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Facilities Construction

The Miami-Dade County Public School District manages an ambitious school construction program. By improving information management, creating a planning department and improving support for project management, the already sound performance of school construction activities will be enhanced.

Conclusion

Since the beginning of the 1988 bond program, the Miami-Dade County Public School District has developed substantial internal capacity to manage school design and construction projects. In addition, the District has established high standards for educational specifications, kept their design criteria and master specifications up-to-date, established effective procedures for project management and has instituted checks and balances to protect the District from waste, fraud, or abuse. To its credit, the District has also exhibited a willingness to explore new and different approaches to project delivery. The project delivery approaches the District has explored range from a problematic experiment to assign a capital program manager responsibility for managing the entire bond program¹ (at the beginning of the 1988 bond program) to current efforts to hold contractors “at risk” for project overruns and to engage a single firm to both design and construct projects (i.e., “design build”). While not all of these project delivery approaches have been successful, the District should be commended both for experimenting with new and different approaches to managing construction projects and for discontinuing project management practices that have proven unsuccessful. The Facilities Planning and Construction Division has also established a constructive working relationship with the Board of Education. Division staff keep Board members informed about construction progress and help to support their construction related decision-making.

There are six major elements to a well-managed capital program: good information systems; comprehensive planning; a clear decision-making process that involves the public; expert project management; stable and sufficient funding; and regular monitoring and oversight. The Miami-Dade County Public Schools has many of these elements in place. Where they do not, for example in the area of long range District-wide planning and information management, they are aware of their shortcomings and are working to eliminate them.

The size of the workforce dedicated to the management, operation and oversight of the capital program has grown steadily since the start of the 1988 school construction program. There is a need to realign and train staff to support shortcomings in information management, District-wide planning and project management. There needs to be a phased in, planned reduction in the size of staff dedicated to the capital program and some reorganization of the management of the capital program to increase the effectiveness and efficiency of capital planning, project management, and quality control. In addition, the District needs to implement some year round multi-track schooling and double sessions so it can reduce the intensive overcrowding in classrooms.

¹ This experiment was unsuccessful primarily because of a complete lack of control on the program manager and an undeveloped capacity, particularly on the part of small, local minority contractors—architects, engineers and buildings-- to handle the level of work suddenly available. .

Exhibit 10-1

The District Has Had a Number of Notable Accomplishments in Facilities Construction in the Last Five Years

- Designed and built 57 new facilities and 104 major additions (and in so doing added 41,642 new student stations and 5.4 million square feet of permanent building space).
 - Received \$39.5 million in federal Qualified Zone Academy Bonds (QZAB) monies for facility improvements and professional development.
 - Purchased 64 new sites for schools.
 - Reformed policies and procedures for land acquisition such that the Land Acquisition and Facilities Oversight Board recommended to the legislature that they certify that the District has implemented nearly every change recommended in last year's state review of its land-buying procedures.
 - Expanded construction management capabilities by introducing construction management at risk and design build to the repertoire of construction management approaches used by the District.
 - Improved electric service in schools so that more than 10,000 computers could be added to more than 2,000 classrooms and, in so doing, facilitated efforts to integrate instruction with technology.
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Source: Miami-Dade County Public Schools, 1996-2001 Major Accomplishments, February 13, 2001; Miami Herald, January 16, 2002 Dade Schools Closer to Funds.

Overview of Chapter Findings

Berkshire Advisors reviewed the District's school construction program using the Best Financial Management Practices adopted by the Commissioner of Education and associated indicators. The consulting team employed several methodologies to develop chapter conclusions and action plans. For example, the consultants conducted on-site interviews with District level managers and reviewed information on staffing, Board policies, design standards, project management and procurement procedures, and capital program budget and funding guidelines. The consultants spoke with members of the Land Acquisition and Facilities Advisory Board that was created in 2001 with members appointed by the Governor and the Legislature. The consultants also analyzed electronic data from Florida Inventory of School Houses (FISH) supplied by the District. In addition, the consultants visited six recently completed school construction or renovation/addition projects to see the results of the capital planning and management processes. Moreover, four community forums were held at locations throughout the District where community members could "drop in" to provide input on the District. Likewise, an e-mail address and 800 number were established so District stakeholders could provide input to the study process. Follow up interviews were done with individuals who contacted the study team via email. A survey was also administered to a representative sample of employees from throughout the District. (Approximately 13,000 surveys were sent to employees, of which 3,919 were returned.) The consultants also interviewed and surveyed facility managers from other Florida School Districts to compare staffing levels in their school construction divisions with staffing levels in the Miami-Dade County Public Schools.

An overview of chapter findings is presented below.

Facilities Assessment and Planning

1. The community-based facilities planning committee mandated in School Board policy has been inactive. (Page 10-8)
2. No single entity is currently responsible for District wide capital planning. (Page 10-10)
3. The five-year work plan is aligned to a responsible budget plan, but there is no master plan that sets construction priorities consistent with the District's long-term needs. (Page 10-12)
4. Although the District considers enrollment and factors that affect enrollment in developing its five-year facilities work plan, current needs are so compelling that they dominate the planning process. (Page 10-16)

5. While the five-year work plan focuses on critical needs, efforts to improve the planning process (and to track capital budget expenditures more effectively) are frustrated by the lack of needed information systems. (Page 10-17)
6. The District's need for additional space to meet its educational mission is compelling; yet it does not consider a broad range of approaches to meet those needs. (Page 10-19)
7. The District has not established a systematic process for setting work plan priorities. (Page 10-20)
8. The District complies with all state reporting requirements and with the current Laws of Florida. (Page 10-21)
9. The District is prepared to comply with new Florida Building Code when it comes into effect. (Page 10-22)
10. Information on the construction program and the five-year facilities work plan is not readily available to the public. (Page 10-22)

Educationally Appropriate Facility Design Standards

11. Prototypical Educational Specifications are aligned with educational needs. (Page 10-23)
12. Educational specifications for new construction, remodeling, and renovations include a description of activity areas. (Page 10-25)
13. Design follows District specifications, but in some cases these specifications may not reflect a practical assessment of how facilities will actually be used. (Page 10-26)
14. While safety features are incorporated into design documents, greater attention needs to be devoted to ensuring that the safety features and equipment reflected in these designs are actually in place and operational in schools. (Page 10-29)

Timely and Economical Site Selection

15. The site selection process has slowed down school construction and contributed to overcrowding and loss of confidence in the District, but the District has developed new policies and procedures for site selection and acquisition. (Page 10-31)
16. The School Board considers the most economical and practical locations for future schools. (10-32)

Construction Cost Controls

17. The District has established and implemented accountability mechanisms, however, they have not prevented high staffing levels and do not always translate into better construction. (Page 10-32)
18. The District has incorporated cost saving measures in its design criteria and master specifications. (Page 10-35)
19. The District minimizes construction costs through the use of prototype school designs and frugal construction practices. (Page 10-37)
20. The District employs effective practices in securing appropriate professional services to assist in facility planning, design, and construction. (Page 10-37)
21. Funds collected for school projects are raised appropriately. (Page 10-39)

Construction Projects on Time and Within Budget

22. District planning provides realistic time frames for implementation that are coordinated with the opening of schools. (Page 10-40)
23. For each project or group of projects, the architect and District facilities planner develop a conceptual site plan and building specifications. (Page 10-41)
24. The District follows generally accepted and legal contracting practices to control costs. (Page 10-42)
25. The District has assigned one person with the authority and responsibility to keep facilities construction projects within budget and on schedule. (Page 10-44)
26. Changes to facilities plans after final working drawings are completed are minimized in an effort to control project costs. (Page 10-45)

Facilities Construction

27. District architects recommend payments for construction projects based on the percentage of work completed and a percentage of the contract is withheld pending completion of the project. (Page 10-47)
28. The District requires the appropriate inspection of all school construction projects. (Page 10-48)

Evaluation of New Construction and Training for New Users

29. The extent to which the District conducts a comprehensive orientation to new facilities prior to their use is inconsistent. (Page 10-48)
30. A formal post occupancy review process has not been designed to provide feedback on projects under review. (Page 10-49)
31. No reliable feedback loop on post occupancy evaluations has been established. (Page 10-50)
32. The District collects but does not analyze or forward maintenance cost data to staff responsible for developing facility plans and standards. (Page 10-50)

Fiscal Impact of Recommendations

The fiscal impact of the recommendations in this report will result from 1) identifying new revenue for school construction—by leasing schools during non-school hours and revising procedures for enrollment projects of the state; 2) reducing the cost of capital management by downsizing central office staff and increasing information management technologies; 3) reducing the special design and construction requirements and amenities in secondary schools to reduce cost; and 4) increasing the utilization of existing schools through double sessions and year round schools to reduce over-crowding and demand for new construction.

The total potential impact of these recommendations is large. However, the total value of the savings is urgently needed for new construction and renovations beyond what can be alleviated with alternative scheduling.

Ultimately, implementation of the recommendations in this report should help the District increase the confidence of the public in its effectiveness and efficiency, clarify the urgency for a new building initiative, and provide the District with a strategic educational facilities master plan to set the goals, objectives and budget for this undertaking.

Exhibit 10-2

Facility Construction Action Plan Recommendations That Have Fiscal Impacts

Recommendation	Five Year Fiscal Impact
<ul style="list-style-type: none">• Action Plan 10-7: Improve information management.	<ul style="list-style-type: none">• Requires an initial investment of \$1.5 million but should enable the District to reduce staffing over time.
<ul style="list-style-type: none">• Action Plan 10-17: Review the organization and staffing of capital program.	<ul style="list-style-type: none">• Based on an estimated 20% staff reduction phased in over three years with average salary and benefits of \$50,000 and a \$100,000 study to review the capital program organizational structure, the District will save \$7.8 million.
<ul style="list-style-type: none">• Action Plan 10-18: Develop asset management function in Government Affairs and Land Use Policy and Acquisition unit.	<ul style="list-style-type: none">• Can generate \$3 million by phasing in leasing and use policies; will change if District increases double sessions and initiates year-round schooling.

Background

The background information on facilities construction activities in the Miami-Dade County Public Schools presented in this section is divided into four subsections. The first subsection presents general information on the scope of the District’s facilities construction activities. The second subsection presents the mission and goals of Facilities Planning and Construction (the unit responsible for coordinating facility construction activities for the District. The third subsection provides an overview of how Facilities Planning and Construction is organized and the final subsection presents information on how the unit is staffed.

Scope of Operations

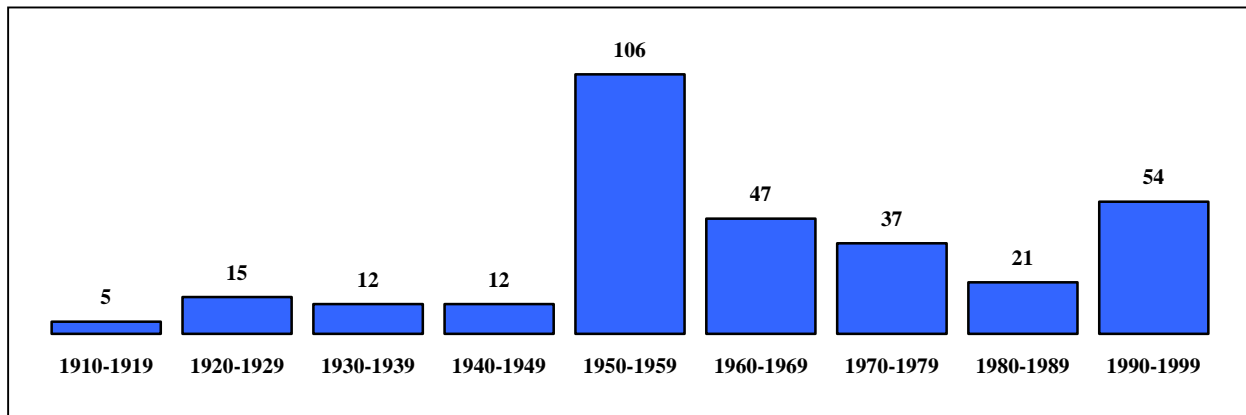
The Miami-Dade County Public Schools is the fourth largest school system in the nation. Only New York City, Los Angeles, and Chicago have more students and more buildings than MDCPS.

There are 309 elementary, middle, senior high, and combined schools in the District. These schools encompass 32.4 million square feet of covered space. In addition there are nearly 100 other specialized facilities for adults, adjudicated youth, and administration. The school facilities are located on approximately 4,074 acres of land.²

The average age of the operating school buildings is 36 years. The oldest school was built in 1911 and new schools were added to the inventory at an average rate of about 7 schools per year between 1994 and 1998.

Exhibit 10-3

Over Half of the Currently Operating Schools Were Built Before 1970



Source: Electronic file from Director of Facilities and Inventory M-DCPS.

M-DCPS facilities are overcrowded. They average only 92 square feet per student and range from a low of 43 actual square feet per student (Leisure City and Palm Springs elementary schools) to a high of nearly 200 square feet per student (Moton and Olinda elementary schools). By comparison, the Duval County Public Schools average 124 square feet per student and the Hillsborough County Public Schools average 122 square feet per student.

² Florida Department of Education Office of Educational Facilities, School Land Inventory in Agency/Facility/Parcel Sequence. May 25, 2001.

Mission and Goals

To meet the demands of an increasing student population, an aging building inventory, and demands from the educational program for technology, smaller class size, special subjects and appropriate teaching and learning environments for Exceptional Student Education students, MDCPS has undertaken an aggressive school construction program. The overall mission of this Capital Improvement Construction Programs is:

*To develop and implement innovative and financially sound design, construction and maintenance solutions in order to create and maintain the best educational facilities possible for the students of Miami-Dade County Public Schools.*³

Facilities Planning and Construction is the unit that is charged with overseeing and managing the Capital Improvement Construction Program. This unit, which is responsible for site acquisition, planning, design, new construction and major building improvements, has four goals that guide its approach to the design and construction of facilities:

- Timeliness
- Cost-effectiveness
- Safety
- Quality.

