

## **Section B: Educational Facilities, Guidelines and Standards**

### **The Relationship between Learning and Educational Facilities**

Learning is a complex activity that tests students' motivation, mental concentration, and physical condition. Indoor environmental conditions such as poor acoustics, inappropriate lighting and glare, inadequate fresh air, mold, odors, and uncomfortable temperatures make it challenging for even the brightest children to engage in learning activities.

While there are many factors that influence a child's academic performance and behavioral attitudes such as socioeconomic status and family support, the conditions of a school building are under the control of the school district, and thus can offer an opportunity for improving a student's performance and outlook on education. As one looks at results of the research, findings link improved student achievement with building quality, newer or modernized buildings, improved lighting, thermal comfort, acoustics, and indoor air quality. Studies also show a relationship between safe, secure, and well maintained schools and performance, attendance, and drop-out rate.

A physical environment can also symbolize certain qualities, values, and personal experiences. A school structure has the opportunity to symbolize hope, opportunity, or stability for students or create negative feelings as well. Perhaps the biggest impact of safe, comfortable, and inspiring schools is that they communicate a message to students and teachers that they are respected and special individuals and that education is a critical component of our society. It is important that students, teachers, and parents and the community want to come to our schools.

### **Providing Spaces that Support an Educational Plan**

The integral relationship between an educational facility and what educators are trying to accomplish within that facility is often not recognized. Just like having the correct or incorrect tool to work on a repair, a facility can either support or hinder the success of achieving educational objectives. While there may be a way to struggle through an educational plan without the appropriate facilities, the process may take more time and be less effective than if appropriate space and environmental conditions were available to facilitate objectives.

The layout, type and size of space, and environmental conditions can either enhance certain educational strategies or discourage them. For example, if an educational plan includes integration of technology in teaching and learning, space in a classroom needs

to accommodate such technology as well as provide appropriate lighting, ergonomic access, and ventilation for the technological devices.

Likewise, if one-on-one and small group tutoring is identified as a key method for accommodating the needs of all learners and thus improving student performance, acoustically appropriate small spaces should be included where this can take place. If a grade configuration such as K-8 is to be implemented, the facility needs to consider space for PE programs for all age groups, appropriate height casework and marker boards for each grade level, and science labs for the 7<sup>th</sup> and 8<sup>th</sup> graders to ensure that the new grade configuration will provide equitable educational opportunities and has a chance to succeed.

Since it is impossible to predict all the factors that can influence an educational plan and set of programs, the need for flexibility in school facilities and design of spaces should be emphasized. Technology, curriculum strategies, and educational programs will continue to evolve, and developing spaces that provide flexibility of use will be beneficial to the life extension of the facility.

## **Overview of District Standards**

### *Elementary School Standards*

In creating the standards for district elementary school, the following project parameters were taken into consideration:

- Year Round Education (YRE): Year Round Education has not been implemented and is not desirable. Only under budgetary constraints would this system be implemented. Therefore, the standards do not incorporate provisions for YRE.
- Class Size Reduction (CSR): Under previous California education funding formulas, the District received supplemental funding for implementing CSR at 20:1 in grades one through three. Due to State funding shortfalls over the past five years, CSR has been suspended by the District.

Under the new State Local Control Funding Formula (LCFF) districts can receive a funding adjustment for implementation of CSR at grades kindergarten through third. Under full implementation of the LCFF, as a condition of receiving the K-3 base-rate adjustment, districts must maintain a K-3 school-site average class size of 24 or fewer students, unless collectively bargained otherwise. Absent a related collective bargaining provision, were a particular school site in a district to exceed an average class size of 24, the district would lose the K-3 adjustment for

all of its K-3 school sites. The new CSR goal will be phased in over an eight year period. Districts must make progress toward this goal in proportion to the growth in their funding.

- **Design Capacity:** The state calculated design capacity of a 25-classroom elementary school is 612 students, based on Office of Public School Construction (OPSC) loading standards. Under district loading standards with CSR the calculated design capacity is 642. Design capacity is based on optimal classroom loading, which is not typically achievable. Actual loading, therefore, should be assumed to be less than design capacity.
- **Relocatable Classrooms:** The design capacity of the school will be housed in permanent buildings. The overflow capacity will be housed in relocatable classrooms. The school will be designed to include locations and utility stubs for these potential future classrooms.

