schools
- 43 Kitchens
- 54 Recycling Sites

PSD Recycling

- Actively started in 1996
- Recycled items were separated i.e cardboard, office paper, magazines, commingled containers (metal, glass, plastic), phone books

PSD Recycling

- E-Waste (computers, projectors,microwaves, etc.) were stored and picked up at a central warehouse

PSD Recycling

- Tree branches, grass clipping, etc. sent to local business to be recycled into mulch

PSD Recycling

- Shredded documents are recycled

PSD Recycling

- New construction and demolition
- Goal of 80% diversion rate for major construction

PSD Recycling

- 2000 - Scrap metal containers were placed in the facility and transportation maintenance areas

Changes in 2007

- 2007 – New recycling vendor, went to single stream recycling

Recycling Bin Instructions

Please put only the following listed materials into the recycling collection container

ALL PAPER	CARDBOARD	GLASS	METALS	PLASTICS
Magazines Junk Mail Envelopes Newspaper Flyers Brochures Writing, Typing and Computer Paper Books Cancelled Checks	Corrugated Boxes Paper Tubes Wrapping Paper Cereal Boxes File Folders Poster Board	Juice, Pop & Soda Water Bottles Beer & Wine Bottles Food Jars	Tin Food Cans Aluminum Beverage Cans Aluminum Foil Metal Utensils Wire Copper and Brass	Plastic Bottles used for Milk, Juice, Soap and Soft Drinks
Preparation: • Just put clean, dry paper into the bin.	*Preparation:* • Flatten Boxes • Remove plastic or waxed paper liners and all styrofoam packing material.	*Preparation:* • Remove lids. • Rinse to remove residue. • Do not break glass	*Preparation:* • Empty and rinse cans to remove all food residue. • Remove labels from tin cans.	*Preparation:* • Rinse containers to remove residue.
Items Not Accepted: • Wet, waxed or soiled paper. • Used paper towels and plates. • Carbon paper.	*Items Not Accepted:* • Wet, soiled or waxed cardboard. • Wax coated beverage containers.	*Items Not Accepted:* • Light bulbs. • Window glass, drinking glasses or mirrors.	*Items Not Accepted:* • Cans used for chemicals or paints. • Aerosol spray cans. • Appliances, power tools or batteries.	*Items Not Accepted:* • Containers used for chemicals or automotive products (oil, antifreeze, etc.) • Rubber products. • Styrofoam cups and packing material. • Photographic film • Plastic bags. • Polyvinyl sheeting • Heat shrink wrapping.

DO NOT put the following materials into the recycling collection bins:
Liquids•Food•Waste•Waxed Paper Products•Fabrics•Wood•Styrofoam

SCREEN GRAPHICS FT. LAUD., FL. 1-800-346-4420

99 0525-A 70462


TRASH ONLY
GALLEGOS
SANITATION
Call (970) 484-5556
RECYCLABLE ITEMS ONLY
WM
866-482-6319

Changes in 2007

- 2007 – New E-waste vendor
- Went from a central storage of electronics at PSD warehouse to a on-call pickup at each school


XEROX

Changes in 2007

- 2007 – Vermicomposting pilot at Putnam Elementary school

Start-up Costs for Recycling

- Vendor supplied the outside containers at no charge
- Cost is determined by the size of container and number of scheduled pickups

Start-up Costs for Recycling

- Recycling bins are now included in classroom budgets
- Other schools either use cardboard boxes for bins in classrooms or purchase their own containers through fundraisers, school budgets, or clubs

Start-up Costs for Recycling

- Some indoor collection containers have been purchased using the energy budget that includes money saved from energy efficiency projects


Glass·Plastic·Metal
Garbage·Trash
Mixed Paper


got milk?
Cans - Bottles
DASANI


POWERADE
WITH B VITAMINS

Start-up Costs for Recycling

- Vendor provides 32 gallon toters free of charge to place inside the school


3566115
WM
WASTE MANAGEMENT


Trash
Can
3565877
WASTE MANAGEMENT

Start-up Costs for Recycling

- Diversion from landfill should reduce trash costs
- Reduction in trash costs helps offset recycling costs

Training & Education

- Periodic training of custodial and food service staff regarding recycling procedures, etc.
- Quarterly district wide emails with statistics on tons recycled, trees saved, reduction in carbon dioxide, etc.

Recycling Benefits for 2008

1,933 MATURE TREES

This represents enough saved timber resources to produce more than 10.1 billion sheets of newspaper!

52,634 GALLONS OF OIL

This represents 529,100 barrels of No.2 fuel oil, which provides enough energy to heat and cool more than 110,000 homes for one year!

We recycled

113.7 tons

of

Single Stream

September 07' – January 08'

The recycling of this quantity of packaging and raw materials avoided their manufacturing and disposal, thereby conserving [1]:

466,088 KW-HRS OF ELECTRICITY

This is enough power to fulfill the annual electricity needs of more than 16,400 homes!

2,728 GALLONS OF GASOLINE

This represents enough gasoline for Americans to drive more than 32.2 million miles!

398 CUBIC YARDS OF LANDFILL AIRSPACE

This represents enough airspace to fulfill the municipal waste disposal needs for a community of 215,000 Americans for one year!

795,760 GALLONS OF WATER

This represents enough fresh water to meet the daily fresh water needs of more than 4.4 Million Americans!

1 Each ton of fiber recycled conserves: 17 mature trees; 463 gallons of oil; 24 gallons of gasoline; 4,100 kw-hrs of electricity; 7,000 gallons of water, 3.5 cubic yards of landfill airspace. Sources: U.S. Environmental Protection Agency, Institute of Scrap Recycling Industries, and Waste Management.

Training/Education

- Poster contests at schools with a recycling theme
- Annual award to the top 3 schools that generate the most recyclable pounds per capita


FOR THE FUTURE
NOW
FUTURE
RECYCLE


REUSE
RECYCLE
Welcome to Recycle city.
RECYCLE
PLEASE RECYCLE!