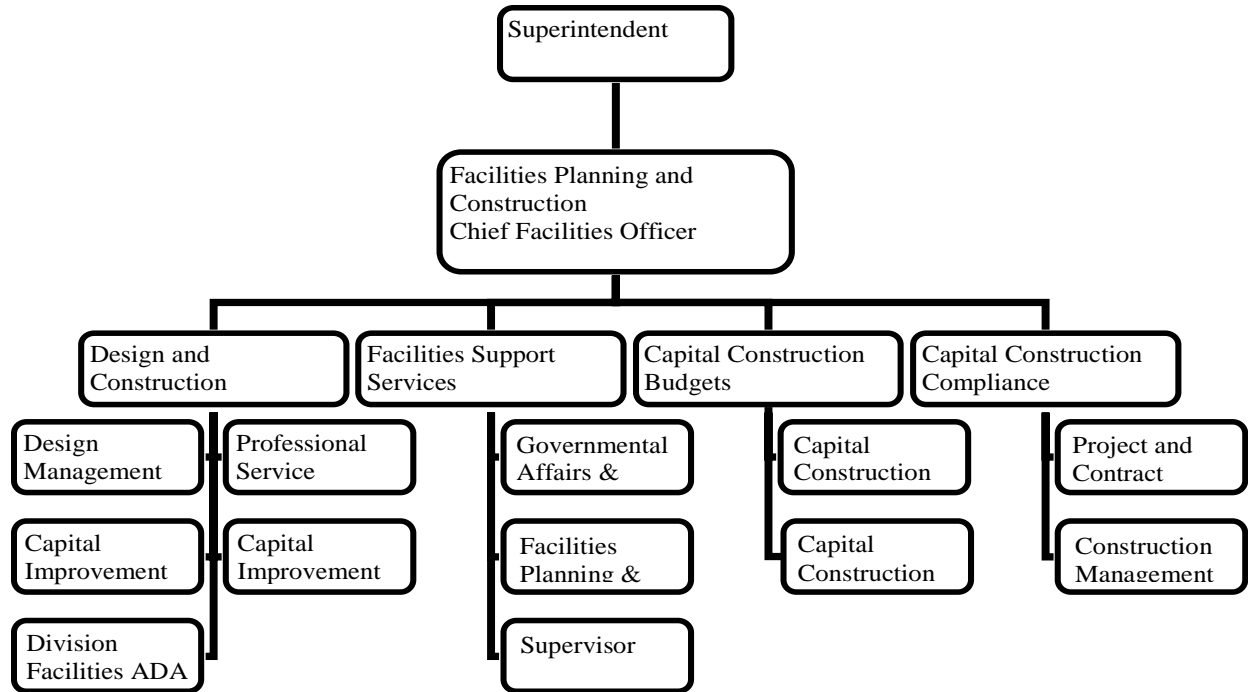
Organization

The management of facilities construction is centralized, even though much of the management of school operations is done through the 6 regions. As Exhibit 10-4 shows, the Chief Facilities Officer, who oversees Facilities Planning and Construction, has four units directly reporting to her – Design and Construction, Facilities Support Services, Capital Construction Budgets, and Capital Construction Compliance. The Design and Construction unit, which is led by an Assistant Chief, is responsible for the selection and negotiation of professional services contracts, plan reviews, facility design and quality control and for the management of all construction projects. Facilities Support Services, which is also overseen by an Assistant Chief, is responsible for government affairs and land use and acquisition, and site-specific facilities planning and design and construction standards. The Capital Construction Budgets unit is responsible for identifying the funding for all capital construction projects in the 5-Year Capital Improvements Plan and tracking construction expenditures through to closeout. An Executive Director leads this unit. The Capital Construction Compliance unit, which is led by an Administrative Director, oversees offsite utilities planning and development, supports and maintains information systems and database programs for school facilities, manages and operates procurement functions, and provides legal support on contracts, litigation, and claims support.

³ M-DCPS Facility Planning, Design & Construction Procedures Manual; Final Draft November 7, 2000.

Exhibit 10-4

Facilities Planning and Construction Is Organized Into Four Key Units



Source: Miami-Dade County Public Schools.

The District has acknowledged some inefficiencies and missing elements in their organizational structure. Modifications to the organization are being explored.

Staffing

To manage the site acquisition, planning, design and construction, of school facilities, Miami-Dade County Public Schools maintains considerable in house capabilities. As Exhibit 10-5 shows, there are approximately 265 employees working to manage the capital budget and to oversee capital projects to improve existing facilities or construct new facilities. As a result of a hiring freeze, an estimated 10% of these positions are not filled. In addition, some positions are not directly related to construction management and could be reclassified to other departments.

Exhibit 10-5

265 Employees Work To Manage The Capital Budget And To Oversee Capital Projects

Division Name	Positions
Capital Construction Compliance	11
Capital Improvement Projects	86
Facilities Support Services	7

Division Name	Positions
Construction Support Services	16
Plan Review	6
A/E Selection Negotiations & Design Management	8
Project and Contract Management	37
Job Order Contracts	11
Facilities Planning and Construction	3
Facilities Planning and Standards	17
Government Affairs and Land Use	16
Facilities ADA Compliance	2
Facilities Design and Quality Control	45
Total	265

Source: Personnel report for function code 7400 and program code 9900's, 8/18/01.

Facilities Planning and Assessment

1 The community-based facilities planning committee mandated in School Board policy has been inactive.

The District's Capital Improvement Committee is not only inactive but also lacks adequate citizen involvement

Although School Board policy requires a broad based planning committee consisting of both in-house and outside members, the District currently uses only in-house facilities personnel for capital planning. The District's Board policy specifies a Capital Improvement Committee that includes citizens and other stakeholders. This committee meets most of the expectations of the best practices. However, the committee met in 1997 and then again in July 12, 2001 and, as of early November 2001, had not met again.⁴ Moreover, it should be noted that even if the Capital Improvement Committee was active its community representation is limited to a representative of the Family and Community Involvement Advisory Committee and a representative of the Executive Board of Dade County Council PTA/PTSA.

Public participation is critical to sustaining public support for a capital program

Engaging the participation of a broad cross-section of the public is essential to obtaining and sustaining taxpayer support for school construction programs. Ensuring the public is aware of and actively involved in school construction programs increases the likelihood that efforts to pass subsequent bond issues will be successful. If the public is not actively involved in the construction program, they are unlikely support increased taxes, even if the District has the capacity to assume more debt. In addition to building support for future bond issues, the participation of the business community and individuals with experience from the private sector in the construction

⁴ The School Site Selection Committee is responsible for advising the Superintendent and the School Board on site selection, from both a District and a site-specific perspective.

program can help bring to the table new ideas for alternative ways to address facility issues. Although appointed by the Governor and Legislature, the Land Acquisition and Facilities Advisory Board is one mechanism to help the District receive stakeholder advice.

If given information in a straightforward, clear format citizens can help monitor public decision-making and spending and can facilitate the dissemination of information to a wider public. Furthermore, because in some cases they can speak more frankly than department representatives (who may be inhibited for fear of losing their job) citizens are in an excellent position to bring information on public perceptions and concerns to a sometimes isolated School Board and administration. Citizens can also bring information to decision makers on unique situations in communities that do not show up in Florida Inventory of School Houses (FISH) reports or plant surveys. Likewise, they can help administrators understand the values, priorities and concerns of the public.

Recommendations

- *We recommend that the School Board activate its School Site Planning and Construction Committee assign it appropriate responsibilities, and staff it appropriately.*
- *We recommend that the School Site Planning and Construction Committee be asked to work with the administration to review and make recommendations on its most effective and appropriate role*

Action Plan 10-1 provides the steps needed to implement these recommendations.

Action Plan 10-1

Reactivate School Site Planning and Construction Committee	
Strategy	The District should activate the new School Site Planning and Construction Committee facility planning committee, assign it appropriate responsibilities and staff it appropriately.
Action Needed	<p>Step 1: Convene School Site Planning and Construction Committee and ask committee members to reformulate the proposed new School Board Rule (October 10, 2001) to reflect the best use for its input and oversight.</p> <p>Step 2: Take revised section on the external educational facilities committee to School Board for approval.</p> <p>Step 3: Based on the recommended scope of the Committee’s work, assign sufficient resources to staff the Committee.</p> <p>Step 4: Maintain a regular meeting schedule with timely notice, well-formulated agendas, minutes and specific topics for public input.</p>
Who is Responsible	Chief Facilities Officer
Time Frame	June 2002
Fiscal Impact	None

Source: Berkshire Advisors, Inc.

2 No single entity is currently responsible for District wide capital planning.

Although Board rules specify the establishment of a number of construction committees no single committee is currently responsible for District wide capital planning

The Construction Related School Board Rules, dated 05/04/01, require the establishment of three construction related committees (a Capital Improvement Committee, a Building Committee and a Technical Review Committee) and one School Site Selection Committee. None of the committees is responsible for District wide capital planning. As noted in Section 1, the Capital Improvement Committee (which potentially might be responsible for capital planning) is largely inactive. The other committees are all part of the in-house approval process for design (in the case of the Building Committee), construction and budget (for the Technical Review Committee) and site selection (for the Site Selection Committee). It should be noted that while the Building Committee is involved with planning issues, these planning issues relate primarily to the planning and design for individual projects. For example, the Building Committee (whose members change depending upon the project being planned and designed) is an active participant in the decision to approve new school design. Committee members review and approve concept, schematics, design development documents, and construction documents. They do not address issues relating to District wide planning, however.

The current approach to designing new facilities has a number of shortcomings

In interviews, significant dissatisfaction with the current approach to designing new facilities was voiced. Many interviewees view the process as being both lengthy and inefficient. In addition, the current process is particularly ill suited to the design build project management approach the District is using with increasing frequency. When a design build project management approach is used, design decisions must be made early in the design process because construction may begin on site related work early and design changes may not just affect what is on paper, but may cause construction change orders to be required. However, school staff and representatives of the education unit are not currently involved until late in the design process—at design development, for example. When requests for design changes are made at this stage in the process, a costly redesign must be performed that could have been avoided had school and District level education staff participated in the process from the beginning.

The new planning policy that has been adopted by School Board places too much responsibility for overall planning on a volunteer committee

The school District is aware of these problems with District-wide capital planning and proposed a new Educational Facilities Planning, Site Selection and Construction planning policy to the Board of Education on October 10, 2001 to address these shortcomings. Incorporated in this policy is the recommendation that an external committee of volunteers be established and charged with:

- Providing input, priorities and monitoring for the 5-Year Work Plan
- Providing input and monitoring for the educational plant survey
- Providing input, monitoring and making recommendations on the capital budget
- Providing input, monitoring and making recommendations on site planning, selection, acquisition and alternatives
- Reviewing and transmitting reports to the Board of Education, including providing supporting documentation for Board of Education review and final action

- Reviewing status reports on site selection and acquisition on a quarterly basis
- Evaluating site acquisition activities, facility planning and construction programs and providing the Board of Education with an annual report on them that includes recommendations for improvement
- Reviewing and making recommendations on the award or rejection of construction bids that exceed project budget by 5% or more and by at least \$250,000
- Providing other advice and input as may become necessary.

The proposed policy recommends that this new committee, which would serve in an advisory capacity and report directly to the School Board, be composed of parents, business community representatives, construction and real estate professionals and other community stakeholders. The District Director of Governmental Affairs and Land Use Policy and Acquisition, and the Director of Site Acquisition and Leasing would staff the committee. The School Board Attorney would provide legal support.

While establishing the proposed committee would ensure that capital planning is coordinated by a single entity, establishing a volunteer committee with such broad responsibilities is not practical. As currently envisioned there is not appropriate alignment among the duties of the committee (as described in the proposed new Board rule), the staff that would support this work, the frequency of committee meetings (once a month), and the type of committee members. In short, the responsibilities of this committee appear to be too extensive for a volunteer citizen’s committee that meets but once a month. The scope of work described in the proposed Board rule would better be assigned to a planning office within Facilities Planning and Construction that could be supported by a volunteer citizen’s committee.

Recommendations

- *We recommend that the District create a planning office that aligns site, boundary, and capital planning functions and ensures that decision-making about facilities is consistent with educational operations.*

Action Plan 10-2 provides the steps needed to implement this recommendation.

Action Plan 10-2

Establish facilities planning department	
Strategy	Create a planning office that aligns site, boundary, and capital planning functions and ensures that decision-making about facilities is consistent with educational operations.
Action Needed	<p>Step 1: Create a planning department that reports the Chief Facilities Officer for Planning and Construction.</p> <p>Step 2: On an interim basis establish the planning department in the Government Affairs and Land Use Policy and Acquisition Office.</p> <p>Step 3: Prepare description of planning functions.</p> <p>Step 4: Develop job descriptions and job qualifications for planning office staff and determine appropriate pay grades for these staff.</p> <p>Step 5: Post the new positions and encourage existing staff with capital facilities, maintenance, and education experience to apply.</p> <p>Step 6: Interview applicants.</p> <p>Step 7: Identify personnel to be assigned to the planning department.</p> <p>Step 8: Establish a four to six month training program for newly reassigned planning staff.</p>

Who is Responsible	Chief Facilities Officer and Director of Government Affairs
Time Frame	September 2002
Fiscal Impact	Can be implemented using existing resources.

Source: Berkshire Advisors, Inc.

3 The five-year work plan is aligned to a responsible budget plan, but there is no master plan that sets construction priorities consistent with the District’s long-term needs.

Coherent, comprehensive facilities planning saves time and money

Coherent, comprehensive facilities planning is critical because it saves time and money and also because it makes a more equitable allocation of scarce resources possible. Without strong District-wide planning capabilities that involve the community in a transparent planning process, perceptions of favoritism, influence, and the “squeaky wheel getting the grease” are all but unavoidable. In addition, costs increase when insufficient attention is focused on planning. One recent example typifies how ineffective planning can lead to increased costs. Only five years ago an addition was made to Key Biscayne Elementary School. Before the addition was complete, a determination was made to turn the elementary school into a K-8 school. However, because the addition had been designed for an elementary school it did not include the special spaces and amenities required for middle schools. Consequently, soon after the initial project was completed, it was determined that a middle school addition was warranted.⁵ With more effective planning, the District could have avoided the added cost of restaging construction, administering two design contracts and two construction contracts and conducting inspections for two projects.

In many respects District planning and capital budgeting processes are sound

Facilities planning. The District has a well-defined process for facilities planning. As documented in the District’s Planning, Design and Construction Procedures Manual *the planning process* *The Planning process starts with the Board adopted 5-Year Capital Outlay Plan. Projects are generated on an as needed basis.*

There are three types of planning processes that occur in this stage. The long range planning or Five-Year Work Plan and Budget Process; the advance planning or project specific activities leading to the creation of the scope definition program book; and the physical planning or building and other design components location within the school site.