#### Elementary School Design Criteria

- **General Concept:** Distinctive or unique concepts and themes from the surrounding area or development may provide a unifying idea for the project and could be incorporated into the curriculum of the new school. In addition, these ideas may potentially translate into architectural design elements.
- **Security and Supervision:** Site entry/exit points are to be minimized. Perimeter of the site should be secured (fenced). Building core should be secure during non-school hours, but a “fenced in” concept is not desired. The campus should remain accessible and open to community use. The community will use the facilities. Provide a separate intrusion alarm zone at the Multipurpose with its own keypad access for after hour use. Provide ample exterior (night) lighting around building and parking areas. Provide for fire safety and emergency lighting. Locate buildings in close proximity of each other. Maximize visibility and line-of-sight so that the school is easily supervised. Provide skateboard deterrents at raised planters and seat walls. Provide a fenced bike yard easily accessed from the front of campus and adjacent streets (10-20 bikes).
- **Technology:** Technology shall be integrated throughout the school and shall be made available to all staff and students. Provide a flexible data infrastructure to support interactive classroom and mobile device technology. Provide hard-wired data drops for four student stations and two data drops at the teacher station in each classroom. All classrooms shall have intercom and telephone with voice mail, direct dial-out and emergency capabilities. The computer lab located

adjacent to the library should be equipped to support up to 32 students. Enhance the hard-wired data infrastructure with site-wide wireless access to provide multiple, flexible data locations for small group instruction areas, classrooms, library, computer lab, and administration.

- Community Use/Joint Use: Facilities should be accessible to the community after hours and on weekends. Facilities utilized by the community include the Multipurpose, Library, Fields and Restrooms. An on-site location needs to be provided for a Student Care facility and Adult Education Preschool. These are typically provided in relocatable buildings and require easy access to parking, drop-off, apparatus, fields and lighting for after hours security.
- Maintenance: Provide central custodial office with storage dispersed throughout campus. Provide a phone and data link for ordering and work orders. All exterior surfaces shall be durable and easy to maintain. Landscape shall be low maintenance. Provide approximately 150 square feet of outdoor storage for flammables and chemicals, located adjacent to trash/utility enclosure.

### Teaching Station Analysis

(Does not include additional overflow capacity of 100 students)

<b>Calculation A – State Loading</b>			
<b>Grade</b>	<b>Loading</b>	<b>Teaching Stations</b>	<b>Capacity</b>
Kindergarten	25	2	50
Grades 1 – 3	25	12	300
Grades 4 – 5	25	10	250
SDC	12	1	12
<b>Totals</b>		<b>25</b>	<b>612</b>
<b>Calculation B – District Loading With CSR 24:1</b>			
<b>Grade</b>	<b>Loading</b>	<b>Teaching Stations</b>	<b>Capacity</b>
Kindergarten (single session)	24	2	48
Grades 1 – 3	24	13	312
Grades 4 – 5	30	9	270
SDC	12	1	12
<b>Totals</b>		<b>25</b>	<b>642</b>

## Square Footage Analysis

(Does not include additional overflow capacity of 100 students)

Space Description	CA Average		District Standard	
	SF/Student	Total	SF/Student	Total
Classrooms	34.90	21,359	37.9	23,212
Small Group	0.00	0	4.2	2,561
Library	2.30	1,408	2.6	1,579
Multipurpose	7.90	4,835	8.1	4,940
Administration	3.40	2,081	4.9	3,029
Toilets	3.40	2,081	3.1	1,881
Storage/Custodial	3.40	2,081	2.4	1,439
Special Use	0.00	0	6.1	3,755
Covered Walks (@1/3)	6.70	4,100	5.3	3,216
<b>Totals</b>	<b>62.00</b>	<b>37,945</b>	<b>74.6</b>	<b>45,612</b>

*Note: Area is chargeable area as calculated by OPSC.*

### Secondary School Standards

The District used innovative new approaches to educational facilities design for upcoming new secondary schools. The specifications seek to maximize the benefits to our students by:

- Providing seamless transitions through middle and high school (a critical issue for student success)
- Improving communication for staff and articulation of instruction across grade levels
- Sharing potential joint use facilities otherwise unavailable to middle school students, while
- Maintaining a safe and orderly campus for students of all ages.