BE THE HERO

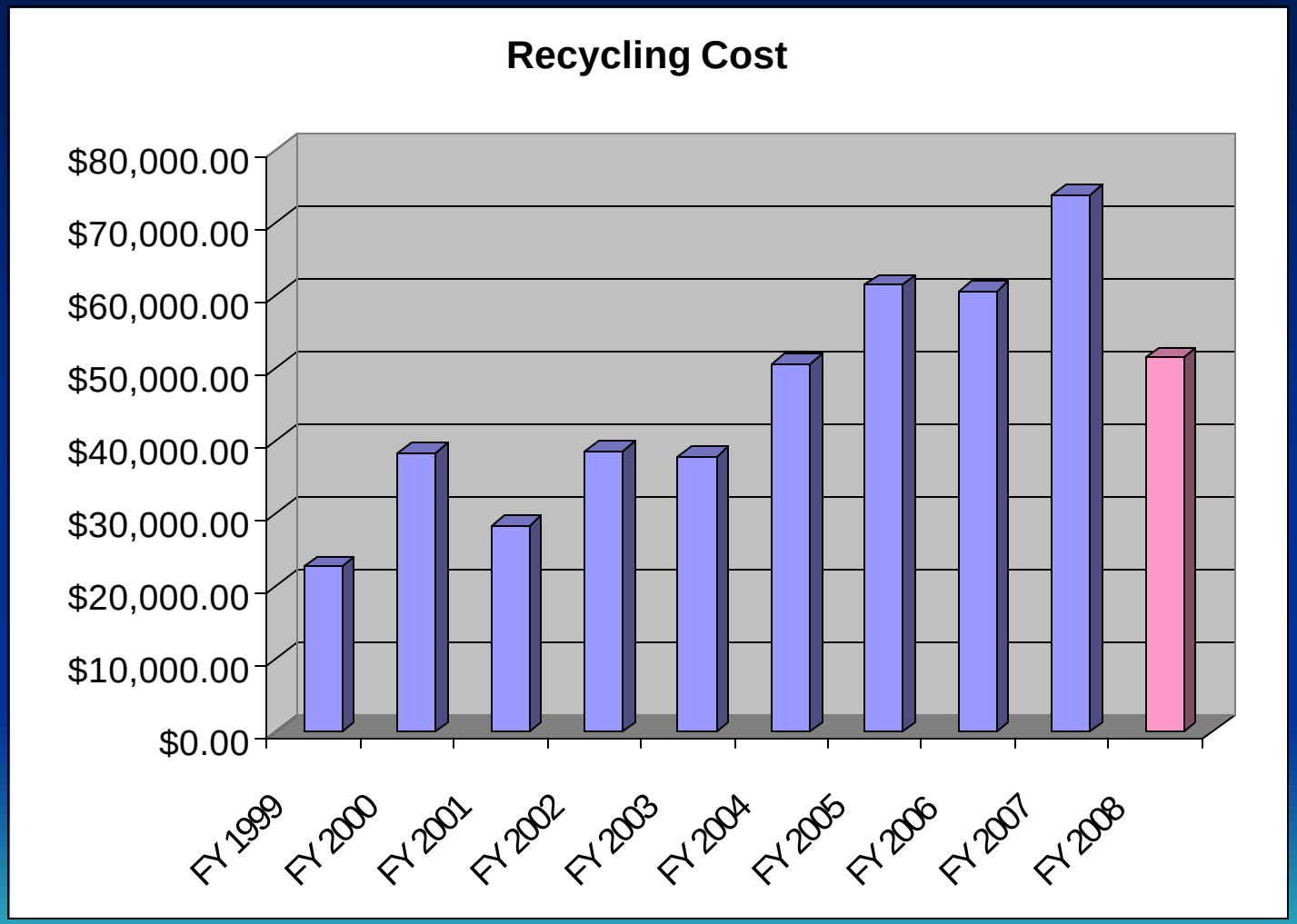

Help Me Save the WORLD!!!
You Can Recycle

Advantages of Recycling

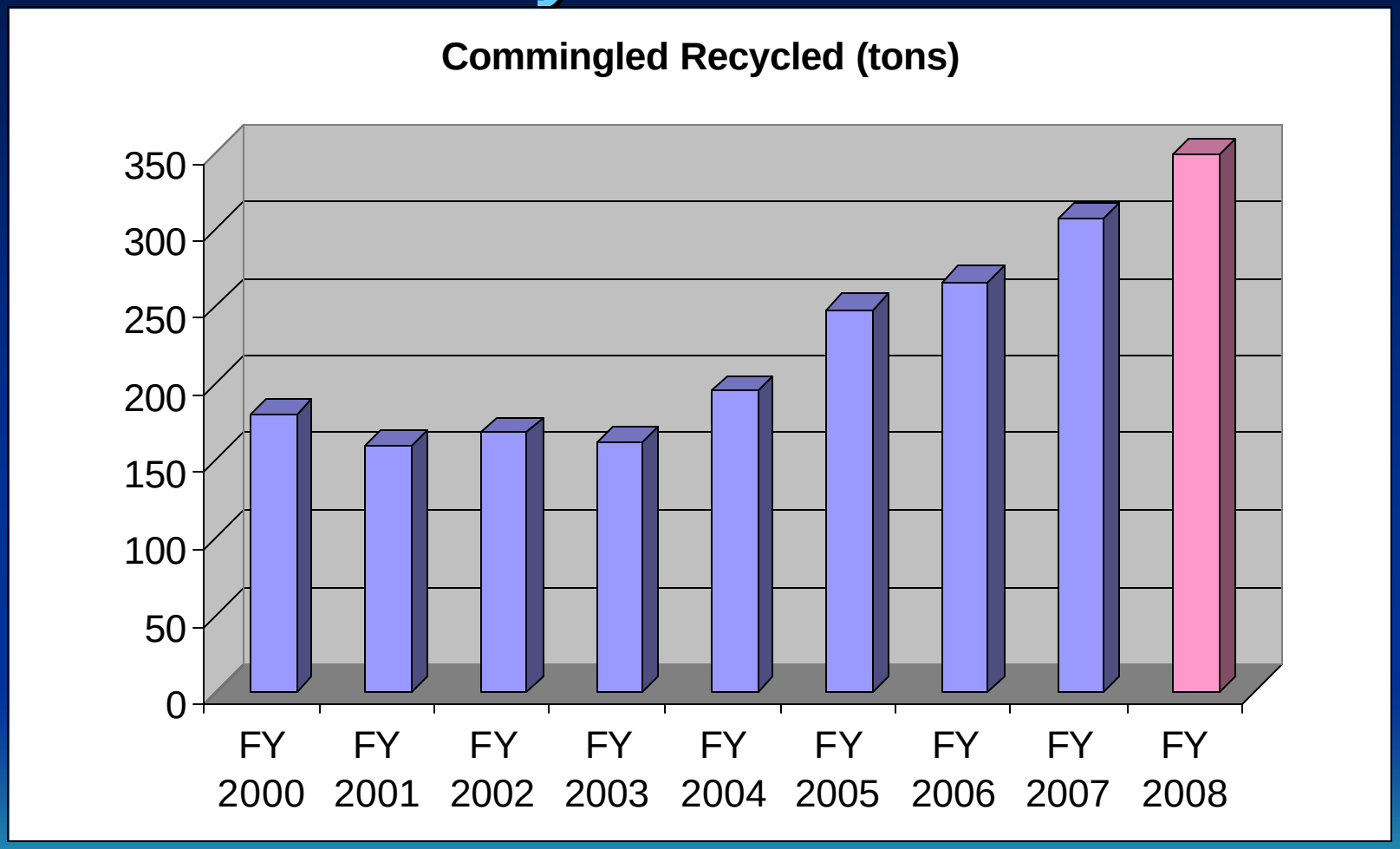
- It’s the right thing to do!
- Increases landfill life and reduces green house gas emissions
- Reduces amount of raw resources needed to manufacture new products
- Costs less to recycle then to haul as trash to landfill

