

Charlotte Mecklenburg Schools Environmental Management System

Greening Government Agencies: The Environmental Stewardship Initiative Path to Continuous Environmental Improvement

Environmental Stewardship Initiative Webinar
Tuesday December 7
1:30–3:00 pm

Brian Kasher, CET
Manager, Environmental Management
Charlotte Mecklenburg Schools

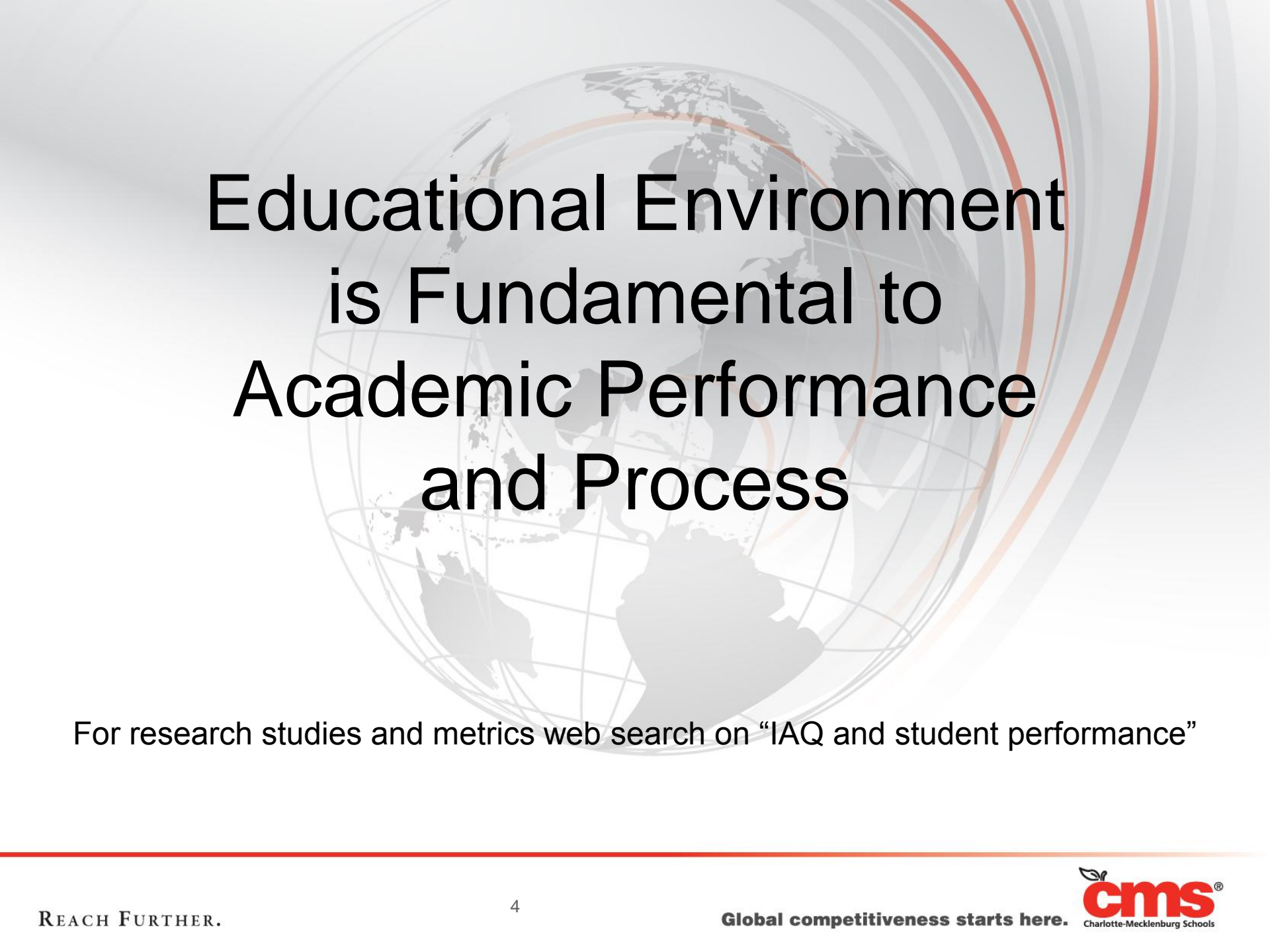
Road to Excellence

- 2002 CMS Implements “Tools for Schools”
- 2004 CMS Receives “Tools for Schools” Excellence Award
- 2004 ISO “Gap Analysis”
- 2006 Development of Continuous Improvement Plans
- 2006 Building Services Receives Baldrige NCAfE Level II
- 2007 Building Services Receives ASBO Facilities Master Award
- 2007 CMS Enters into ESI Partnership with NCDENR
- 2007 CMS Receives “Tools for Schools” Sustained Excellence Award
- 2008 Facility Departments Commence Development of ISO 9001 QMS
- 2009 CMS Receives EPA National Mentor of the Year Award
- 2009 CMS Public Corporation of the Year for Minority Business Participation
- 2010 Other Auxiliary Services Departments Commence ISO 9001 Process