Though on a large, single site, the schools are two separate schools, both in identity and purpose. The site's innovative design maintains a distinct physical and visual separation between campuses. The administrative teams and school staff will focus on ensuring student safety while enhancing the articulation of curriculum and instruction. The schools will be structured in such a way that there are clear lines of supervision from the principal and vice principal offices in the joint administration building to the respective middle and high school campuses. The Library, Performing Arts Complex, Multipurpose and Administrative buildings serve as demarcation between the two campuses. Middle and high school students will have separate entrances and exits into the campus and the sixth grade students will be housed in a separate "village" that allows them to be present on campus, but still have a period of time to be relatively "sheltered" from older students while transitioning to the new environment.

Key concepts driving the design of the campus include the following:

- *Small Learning Communities:* The ability to create a small environment within a larger campus. A structure to gradually, deliberately move students into increasingly complex environments as they transition from elementary school to middle school to high school. Allows teachers to know their students better and collaborate across disciplines to support individual student needs.
- *Multiple High School Philosophy:* With the development of a second or more high schools, consideration must be given during planning and implementation to provide equivalent facilities and opportunities at each high school campus. It is not the intent to provide identical programs at each site, but rather provide equivalent, yet different, opportunities expanding options and choices for all students to participate in specialized curriculum. Core curriculum necessary for all students will be provided at all sites.
- *Campus Organization:* Due to the size of the schools, the challenge will be to provide services to students and staff that are close in proximity and quickly accessed, without creating bottleneck circulation, congestion and supervision problems.
- *Gathering Area/Quad:* A gathering place for students is important to the overall cohesiveness of the campus. An outdoor gathering space for casual gathering, informal performances, dining and rallies, will be provided at both the high school and middle school sites. Smaller gathering, sitting, waiting areas will also be created on campus to allow different size groups to interact in smaller settings.
- *Security:* Limited, controllable points of entry. Buildings utilized as both security walls and passageways to the campus interior. Interior campus secured from exterior intruders. Supervisable gathering areas within the interior campus. No classroom entrances fronting the public frontage. Clear lines of sight to monitor students during the day and observe the site after hours. Minimized areas of refuge / hiding, such as interior stairwells and corridors. Strategic and sufficient lighting to promote visibility and safety and reduce vandalism. Video surveillance capabilities with central monitoring system. Exterior night lighting will be provided at the building core, parking lots and at multiple athletic fields.
- *Public Access:* While the public is invited on to the campus for activities, the separation of public from students must be clear and obvious during the school day. Use of campus facilities after the school day must likewise be controlled.

- Technology: Perhaps no other area single change has impacted school facility planning as technology. With its constantly changing nature, those building schools of the future are challenged with designing around concepts that may or may not work with tomorrow's technologies.

Some key concepts stand out that will be of great importance to the secondary educational specification include: space considerations, wireless technologies, curriculum considerations and voice, video data.

- Energy Efficiency/Sustainable Design: The facilities shall be designed to maximize efficiency and conservation while improving the learning environment. During planning and design, a whole-project approach, which optimizes building systems and technologies, shall be utilized to create an integrated sustainable design solution.
- Parking, Vehicle Access and Circulation: Vehicle management is critical to the success of the site layout. There is a need to provide multiple entrances/exits for student, staff and community from adjacent streets, as well as from the parking areas to the building core.