Capital budgeting. The District’s approach to developing capital budgets for its five-year work plan is sound. Estimators work to establish construction cost estimates that will not exceed or underestimate actual bids. These cost estimates include all costs associated with a project including site acquisition, site improvements, furniture and equipment, specialty consultants, and design. In addition, a small contingency allowance is built into the budget to allow for unanticipated costs. While estimated project costs are reasonable, they also reflect a frugal per student station cost.

Capital budgets are also carefully monitored. To this end, the Office of Capital Construction Budgets works with Capital Budget Planning Office to ensure that capital expenditures do not exceed budgeted amounts. When projects are closed out and funds are still available from the closed out project, these funds can be re-programmed to cover costs for projects that may have exceeded their estimated cost and contingency.

⁵ This addition was approved and construction will begin the summer of 2002.

In addition, to evaluating the capital budget for individual projects, the District also estimates the cumulative financial impact of current and proposed five-year facilities work plan.

Despite the many strengths and positive features associated with District planning activities, these efforts are essentially reactive in large part because the District has not established a long-range educational facilities master planning process

The District has done a good job of organizing to execute projects and prepare the five-year work plan. However, the District lacks a framework to help it prioritize projects and to ensure that the projects that are executed are the most critically needed projects. In addition, at present the District has no way to address long range District-wide planning issues associated with overcrowding and an aging infrastructure. Likewise, links between education needs and facility needs are not articulated and site selection alternatives are not systematically explored. In short, existing facilities planning is primarily reactive and responds to crisis conditions.

Many of these problems stem from the fact that the District has not established a long-range educational facilities master plan. Such a plan describes the educational mission, goals and initiatives, population projections, the community values, aspirations and requirements for school facilities, and then identifies what is required for the school facilities to meet support the programs and population, in terms of space and funding. Such a plan would provide a framework and context for making mid and short term planning decisions that reflect the District’s long-term priorities and that are consistent with the District’s long-term needs.

Five-year work plan does not provide for small school construction

Although there is considerable research indicating that, all else being equal, students have higher rates of graduation, attendance and achieve higher standards in small schools, and the State of Florida has a new law mandating construction of small schools, Miami-Dade County Public Schools do not construct small schools because of the intense overcrowding of the District’s schools. The State permits Districts to create schools within schools designs, but in practice, even these require more space, and in such an intensely crowded District this is difficult to find.

Recommendations

- *We recommend that the School Board require a long-range educational facilities master plan that is developed with broad community input and that it is updated on a regular basis.*

Action Plan 10-3 provides the steps needed to implement this recommendation.

Action Plan 10-3

Engage public in long-rang educational planning	
Strategy	Develop a long-range educational plan with broad community input and update it on a regular basis.
Action Needed	<p>Step 1: Assign the responsibility for a public engagement initiative to the head of the recommended planning department.</p> <p>Step 2: Pass a School Board resolution in support of a long-range master planning process engaging the broad public—parents, teachers, school based support staff, community members and the business community.</p> <p>Step 3: Establish a Master Planning Task Force.</p>

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	Step 4: Develop a plan framework and schedule for providing information to the public and getting feedback from the public about facility issues, community priorities and values, the educational program and community needs.
	Step 5: Use the Task Force to synthesize the values, concerns and priorities of the community into a long-range plan.
	Step 6: Hold public hearings in each region to receive feedback on a draft long-range educational facilities master plan.
	Step 7: Revise plan based on hearings.
	Step 8: Approve long-range educational facilities master plan.
Who Is Responsible	Chief Facilities Officer, Planning and Construction
Time Frame	May 2003
Fiscal Impact	This can be implemented with existing resources.

Source: Berkshire Advisors, Inc.

- *We recommend that the District explore small site acquisition for construction of small schools and offer design competition for prototype small schools.*

Action Plan 10-4 provides the steps needed to implement this recommendation.

Action Plan 10-4

Explore small site acquisition for construction of small schools and offer design competition for prototype small schools	
Strategy	Determine the potential for relieving overcrowding and the estimated cost per student station through building small schools on small sites.
Action Needed	<p>Step 1: Ask land review task force to prepare cost benefit analysis on the real estate and construction side of buying smaller pieces of land and building small schools.</p> <p>Step 2: Create an education committee to work with the Facilities Planning and Standards unit to develop the educational specifications for a prototype small school from each level.</p> <p>Step 3: Integrate educational specifications and findings and real estate and construction specifications and findings into a report with recommendations to the Superintendent.</p> <p>Step 4: Make a recommendation to school board on potential for construction and utilization of small schools.</p> <p>Step 5: If small schools on small sites appear to hold potential for improving education and reducing overcrowding, organize a design competition for prototype small schools—including adaptive reuse for small schools.</p>
Who Is Responsible	Chief Facilities Officer, Planning and Construction
Time Frame	April 2002-Sept 2003
Fiscal Impact	The analysis could be done with existing staff and pro bono services of task force members. The design competition should be able to be financed with corporate or foundation support.

- *We recommend that the Board of Education establish a school construction and modernization task force to develop proposals for financing the implementation of the long-range facilities master plan.*

Action Plan 10-5 provides the steps needed to implement this recommendation.

Action Plan 10-5

Establish Financing Task Force	
Strategy	Establish a school construction and modernization task force to develop financing proposals for implementation of long-range educational facilities master plan.
Action Needed	<p>Step 1: Announce the creation of a construction financing task force.</p> <p>Step 2: Appoint a small, but recognizably influential group of business leaders to serve on the financing task force after soliciting advice from County leaders, business leaders and Board of Education members.</p> <p>Step 3: Charge the task force with finding ways to fund the implementation of the long-range master plan.</p> <p>Step 4: Use the task force to develop recommendations for the superintendent.</p> <p>Step 5: Publicize task force recommendations.</p> <p>Step 6: Hold public hearings on financing recommendations.</p> <p>Step 7: Submit recommendations to the Board of Education for review and action.</p>
Who Is Responsible	Superintendent
Time Frame	June 2003; Task force is put in place near the end of master planning process.
Fiscal Impact	No fiscal impact.

Source: Berkshire Advisors, Inc.

- *We recommend that the Board of Education create a broad based standing committee to develop capital budget priorities based on the recommendations in the master plan and to advise the District on site selection.*

Action Plan 10-6 provides the steps needed to implement this recommendation.

Action Plan 10-6

Establish a standing capital planning committee	
Strategy	Create a public committee to provide input on setting priorities for the capital plan and advising the District on site selection.
Action Needed	<p>Step 1: Revise the responsibilities of the proposed standing committee to reflect a more realistic and manageable role.</p> <p>Step 2: Establish a public school site planning and construction committee to focus attention on these important responsibilities.</p> <p>Step 3: Appoint members representing parents, business community, construction and real estate professionals (without conflict of interests) and other community stakeholders. (These appointments should be made by the School Board.)</p> <p>Step 4: Charge committee with reviewing the recommended planning department's five-year Work Plan recommendations to ensure their consistency with the long-range master plan.</p> <p>Step 5: Hold public hearings on capital project priorities and proposed site purchases.</p>
Who Is Responsible	Chief Facilities Officer of Planning and Construction
Time Frame	Establish in time to advise school District on long-range master planning.
Fiscal Impact	No fiscal impact.

Source: Berkshire Advisors, Inc.,

4 Although the District considers enrollment and factors that affect enrollment in developing its five-year facilities work plan, current needs are so compelling that they dominate the planning process.

Although the District does not develop its own enrollment projection, it does consider enrollment and factors that affect enrollment in developing its five-year facilities work plan

The Miami-Dade County Public Schools Office of Evaluation and Research contracts with the Research Division of the Metro-Dade County Planning Department to provide the enrollment projections it uses to support the development of its five-year facilities work plan.⁶ Using the County Planning Department for enrollment projections is wise because doing so gives the school District a complete picture of factors likely to impact student enrollment. The County has access to migration flows, birth and death rates by geographical locations, and census tract data that would not be as easily available to the District if it were to develop its own enrollment projections.

Current needs, rather than future enrollment, tend to dominate the District's facility planning efforts

While it would be ideal for the District to use enrollment projections to drive its facility planning efforts, the Miami-Dade County Public Schools does not have this luxury. Current needs are so compelling that they tend to dominate planning efforts. The District uses FISH reports to identify schools with the highest level of utilization.⁷ Given the demand for school space created by this overcrowding, District planning is more aligned with addressing needs where crowding and population growth is already the highest rather than focusing on future needs. Enrollment projections are used to identify areas where enrollment may be falling, however, to ensure that problems relating to overcrowding are not addressed in areas where overcrowding will be alleviated in the near future by demographic changes.

The District is concerned with the enrollment projection methodology the State uses to establish student funding allocations

A major concern for the District is that there appears to be an undercount of students by the University of Florida's Population Program, Bureau of Economic and Business Research that provides enrollment projections to the Florida Department of Education. The potential existence of an undercount is extremely important to the District because the University of Florida's projections provide the basis for the District's reimbursement for capital expenditures by the State.

The primary difference in the District's enrollment projections (provided by Metro Dade County) and the State's stems from how they treat 1990 census data. Both the District and the State start with the 1990 Census as a base. The State takes this baseline data and makes a downward adjustment to reflect a reduction in District population after Hurricane Andrew. The District, on the other hand, contends that the 1990 Census started with a 7% undercount (and therefore makes an adjustment to reflect this fact) and uses a different methodology from the State for making adjustments for Hurricane Andrew and other factors.

Differences between the District's enrollment projections and the State's are not inconsequential. The Metro-Dade planning department estimated the potential differences in enrollment projections from 2000 through 2015. As

⁶ The District currently lacks the data, software and expertise needed to adequately analyze County growth patterns.

⁷ 99 schools were operating in 2000-2001 at over 125 % of FISH capacity.

Exhibit 10-6 shows, the estimated difference between the University of Florida’s MEDIUM level total population estimates and the District’s total population estimates range from 57,702 persons in 2000 to 175,161 persons in 2015. Estimating the state’s share of capital funding at \$280 per student. This could amounts to a loss of state funding of \$2.58 million in 2000 and up to \$7.84 million in 2015.

Exhibit 10-6

State And District Enrollment Projections Are Significantly Different

Source for Enrollment Projections	2000	2005	2010	2015
Metro-Dade County Planning Department	2,209,402	2,361,995	2,517,256	2,677,561
Bureau of Economic and Business Research LOW	2,088,100	2,074,800	2,044,400	2,000,600
Bureau of Economic and Business Research MEDIUM	2,151,700	2,270,800	2,384,800	2,502,400
Bureau of Economic and Business Research HIGH	2,217,200	2,485,200	2,765,900	3,064,300
Difference between Metro-Dade Planning Department and MEDIUM level projections	-57,702	-91,195	-132,456	-175,161
Potential MDCPS students unfunded by FDOE ¹	9,232	14,591	21,192	28,026
Estimate of FDOE under funding capital @\$280 per student	\$2,584,960	\$4,085,480	\$5,933,760	\$7,847,200

¹ Assumes 16% of total population is enrolled in M-DCPS.

Source: Miami-Dade County Public Schools, Report Summary on Student Enrollment Projections by the Metro-Dade Planning Department, Office of Evaluation and Research.

An external interview with demographers who have successfully projected student population growth for the New York City Public Schools over the last ten years, and who are currently reviewing enrollment projections for another Florida County, revealed that they also were concerned with the State’s current methodology. They also noted, however, that in the past they had no such reason for concern.

5 While the five-year work plan focuses on critical needs, efforts to improve the planning process (and to track capital budget expenditures more effectively) are frustrated by the lack of needed information systems.

The development of the five-year work plan suffers from the lack of ready access to a relational database that includes the needed information

The District’s Technical Review Committee is an in-house committee that is composed of the Deputy Superintendent for Management and Accountability, Chief Financial Officer, Deputy Superintendent for Education, Deputy Superintendent for School Operations, Chief Facilities Officer, Assistant Superintendent for Facilities Operations and two staff members appointed by the Superintendent as voting members. It is currently responsible for the selection of projects incorporated into the five-year work plan, establishing the priority for these projects, and for integrating standards and scope for capital improvements and new schools with the District’s educational needs.

At present, data and information on facilities inventory, building condition, student enrollments, capital projects, capital budgets and capital expenditures are not integrated or readily accessible in a relational database to members of the Technical Review Committee, or to other decision-makers. This limits their ability to align capital planning decisions with greatest need, rather than with most demanding regional superintendent or community members.

Facilities Construction

At present, there is no efficient way to track project expenditures against the approved budget. The amounts approved for each project are maintained in an excel spreadsheet in the Office of Capital Construction Budgets while checks for approved contractor requisitions are written in the Office of Accounting Controller. Payments made to contractors, consultants and suppliers, are not posted against the approved budgeted amount. Members of the Land Acquisition and Facilities Advisory Board have recommended that the District implement a job cost accounting process (see also Chapter 9, section 1). This would allow the District to allocate overhead to each job and to link capital project accounting, project budgets, and expenditures. In addition, the reporting and monitoring capabilities of facility managers over the capital budget would be strengthened so that decision-makers would have a current and easily accessible window into the financial status of capital projects.

Another example of the need for comprehensive relational database for school facilities is the plant survey required by the State. The survey, as it currently stands, will be done using a paper format. Consequently, the updated data on the condition of existing facilities that will result from the survey will be difficult to analyze and evaluate (unless a tremendous amount of hand data entry is done to tabulate the results).

It should be noted that the District is aware of these information system needs and the Chief of Facilities, Planning and Construction requested that the Office of Information Technology review the existing Project Management Information Systems (PMIS). A consultant indicated that PMIS could become a viable application, but that a significant commitment of resources would be needed to undertake a formal design process, document the application, and implement the programming changes. Additionally training for users and resources for entering and updating information on the system would be required.

Recommendations

- *We recommend that District conduct an internal information management needs assessment and use the results of this assessment to develop an integrated facilities information system in the new planning department.*⁸

Action Plan 10-7 provides the steps needed to implement these recommendations.

Action Plan 10-7

Improve information management	
Strategy	Conduct an information management needs assessment and based on this develop an integrated facilities information system in the new planning department.
Action Needed	Step 1: Evaluate information, reporting, access and security needs of Capital Budget Planning, Chief Facilities Officer, Facilities Planning and Construction and Assistant Chief of Design and Construction, Office of Capital Construction Budgets, Capital Construction Compliance, and Facilities Support Services. Step 2: Create a template for who needs what information and who generates it. Step 3: Issue an RFP for help in either modifying current accounting, PMIS systems or other software in use to meet information management needs or issue an RFP for developing a new system. Step 4: Select vendor or consultant.
Who is Responsible	Office of Information Technology and Chief Facilities Officer
Time Frame	September 2003

⁸ In implementing this recommendation the District should take care to avoid systems that are unnecessarily complex and that do not build on the “organic” system for managing information and data that has evolved in the District over time.