- 2011 Facility Departments Attain ISO 9001 Certification
- 2011 EMS Recognized by DENR as Meeting ISO 14001 Requirements
- 2012 CMS Applies for Rising Steward Status with DENR ESI
- 2012 Auxiliary Services ISO 9001 Certified
- 2012 OHS Management System OSHAS 18001 Implemented
- 2013 Auxiliary Services Receives NCAfE Levels III and IV
- 2014 Environmental Steward Application

CMS ENVIRONMENTAL FOOTPRINT

- 176 schools, 650 buildings
- 1241 mobile classrooms
- 21.2 million square feet occupied space
- 4,892 acres of land
- 1451 utility accounts
- 206 million kilowatt hours electric
- 3.9 million therms natural gas
- 256 million gallons potable water
- 2.7 million gallons of diesel
- 290 thousand gallons of gasoline
- 22.1 million miles yellow bus fleet
- 23.5 million meals served
- 20 million pounds of solid waste
- 12 percent recycled solid waste stream



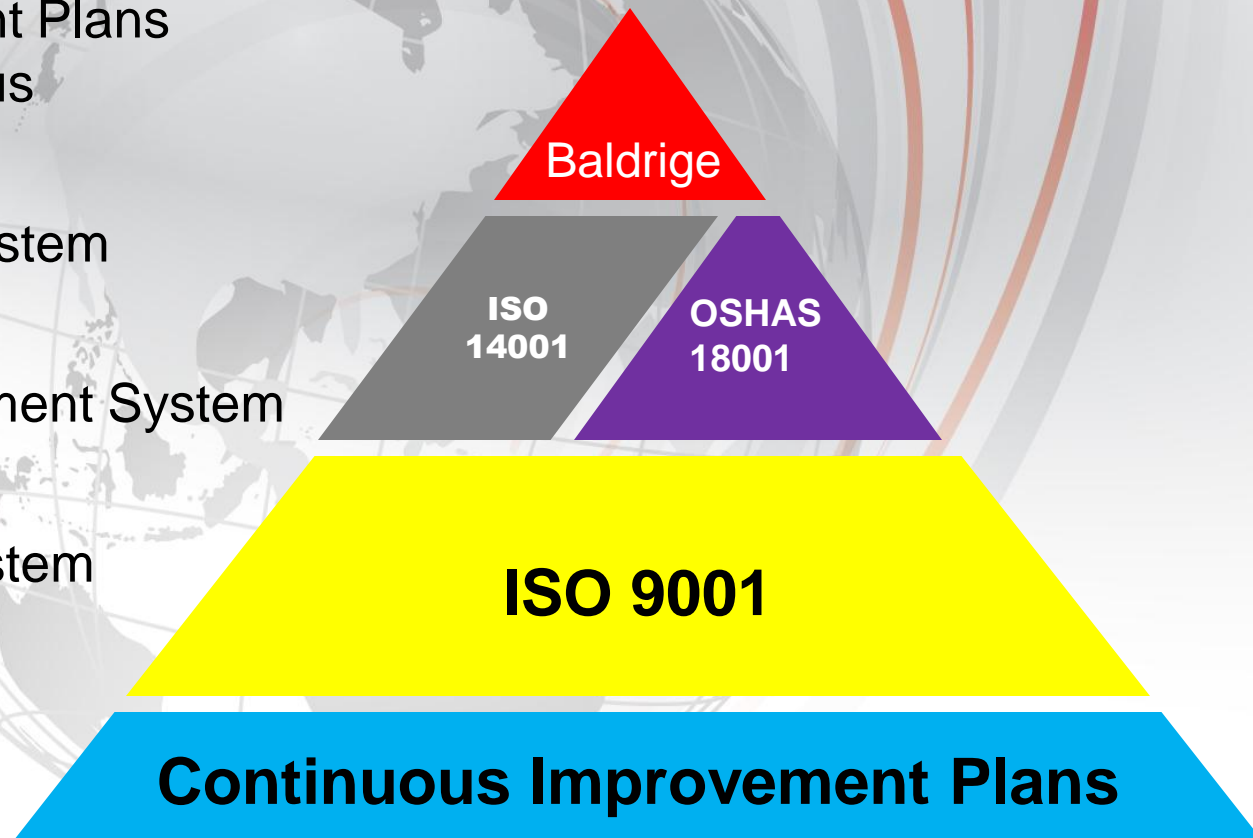


Educational Environment is Fundamental to Academic Performance and Process

For research studies and metrics web search on “IAQ and student performance”