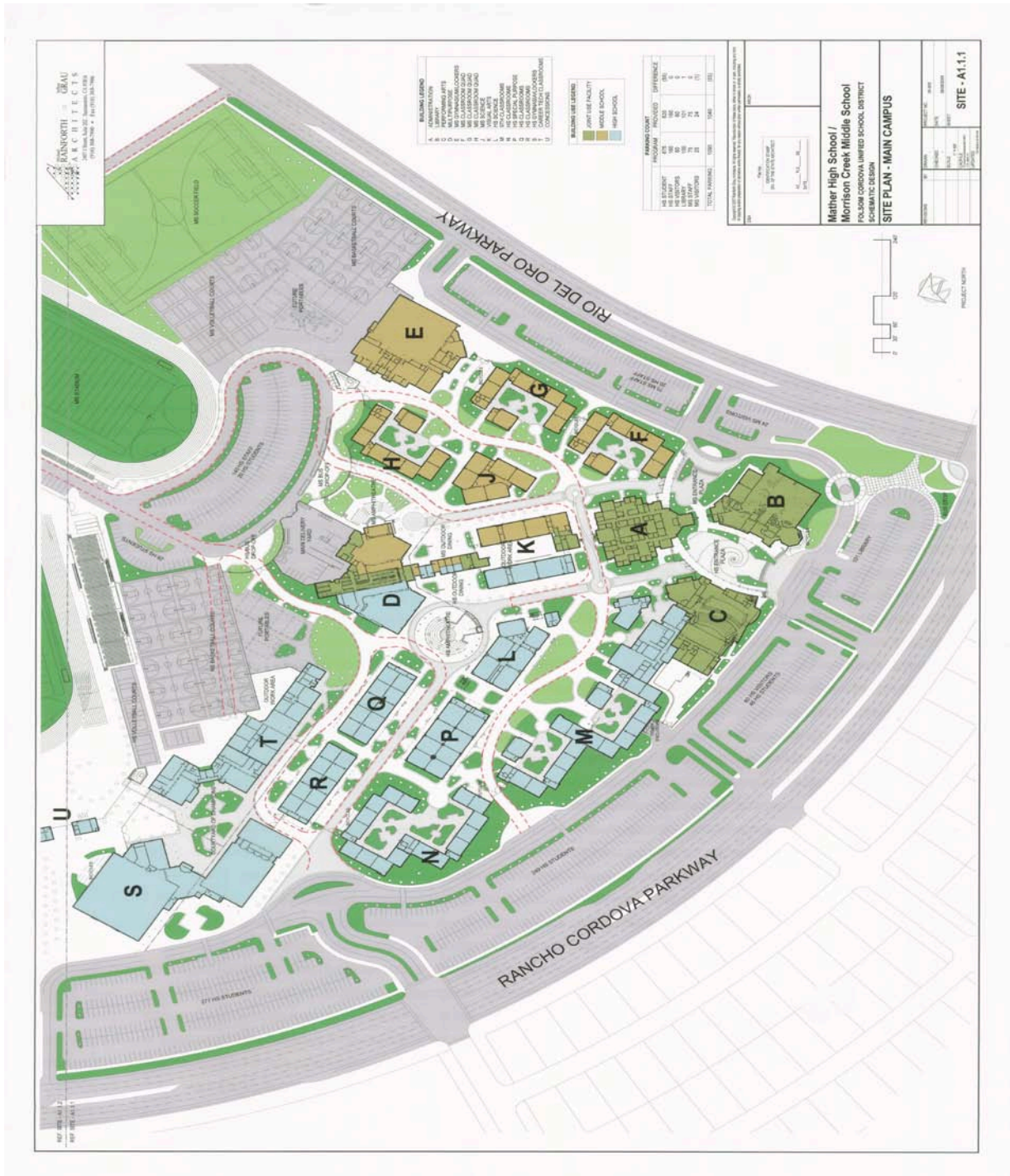
### Square Footage Allocations

(Does not include additional overflow capacity of 400 students)