Fiscal Impact	Initial investment of funds \$1.5 million, with ongoing costs a function of the particular information technology solution.
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Source: Berkshire Advisors, Inc.

- *We recommend that the District obtain a project cost accounting system that is integrated into the District’s general ledger to ensure that all construction project cost are properly accounted for.*

Action Plan 9-4 provides the steps needed to implement this recommendation.

6 The District’s need for additional space to meet its educational mission is compelling; yet it does not consider a broad range of approaches to meet those needs.

The District faces a significant need for additional space

Findings that suggest the District needs significant additional space are compelling. Indeed, the survey of the District employees who use existing facilities indicates significant dissatisfaction. More than three out of six survey respondents (60.4%) “disagree” or “strongly disagree” with the statement, “Existing facilities adequately meet the District’s educational needs.” Moreover, only 6.5% of the survey respondents “strongly agree” with this statement.

Part of the reason dissatisfaction is so high is that District schools are intensely overcrowded. Data from a 2000-2001 FISH report indicates that few District schools offer students and teachers the learning or teaching environments reflected in the District’s prototypical educational specifications. Current District standards for prototypical elementary, middle and secondary schools require 100 square feet per student, 110 square feet per student, and 113 square feet per student. As Exhibit 10-7 shows, however, the region with the most average square feet per school per student (Region 5) falls short of an average square feet per school per student of 100 square feet. In addition, as Exhibit 10-7 shows, the percentage of students currently housed in relocatables – which ranges from 9% of students in Region 4 to 15% of students in Regions 1 and 2 – is high.

Exhibit 10-7

District Schools Are Severely Overcrowded And 9-15% Of Students Are Housed In Relocatables

	Median Gross Square Feet/Student	Total Square Feet In Relocatables	Percentage of Students In Relocatables	Range of Gross Square Feet Per Student
Region 1	84	293,435	15%	43-126
Region 2	80	230,196	15%	50-158
Region 3	96	233,337	12%	50-197
Region 4	89	165,634	9%	50-188
Region 5	97	212,337	10%	59-195
Region 6	90	261,507	12%	43-143
District	89.5	396,446	12%	43-197

Source: FISH report.

If the District were to meet the standards it has adopted, it would need approximately 32,000 new student stations just to meet today’s enrollment. Using an average of \$15,000 per student station, the District would need \$480

million just to provide these stations. If relocatables were to be eliminated another 37,000 students would need to be housed in permanent space at an estimated cost of \$555 million.

The District does not systematically consider alternatives to new construction in developing strategies for meeting these significant facility needs

Dissatisfaction with existing facilities, the serious level of overcrowding that currently exists, and continued population growth for the foreseeable future that will put continued pressure on facility needs demand that the District develop real proposals beyond new construction to address the substandard teaching and learning conditions in intensely overcrowded schools. To date, however, there does not seem to have been an organized effort to explore alternatives to new construction. To its credit, the District has made some tentative steps to consider alternatives. For example, an overcrowding task force has been established.⁹ Likewise, the Office of Government Affairs and Land Policy, under its new director is beginning to investigate possibilities for adaptive reuse of buildings and shared use. These efforts, while laudable, by no means represent the collective concerted focus on minimizing the need for new construction that is required given the District's imposing facility needs.

Recommendations

- *We recommend that the newly formulated Office of Planning undertake a comprehensive assessment of the pros and cons of alternatives to new construction and develop a plan to implement recommendations*

Action Plan 9-2 provides the steps needed to implement this recommendation.

7

The District has not established a systematic process for setting work-plan priorities.

The current approach to setting priorities tends to be reactive

It is unclear what criteria the District currently uses to set priority needs. While regions provide input for development of the five-year work plan, and the results of the 1998 plant survey are used to establish the condition of facilities, how this information is used to set priorities is not well defined. Moreover, as noted previously, the Capital Improvement Committee (CIC), which could serve as a vehicle for receiving citizen input into the priority setting process, has not been functioning. The only factors that clearly set priorities are emergency items that the District is forced to address. For example, fire and life safety is a prominent part of work plan because of a grand jury finding that there were excessive fire code violations in the schools.

In addition, there is at least a perception that political influences play an undue role in setting facility priorities. While political factors should be considered when making capital construction decisions, the influence of politics on the decision making process should be limited by good data and information so that politics does not trump intense need. It should be noted that many respondents to the employee survey express strong reservations about the equity of the priority setting process. Slightly less than half of the survey respondents (46.9%) "disagree" or "strongly disagree" that "there is equitable treatment in setting construction and renovation priorities within the District."

⁹ This task force had met two to three times as of early November 2001.

Moreover, only slightly more than one out of twenty survey respondents (6.7%) “strongly agree” with this statement.

Recommendations

- *We recommend that the School Board create a broad based standing committee to develop capital budget priorities based on the recommendations in the master plan and to advise the District on site selection.*

Action Plan 10-6 provides the steps needed to implement this recommendation.

8 The District complies with all state reporting requirements and with the current Laws of Florida.

The District complies with all relevant laws of the State of Florida

The District is compliant with state reporting requirements. Required forms and documents that are prepared by the District include:

- Survey for Validation (s. 235.15, F.S.) [by Dept. of Document Control, Bureau of Facilities Planning and Construction]
- 1998 Educational Plant Surveys
- Project implementation Information for projects over \$200,000 (SREF 4.1 (97))[by Department of Document Control, Bureau of Facilities Planning and Construction]¹⁰
- Certificate of Occupancy (s. 235.26(c), F.S.) [by Dept. of Document Control, Bureau of Facilities Planning and Construction]¹¹
- Certificate of Final Inspection for projects over \$200,000 (s. 235.26(c), F.S.) [by Dept. of Document Control, Bureau of Facilities Planning and Construction]¹²
- Project Priority List for use of CO&DS bond funds (section 9(d), Article XII, state constitution) [by Dept. of Document Control, Bureau of Facilities Planning and Construction]¹³
- Twelve-month PECO Capital Outlay Projection and Request for Project Encumbrance Authorization (s. 235.14, F.S.) [by Dept. of Capital Budget Planning, Bureau of Financial Affairs]¹⁴
- Report of Cost of Construction (s. 235.435(6)(d), F.S.) [by Dept. of Capital Construction Budgets, Bureau of Facilities Planning and Construction]¹⁵

¹⁰ Pursuant to Section 4.4(1)(f) SREF 94, MDCPS Document Control as agent of the State obtains and maintains these forms on file for all projects over \$200,000.

¹¹ Pursuant to Section 4.4(1)(f) SREF 94, MDCPS Document Control, as an agent of the State, obtains and maintains these forms on files for all projects over \$200,000.

¹² Pursuant to Section 4.4(1)(f) SREF 94, MDCPS Document Control, as an agent of the State, obtains and maintains these forms on file for all projects over \$200,000.

¹³ These forms are prepared and submitted to the State every 5 years.

¹⁴ These forms are prepared and submitted to the State annually.

¹⁵ These forms are submitted annually to the State.

Facilities Construction

- Florida Inventory of School Houses Update (s. 235.014, F.S.) [by Dept. of Document Control, Bureau of Facilities Planning and Construction]¹⁶

In addition, the District adheres to the cost per student station on all projects commissioned after July 1, 1997. For projects completed before that date, a waiver was requested and granted. The District also has established a series of checks and balances to ensure that architects adhere to Florida Building Code requirements relating to identifying instructional areas or teaching stations (and the number of students assigned to each teaching station).

9 The District is prepared to comply with new Florida Building Code when it comes into effect.

The District has taken a number of steps to ensure compliance with the new Florida Building Code when it comes into effect on July 1, 2002. In particular, new contracts for building code inspections have been established which include requirements to review structures using the new building code. District staff have also attended various conferences and seminars to ensure they are knowledgeable about the building code and its implications. Additional training is scheduled. Furthermore, a state code officer has been designated who will be responsible for ensuring compliance with the new building code. Finally, with some minor exceptions, any project funded after January 1, 2002, will be designed and constructed to reflect the new building code requirements.

10 Information on the construction program and the five-year facilities work plan is not readily available to the public.

A well-managed capital improvement program requires stable and sufficient funding. This is particularly true in an expanding system. Keeping the public informed about the needs and progress of the capital construction division can help build confidence and support for funding public school construction. However, the District does not provide the public with easy access to information regarding its facilities and construction program.

Recommendations

- *We recommend that the District put more information about school facilities and the construction program on the Miami-Dade County Public Schools website.*

Action Plan 10-9 provides the steps needed to implement this recommendation.

Action Plan 10-9

Increase public knowledge of capital program

Strategy	Put information about the capital program on the MDCPS web site in a clear format that can easily be understood by lay persons.
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¹⁶ These forms are updated regularly by live date entry into the OEFIS system.

Action Needed	<p>Step 1: Ask newly formed capital planning standing committee (see action plan 10-6) to identify information that a parent, community member, concerned businessperson would want about the MDCPS capital program.</p> <p>Step 2: Provide this information to the M-DCPS Office of Communications.</p> <p>Step 3: Work with the Office of Communications to enhance web information on capital program.</p> <p>Step 4: Assign a staff person in the new Office of Facilities Planning to review and provide information for website on a weekly basis; this information should include: board actions, budget proposals, news about new schools, notices of committee meetings open to the public, and basic inventory information.</p>
Who is Responsible	Office of Facilities Planning with Office of Communications and the Office of Information Technology
Time Frame	September 2002
Fiscal Impact	No fiscal impact

Source: Berkshire Advisors, Inc.

Educationally Appropriate Facility Design Standards

11 Prototypical Educational Specifications are aligned with educational needs.

The Prototypical Educational Specifications developed by the District are of high quality and are aligned to best educational practice

MDCPS has developed Prototypical Educational Specifications for elementary, middle and senior high schools. The quality of these specifications is high. They are kept up to date and align with best educational practice. To ensure they continue to reflect educational needs, each year MDCPS Curriculum Specialists review the Prototypical Educational Specifications and Furniture Fixtures and Equipment (FF&E) Master Lists. Changes are made to the Prototypical Educational Specifications and FF&E Master Lists to reflect the latest mutually agreed program goals, objectives, and instructional strategies. In addition, to ensure the specifications keep pace with technological change, MDCPS Instructional Technology staff and the Office of Information Technology (OIT), review the MDCPS Prototypical Educational Specifications, Design Criteria, and Master Specifications on a regular basis and make adjustments to reflect the latest technological trends.

Flexibility in the classroom has been built in to the prototypical educational specifications through requirements for regular-shaped classes, multipurpose FF&E, minimizing the use of built-in furniture where possible, and by standardizing class sizes (net square footage) throughout the facility.

An effective process has been established to ensure that site-specific education specifications meet the anticipated needs of each school

MDCPS site-specific educational specifications are generated on a project basis. The Prototypical Educational Specifications, which provide a starting point for the development of these specifications, provide descriptions for

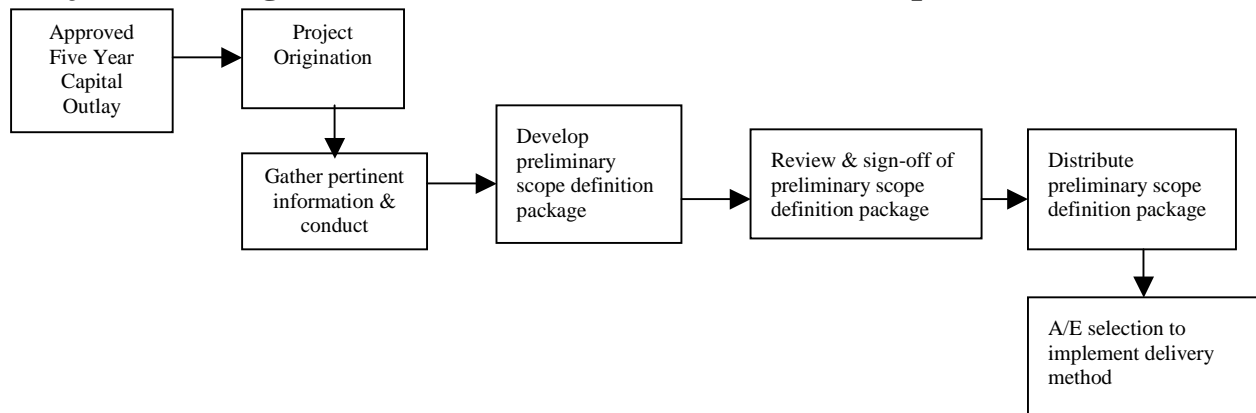
proposed spaces while leaving ample flexibility for creativity and options in design by the architects. In each school’s specific educational specification, program goals, objectives and activities, teaching strategies, and instructional methods are identified to provide the project Architect/Engineers (A/E) with a description of the school’s needs and expectations for how the space will function. The District does an excellent job of including a range of staff in this process. Indeed, slightly more than one-third of all certified staff responding to the survey (34.1%) “agree” or “strongly agree” with the statement, “I have been involved in establishing program goals, objectives and instructional strategies for new construction projects.” The site-specific educational specifications also include program philosophy and goals prepared in conjunction with MDCPS curriculum staff. The specifications include program-specific sections relating to the curriculum, instructional methods, staffing requirements, teacher/student ratios, and support services requirements.

Development of educational specifications should be assigned to the recommended planning department

The Department of Capital Construction Budgets is currently charged with responsibility for planning and developing project scope definition packages. Using Prototypical Education Specifications a preliminary scope definition is developed for sign-off by the Deputy of School Operations, Region Superintendent, School Principal, Region Executive Director, Director of Document Control, Director of A/E Selection, Negotiations, Educational Specifications and FF&E, and Executive Director for Planning and Construction Budgets. Once the program has been approved by each of these individuals, a delivery method is identified and the selection of a consultant commences. At this point, the project manager takes leadership for the process. (A flow chart of this process is presented in Exhibit 10-8.)

Exhibit 10-8

Project Planning Can Be Divided Into Seven Distinct Steps



Source: MDCPS Facilities Planning, Design and Construction Procedures Manual.