CMS PERFORMANCE EXCELLENCE MODEL

- ✓ Continuous Improvement Plans
Establish Business Focus
- ✓ ISO 9001:2008
Quality Management System
- ✓ ISO 14001:2004
Environmental Management System
- ✓ OSHAS 18001
Safety Management System
- ✓ Baldrige Performance
Excellence Criteria



**Environmental stewardship is an investment with returns to the bottom line.
> \$5,000,000 in Energy Conservation & > \$100,000SMW fees!**

ISO 9001 ASBESTOS PROCESS

Each Process includes:

- Objective & Scope
- Responsibility
- Documentation Listing
- Equipment
- Procedure
- Process Overview
- Hyperlinked Process Charts

UNCONTROLLED

Date issued: 3/30/10	Standard Operating Procedure	Procedure No. CSP-001-CSM
Page 1 of	<i>Tier 1 Documentation</i>	Rev. 00
	<i>Auxiliary Services Charlotte-Mecklenburg Schools Charlotte, NC</i>	Written by: Approved By:

Subject: Custodial Service Processes Procedure

1.0 Objective & Scope: This procedure covers the processes associated with Custodial Services to include but not limited to: Custodial Request determination Process.

2.0 Responsibility: Executive Director of Building Services, Custodial Services Manager, Operations Supervisor, Area Leader, Head Custodian I, Head Custodian II, Head Custodian III, Custodian, Administrative Assistant

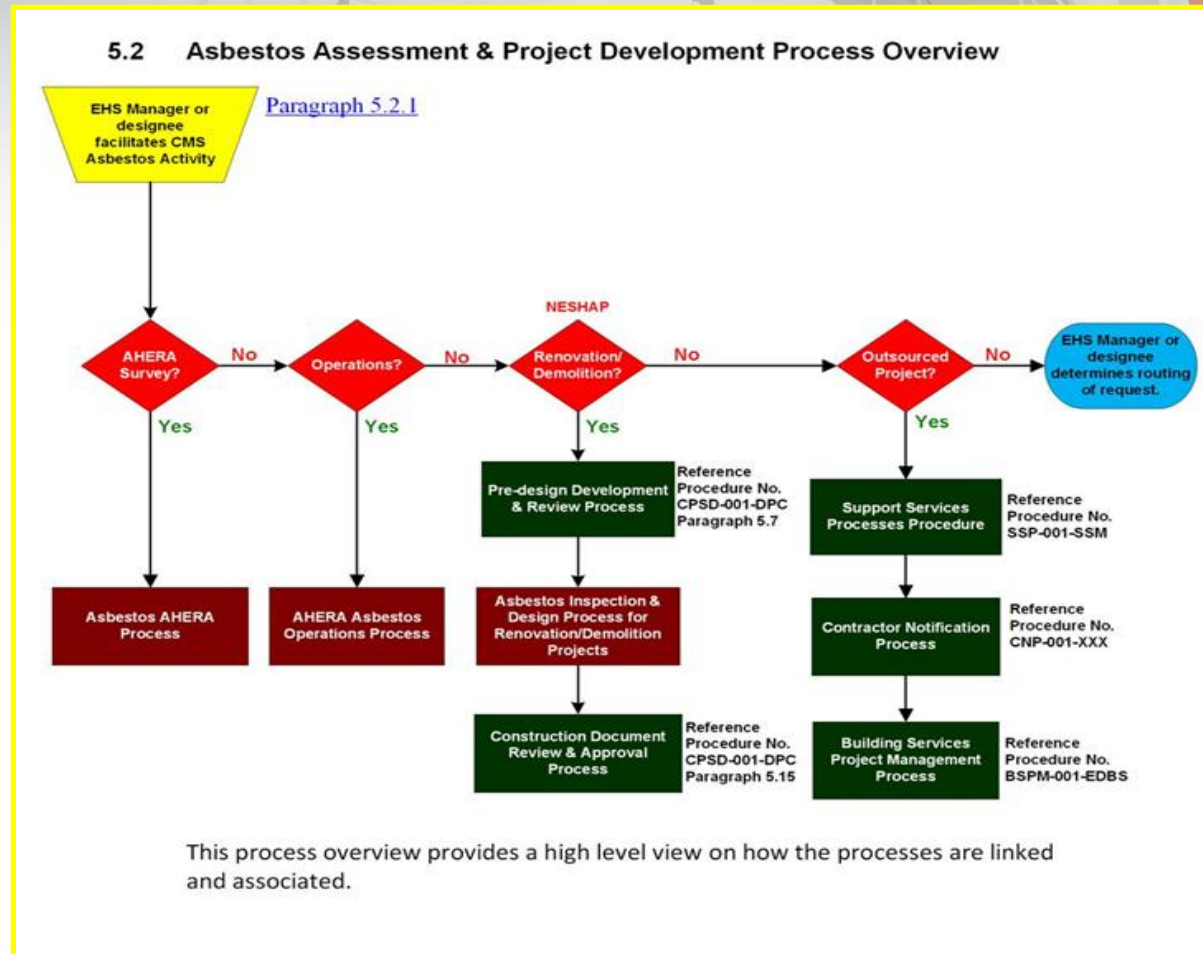
3.0 Documentation: Procedure No. MWOP-001-DM, Maintenance Work Order Process Procedure
 Procedure No. CPA-001-DPI, Corrective & Preventive Action Procedure
 Form No. WRC-001, Work Request Classification
 Form No. HCT-001, Head Custodian I Recommended Task List & Schedule
 Form No. HCT-010, Head Custodian I Recommended Task List & Schedule - Spanish
 Form No. HCT-002, Head Custodian II Recommended Task List & Schedule
 Form No. HCT-003, Head Custodian III Recommended Task List & Schedule
 Form No. CRT-001, Custodian Recommended Task List & Schedule
 Form No. CSM-001, Custodial Services Monthly Quality Audit
 Form No. CSW-001 (English), Custodial Services Bi-Weekly Quality Audit
 Form No. CSW-002 (Spanish), Custodial Services Weekly Quality Audit
 Form No. CSD-001 (English), Custodial Services Daily Timesheet Audit
 Form No. CSD-002 (Spanish), Custodial Services Daily Timesheet Audit