School Component	Number of Teaching Stations – MS	Number of Teaching Stations – HS	Estimated Square Footage
6 <sup>th</sup> Grade Small Learning Community	9		10,720
Core 7 <sup>th</sup> Grade	9		10,720
Core 8 <sup>th</sup> Grade	10		11,680
Electives 7 <sup>th</sup> – 8 <sup>th</sup> Grade	3		4,100
MS Physical Education	1		22,495
HS/MS Multipurpose/Student Activities			24,100
HS/MS Administration / Counseling			11,860
Joint-Use Library			20,950
HS/MS Performing Arts	1	3	23,070
HS Visual Arts		4	8,310
HS Physical Education		1	46,750
HS School to Career		9	15,600
9 <sup>th</sup> Grade Small Learning Community		18	22,140
Core 10 <sup>th</sup> – 12 <sup>th</sup> Grade		43	50,660
Support Spaces			39,740
<b>Total</b>	<b>33</b>	<b>78</b>	<b>322,895</b>
Food Service Distribution Facility			2,400
Stadium Concessions / Press Box			2,300
Ext. PE Field Facilities (dugouts, store, etc.)			5,000
<b>Totals</b>	<b>33</b>	<b>78</b>	<b>332,595</b>

The above square footage includes a large joint-use library and performing arts theater. These may be scaled back on future sites depending on the needs of the instructional program and the availability of joint-use with local government.

The preceding secondary school standards and design criteria were used to create the future Mather High School / Morrison Creek Middle School campus.







**MATHER HIGH SCHOOL / MORRISON CREEK MIDDLE SCHOOL**  
FOLSOM CORDOVA UNIFIED SCHOOL DISTRICT

## California State Standards

### Classrooms and Lab Minimum Sizes:

- Classroom size for grades 1-12 should not be less than 960 square feet.
- Kindergarten Classrooms shall not be less than 1,350 square feet including restrooms contained within the classroom.
- Special Education Classrooms shall be 960 square feet or the same size as regular classrooms at that site.
- A Special Education Resource Specialist Program shall be housed in a space with a minimum of 240 square feet.
- A Speech and Language Program shall be housed in a space with a minimum of 200 square feet.
- Science Labs shall be a minimum of 1,300 square feet including storage and teacher prep area.
- Consumer Home Economics Labs shall be a minimum of 1,300 square feet.
- Dance Studios shall be a minimum of 2,000 square feet.
- Computer Labs shall be a minimum of 960 square feet.

Loading Standards as recognized by OPSC for state funding (this is not a California Department of Education requirement).

- Grades K-6: 25 students per classroom
- Grades 7-8: 27 students per classroom
- Grades 9-12: 27 students per classroom
- Special Education Non-severe: 13 students per classroom
- Special Education Severe: 9 students per classroom

Class Size Reduction (CSR) for grades K-3 is 24 students per classroom. The California Department of Education believes that a classroom of 960 square feet best supports the CSR. If the classroom is too small, the full educational value of the lower class size may not be realized. The School Facilities Planning Division states that a classroom less than 960 square feet may not provide sufficient space for pullout programs, small group work, or student computer stations.

Additional design requirements are listed for each type of space in a school in Title 5, California Code of Regulations. These include criteria for layout, lighting, acoustical control, plumbing, special equipment ventilation, technology access, and additional space requirements.

Title 5 outlines criteria for site selection and design, procedures for site acquisition, and other educational space design requirements. A brief summary of site standards is included below for reference.

### Elementary School Site Requirements (New Schools)

Grade K-5, 612 Students, 61 Students per Acre

<b>Calculation A – State Loading</b>				
<b>Grade</b>	<b>Teaching Stations</b>	<b>Capacity</b>	<b>Square Feet or Acreage</b>	<b>Total Useable Acres Required</b>
<b>Kindergarten</b>	2	50		
Turfed area			5,500 sf	
Paved area			4,000 sf	
Apparatus area			2,500 sf	
Land required for buildings and grounds			4,000 sf	
Total useable acres required				0.5
<b>Grades 1 – 3</b>	12	300		
Physical education area			1.3 acres	
Buildings and grounds area			1.2 acres	
Parking and roads			0.3 acres	
Total acres without CSR			2.8 acres	
Added acreage for buildings and grounds			0.3 acres	
Added acreage for parking and roads			0.1 acres	
Total acres with CSR				3.2
<b>Grades 4 – 5</b>	10	250		
Physical education area			4.4 acres	
Buildings and grounds area			1.2 acres	
Parking and roads			0.3 acres	
Total acres without CSR			5.9 acres	
Added acreage for buildings and grounds			0.3 acres	
Added acreage for parking and roads			0.1 acres	
Total acres with CSR				6.3
<b>SDC</b>	1	12		Included in above acreage
<b>Totals</b>	<b>25</b>	<b>612</b>	<b>w/o Overflow</b>	<b>10.0</b>
<b>Overflow</b>	4	100		
Physical education area			0.6 acres	
Buildings and grounds area			0.6 acres	
Parking and roads			0.1 acres	
Total acres without CSR			1.3 acres	
Added acreage for buildings and grounds			0.2 acres	
Added acreage for parking and roads			0.1 acres	
Total acres with CSR				1.6
<b>Totals</b>	<b>29</b>	<b>712</b>	<b>w/ Overflow</b>	<b>11.6</b>