Trash Costs 1999-2008

Recycling Costs 1999-2008

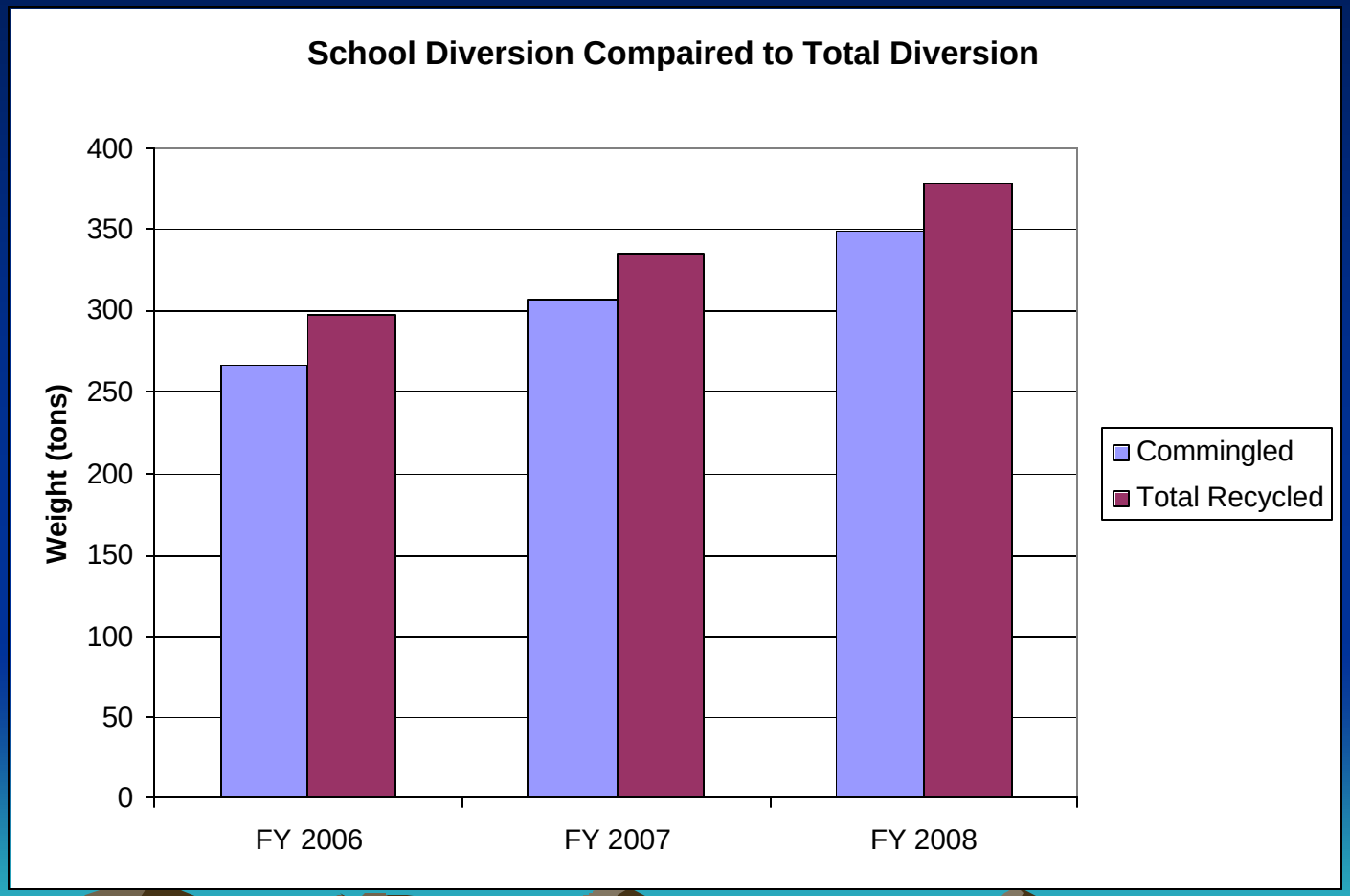


Tons Recycled 2000-2008

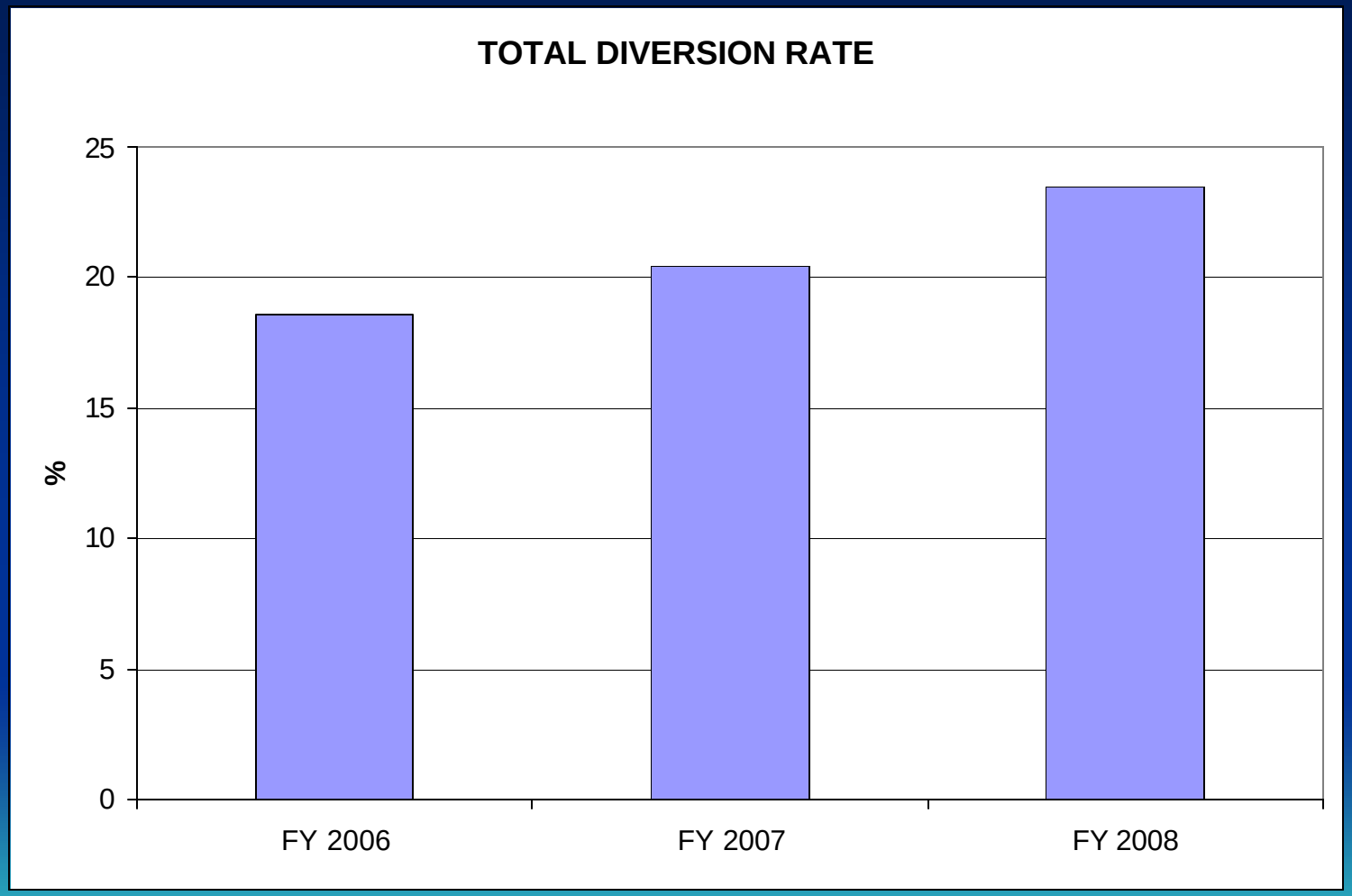


Tons Recycled

Commingled, Scrap Metal, Asphalt, Shredded Paper, and Organic Waste



District Wide Diversion Rate



2008 Summary

- 14% increase in recycling volume
- 38% decrease in recycling costs
- 6% decrease in trash volume
- 10% decrease in trash costs

Disadvantages/Challenges of Recycling

- Awareness
- Participation
- Cross-contamination

Changes/Evolution of Recycling Since Inception

- More people are onboard
- Went from sorting of materials from 1996-2006 to single stream in late 2007
- More items can be recycled: plastics #1-7 and paperboard
- Recycling is now the standard for the school district

Food Service Specific Training/Operations

- Periodic meetings with staff
- Food Service Director input/feedback/support
- Using washable silverware and trays
- If using disposable trays, make sure they are recyclable i.e. paper trays as opposed to Styrofoam

Food Service Specific Training/Operations

- Eco-friendly disposable silverware, cups, plates and napkins (compostable)


Corn Cups
Made from corn, an annually renewable resource, NatureWorks PLA is a plastic-like resin that is fully biodegradable. NatureWorks has a heat tolerance of up to 110 degrees (F).
Why put your beverages in containers made from petroleum-based plastic?
Please put them in the compost bin
Ecotainer Hot Cups
Compostable in a commercial composting environment, ecotainer hot cups have an inner lining made from 100% corn whereas conventional paper hot cups have inner linings made from petroleum.
Also, the paper comes from trees that were harvested sustainably and the cups are Elemental chlorine-free. These cups perform the same or better than regular paper hot cups.
Please put these in the compost bin!
Unbleached napkins
Unbleached napkins are an eco-friendly choice. This unbleached napkin is 100% biodegradable; and made with 100% recycled fibers.
Please put these in the compost bin
Potato Starch Spoons, Forks, and Knives
Made from potato starch, this cutlery will withstand temperatures of up to 170 degrees (F). They are Lightweight and slightly flexible.
Please put these in the compost bin!
Bagasse Plates & Bowls
These plates are made from an annually-renewable resource, sugarcane.
Please put them in the compost bin!

Food Service Specific Training/Operations

- Plastic milk containers are recyclable as opposed to paper milk cartons (composted)

Lessons Learned

- Keep informed on what products can and cannot be recycled
- Update contracts/re-bid every few years
- Inform staff on a quarterly basis with statistics, etc.
- Monitor trash service (audits)

Lessons Learned

- Lack of control over some things: packaging and purchasing of products, employee's that don't participate,etc.
- Proper labeling of recycling bins/dumpsters
- Order larger outside recycling containers then anticipated

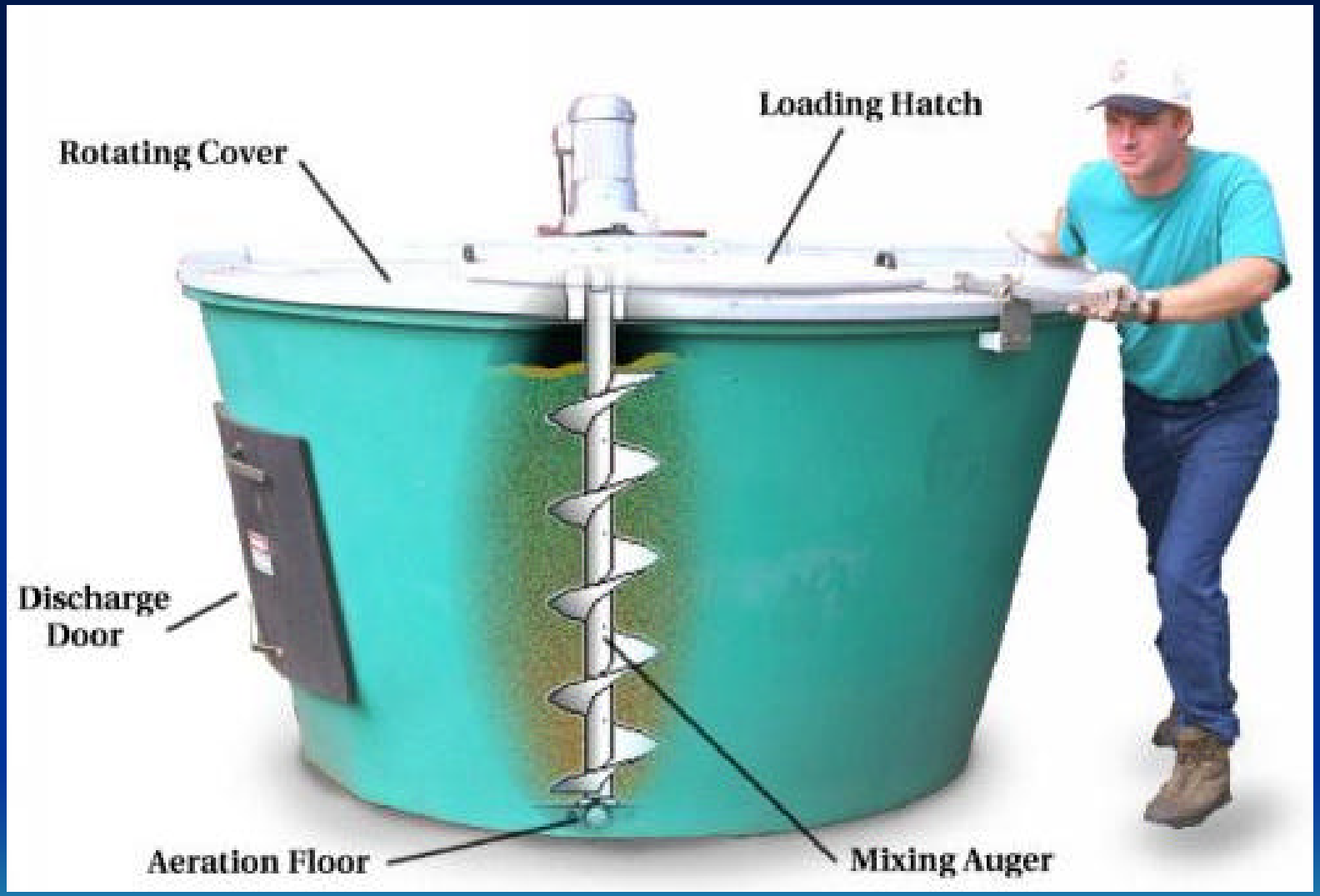
Lessons Learned

- Piloted Composting in the Operations Building
- Required upkeep of internal bin, adequate amount and type of organics needed to be successful

Future Plans

- Application for a grant to have a composter mounted on a trailer

http://www.cdphe.state.co.us/release/2008/020820008b.html


Rotating Cover
Loading Hatch
Discharge Door
Aeration Floor
Mixing Auger

Future Plans

- Dry-cell battery recycling at all sites

Future Plans

- Collection of more data to get an accurate diversion rate from the landfill. i.e. tree limbs, grass clippings, scrap metal, etc.
- Increase recycling of commingle items
- Insure that commodities such as scrap metal, asphalt, etc. get recycled in each department