The Department of Capital Planning and Budgets used to be more involved in managing the development of site-specific educational specifications and the design process than it is at present. Currently, however, project managers are primarily involved and responsible for projects once the sign-off for preliminary scope is complete and the A/E selection is done. Essentially these project managers function as owner’s representatives throughout the process of programming, design and construction. As a result, an organizational focus on the development of site-specific education specification is lacking. This issue can be addressed by assigning site-specific planning responsibilities to the recommended planning unit (discussed in Section 2).

Recommendations

- We recommend that a planning department manage site-specific programming.

Action Plan 10-10 provides the steps needed to implement this recommendation.

Action Plan 10-10

Place site specific programming in the planning department	
Strategy	Have site-specific programming managed as part of the planning department.
Action Needed	<p>Step 1: Once planning department is established (see Action Plan 10-6), reassign responsibility for programming for new schools to this unit.</p> <p>Step 2: Once new school programming has been established as part of planning department and evaluated for efficacy, transfer project specific programming for renovations and additions.</p> <p>Step 3: Revise Facilities Planning, Design and Construction Procedures guide to reflect development of planning department and transfer of management for site-specific programming.</p>
Who is Responsible	Chief Facilities Officer
Time Frame	Next round of new schools
Fiscal Impact	No fiscal impact

12 Educational specifications for new construction, remodeling, and renovations include a description of activity areas.

There is appropriate detail of activity areas in educational specifications

The District has established an effective process for ensuring all needed activities that will take place in a new facility are reflected in the educational specifications for that facility. As part of this process MDCPS Regional staff, curriculum staff and MDCPS Facilities Planning and Standards staff meet to determine which vocational programs represent the desired educational and community needs. They also meet to decide what provision should be made for instructional support, pupil services programs and general support services requirements. In addition, during this planning phase, curriculum specialists and region staff determine if there will be exceptional student education space requirements for the facility. They also ensure that all spaces meet the legal requirements established by the State Requirements for Educational Facilities (SREF).

The educational specifications that are developed through these efforts thoughtfully address what types of spaces are needed in each project and how these spaces will be used. In particular, project specific educational specifications:

- Provide an overview of the number areas included in a project and their size
- Ensure curriculum programs are appropriately placed and that space within program areas is appropriately configured
- Ensure instructional support areas are grouped together in an appropriate manner
- Provide adequate storage spaces.

A discussion of each of these features of project specific educational specifications follows.

Facilities Construction

Project overview. Educational specifications for individual projects describe the number of areas to be constructed and their size in a section titled “Facilities List.” This facilities list represents the project’s scope of work in terms of remodeling and new construction. In each program-specific educational specification, there is also information on how many and what staff will use the space. In addition, there is a spatial relationship diagram with a legend for each program area.

Placement of curriculum programs. The educational specifications also describe the curriculum program in detail, along with staffing requirements/needs, and necessary support services. In addition to program-specific spatial relationship diagrams, which describe inter-program adjacencies and relationships, these diagrams also describe intra-program adjacencies (i.e., where program areas must be adjacent to one another). Together, these diagrams yield a facility design that ensures efficient student/staff/faculty circulation patterns.

Placement of instructional support areas. Instructional support areas are listed in the Board Approved Facilities Lists and have been approved by MDCPS Region and Curriculum staff. Educational specifications for individual projects describe how these instructional support areas should be grouped together to ensure an efficient and cost-effective use of space.

Storage. The educational specifications for each project also ensure that storage spaces are provided, when necessary, for specialized spaces and for the facility’s general storage requirements. For instructional spaces, storage is generally provided by means of FF&E storage cabinet(s). These cabinets are more cost-effective and allow for more flexible use of space than “built in” storage areas.

13 **Design follows District specifications, but in some cases these specifications may not reflect a practical assessment of how facilities will actually be used.**

The District takes appropriate steps to ensure that architectural designs conform to educational specifications

To ensure that architectural designs conform to educational specifications the architect for each project is provided with copies of the Design Criteria and Prototypical Educational Specifications. His or her work is subsequently reviewed at various design phases to ensure consistency with educational specifications. Further oversight includes:

- Copy of review from Department of Plan Reviews
- Reviews by the Uniform Building Code International (UBCI), EFCO & Trades Master’s reviews
- Building Committee Review
- Post occupancy evaluation.

In addition, during Phase I, a committee of design construction, maintenance, and education/curriculum staff reviews each project to ensure compliance with District and state requirements.

Visits to six new schools (or existing schools with additions) suggest efforts to ensure that architectural designs conform to educational specifications have been successful. A review of these schools revealed that educational specifications appropriately described specialty instructional spaces and the amenities appropriate for these spaces and the actual design and construction of these facilities reflected that direction.

In some cases, the design of new facilities may not reflect a practical assessment of how facilities will actually be used

The review of six projects suggests that the design of new facilities may not reflect a practical assessment of how the facilities will be used. In some cases, the educational specifications are practical, yet overcrowding prevents specialty classrooms and other spaces from being used as intended. Instead, the District is often forced to use its specialty classrooms for regular classroom space. For example, at one school a black box theatre classroom with projection booth, catwalk around the perimeter and theatre track lighting was being used as a traditional classroom, with students in rows of desks using textbooks. In other cases, the design did not reflect a practical understanding of how a space would be used. For example, in one school a dance studio was too highly outfitted. This dance studio was equipped with theatre track lighting that covered the ceiling yet it was unclear why track lighting was necessary, as the dance studio did not accommodate an audience. Likewise, middle school science rooms had special drains for toxic waste, fume hoods, a shower and an eyewash. However, it was not clear that in classrooms of 30 or more young adolescent students that toxic chemicals necessitating these amenities would ever be used.

When rooms are equipped with features that are either not needed or are not likely to be used, costs increase. At least with regard to middle schools, this appears to be what has happened in the Miami-Dade County Public Schools. A review of middle school additions from 1999 to the present reveals that the District spent anywhere from \$19 a gross square foot to \$37 a square foot for Furniture Fixtures and Equipment (FF&E). (See Exhibit 10-9.) This was nearly twice the FF&E expenditures in middle school additions in other Florida school Districts.

While the existence of specialty space for secondary students is optimal, with such extensive and intense overcrowding and insufficient funds for basic classroom space, the District should reevaluate the need and rational for building and equipping specialty spaces.

Exhibit 10-9

FF&E Expenditures For Middle Schools Ranged From \$19 to \$37 Per Gross Square Foot

Additions 1999	Gross SF	Total Cost	Percentage for FFE	Cost for FFE/Gross Square Foot
Allapattah MS	31,479	\$ 5,397,283	11%	\$ 19.07
Hammocks MS	35,664	\$ 5,792,430	14%	\$ 22.88
Shenandoah MS	40,124	\$ 7,354,591	13%	\$ 24.11
Campbell Drive MS	33,192	\$ 6,938,220	12%	\$ 24.58
Horace Mann MS	37,510	\$ 6,097,460	15%	\$ 24.94
Ponce De Leon MS	38,158	\$ 6,582,276	15%	\$ 25.35
Richmond Hts MS	37,810	\$ 6,943,277	14%	\$ 25.45
Kinloch Park MS	34,332	\$ 6,082,518	16%	\$ 28.18
Carver MS	25,017	\$ 5,952,725	16%	\$ 37.39

Source: FISH, verified by MDCPS Budget Office.

Recommendations

- *We recommend a review of the utilization of spaces that have been designed for specialized purposes (e.g., weight rooms, dance studios, vocational areas, science labs, black box theatres, and TV studios) to determine whether the instructional program is utilizing the specialized equipment and design provided.*

Facilities Construction

Action Plan 10-11 provides the steps needed to implement this recommendation.

Action Plan 10-11

Audit The Utilization Of Specialized Spaces	
Strategy	Review the utilization of specialized spaces and equipment to determine whether the instruction program is utilizing them.
Action Needed	Step 1: Review design and construction costs to identify the specialized areas that require the greatest expenditure for design, furniture and equipment in high schools, middle schools and specialty or magnet schools. Step 2: Based on findings, prioritize what types of spaces to audit for utilization. Step 3: Using FISH, identify the specialty spaces in schools to be audited. Step 4: Identify a small sample of schools to review in order to make a preliminary evaluation of utilization and determine if a more complete investigation is warranted. Step 5: Create a data collection template identifying the information that should be collected on the utilization of each space. Step 6: Create criteria for rating utilization and for defining whether a space is “fully utilized,” “partially utilized” or “not utilized” that reflects the anticipated specialized uses of a space. Step 7: Send personnel to selected schools to use these criteria in determining how a particular space is utilized. Step 8: Compile data from audit into template. Step 9: Prepare preliminary report for design standards committee.
Who Is Responsible	Planning Department
Time Frame	October 2002
Fiscal Impact	Can be completed using existing resources.

- *We recommend a review of middle school prototypical educational specifications by educational specialists to determine whether it is a better practice to build more space for basic classrooms or to build facilities with more high school-like technology, science and vocational readiness spaces that reflect an increase in the specialization of middle school instruction.*

Action Plan 10-12 provides the steps needed to implement this recommendation.

Action Plan 10-12

Review middle school prototypical educational specifications	
Strategy	Review middle school prototypical educational specification to determine whether it is more important to build basic classroom space or specialized classrooms.
Action Needed	Step 1: Compare results of investigation of specialized spaces and actual utilization of special features, furniture and fixtures (undertaken as part of Action Plan 10-11) with middle school prototypical educational specifications. Step 2: Review literature on middle school curriculum and state curriculum standards. Step 3: Develop recommendations for modification to middle school prototypical educational specifications, as appropriate.
Who is Responsible	Deputy Superintendent for Operations
Time Frame	March 2003
Fiscal Impact	Review can be done with existing resources. Depending on findings, potential savings on FF&E and on some base construction.

Source: Berkshire Advisors, Inc.

14 While safety features are incorporated into design documents, greater attention needs to be devoted to ensuring that the safety features and equipment reflected in these designs are actually in place and operational in schools.

Safety features are incorporated in design documents

The District ensures that appropriate safety features are incorporated into the design of all new construction by including in the New Construction Agreement for Professional Services that the design incorporate and meet all safety codes including State Requirements for Educational Facilities (SREF), State and local building codes, NAPA 101, and other appropriate codes. The design is then reviewed by Educational Facilities Compliance Office (EFCO) to confirm code compliance.

The District also ensures that when facilities are renovated, safety needs are assessed and safety designs are reviewed or added to the facility by requiring, in the Renovation Agreement for Professional Services, that the design professionals address such safety needs and issues and comply with all applicable local, state and federal codes. The design is then reviewed by EFCO to confirm code compliance.

Safety and code features reflected in the design are not consistently implemented on all new projects

While safety and code features are consistently reflected in project design, cases were brought to the attention of the consultants where the safety and code features called for in the design were not actually implemented. At one middle school, for example, even after all inspection sign-offs had been completed, the fire sprinkler system was inoperative and the Siamese fire connection that the fire department needs to pressurize the sprinkler system was missing. Other similar cases were also cited, suggesting that better oversight of the consultant UBCI code inspectors is warranted.¹⁷

Schools conduct annual review of equipment needs and conditions at school yet repairs and replacement of equipment are not consistently completed when needed

The results of the employee survey indicate that schools generally do a good job of reviewing equipment needs and conditions each year. Over 71% of the survey respondents “agree” or “strongly agree” with the statement, “My school conducts an annual review of equipment needs and conditions” and only 5.6% of the survey respondents “strongly disagree” with this statement. With regard to whether equipment is repaired and replaced when needed, however, the results are more mixed. More than two in five survey respondents (43.0%) “agree” or “strongly agree” with the statement, “The District repairs or replaces equipment as needed at my school.” However, only a slightly smaller percentage of survey respondents (38.5%) “disagree” or “strongly disagree” with this statement.

¹⁷ The school District is currently spending \$95 million to eliminate fire code violations in its schools. New schools, however, should not be among the schools with fire safety problems.

Recommendations

- *We recommend that the District do an analysis of how many fire life safety violations exist in schools less than 5 years old and examine whether there is any contractor or code inspector liability.*

Action Plan 10-13 provides the steps needed to implement this recommendation.

Action Plan 10-13

Analyze fire life safety violations in schools less than five years	
Strategy	Determine whether or not there is any contractor or code inspector liability for fire code violations in new schools, with the idea of trying to recover cost of remediation.
Action Needed	<p>Step 1: Review lists of fire code violations in schools 5 years old or less.</p> <p>Step 2: Provide names of schools with code violations that are a result of building design or construction, rather than use to the Capital Construction Compliance unit.</p> <p>Step 3: Send engineer from Quality Assurance to determine whether code violation is actually a result of design or construction flaw.</p> <p>Step 4: If yes, Capital Construction Compliance unit will prepare documentation for securing remediation from architect or construction firms responsible for the error or omission.</p>
Who Is Responsible	Office of Capital Construction Compliance
Time Frame	September 2002
Fiscal Impact	This recommendation can be completed with existing resources.

- *We recommend develop procedures to improve accountability for code inspectors.*

Action Plan 10-14 provides the steps needed to implement this recommendation.

Action Plan 10-14

Develop procedures for code inspections	
Strategy	Make sure contractors who inspect for adherence to building code and fire code are rigorous in their inspections and reliable with their reporting of problems.
Action Needed	<p>Step 1: Review criteria for qualifying as a code inspection firm.</p> <p>Step 2: Request feedback from school District architects, engineers and trade masters on quality of inspections from private code inspection firms, and on suggested criteria for selection as a code inspection firm.</p> <p>Step 3: Use revised criteria and feedback from Quality Control to re-evaluate code inspection firms.</p> <p>Step 4: Release firms that do not meet revised criteria.</p>
Who Is Responsible	Executive Director of Facilities ADA and Design and Quality Control
Time Frame	November 2002
Fiscal Impact	This recommendation can be completed with existing resources.

Timely and Economical Site Selection ---

15 **The site selection process has slowed down school construction and contributed to overcrowding and loss of confidence in the District, but the District has developed new policies and procedures for site selection and acquisition.**

A major deciding factor determining which sites were purchased was the availability of land, rather than where the greatest overcrowding was. OPPAGA issued its report on the MDCPS land acquisition practices in May 2001 and criticized the District's land acquisition policy and procedures. As a result, new site selection rules were promulgated on October 10, 2001 and submitted to the School Board for consideration on the 24th. Subsequently, the School Board has adopted a new Board Rule with a more formal and detailed process for acquiring property. Included in this Board Rule is a requirement that a citizens' committee be developed to provide public input into the site selection process, in depth criteria for evaluating and selecting sites, procedures for selecting a site, guidelines for the due diligence on the purchase itself, including criteria for reasonableness of costs; an appraisal and review process; comparative analysis of site acquisition and site improvement costs; and guidelines on use of eminent domain as authorized by Section 235.05, F.S. of Florida State Code.