4.0 Equipment: **Cleaning Supplies/Materials:** Chemicals, Wet Mops, Mop Buckets, Dust Mops, Rags, Brooms, Janitorial Carts
Cleaning Equipment: Electric Floor Scrubbers, Auto Scrubbers, Riding Scrubbers, Electric Floor Burnishers, Propane Floor Burnishers, Riding Floor Burnishers, Carpet Extractors, Water Extractors, Leaf Blowers, Floor Fans, Upright Vacuum Cleaners, Back Pack Vacuum Cleaners

Procedure No. CSP-001-CSM Rev. 00 10/010 1 of 18

ISO 9001 ASBESTOS PROCESS

The overview process is high level; has initial decision tree and is hyperlinked to lower level process





INTERNATIONAL
STANDARD

ISO
14001

Second edition
2004-11-15

Environmental management systems —
Requirements with guidance for use

*Systèmes de management environnemental — Exigences et lignes
directrices pour son utilisation*



Reference number
ISO 14001:2004(E)

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Solely for CMS, Wakelet
Printed in the USA, 2004-11-15

ISO 14001 18 KEY ELEMENTS

4.1 General Requirements

4.2 Environmental Policy

4.3 Planning

- 4.3.1 Environmental Aspects
- 4.3.2 Legal & Other Requirements
- 4.3.3 Objectives & Targets
- 4.3.4 Environmental Mgt Programs

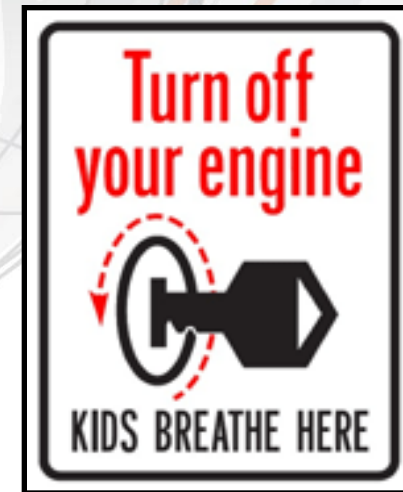
4.4 Implementation & Operation

- 4.4.1 Structure and Responsibility
- 4.4.2 Training, Awareness & Competence
- 4.4.3 Communication
- 4.4.4 EMS Documentation
- 4.4.5 Document Control
- 4.4.6 Operational Control
- 4.4.7 Emergency Preparedness & Response

4.5 Checking & Corrective Action

- 4.5.1 Monitoring & Measurement
- 4.5.2 Nonconformance, Corrective & Preventive Action
- 4.5.3 Records
- 4.5.4 EMS Audit

4.6 Management Review



CMBOE POLICY ECF EXCERPT

The Board of Education believes that Charlotte Mecklenburg Schools must be an effective steward of our natural resources. The Board hereby commits that the district will continue and strengthen its efforts to operate in a manner that protects and conserves our air, water, and land resources, improves the environment, and promotes environmentally sound behavior.