Energy Efficiency Team

Poudre School District
BOE Energy Conservation Update
January 2008
Full Report

Energy Efficiency Team

Core Leadership
- Manny Ortega-Assistant Superintendent of Secondary Schools
- Jim Sarchet - Assistant Superintendent of Business Services/Chief Financial Officer
- Kevin Hahn-Assistant Superintendent of Elementary Schools

Operations
- Bill Franzen - Executive Director of Operations

Facility Services
- Pete Hall - Director of Facilities
- Jim Knauer - Building Maintenance Supervisor
- Stu Reeve - Energy Manager
- Jerry Garretson - Resource Manager
- John Holcombe- Safety/Environmental Compliance Coordinator
- Frank Rayder - Outdoor Services Supervisor
- Alan Boatright - Custodial Supervisor
- Jeff Arnold - Facilities Information Manager
- Jim Norgard – Electrical Department Head
- Tom Weatherly – HVAC Department Head
- Jim Tishmack – Plumbing Department Head

Planning, Design, and Construction
- Mike Spearnak - Director of Planning, Design, and Construction

Financial Services
- Dave Montoya – Accountant

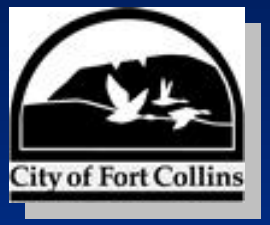
Food Services
- Chris Rock-Director

Materials Management
- Jerel Nielsen – Purchasing and Materials Manager

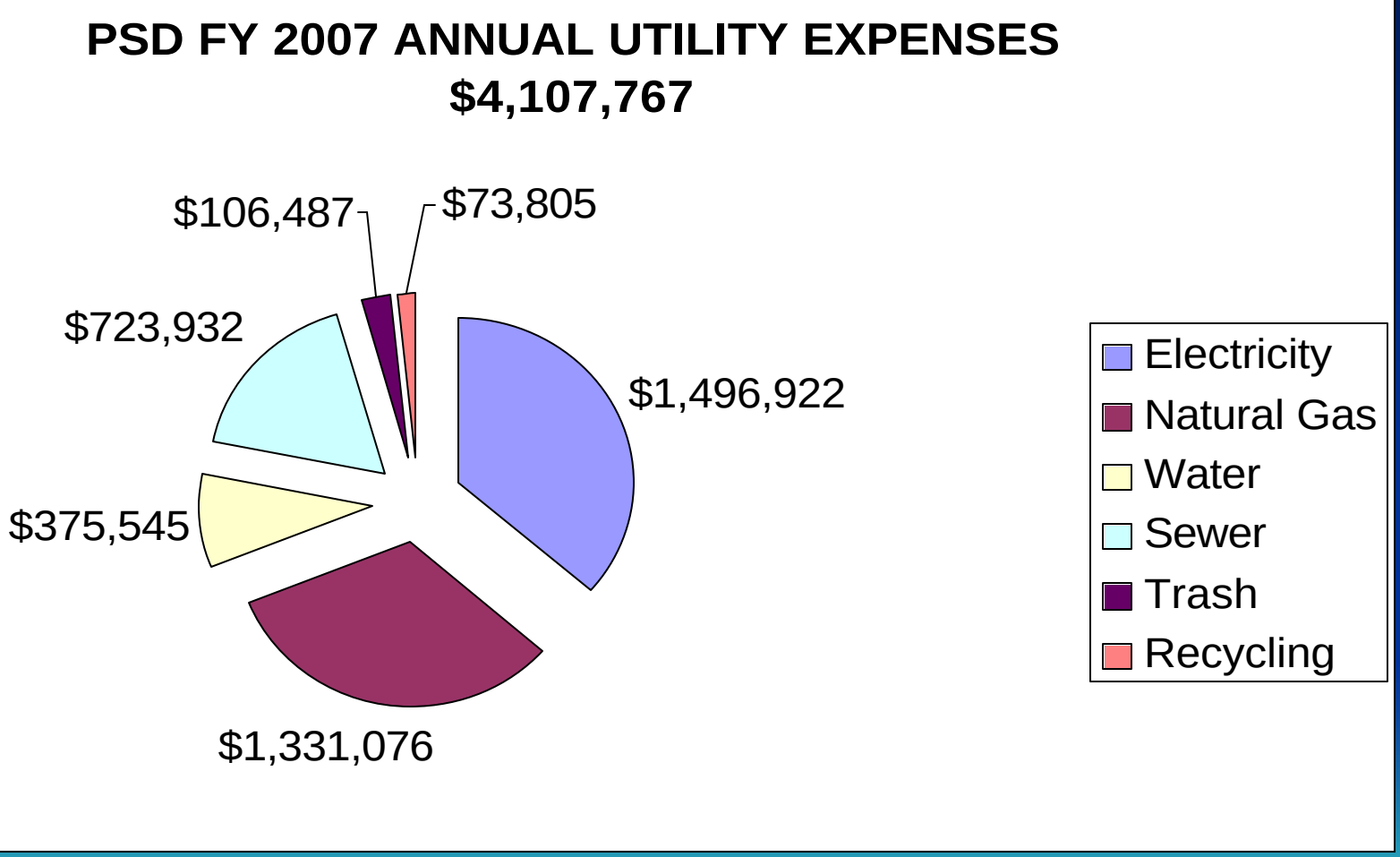
School Services
- Lisa Pitot - Science Curriculum Coordinator
- School Principals

Transportation
- Scott French-Director of Transportation
- Tom Chaffin-Transportation Resource Manager

High Performance Partners



Yearly Utility Costs



Sustainable Design Guidelines

For the construction of new facilities and the renovation of existing structures

June 2005

Operations

Contents

Sustainable Design Guidelines

- Integrated Design
  - Involve ALL Stakeholders at all stages
- Buildings That Teach
  - Great Educational Opportunity
- Materials & Resource Consumption
  - Building Components & Systems
  - Impact on Natural Resources
  - Energy Efficiency

Integrated Design Team

(Fossil Ridge High School)

- Poudre School District
- RB+B Architects
- Ensar Group - Daylighting
- JVA - Structural
- MKK – Mechanical
- CEI - Electrical
- BHA Design - Landscape Architect
- Aqua Engineering - Irrigation
- Nolte & Associates - Civil
- EMC – Energy Consultant
- Institute for the Built Environment at CSU - LEED™
- AEC – Commissioning

Example Performance Goals

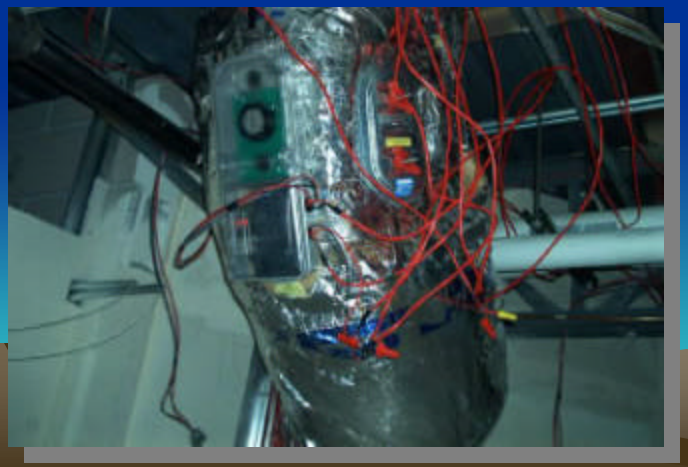
- Beat ASHRAE 90.1 by 60%
- Energy Star score of 90
- 35 kBTU/sq.ft./yr or better
- Improved building envelope
- Reduce cooling load to 1 ton/1,000 sq.ft.
- 70 degree heating and 75 degree cooling set points
- Confirm climate zone design parameters

High Performance Buildings & Schools Completed to Date

- Operations Building in 2001
- Zach Elementary in 2002
- Bacon Elementary in 2003
- Fossil Ridge High School in 2004
- Kinard Middle School in 2006
- Rice Elementary in 2007
- Bethke Elementary in July 2008