After the May 2001 OPPAGA review, a Land Acquisition and Facilities Oversight Board composed of private-sector developers appointed by state leaders was established. In January 2002, it voted unanimously to advise the Legislature that the District had implemented nearly all changes recommended in the May 2001 report. However, as of yet, the Site Selection Committee that is just being constituted by the Superintendent and School Board has yet to meet. In addition, the Land Acquisition and Facilities Oversight Board continues to meet and is likely to make further suggestions for improving the District's land acquisition process.

Since the May 2001 report, no land purchases have been made. However due diligence on a number of sites was undertaken, so that once constraints were lifted, purchases would be ready to move forward quickly.

Unfortunately, the District can come up with a plethora of procedures and committees and still not solve its problems. Consequently, in addition to establishing improved procedures the District must determine the features of land acquisition practices that are of greatest importance. Among the range of issues that might be considered are the following:

- High cost of land
- Speed with which the District is able to make a deal
- Increasing scarcity of sites of sufficient size to meet site requirements
- Public attitudes about competence or honesty in land acquisition
- Attitudes of state officials about competency or honesty in land acquisition
- Need for better information on possible sites to purchase
- Need for better relations with the public to position the District to exercise right of eminent domain
- Need for increased access to private sector expertise to help identify alternatives to traditional school site development approaches
- Potential for small schools on small sites.

Recommendations

- *We recommend that the District continue to define what types of input it needs from the public input relating to site identification and acquisition and that it expedite the development of the Site Selection Committee as outlined in the new school policy.*

Action Plan 10-6 provides the steps needed to implement this recommendation.

- *We recommend that Government Affairs and Land Office, as part of a new master planning task force, participate in the long range master planning and develop a long term land purchase and use plan to support the facility requirements of the District.*

Action Plan 10-3 provides the steps needed to implement this recommendation.

16 The School Board considers the most economical and practical locations for future schools.

Although the District has not acquired new school sites since May 2001, the Board's policies emphasize the need to consider the most economical and practical locations for future schools. The Board's rules provide the recently created School Site Planning Committee with the responsibility to make recommendations regarding site selections. In addition, the Board's site selection rules also provide criteria designed to determine the most economical and practical site. See Section 15 above for additional details and recommendations regarding site acquisition.

Construction Cost Controls

17 The District has established and implemented accountability mechanisms, however, they have not prevented high staffing levels and do not always translate into better construction.

The District has controls in place to ensure the performance, efficiency, and effectiveness of the construction program

The District has taken a number of effective steps to ensure its construction program is implemented efficiently and effectively, including the following:

- Cost saving measures are incorporated into design criteria and master specifications
- Cost estimates from estimating consultants are used to validate project consultant estimates
- Response to Requests For Proposals (RFPs), Requests for Quotes (RFQs), and Construction Bids are closely monitored
- Firms responsible for plan review and inspections are also monitored

- District construction and management costs are compared with similar costs in other Districts
- Staffing levels of Miami-Dade County Public Schools compared to Duval and Hillsborough Counties

A discussion of each of these effective practices follows.

Incorporating cost saving measures into design criteria. The District has incorporated Smart School Clearinghouse cost saving suggestions into its Design Criteria and Master Specifications. An example of a cost saving measure that is currently incorporated into design guidelines is the requirement that all new schools be designed to accommodate the potential future use of portable classrooms. All new schools are required to install connections to all systems that will be needed to connect portables to the facility—sanitary, domestic water, electrical, fire alarm, security, and energy management. At a minimum a new elementary school must have eight portable sites designated, a middle school 18, and a high school 30. The school District has also asked its design criteria consultants to begin a review of the master specification to find ways to improve the specification so the materials and techniques are high quality, but also economical. In addition, the District closely monitors the design process to ensure budgets established to achieve SIT eligibility are met.

Validating project cost estimates. The District obtains independent cost estimates from estimating consultants to validate project consultant estimates. In addition, the District will soon be undertaking an evaluation of the estimates provided by the independent estimators and the actual bids and costs of school improvements. This activity has the potential to be extremely worthwhile. For one project where an independent evaluation of actual bid has already been completed (a review of the estimate provided by Construction Estimating Services, Inc. of the Phillis Wheatley Elementary School) for an addition and renovation that totaled \$4,255,954, only \$2,302 was allocated for furnishings. For a project of this size, assuming furnishings will amount to only five hundredths of one% is clearly unrealistic. This is likely the result of the District lacking a job cost accounting process and should be addressed through action plan 9-4.

Monitoring responses to RFPs, RFQs and construction bids. The District closely monitors responses to RFPs, RFQs and Construction Bids to assess program effectiveness. As part of this monitoring effort, the District is currently evaluating its selection procedures for competitive design and construction firms with the goal of initiating contracts with more experienced design/build firms.

Monitoring firms engaged in plan review and inspections. The District also monitors the five firms engaged in plan review and inspections and is currently evaluating the benefits of adding fire code plan review and inspections to their contracts. Doing so may be prudent since fire code plan review will be required when the new State Building Code goes into effect.

Comparing construction and management costs with similar Districts. The District recently undertook an ambitious research project to compare the cost of construction and the management structures of capital improvement programs in fifteen major school Districts. The April 26, 2001 revised draft report did an excellent job of outlining the issues and information that are required for a complete comparison and analysis of school construction cost and capital program management. However just as with the comparisons in Exhibit 10-9, care should be taken with peer district comparisons of costs, as well as staffing. For example, the Chicago Public School construction program makes bulk purchases of steel and of mechanical and kitchen equipment. The report does not indicate whether or not they do the accounting to allocate this expenditure into their cost per square foot.

The accountability and control systems have not prevented high staffing levels in the capital division and do not always translate into better construction

The District currently assigns 265 persons and positions to the capital improvement program, paid from the capital budget. At the same time, the District uses a stable of consultants for plan review, design review services and inspections. In a comparison of Duval and Hillsborough County School Districts, and other large counties, although Miami-Dade is much larger, it carries a disproportionately higher level of capital staffing.

Exhibit 10-9

Miami-Dade Has Disproportionately High Levels of Capital Staffing

	Total 5 yr Capital Expenditures	District Capital Employees	Program Management	Project Management	Construction Delivery
Miami-Dade	\$1,100,000,000 ¹	265	In-house	District Project Managers	Design/bid/build; Design/build; CM
Duval	\$434,301,846	29	In-house	District Project Managers	Design/bid/build; Design/build; CM at risk; fast track
Hillsborough	\$735,663,417	23.6	In-house	District Project Managers/ Private Construction managers, at risk	Design/CM at risk
Montgomery County, Maryland ¹⁸	\$575,000,000 ¹⁹	29	In-house	District Project Managers/ private construction managers	Design/bid/build; Construction management firm currently manages 50% of projects and 80% of construction dollars. Students use swing space during construction.
Fairfax County, Virginia	\$650,000,000	54.5	In-house	In-house Project Managers	Only traditional design/bid/build Renovation is undertaken in occupied schools, which requires more intensive local school inspection. (15 inspectors).
Fulton County, Georgia	\$475,000,000	23	In-house	Construction management “at risk” and in-house project managers to keep skills for oversight in District	68% of construction budget is for new construction. Construction management firm provides staff support. CM-at-risk is used.

¹ Estimate; excludes maintenance transfers.

Source: Berkshire Advisors, Inc.

¹⁸ Data for Montgomery, Fairfax and Fulton County is taken from “Public School Capital Improvement Programs. Basic Elements and Best Practices: Guidance for the District of Columbia.” Prepared for the World Bank Group, October 15, 1999 by 21st Century School Fund and the Scientex Corporation.

¹⁹ Estimates are based on 1999 annual capital budget.

The concern with peer district comparisons that are not the result of an in depth audit in each District is that these comparisons can be misleading. In this case, the peer district facility directors may not have reported all of the positions dedicated to management, operation and oversight of the capital program. By contrast, the District’s construction program includes such staff in its calculations. However, just the Construction Division at 86 persons, Job Order Contracts with 11 persons, and Project and Contract Management with 37, adds up to 134 persons directly involved in construction and its procurement. This is considerably higher than any peer district, even after considering the differences in the size of the construction budgets. This relatively high level of staffing is also a concern for some members of the Land Acquisition and Facilities Oversight Board.

Recommendations

- *We recommend a systematic review of the cost and organization of the capital program management with the objective of reducing staffing of the capital management, operations and oversight by 20-35% within 3 years.*

Action Plan 10-17 provides the steps needed to implement this recommendation.

Action Plan 10-17

Review organization and staffing of capital program	
Strategy	Review the cost and organization of the capital program management with the objective of reducing staffing of the capital management, operations and oversight by 20-35% within 3 years.
Action Needed	Step 1: Conduct desk audits, including clerical support positions. Step 2: Examine approval procedures for design and construction related decisions. Step 3: Examine approval procedures for budget related decisions. Step 4: Assess impact of personnel policy toward capital employees—work related travel, the union’s role, training, compensation, and seniority. Step 5: Examine school board influence on hiring. Step 6: Plan and initiate phased in staff reorganization and reduction.
Who Is Responsible	Chief Facilities Officer
Time Frame	July 2004
Fiscal Impact	Cost for evaluation may be \$100,000; gross savings with 20% staff reduction, phased in over three years, could be \$7.8 million over a five year period.

18 The District has incorporated cost saving measures in its design criteria and master specifications.

District incorporates cost saving measures in its design criteria and master specifications

The MDCPS Design Criteria, Master Specifications, and Educational Specifications have incorporated within their standards the SMART Schools Frugal Construction Standards, that incorporate design to keep per student station costs low. MDCPS Design Standards are also reviewed annually for practicality, functionality, and cost effectiveness and architects and engineers are encouraged to implement these standards whenever possible.

The District’s approach to project management is effective

The District’s approach to project management is sound. Each project has a team, comprised of the Project Manager, an Educational Specification Coordinator, an FF&E Coordinator, an Advance Planner, a Project Architect, a Builder, and other key staff from various departments. This “Project Team” remains intact for the life of the project and is involved at the various stages of approval for a project. They attend Team Matrix meetings, Building Committee Meetings, and working meetings as necessary. Each team member’s input is considered equally important.

To reduce facility expenditures, the District secures the use of municipally owned public recreational facilities for District needs

The District has over 100 agreements with Miami-Dade County and local jurisdictions for the shared and joint use of open and recreational space and facilities. The District and these jurisdictions sometimes share the initial construction costs, along with operation and maintenance costs, which reduces both construction cost and the costs of facility operations to the District. In addition to being cost-effective, these agreements have also established strong ties between the District and the local residential communities and have been extremely effective in helping to optimize the use of available land for student stations. An example of these shared and joint use facilities are the three large multi-sports stadiums that are located in strategic areas of the county.

District does not have a program for generating revenue from use agreements for local schools

Although there the District has over 32 million square feet of school space, there does not appear to be a plan or office that is responsible for trying to generate revenue from school buildings after hours or on weekends. In school Districts half the size of MDCPS annual revenue of \$1 million is not uncommon.

- *We recommend that M-DCPS develop a facilities use agreement and leasing program that enables the public access to unused facilities for a fee.*

Action Plan 10-18 provides the steps needed to implement this recommendation.

Action Plan 10-18

Develop asset management function in Government Affairs and Land Use Policy and Acquisition	
Strategy	Develop facilities use agreement and leasing program to enable public access to unused facilities for a fee.
Action Needed	Step 1: Evaluate the potential for generating lease revenue from non-school use of schools, parking lots, air rights, playing fields, and other real property assets. Step 2: Draft a policy to guide who will benefit from non-school use leasing of public school property—local schools, central administration, or a combination. Step 3: Bring proposed policy to School Board for solicitation of public comment. Step 4: Make revisions to policy based on input. Step 5: Adopt real property asset management policy. Step 6: Implement administrative function to maximize the revenues allowable under new policy.
Who Is Responsible	Chief Facilities Officer
Time Frame	April 2003
Fiscal Impact	Create real estate advisor task force to advise the District at no cost. Potential impact is variable, depending up policy and whether school District begins to use double sessions and year round schools. Potentially \$3 million over a 5-year period.

19 The District minimizes construction costs through the use of prototype school designs and frugal construction practices.

One way the District controls construction costs is by making appropriate use of SMART Schools Clearinghouse Frugal Construction Standards when designing and building school facilities.²⁰ Notably, the District has submitted six schools to the SMART School Clearinghouse for School Infrastructure Thrift (SIT) awards. These were approved and the District received \$11,789,438. Approximately 10 more applications are in the process of being completed for submission.

The District also controls design and construction costs by reusing several prototypical educational specifications. In particular, it has reused the High School, Middle School, Early Childhood, and Middle School Learning Center educational specifications. When considering whether it will be possible to reuse an existing design, the District generally looks at several factors including: the design/build process, school size, programmatic requirements, and site size. Due primarily to geographic considerations, however, it is not generally beneficial the to use facility design prototypes developed by the Florida Department of Education.

20 The District employs effective practices in securing appropriate professional services to assist in facility planning, design, and construction.

The District has developed generally effective approaches to managing and selecting architects and engineers

While some opportunities for improvement have been identified, the District's overall approach to managing and selecting architects and engineers is sound. Most notably, the District has developed a process for selecting architects and engineers that is both thorough and consistent with Florida Statutes. A selection committee comprised of ethnically diverse in-house architects, engineers and others experienced with construction conducts an initial review of the qualifications of architects, engineers, design criteria professionals, construction managers and design-builders using an evaluation form that scores the applicants according to the following Board approved criteria: experience, adequacy and availability of technical personnel, proximity of the candidate's office to the District and financial responsibility of the firm. Later, the MDCPS A/E selection committee evaluates finalists based on interviews. As part of this process the A/E Selection Office staff conduct telephone interviews of previous clients. In addition, previous MDCPS experience with change orders and project delays are considered as part of the selection process as are formal evaluations of contractor performance.²¹ In addition, the District has established

²⁰ As previously discussed, the SMART Schools Clearinghouse Frugal Construction Standards are § 235.217, *Florida Statutes*, the Clearinghouse shall:

- develop, and continuously update, design and performance standards for functional and frugal school buildings that are space efficient and technology rich;
- certify school designs for inclusion in the SMART Schools Design Directory;
- recommend standards and policies relating, to design and construction of educational facilities, including construction standards for frugality, to the Governor, the Legislature, and the State Board of Education (SBE);
- prioritize school District' School Infrastructure Thrift (SIT) awards and Effort Index Grants (EIG)

²¹ The A/E Selection Office provides the A/E Selection Committee with a report of A/E evaluations that is updated quarterly.