- Environmental Compliance
- Pollution Prevention
- Resource Conservation
- Resource Recovery
- Sustainable Development
- Sustainable Purchasing
- Behavioural Change

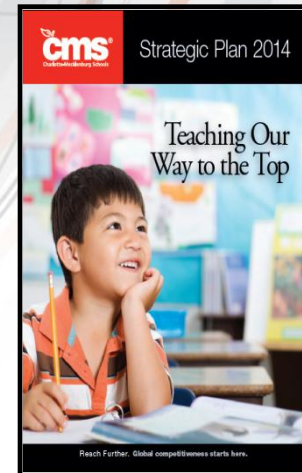
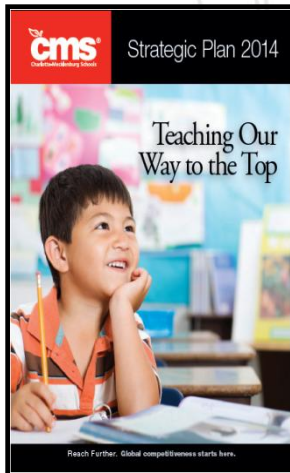


CMS STRATEGIC PLAN 2014

Objective : Reduce utility consumption 20%, solid wastes 5% and pollutants 20%

Key Strategy: Engage all stakeholders in conservation of resources

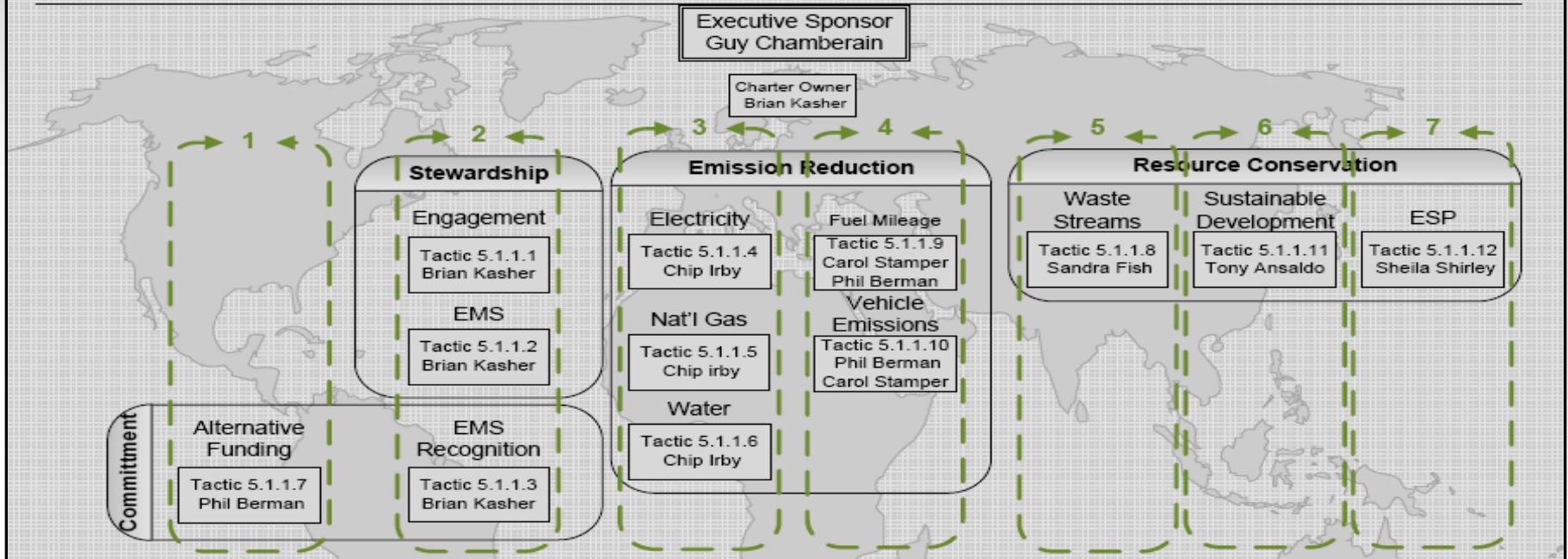
Tactics: 12 tactics aligned into 7 teams



TACTIC MANAGEMENT PLAN TEAMS

ENVIRONMENTAL STEWARDSHIP CHARTER TACTIC MANAGEMENT PLAN ALIGNMENT

This chart illustrates alignment of charter tactics into projects for development into tactical management plans



Seven Tactical Management Plans Developed by Owners for Approval of Executive Sponsor Prior to PMOC Presentation