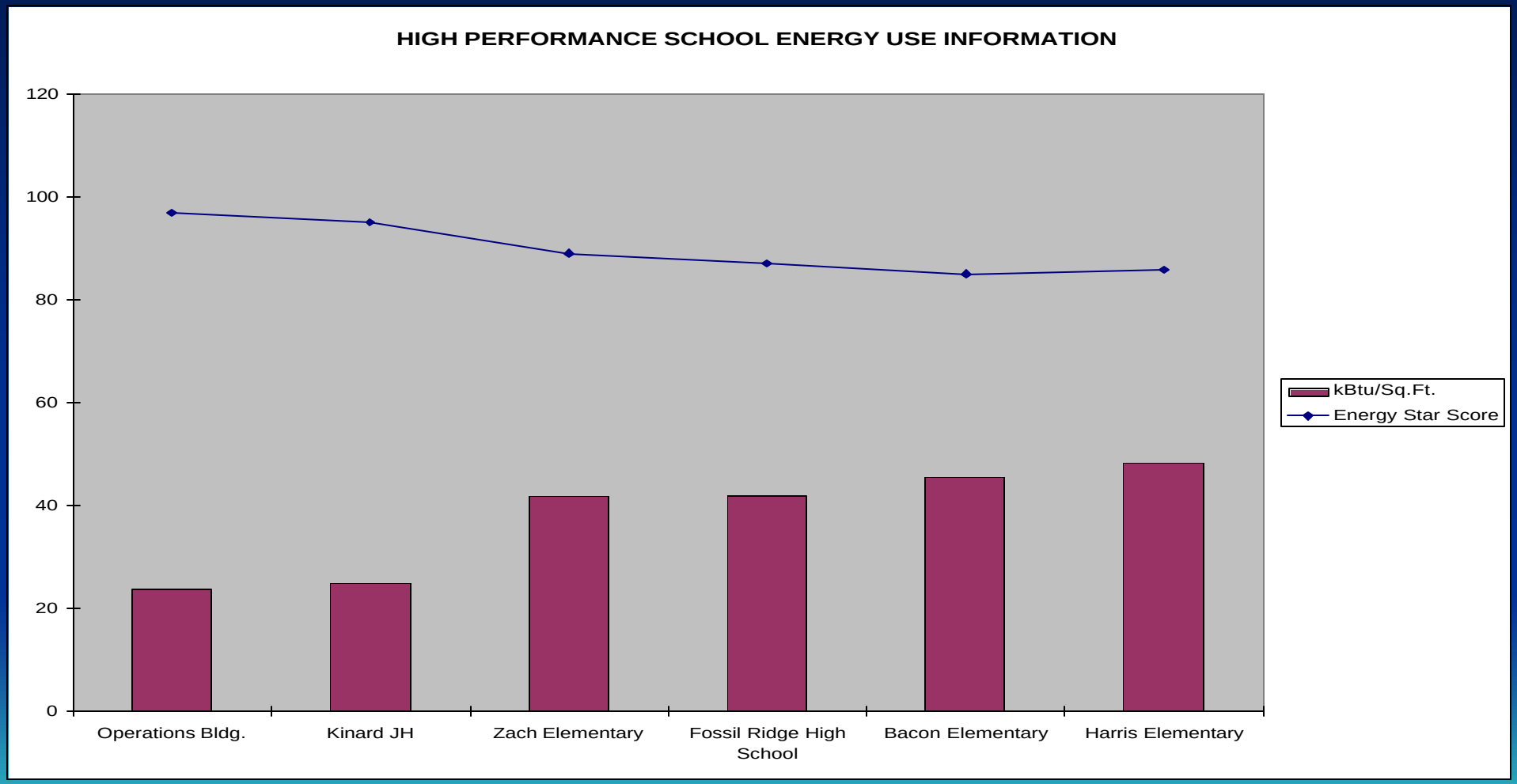
Commissioning

- Intent: *Verify and ensure that fundamental building elements and systems are designed, installed and calibrated to operate as intended.*
- Independent third-party hired by the Owner.

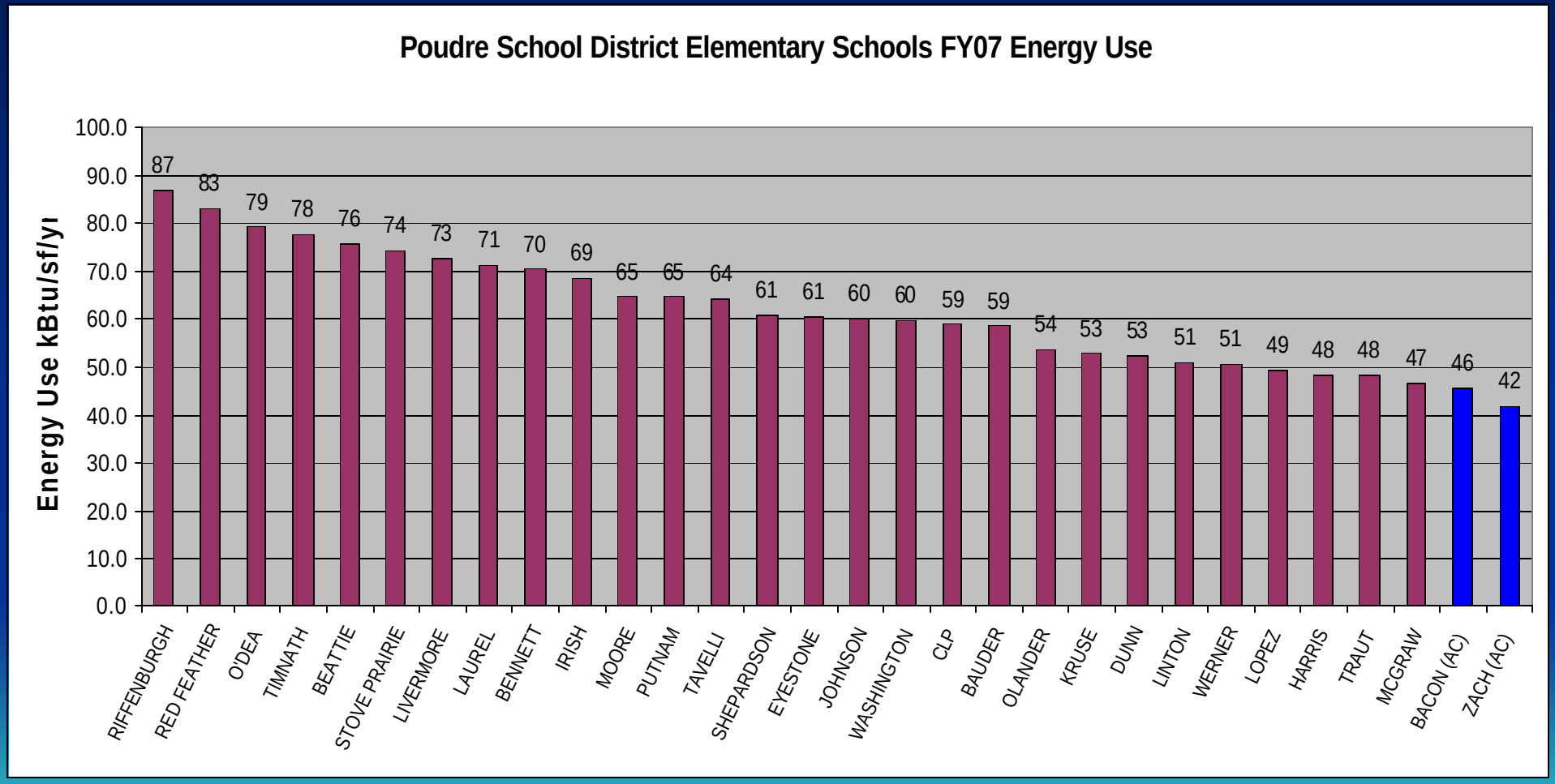


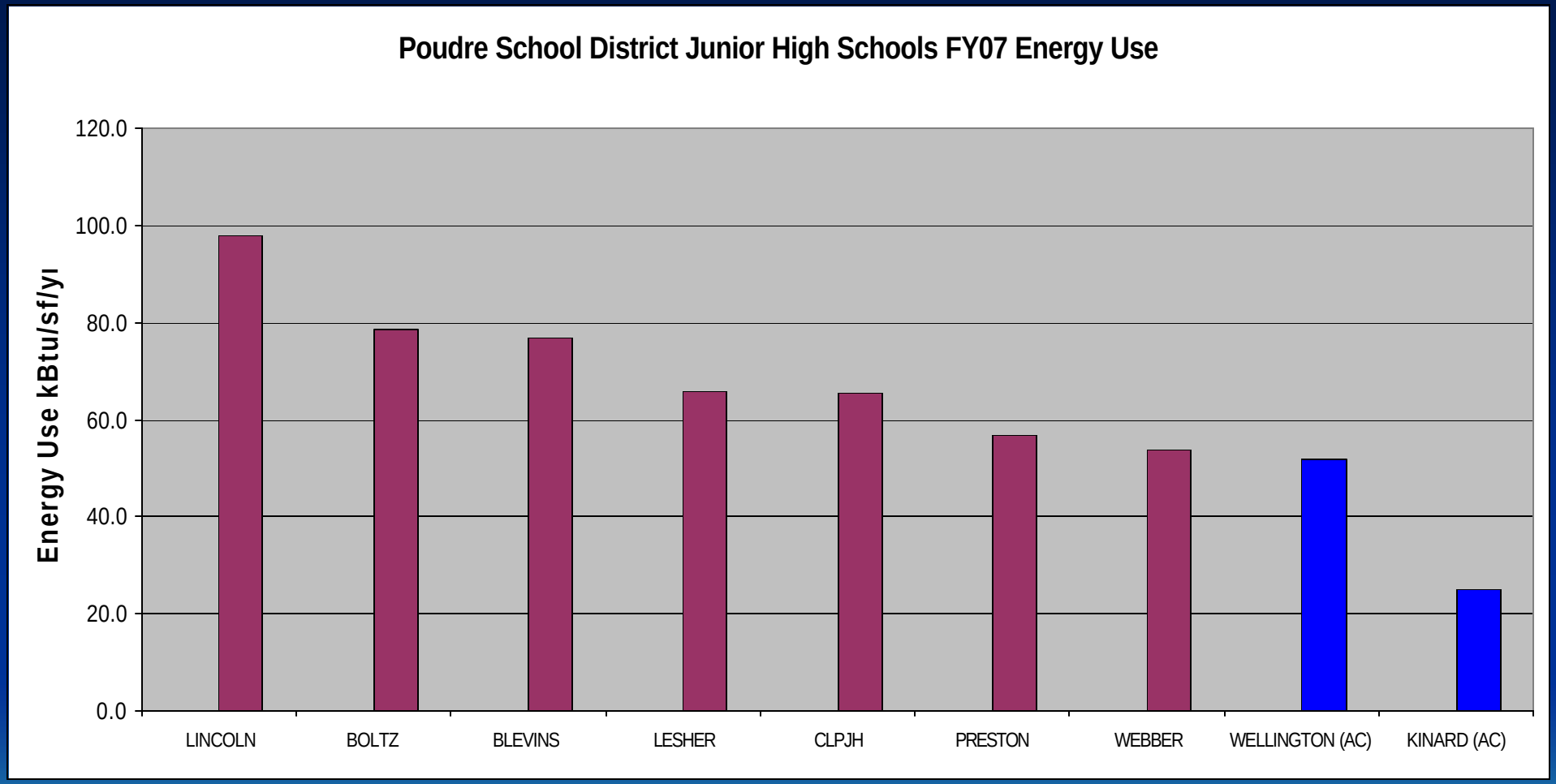
- Key member of an “integrated” design team…