Facilities Construction

effective practices for contracting with and managing professional contractors. In particular, the contract forms that are currently used are both comprehensive and consist with state law. Moreover, the District strives to enter into contracts with professionals early enough in the planning process that they can help define project goals and help develop facilities lists and educational specifications. The District also evaluates consultants on a regular basis and maintains a database of evaluation results. Each quarter, staff from the District's Architect and Engineer Selection Office evaluates the professional services consultants under contract with the District. These evaluations are prepared by project managers, shared with the consultant and tabulated for future use. As noted, the results of these evaluations are reviewed whenever a new professional services selection process is underway.

The evaluation process is not popular with the project managers since giving a poor evaluation can have an adverse impact on the day-to-day interaction between the project manager and the consultant. Consequently, some project managers have been slow in turning in evaluation forms. The Assistant Chief Facilities Officer has effectively managed this issue, however, by assigning an individual responsibility for following up on the collection of these forms and providing the project managers with technical assistance to help them improve the usefulness of the evaluation process.

The District does not currently perform site visits or review examples of other projects as part of the selection process for architects and engineers

Visiting the offices of prospective consultants and review examples of other work can be a very important part of the selection process for architects and engineers. Visiting the office of a prospective consultant can help determine accuracy of information provided on the size of the firm being evaluated. Likewise, visiting a recent project can help an experienced architect discern whether economical building practices are used. Nonetheless, the District does not currently require site visits and the review of prior work as part of the section process. While District staff indicate that the extensive number of A/E selections precludes making visits to finalists offices or reviewing examples of their other projects a review of the A/E Selection office's Commissioning List disclosed that only 17 firms were commissioned during the first six months of 2001 and at least four of these firms had been previously commissioned thereby obviating the need for an on site visit. Making thirteen site visits and reviewing the work of thirteen firms over a six month period appears to be a workload that could be accomplished with existing staff. However, a more time efficient solution would be to mandate that each candidate include color photographs of a representative sample of recently completed projects.

Recommendation

- *We recommend that the District require design candidates to provide color photographs of a representative sample of recent projects before entering into contracts with professionals who have no previous experience working with the Miami-Dade County Public Schools.*

Action Plan 10-19 provides the steps needed to implement this recommendation.

Action Plan 10-19

Require that Design Candidates Include Color Photographs Of A Sample of Prior Projects

Strategy	Modify contractor selection process to include a requirement that design proposers include color photographs of a representative sample of recently completed projects.
Action Needed	Step 1: Step 1: Modify procedures for the selection of professional service contractors to include visits to offices and sample projects Step 2: Step 2: Obtain Board approval of this change in the selection process. Step 3: begin requiring submittal of color photographs and incorporate results on rating sheets.

Who is Responsible	Director of Professional Service Contracts
Time Frame	June 2002
Fiscal Impact	This recommendation can be implemented at no cost to the District.

Source: Berkshire Advisors, Inc.

21 Funds collected for school projects are raised appropriately.

The District has made limited use of voter approved funds in recent years

The District has not gone to the voters for construction funding that requires voter approval since 1988. At that time, the 1988 General Obligation Bond resolution described the scope of each project to be funded as required by law. Other approaches to raising construction funds that would require voter approval – for example, a sales tax authorization – have not been presented to the voters because, reportedly, the previous Superintendent did not believe that the voters of Miami-Dade County would pass a sales tax referendum any time in the near future.

The District considers funding and financing alternatives, but not in a public and systematic way

The annual Executive Budget Summary is the public’s primary source of information about the various funding sources available for capital construction. This document describes the funding options the District uses – in the past the District has used revenue anticipation notes, certificates of participation, Qualified Zone Academy Bonds and Impact Fees – but not how these funding alternatives were selected and evaluated. Nor is a presentation of how the District’s Budget Office and the Facilities Construction Budget Office determined the appropriate funding source to use for each project and an evaluation the advantages and disadvantages of various funding alternatives presented in the five-year capital plan.

Describing the advantages and disadvantages of each capital construction funding alternative in a public document would help to ensure that funds are expended appropriately and would also ensure that the Board, District staff and the taxpayers are fully informed of how District funds are used.

Recommendation

- *We recommend that the District include a written description of the advantages and disadvantages of each available funding source for capital construction in the annual Executive Budget Summary and on its World Wide Web page.*

Action Plan 10-20 provides the steps needed to implement this recommendation.

Action Plan 10-20

Publish the Advantages and Disadvantages of Various Capital Funding Sources

Strategy	Inclusion of descriptive information in the annual Executive Budget Summary will provide the Board, the public and staff with a clearer understanding of the benefits and restrictions associated with various capital construction funding sources.
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Action Needed	Step 1: Identify all available capital construction funding sources regardless of whether or not MDCPS is currently using them. Step 2: Develop a table delineating the various capital construction funding sources with a brief description of the advantages and disadvantages associated with each. Step 3: Include this table in the annual Executive Budget Summary. Step 4: Update the table as new funding sources are approved by the State and as changes are made to existing funding sources. Place this table on District web page to further facilitate the public's access to this data.
Who is Responsible	Executive Director of Capital Budget Planning
Time Frame	June 2002
Fiscal Impact	This recommendation can be implemented with existing resources.

Source: Berkshire Advisors, Inc.

Construction Projects on Time and Within Budget

22 District planning provides realistic time frames for implementation that are coordinated with the opening of schools.

The District effectively monitors project time lines

The District carefully monitors projects to ensure project timelines are adhered to. Most notably, project managers prepare monthly reports that include the project schedule, budget and status (percentage of completion) of each phase of a construction project. These reports are provided to all stakeholders and are discussed at monthly meetings in the six region offices that provide direct supervision to school principals within specified geographical areas. Staff also ensures that the Board is adequately informed about the status of projects by providing to the Board, via its Building Committee. A review of the Building Committee minutes for four meetings disclosed a discussion of budget issues and reports of actual budget data were appended to the minutes for three of the meetings.

The District routinely considers alternative delivery methods

Although MDCPS staff routinely considers various delivery methods for construction projects, District staff has indicated a preference for design build²² for new construction and have recently begun using Construction Manager at Risk²³ more and more for renovation projects. The preference for design build is directly related to two issues: the speed at which the project can get completed and the avoidance of delays and litigation that can result from disputes between architects and construction companies. Likewise, the District's increased use of Construction

²² As previously discussed, design build is a project management technique by which a single firm is engaged to both design and build a project.

²³ Construction Manager at Risk is a project management technique in which the construction manager agrees to a guaranteed maximum price and then assumes all of the risk for cost overruns.

Managers at risk allows the District to better control the costs of renovations due to the construction manager's guaranteed maximum price commitment to the District.

23 For each project or group of projects, the architect and District facilities planner develop a conceptual site plan and building specifications.

The District's architects routinely prepare conceptual plans and building specifications for new construction projects

The District's architects routinely prepare conceptual site plans, based on projected enrollment, as part of the Design Criteria phase of the construction planning process. These site plans include playfield areas, parking, roads and future additions. A review of 20 projects revealed that these plans and drawings were prepared for all new construction.

The Facilities Planning and Standards Office coordinates the development of and modifications to District educational specifications and design criteria. In addition, MDCPS architectural contracts require the preparation of building specifications. Some design and specification cost comparisons are prepared but more are needed

The District does a generally good job of ensuring that ongoing maintenance and energy costs are considered when designing new construction projects. To this end, the Facilities Construction Department receives maintenance and energy cost recommendations from the Maintenance Department as part of its annual update of design criteria and educational specifications. In addition, Maintenance Department staff provides ongoing advice to the Facilities Planning and Standards Office as issues arise that may have an impact on the cost efficiency of building components. In addition, the Energy Office provides data on the energy efficiency of various building components to the Facilities Planning and Standards Office.

The Facilities Planning and Standards Office also prepares or commissions the preparation of engineering studies of various designs. These studies have proved useful in making comparisons among different types of physical education shelters, food service shelters and trash compactors. In addition, the results of these analyses have been used to achieve significant savings in construction costs and in on going maintenance life cycle cost savings.

It should be stressed, however, that the number of such studies currently being performed is limited. At present, only two professionals in the Facilities Planning and Standards Office are responsible for preparing these studies. Between April 2000 and December 2001 only four of these studies were conducted. The number of studies performed is, therefore, limited by the ability of these staff to conduct and/or oversee them. In addition, the benefits of these studies may not be being fully realized because no one is currently responsible for following up with contractors to determine if specification changes are in fact being implemented.

Recommendations

- *We recommend that the District devote more resources to analyzing the cost savings that can be achieved by using different designs and educational specifications.*

Action Plan 9-2 in chapter 9 (Use of State and District Construction Funds) provides the steps needed to implement this recommendation.

24 **The District follows generally accepted and legal contracting practices to control costs.**

The District makes appropriate use of contractors in all phases of its construction program

The Facilities Construction Department supplements its staff with contractors in almost every phase of its operations – from plan review and cost estimating to building code inspections. The District has not, however, prepared a formal written evaluation of the potential costs and benefits that would result from privatizing the entire construction program. District staff do not believe that such an analysis is necessary because, in their view, the District is better served with in-house project managers who are more cost conscious than contract project managers. While in-house staff may in general be cost conscious, contracted project managers can be held more accountable for project costs through specifications in their contracts. For instance contracts can be structured so that project management fees decrease as overall project costs increase. Advantages of contracting out for project management include use of the contractor's data management system for improved project status reporting and the relative ease of adjusting staffing levels based on availability of funding.

The District's ability to continue to use some innovative construction delivery methods may be limited by the pool of available qualified contractors

The Facilities Construction Department uses a variety of project delivery methods including design-build, construction manager at risk and job order contracting²⁴. The decision on which method to use in a given instance involves a number of factors including the estimated cost and the anticipated speed of completion.

The Facilities Construction Department has almost uniformly stated its preference for design-build for new schools and for both design-build and Construction Manager at risk for renovations. As discussed previously, the benefits of design build are the speed at which the project can get completed and the avoidance of delays and litigation that can result from disputes between architects and construction companies. Likewise, Construction Manager At Risk tends to be an especially effective project delivery technique for renovation projects as it allows better cost control due to the construction manager's guaranteed maximum price commitment to the District. One challenge facing the District in continuing to use these project management strategies is that the pool of design-build construction firms willing to propose on District projects is relatively small. The District must identify opportunities for expanding the pool of design-build firms if it hopes to continue using this construction delivery method. During the 2001 calendar year an average of five design-build firms submitted proposals on each of six different requests for qualifications. Failure to expand the pool will undoubtedly result in increased construction costs because competition among firms will be limited.

The District uses generally accepted bidding procedures

The District has established effective processes and procedures for managing the bidding process for construction projects. The Contract Management Department begins this process by advertising bids in accordance with Board Rules. All bid responses are time stamped and placed in a lock box and not opened until the advertised time and place-in public. After bids are reviewed to ensure that they adequately reflect District needs and requirements, a

²⁴ Job order contracting is a project management technique through which small capital improvements project contractor services are procured.

Board Agenda item is prepared by the Executive Director in consultation with the Board attorney for the low bidder (the agenda item is also reviewed by various committees prior to being voted on by the Board). After Board approval, the Contract Management Department issues a Notice Of Award. The contractor then is required to submit a range of information and documentation. In particular, the Facilities Construction’s review checklist form and written procedures require an executed contract, evidence of workers compensation insurance and performance bonds before work on a project can begin.²⁵ Once all required submittals have been received and approved by the District’s Risk Manager, the Contract Management Department issues the Notice of Commencement to the contractor.

A similar process is used for handling negotiated contracts. This process complies with the Consultants Competitive Negotiation Act (Florida Statutes Section 287.055(5)a).

Recommendation

- *We recommend that the District use agency construction managers to supplement its project management staff.*

Action Plan 10-21 provides the steps needed to implement this recommendation.

Action Plan 10-21

Supplement Program Management Staff with Contracted Program Managers	
Strategy	Use agency construction managers to supplement project management staff.
Action Needed	Step 5: Develop RFP for agency construction management services that includes incentive for cost control activities. Step 6: Issue RFP for agency construction management services. Step 7: Award contract for agency construction management services. Step 8: Develop methodology for assigning agency construction managers to projects e.g., remodeling projects only; CM at risk projects only; or teaming them with staff project managers, etc. Step 9: Begin assigning agency project managers to projects.
Who Is Responsible	Assistant Chief Facilities Officer-Construction
Time Frame	September, 2002
Fiscal Impact	This recommendation can be completed with existing resources. Existing and new project budgets can be modified to fund these CM services.

- *We recommend that the District develop a plan to expand the pool of construction companies and architects with educational facilities experience.*

Action Plan 10-22 provides the steps needed to implement this recommendation.

²⁵ A review of ten recent contracts files reveals that these requirements are adhered to and that evidence of workers compensation insurance, performance bonds, payment bonds, and properly executed contracts are included in the contract file.

Action Plan 10-22

Expand the pool of construction companies and architects with educational facilities experience	
Strategy	Develop and implement strategies to encourage additional construction and design firms to compete for M-DCPS contracts.
Action Needed	<p>Step 1: Meet with various local industry trade groups such as American Institute of Architects, Associated General Contractors, etc., to determine reasons for low participation in M-DCPS bids and proposals.</p> <p>Step 2: Develop plan for initiating changes in District contracting processes that will encourage more participation without sacrificing critical internal controls.</p> <p>Step 3: Obtain necessary Board approvals.</p> <p>Step 4: Institute appropriate procedural changes and/or changes in standard contracts.</p> <p>Step 5: Publicize changes with all local and state-wide trade and professional associations.</p> <p>Step 6: Analyze changes in numbers of bidders and candidates.</p>
Who Is Responsible	Chief Facilities Officer-Construction
Time Frame	June 2002
Fiscal Impact	This recommendation can be completed with existing resources.