TMP Owner	Tactic Numbers	TMP Topic Area	Board Policy Area	Date
1 - Berman	5.1.1.7	Alternate Funding	Resource Conservation et al	TBD
2 - Kasher	5.1.1.1 - 5.1.1.2 - 5.1.1.3	EMS w/Engagement	Behavioral Change & Compliance et al	TBD
3 - Irby	5.1.1.4 - 5.1.1.5 - 5.1.1.6	Utilities	Resource Conservation et al	TBD
4 - Stamper	5.1.1.9 - 5.1.1.10	Vehicle Emissions/Fuel Mileage	Pollution Prevent & Resource Conservation	TBD
5 - Fish	5.1.1.8	Solid Waste	Resource Recovery & Pollution Prevention	TBD
6 - Ansaldo	5.1.1.11	Sustainable Development	Sustainable Development et al	TBD
7 - Shirley	5.1.1.12	Sustainable Purchasing	Sustainable Purchasing et al	TBD

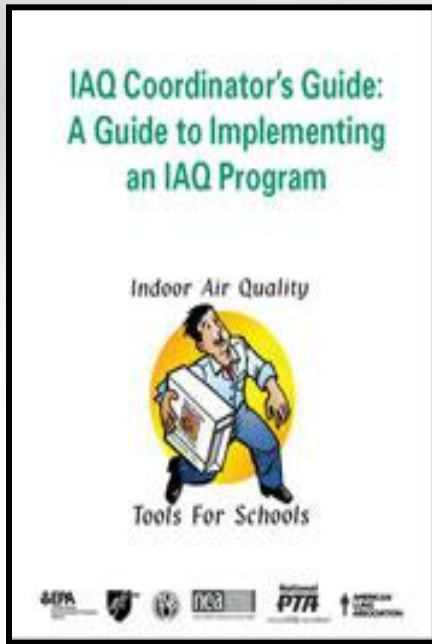
SPECIAL MAINTENANCE ASSIGNMENT RESPONSE TEAM

- In-house critical response beyond routine custodial and maintenance capability
- Cross departmental response team
- 24 / 7 / 365 facility support
- Asbestos O&M, mold and HAZCOM trained
- Medically cleared to don respirators
- Small-scale short-duration project focus
- Temporary containment of large scale projects pending outsource
- Written response protocols
- 3 signature project completion verification



SMART

USEPA TOOLS FOR SCHOOLS PROGRAM



Informative Guides

Videos



Problem Solving Wheel

GREEN CLEANING

Cleaning to protect health without harming the environment. Green cleaning programs go beyond chemical and equipment considerations and may include policies, procedures, training and “shared” responsibility.

- Reduced chemical types from 12 to 4
- Eliminated caustic emulsifier 17,200 gallons
- Conversion to HEPA Vacuums
- Conversion to battery operated burnishers
- 1.2 Million gallons green cleaners annually
- Aggressive internal inspection program



HAZARD COMMUNICATION

Hazard Communication Standard



Enforcement of MSDS Requirement

Material Safety Data Sheets (MSDS) for ~480 chemicals used by Building Services supporting facilities available for download through CMS MSDS on-line library. Additional departments initiating participation.

MSDS CONTENTS

Section 1. Product Identity

Section 2. Hazardous Ingredients and Exposure Limits

Section 3. Chemical Characteristics

Section 4. Fire and Explosion Information

Section 5. Reactivity

Section 6. Health Effects

Section 7. Handling and Storing Instructions

Section 8. Control Measures

Energy Star Rooted Management

- Reduced our KBTU / Sq-ft by 10% over the last 2 years.
 - This resulted in CMS being under our utility budget by over 2 million dollars each of the last 2 school years.
 - Energy Star Partner
 - 30 Plus Schools Energy Star labeled 40 More in-line
- Designated National Energy Star Leader

CUSTODIAL LAMP RECYCLING PROGRAM

Process all types of bulbs including CFL's

- 11,000 fluorescent lamps recycled in first year of program
- Recycle virtually all components of bulbs:
 - metal end caps
 - glass tubing
 - mercury
 - phosphor powder
- Crusher and HEPA filtered device sits atop of 45 gallon drum



CMS PARENT UNIVERSITY COURSE

“Going Green at CMS and Home”



History of Environmental Concern

CMS Environmental Footprint

Volunteer Stewardship Activities

Environmental Stewardship Programs

September 16 Butler High School

September 14 South Mecklenburg High School

September 15 Vance High School

September 21 North Mecklenburg High School

September 23 Idlewild Elementary

September 30 Community House Middle

October 27 Regional Sierra Club 40th Anniversary

December 07 HAWK Mathews Community Center

January 12 Southwest NC Education Alliance

ENVIRONMENTAL MANAGEMENT WEBSITE

- 30 PLUS WEB PAGES
- EXTERNAL LINKS
- PROGRAM INFORMATION
- TOPICAL INFORMATION
- LINKS TO RELATED SITES
- TEACHER RESOURCES
- STUDENT FEATURES
- DASHBOARD UNDER DEVELOPMENT
- DOWNLOADS