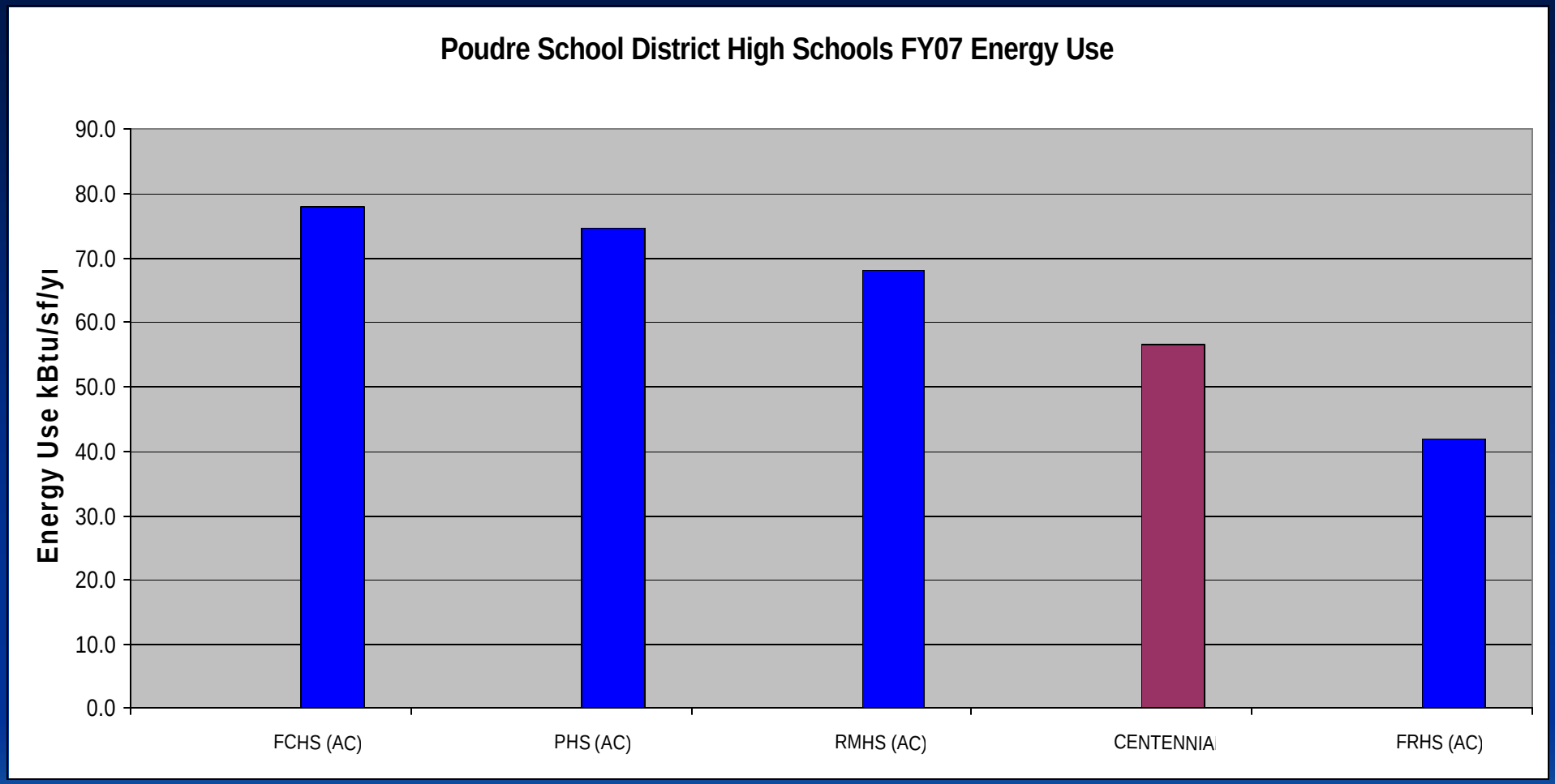
Energy Performance to Date



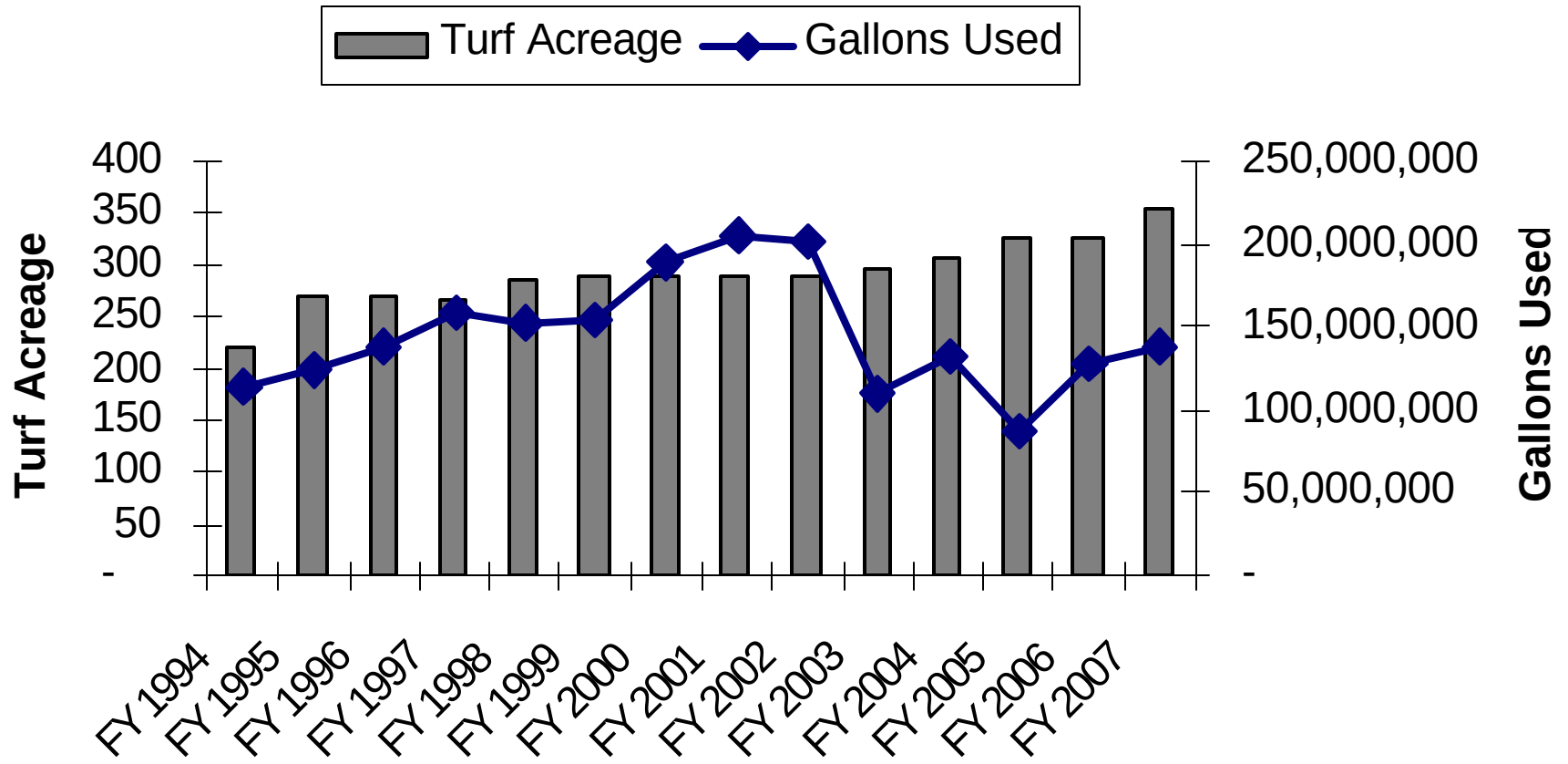
Yearly Benchmarking of Our Schools

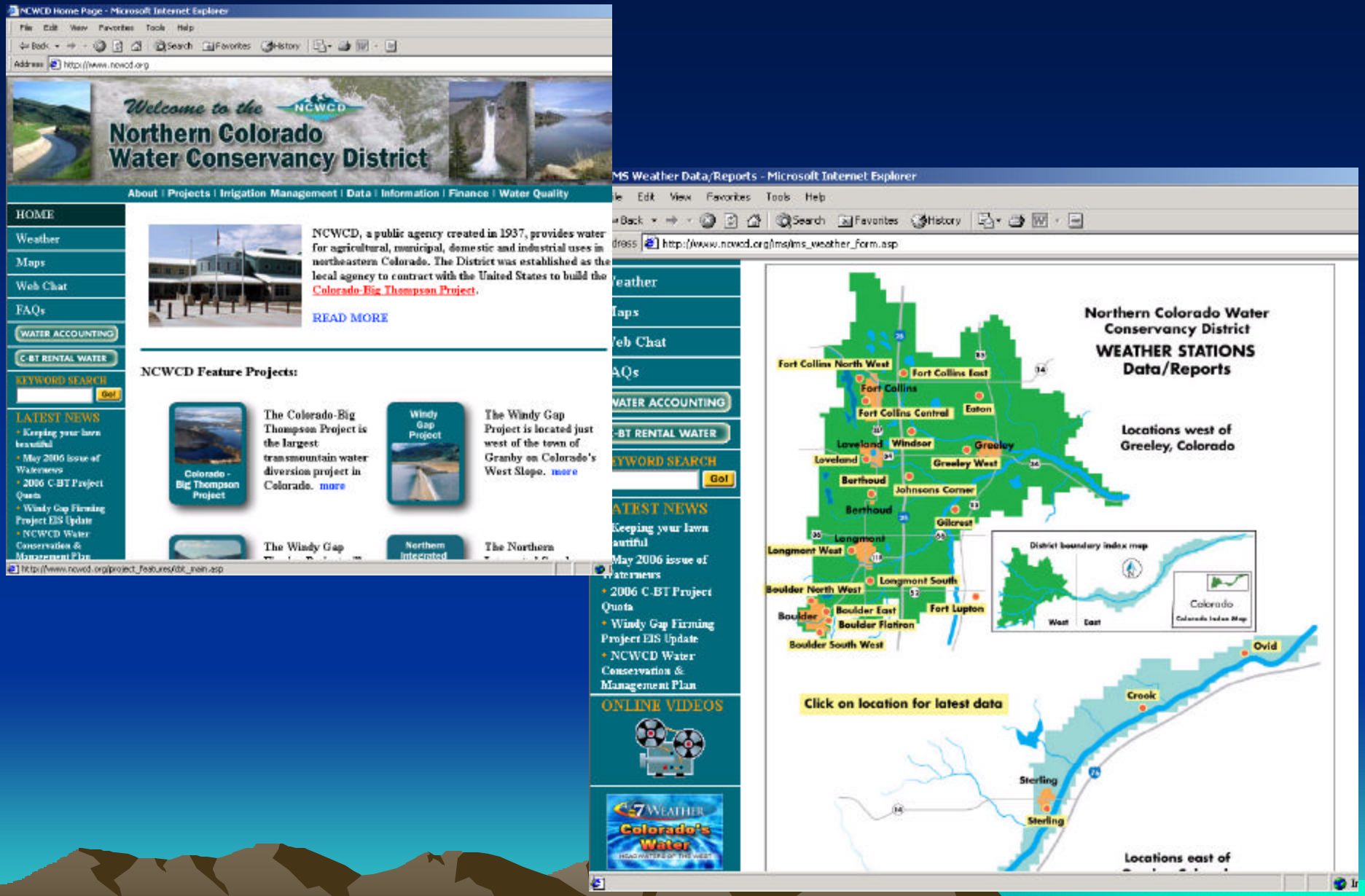


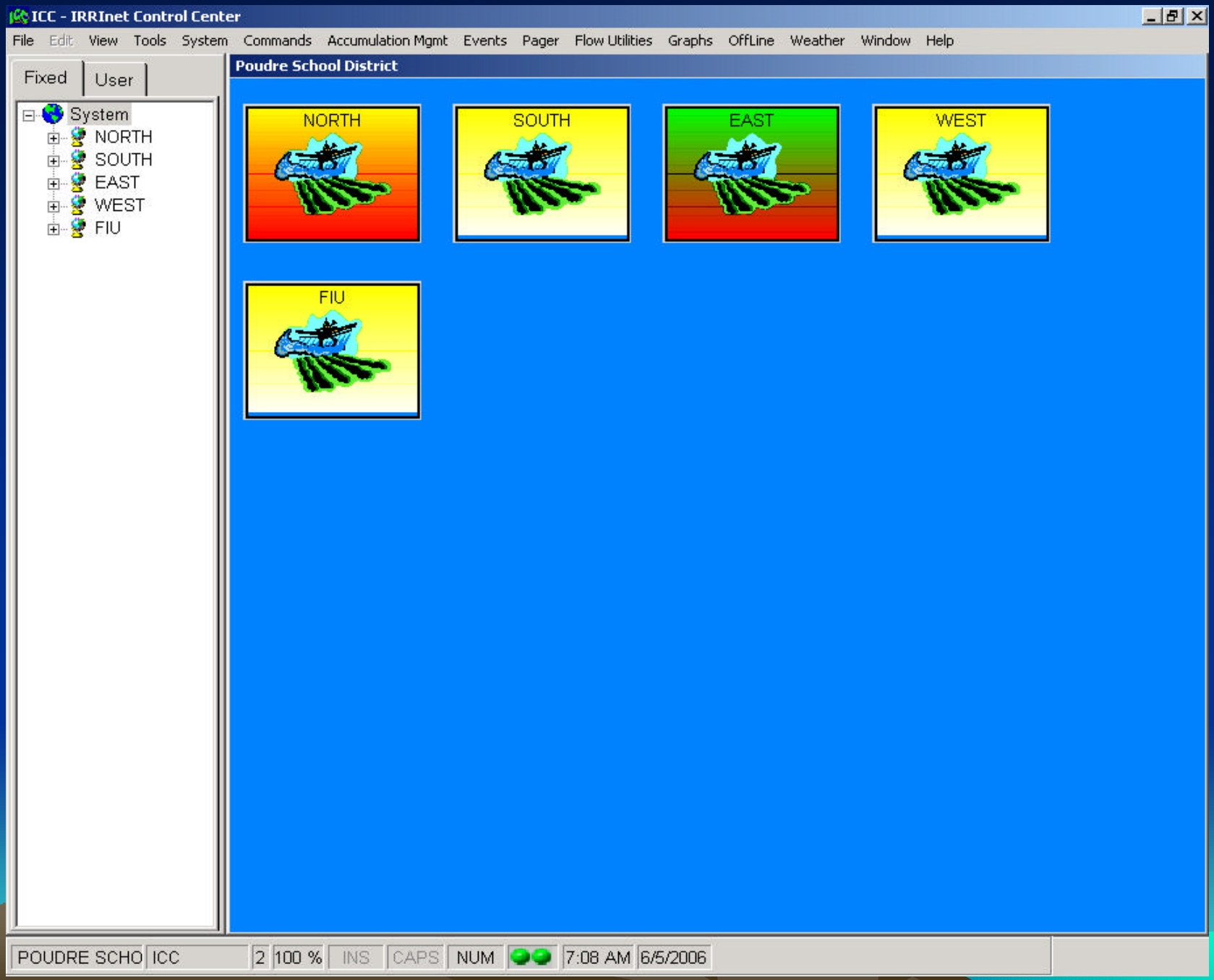

Poudre School District Junior High Schools FY07 Energy Use
Energy Use kBtu/sf/yr
120.0
100.0
80.0
60.0
40.0
20.0
0.0
LINCOLN
BOLTZ
BLEVINS
LESHER
CLPJH
PRESTON
WEBBER
WELLINGTON (AC)
KINARD (AC)


Poudre School District High Schools FY07 Energy Use
Energy Use kBtu/sf/yr
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
FCHS (AC)
PHS (AC)
RMHS (AC)
CENTENNIA
FRHS (AC)

Water Use


Turf Acreage
Gallons Used
Turf Acreage
400
350
300
250
200
150
100
50
-
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
-
Gallons Used
FY 1994
FY 1995
FY 1996
FY 1997
FY 1998
FY 1999
FY 2000
FY 2001
FY 2002
FY 2003
FY 2004
FY 2005
FY 2006
FY 2007


NCWCD Home Page - Microsoft Internet Explorer
Welcome to the NCWCD
Northern Colorado Water Conservancy District
About | Projects | Irrigation Management | Data | Information | Finance | Water Quality
HOME
Weather
Maps
Web Chat
FAQs
WATER ACCOUNTING
C-BT RENTAL WATER
KEYWORD SEARCH
Go!
LATEST NEWS
• Keeping your lawn beautiful
• May 2006 issue of Waterways
• 2006 C-BT Project Quota
• Windy Gap Firming Project EIS Update
• NCWCD Water Conservation & Management Plan
NCWCD, a public agency created in 1937, provides water for agricultural, municipal, domestic and industrial uses in northeastern Colorado. The District was established as the local agency to contract with the United States to build the Colorado-Big Thompson Project.