25 **The District has assigned one person with the authority and responsibility to keep facilities construction projects within budget and on schedule.**

Project managers play a central role in keeping facilities construction projects on schedule and within budget and provide input into the preparation of the District’s Five Year Facilities Work Plan

Project managers are currently vested with both the authority and the responsibility for keeping construction projects on schedule and within budget. A project manager is assigned to each construction project and is responsible for monitoring the progress of the project, reviewing project expenditures, and working with the project’s architect to approve or reject change order requests. In addition, each project manager prepares a monthly report on the status of each of his or her projects. These reports provide a focal point for monthly discussions with Region staff about the status of projects. These monthly meetings also provide an excellent opportunity for project managers to obtain feedback and input from Region staff. Project managers also work closely with the Executive Director of Capital Construction Budgets – the District’s “point” person for monitoring the cost of construction. That the District has been able to stay within the statewide average cost per student station demonstrates the success of project managers in controlling construction project costs.

Project managers are also involved in the preparation of the District’s five-year facilities work plan. Their input is coordinated by the North and South Area Executive Directors for Capital Improvement Projects to whom they report. These Executive Directors work closely with the Executive Director for Capital Construction Budgets, the Executive Director of Capital Budget Planning, Chief Facilities Officer and the Assistant Chief in developing the Five Year Facilities Work Plan.

The District has taken appropriate steps to ensure that staff who fill these key positions are appropriately qualified. Job descriptions have been established for the project manger position and the District only assigns persons to projects who meet the requirements of the job description. In addition, District managers estimate that 80% of all District project managers have Uniform Building Code Inspection certification as architects or contractors.

Construction Project Managers Have Excessive Project Caseloads

High attrition among project managers coupled with a long-standing hiring freeze has resulted in a situation where project caseloads are quite high. In some instances project managers are responsible for up to 15 projects at various stages of completion. The Assistant Chief Facilities Officer and the North and South area Executive Directors believe that an average of four new construction projects and four additions or remodeling projects should be the maximum number of project any project manager should be assigned at any one time. A review of project manager caseloads for other school Districts suggests a caseload of four new construction projects and four remodeling projects is more reasonable.

Given the crucial role project managers play in monitoring projects, controlling costs, and providing input into the five year work plan, it is important that they have sufficient time to fulfill their important responsibilities. It is worth noting that the Facilities Department's standard is to schedule project completion five months prior to the start of the school year. This standard is currently difficult to achieve because large project manager caseloads prevent project managers from focusing adequate attention on ensuring project timelines are adhered to.

Recommendations

- *We recommend supplementing project managers with private sector project management services.*

Action Plan 10-21 provides the steps needed to implement this recommendation.

26 Changes to facilities plans after final working drawings are initiated are minimized in an effort to control project costs.

The District has well articulated procedures for managing change orders

The Facilities Department's Design and Construction Manual describes the change order process both in writing and graphically. The type, cause and originator of each change order is recorded on the change order form and entered into the project management computer system. If the change order exceeds a certain threshold or will require extending the date for completion the Technical Review Committee reviews the change order. Following this review, Board approval of the change order must be obtained.

The District has successfully implemented contracting methods that minimize change orders

The District's use of design-build as its preferred construction delivery method and its reuse of design prototypes are effective practices that have resulted in excellent cost controls. By its very nature design-build minimizes disputes that can lead to change orders because a single entity is responsible for both designing and building a facility. Where these activities are assigned to separate contractors disputes among the parties responsible for designing the facility and those responsible for building it are almost inevitable. Additionally, by reusing design prototypes the District and its contractors gain experience in using the design, which, in turn, reduces the need for change orders.

The effectiveness of these practices is reflected in the significant reduction in both the number and the dollar value of change orders that the District has achieved in recent years. As Exhibit 10-10 shows, the number of change orders for all construction projects declined by more than 51.4% between fiscal year 19910-99 and fiscal year 2000-01. During this same period MDCPS's annual capital construction expenditures increased from \$174.1 million to \$253.2 million. In other words, 5% of the capital construction expenditures was spent on change orders in 1998-99

Facilities Construction

versus 1.7% in 2000-01. Moreover, as Exhibit 10-10 also shows, there has been a 51% reduction in charge orders resulting from architect/engineer omissions alone during this period. This number may better reflect the reduction of change orders that may be attributed to the District's efforts to improve change order management as the total number includes change orders initiated by the District.

Exhibit 10-10

The Number Of Change Orders Due To Architect/Engineer Omissions Has Been Reduced By 51.0% In The Past Three Years

Number of Change Orders			
Type	1998-99	1999-00	2000-01
Architect/Engineer error	183	38	77
Hurricane Andrew	1	3	3
Architect/Engineer Omission	611	264	229
Other	234	91	129
Owner Request	142	64	44
Scope Change	325	324	283
Unforeseen	<u>437</u>	<u>220</u>	<u>174</u>
Totals	1933	1004	939

Source: Miami-Dade County Public Schools.

The total value of change orders has also been cut by almost one half over the past three years. As Exhibit 10-11 shows, the total value of change orders declined by 49.5% during this period. The decline in the total value of change orders related to architect/engineer omissions has been even more dramatic. Over the past three years, the value of such change orders has declined by 57.2%.

Exhibit 10-11**The Dollar Value Of Change Orders Due To Architect/Engineer Omission Has Declined By 57.2% Over The Past Three Years**

Dollar Value of Change Orders			
Type	1998-99	1999-00	2000-01
Architect/Engineer error	\$558,982	\$237,810	\$384,544
Hurricane Andrew	\$2,774	\$550	\$0
Architect/Engineer Omission	\$2,201,562	\$1,036,341	\$942,988
Other	\$925,652	\$421,875	\$44,480
Owner Request	(\$2,220,046)	(\$3,814,610)	\$72,381
Scope Change	\$4,953,122	\$1,830,937	\$1,881,102
Unforeseen	<u>\$2,400,435</u>	<u>\$399,888</u>	<u>\$1,134,123</u>
Total	\$8,822,481	\$112,791	\$4,459,618

Source: M-DCPS.

27 District architects recommend payment for construction projects based on the percentage of work completed and a percentage of the contract is withheld pending completion of the project.

Payments to Contractors Are Appropriate

The District's approach to paying for construction projects is well articulated and appropriately protects the District's interests. The Facilities Planning, Design and Construction Manual, the Contractors Requisition for Partial Payment and the standard construction contract form each mandate the use of percentage of completion method for paying construction contractors (i.e., the contractor is paid on the basis of work in place at the time the requisition is submitted). In addition, the District withholds 10% until the project is completed. The Facilities Planning, Design and Construction Manual and the Contractors Requisition for Partial Payment also mandate that payment may not be made without the architects review and signature. Indeed, the Contract Management Office will not process payments to contractors without the signatures of both the architect and the project manager. Payments are usually made within ten days after Contract Management receives all properly executed documents.

Not only have appropriate payment procedures been established but these procedures are consistently implemented. A review of ten different construction payment files disclosed that all payments were approved by both the architect and the District project manager, all payments were based on percentage of project completion and a portion of each payment was withheld (retainage) pending the completion of work that must be corrected prior to occupancy.

28 The District requires the appropriate inspection of all school construction projects.

The process for building code construction inspection is adequate

The Pre-Qualifications and Educational Facilities Compliance Office oversees all building code inspections. This department engages, on average, four engineers to conduct Uniform Building Code inspections during construction and at the completion of all construction projects (including both new building construction and renovations). These engineers, who maintain \$1.0 million of liability insurance, use their professional licenses to certify that the buildings meet Florida code. In addition, these engineers approve occupancy after a final inspection has been performed and all deficiencies have been cleared.²⁶ The inspector certifies on the inspection report that occupancy is approved and the date of the approval is recorded in the OEFTRACK database maintained by the Educational Facilities Compliance office.

A review of a sample of construction projects revealed that building code inspections were made and corrective actions were identified and listed in the file. Certificates of occupancy for these projects were not authorized until all corrective actions were made to the satisfaction of the inspector. In addition, a review of these construction files indicated that all required documentation was filed with the state as new schools and additions were completed.

Evaluation of New Construction and Training for New Users

29 The extent to which the District conducts a comprehensive orientation to new facilities prior to their use is inconsistent.

The construction contractors are required to train District and school personnel in the proper operation of equipment and to orient them to new facilities. Interviews conducted with school staff during site visits suggest that orientations are performed at some schools but not at others. These findings are supported by the results of the employee survey. Slightly more than one-fourth of the survey respondents (27.9%) “agree” or “strongly agree” with the statement, “The District provides a customized orientation for school staff in newly constructed schools” while slightly less than one-third of the survey respondents (31.1%) “disagree” or “strongly disagree” with this statement. These findings suggest that orientations are performed at some new facilities but not in others.

- *We recommend that the district provide comprehensive orientations to the users of all new facilities.*

Action Plan 10-23 provides the steps needed to implement this recommendation.

²⁶ The Educational Facilities Compliance Office maintains files of any “punch list” items that may have caused a site to fail inspection.

Action Plan 10-23

Provide orientations to all new facilities	
Strategy	Ensure that an orientation is provided for each new facility.
Action Needed	Step 1: Each year, identify all new facilities to be brought on-line. Step 2: Develop an orientation for the users of each new facility. Step 3: Provide orientations as facilities are brought on-line.
Who Is Responsible	Chief Facilities Officer
Time Frame	July 2002
Fiscal Impact	This recommendation can be completed with existing resources.

30A formal post occupancy review process has not been designed to provide feedback on projects under review.

A post occupancy evaluation is currently carried out for some new facilities at the end of the first year of occupancy as part of warranty procedures. A contractor’s responsibility for year one related construction items is not closed out until there is satisfactory operation and performance. However, the District selects only a sampling of projects for post occupancy evaluation. For the most part these are prototype projects that the District expects to do again.

Interestingly, post occupancy evaluations are not currently thought of as a tool to solve problems in the school that is the subject of the evaluation, rather the results of these evaluations are used to modify design standards or master specifications. In a site visit to one school, the kiln had been fired up only once or twice, but had not heated up sufficiently to fire the pots. The art teacher was told that the problem was due to faulty wiring and closed off the kiln room, storing materials in front of the door. Had a post occupancy evaluation been performed at this school, the defect would have been identified and the problem fixed. Instead, the children served by the school are unable to use the kiln room that has been provided for them.

- *We recommend that post occupancy evaluations be done at every school to provide utilization and operations feedback on the quality of work performed.*

Action Plan 10-24 provides the steps needed to implement this recommendation.

Action Plan 10-24

Link post occupancy with planning and require post occupancy reviews	
Strategy	Place the responsibility for post occupancy evaluations with the planning department and require reviews for all major construction projects.
Action Needed	Step 1: Review “Post Construction” procedures in Section 8 of the MDCPS Facilities, Planning, Design and Construction Manual. Step 2: Develop a simplified post occupancy review process that focuses on building performance from the point of view of school-based staff, students and community and school based engineers and custodians. Step 3: Modify guideline to made simplified post-occupancy reviews mandatory for all major construction projects. Step 4: Establish criteria for in-depth post occupancy evaluations—for example, when determining whether or not to re-use design, to evaluate contractor performance, or to fully understand issues of cost. Step 5: Undertake a limited number of in-depth post-occupancy evaluations.

	Step 6: Bring results of post occupancy evaluations back to the Technical Review Committee on a regular basis and to the citizen's School Site Planning and Construction Committee.
Who Is Responsible	Chief Facilities Officer
Time Frame	June 2003
Fiscal Impact	This recommendation can be completed with existing resources.

Source: Berkshire Advisors Inc.

31 No reliable feedback loop on post occupancy evaluations has been established.

Building evaluations for new construction and major building improvements are not currently performed in a systematic way

Building evaluations are not currently performed in a systematic way. Instead, information on the usability of design and the quality of construction may be passed to project managers through informal contacts between the principals and project managers. Only the egregious problems, which need to be addressed through litigation, are addressed in a systematic way. As of August 2001 Miami-Dade County Public Schools was party to 17 lawsuits over construction or design. In addition there were another 80 to 90 projects perceived to be "in trouble" but for which litigation has not yet been initiated. In one recently completed school that was visited, it was found that the kiln did not work. The art teacher had noticed this immediately after school opening. However, a number of years later it still didn't work. This would have easily been identified if 1) there had been a post occupancy evaluation and 2) the information collected at the post occupancy evaluation had been provided to District persons responsible for construction and equipment warranties.

- *We recommend that the results of post occupancy evaluations be given to the Technical Review Committee, the citizen's Site Selection and Construction Committee, the local school, and to the appropriate project management or maintenance staff, if remediation is required.*

Action Plan 10-24 provides the steps needed to implement this recommendation.

32 The District collects but does not analyze or forward maintenance cost data to staff responsible for developing facility plans and standards.

Systems have not been established to facilitate the flow of information on facilities maintenance to the staff responsible for developing construction standards

The District's Maintenance Department and the Facilities Planning and Standards Department (the unit responsible for maintaining and updating the District's design standards and educational specifications) meet frequently and appear to cooperate effectively. However, the formal systems needed to ensure the effective flow of information between these two organizational entities are not in place. For example, the District currently collects information on energy and maintenance costs by site but does not routinely pass this data to the Facilities Construction Department. Likewise, the Maintenance Department's COMPASS system does not interface with the Construction Department's PMIS system. In addition, the Maintenance Department is no longer represented on the Technical Review Committee (TRC) charged with reviewing all requests for construction change orders.

Additional improvements in the design process and in the development of educational specifications should be pursued

The Facilities Planning and Standards Office has implemented some design and specification changes as a result of feedback from the Maintenance Department and the Quality Assurance inspection staff. Facilities Planning and Standards staff have also initiated studies of certain school design issues that have resulted in the identification of less expensive construction methods. Overall, these efforts have achieved significant success. Recent studies have identified construction cost savings of more than \$4 million over the next five years.

Additional efforts to analyze and develop improvements in the design process and in the development of educational specifications have been stymied by a lack of staff. At present, there are only two staff members who perform these analyses and both of these staff also share responsibility for coordinating post occupancy review. With additional resources it seems likely that additional opportunities to reduce construction costs can be identified.

Recommendations

- *We recommend that the District begin regularly forwarding maintenance cost data to the Facilities Planning and Standards office and that the two departments should jointly design useful reports that can be used to identify opportunities to reduce long term operating costs.*

Action Plan 9-7 of Chapter 9 (Use of State and District Construction Funds) provides the steps needed to implement this recommendation.

- *We recommend that the District add an additional professional staff member to the Facilities Planning and Standards office to conduct additional life cycle cost studies.*

Action Plan 9-8 of Chapter 9 (Use of State and District Construction Funds) provides the steps needed to implement this recommendation.