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Reach Further. Global competitiveness starts here. **cmstv**

CMS > Departments > Construction > Building Services > ISO 14001 Environmental Management System

ISO 14001 Environmental Management System

Home

Environmental Stewardship Initiative

The Charlotte Mecklenburg Schools Environmental Management System (EMS) is a district-wide cross departmental all inclusive system dedicated to implementing Board of Education Policy ECF which states, "The Board of Education believes that Charlotte Mecklenburg Schools must be an effective steward of natural resources. The Board hereby commits that the district will continue and strengthen its efforts to operate in a manner that protects and conserves our air, water, and land resources, improves the environment, and promotes environmentally sound behavior". Board Policy ECF provides seven EMS focus areas that include: Environmental Compliance, Pollution Prevention, Resource Conservation, Resource Recovery, Sustainable Development, Sustainable Purchasing, and Behavioral Change.

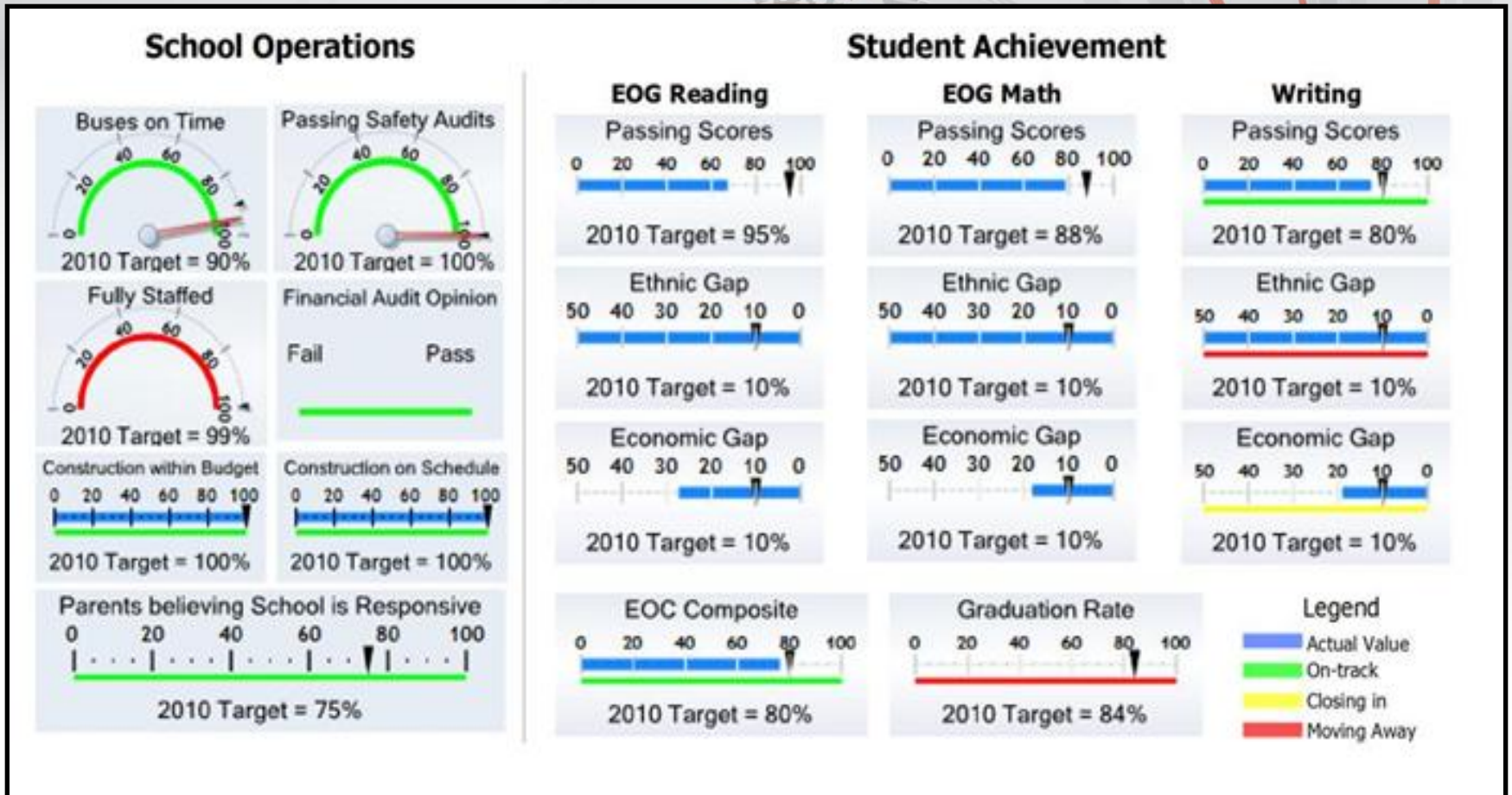
CMS has been recognized as a USEPA National Model of Sustained Excellence, National Mentor of the Year, is a partner in the North Carolina Environmental Stewardship Initiative of the Department of the Environment and Natural Resources (DENR); is a member of the American Association of School Administrators Urban Healthy Schools Coalition and has been designated a Facilities Master by the Association of School Business Officials International (ASBO).