READ MORE
NCWCD Feature Projects:
Colorado - Big Thompson Project
The Colorado-Big Thompson Project is the largest transmountain water diversion project in Colorado. more
Windy Gap Project
The Windy Gap Project is located just west of the town of Granby on Colorado's West Slope. more
The Windy Gap
Northern
The Northern
MS Weather Data/Reports - Microsoft Internet Explorer
http://www.ncwcd.org/ims/ims_weather_form.asp
Northern Colorado Water Conservancy District
WEATHER STATIONS
Data/Reports
Locations west of Greeley, Colorado
Fort Collins North West
Fort Collins East
Fort Collins
Fort Collins Central
Eaton
Loveland
Windsor
Greeley
Greeley West
Berthoud
Johnsons Corner
Gilcrest
Longmont
Longmont West
Longmont South
Boulder North West
Boulder
Boulder East
Boulder Flatiron
Fort Lupton
Boulder South West
District boundary index map
Colorado
Click on location for latest data
Ovid
Crook
Sterling
Locations east of
ONLINE VIDEOS
7 Weather
Colorado's Water


ICC - IRRInet Control Center
File Edit View Tools System Commands Accumulation Mgmt Events Pager Flow Utilities Graphs OffLine Weather Window Help
Fixed
User
System
NORTH
SOUTH
EAST
WEST
FIU
Poudre School District
NORTH
SOUTH
EAST
WEST
FIU
POUDRE SCHO
ICC
2
100 %
INS
CAPS
NUM
7:08 AM
6/5/2006

“Got to Be Blue to Be Green”

Colorado Has Earned 134 Energy Star Labels Since 2000

PSD has Earned 66 of Them!