### Middle School Site Requirements (New Schools)

Grade 6-8, 900 Students, 41 Students per Acre

<b>Calculation A – State Loading</b>				
<b>Grade</b>	<b>Teaching Stations</b>	<b>Capacity</b>	<b>Square Feet or Acreage</b>	<b>Total Useable Acres Required</b>
<b>Grades 6 – 8</b>		900		
Physical education area			15.4 acres	
Buildings and grounds area			4.9 acres	
Parking and roads			0.6 acres	
Total acres without CSR			20.9 acres	
Added acreage for buildings and grounds			1.0 acres	
Added acreage for parking and roads			0.3 acres	
Total acres with CSR				22.2
<b>Overflow</b>		200		
Physical education area			0.3 acres	
Buildings and grounds area			1.7 acres	
Parking and roads			0.2 acres	
Total acres without CSR			2.2 acres	
Added acreage for buildings and grounds			0.4 acres	
Added acreage for parking and roads			0.1 acres	
Total acres with CSR				2.3
<b>Totals</b>		<b>1,100</b>		<b>24.5</b>

### High School Site Requirements (New Schools)

Grade 9-12, 2,100 Students, 41 Students per Acre

<b>Calculation A – State Loading</b>				
<b>Grade</b>	<b>Teaching Stations</b>	<b>Capacity</b>	<b>Square Feet or Acreage</b>	<b>Total Useable Acres Required</b>
<b>Grades 9 – 12</b>		2,100		
Physical education area			25.0 acres	
Buildings and grounds area			13.9 acres	
Parking and roads			11.2 acres	
Bleachers and Dugouts			0.3 acres	
Stadium			1.7 acres	
Aquatics			0.6 acres	
Total acres without CSR			52.7 acres	
Added acreage for buildings and grounds			2.1 acres	
Added acreage for parking and roads			0.6 acres	
Total acres with CSR				55.4
<b>Overflow</b>		200		
Physical education area			0.3 acres	
Buildings and grounds area			1.3 acres	
Parking and roads			1.0 acres	
Total acres without CSR			2.6 acres	
Added acreage for buildings and grounds			0.2 acres	
Added acreage for parking and roads			0.1 acres	
Total acres with CSR				2.9
<b>Totals</b>		<b>2,300</b>		<b>58.3</b>

## **District Approach to Sustainability**

In 2007 the District Board of Education adopted Guidelines for Sustainable Construction, requiring design professionals and staff to follow California's Collaborative for High Performance Schools (CHPS) standards and best practices for all future district new building projects. These standards incorporate the latest green building practices to reduce operating costs, reduce environmental impact, and increase building life, while creating schools that are healthy and environmentally comfortable for the building users.

The District intends to continue incorporating best practice initiatives in sustainable site design, water conservation, energy efficiency, indoor air quality, and use of green products into all new future facilities projects with a strong emphasis on long term life-cycle costs analysis in the design process. The District also intends to incorporate improvements in energy conservation measures and other sustainable products in the planned maintenance and upgrade of building systems as well as in the operation of facilities.

These sustainability initiatives provide benefits to both the school district and the community. Building and operating environmentally responsible schools can enhance student performance, improve student and teacher health, conserve our natural resources, and reduce optional costs thus saving the district money. However, perhaps the biggest benefit of these initiatives is that it engages the students in an evolving cultural awareness and concern for our natural world around us and how to preserve and care for it.