The CMS EMS is being developed using the ISO 14001 Standard, "Environmental Management Systems" through a recognized partnership with the North Carolina Department of the Environment and Natural Resources (DENR) Environmental Stewardship Initiative (ESI). The ESI is providing CMS access to EMS coaches, regional ISO EMS experts, mentors, training and general developmental support. CMS was included in the ESI Legislative report to the North Carolina General Assembly in 2008 and is the first K12 system recognized as ESI partner.

This Website is established to share information on CMS EMS activities, developments, research and success stories. Please select from the red navigation and/or white related links tabs on the left side of this page to access more information.

cms
Charlotte-Mecklenburg Schools
environmental management system

DATA DASHBOARD



To include normalized utilities; fuel consumption; emissions, solid waste and more; being deployed at this time

BUSINESS CASE FOR O&M SUSTAINABILITY

1: “Environmental Management Systems: Do They Improve Performance?”

University of North Carolina Chapel Hill Department of Public Policy, January 2003.

“Overall benefits of EMS utilization in government facilities included better operational control in areas that impact the environment; better understanding of the root causes of non-compliance; improved operational efficiency and cost savings; improved communications within the organization and with outside stakeholders and contractors/vendors; and better relationships with regulators and stakeholders.”

2: “Final Report of the US EPA Environmental Management System Pilot Program for Local Government Entities” US EPA January 2000

- A positive effect on environmental compliance and performance
- Improved environmental awareness, involvement and competency throughout the organization
- Better communication about environmental issues inside and outside the organization
- Improved efficiency, reduced costs, greater consistency
- Better relationships with regulators

BUSINESS CASE FOR O&M SUSTAINABILITY

3: “**EMS Case Study: N.C. Zoological Park – Horticulture Section**” North Carolina Department of Environment and Natural Resources Division of Pollution Prevention and Environmental Assistance, July 2003

“The Zoo’s implementation of an EMS resulted in better management of resources, better understanding of environmental impacts, improved efficiency and productivity and better tracking, follow-up, corrective actions and objectives. The Zoo’s EMS provided a motivational tool that improved management of other organizational activities and forced accountability of employees. Knowledge was captured, recorded and communicated in consistent work instructions, increasing clarity of roles and responsibility.”

4: “**Indoor Air Quality and Student Performance: How Does Indoor Air Quality Affect a Child’s Ability to Learn?**” US EPA Indoor Environments Division August 2003.

Discusses the role of air quality and its ability to assist or impede the education process. Stipulates poor indoor air quality can impede calculation, memory and concentration. Provides 61 related resources.

BUSINESS CASE FOR O&M SUSTAINABILITY

5: “The Collaborative for High Performance Schools Best Practices Manual Volume I – Planning” 2006 Edition p3

“Higher Test Scores” - Learning is a dynamic, complicated process that can, and does, occur in all types of buildings and settings. Anecdotally, the argument linking increased student performance with high-quality school facilities is straightforward. **Students in classrooms that are quite, well-lit, and properly ventilated with healthy air will learn faster because they are more comfortable, are sick less often, can see and hear better, and are less distracted.** Poor lighting, poor acoustics, and poor indoor air quality are barriers to education. High performance schools remove these barriers, allowing teachers and students to work under the best possible conditions. Quantifying the influence of school facilities on learning is a longstanding and highly debated subject in the educational community. Research studies are complicated by the highly systematic nature of education, and the range of social, pedagogical, psychological, and environmental variables involved. However, **a growing number of studies are confirming the relationship between a school’s physical condition-especially its lighting, acoustics and indoor air quality- and student performance.”**

Indoor Air Quality Tools for Schools Program:

Benefits of Improving Air Quality in the School Environment



USEPA NATIONAL MODEL OF
SUSTAINED EXCELLENCE &
NATIONAL MENTOR OF THE YEAR