2006 EDITION

Sustainability Management System

POUDRE SCHOOL DISTRICT

THE BRENDLE GROUP, INC.
ENGINEERING CONSULTING

What is an SMS?

Combines a management system with a sustainability framework

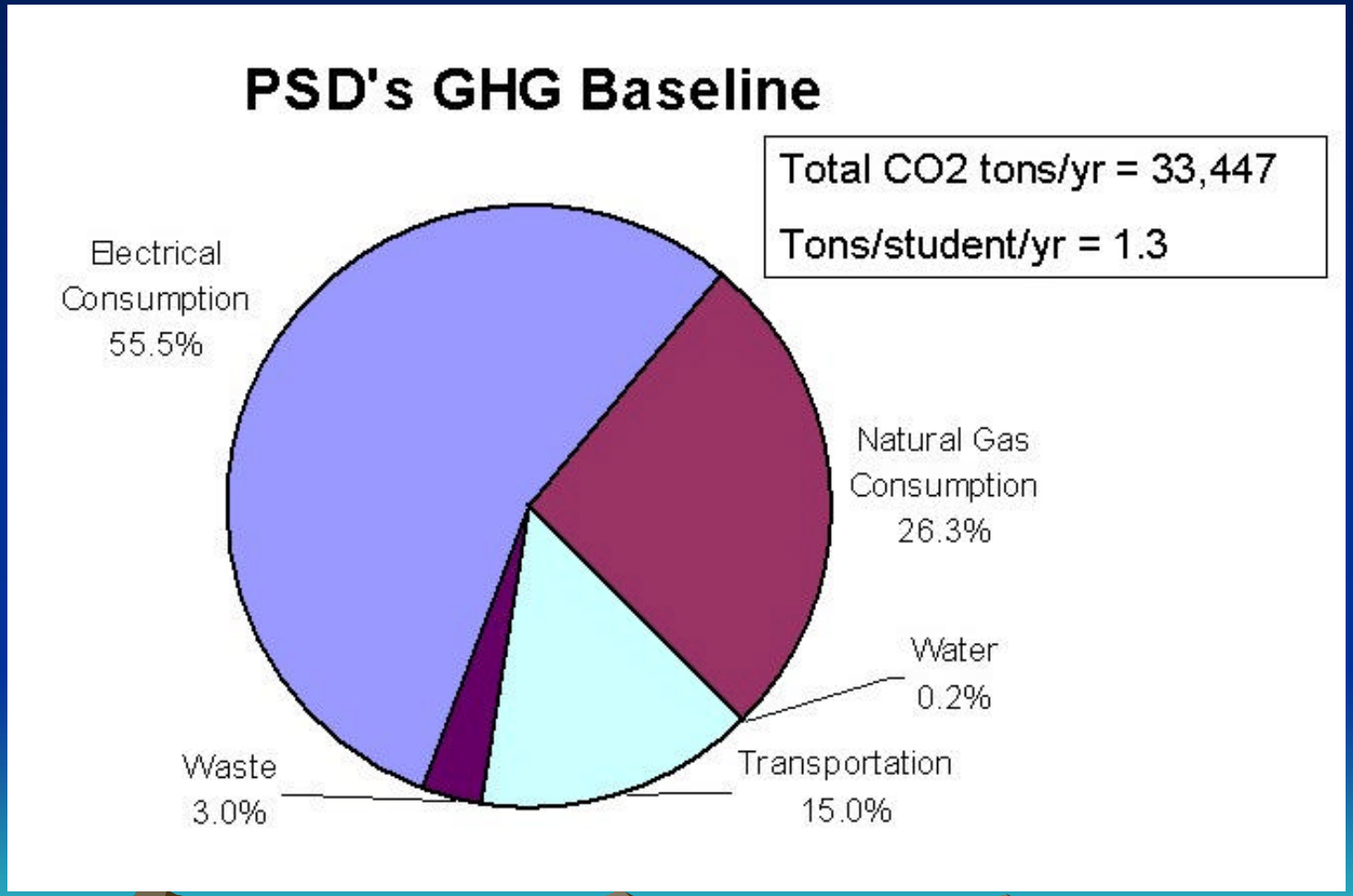
Sustainability Framework:

Where do you want to go…

Management System:

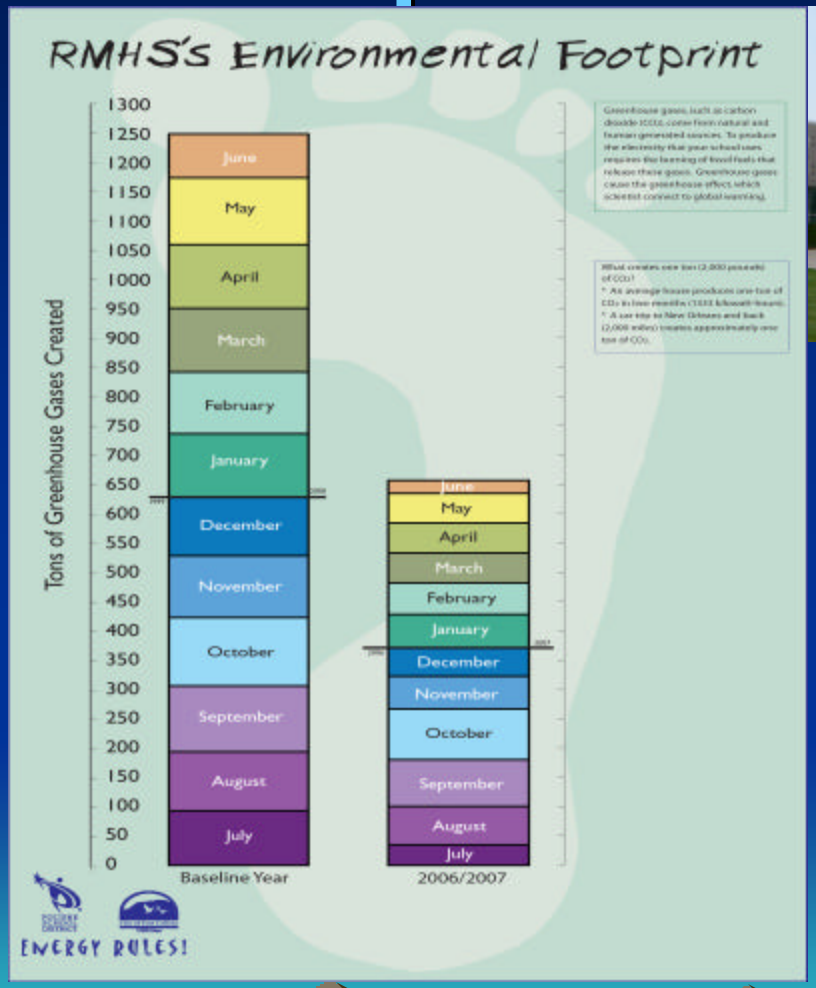
The vehicle for getting there…

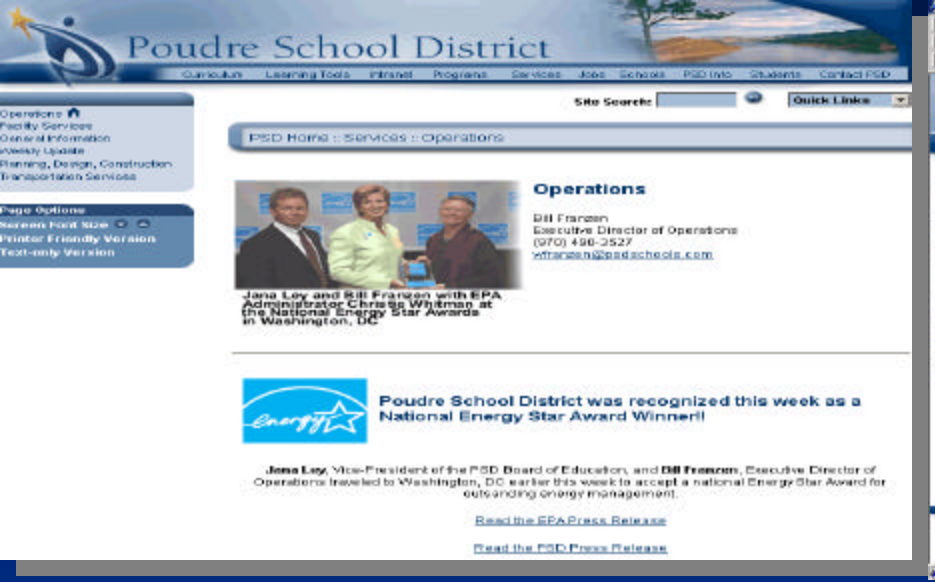
PSD Greenhouse Gas Emission Sources



School's Environmental Footprint

- Making the school connection…





John Holcombe

Poudre School District
2445 LaPorte Avenue
Fort Collins, CO 80521
(970) 490-3497

jholcomb@psdschools.org

Stu Reeve

Poudre School District
2445 LaPorte Avenue
Fort Collins, CO 80521
(970) 490-3502

stur@psdschools.org

www.psdschools.org