

# 11

## Facilities Maintenance

*The Miami-Dade County Public Schools' Facilities Maintenance and Operations functions are reasonably effective but have much room to improve. The District needs to develop standards for maintenance worker productivity; make more effective use of information from the work order management system as a management tool; utilize Zone Mechanics more effectively, and develop a performance appraisal process for maintenance workers.*

### Conclusion

---

The Miami-Dade County Public Schools' Facilities Maintenance and Operations functions are reasonably effective but have much room to improve. The District needs to develop standards for maintenance worker productivity; make more effective use of information from the work order management system as a management tool; utilize its school-based maintenance workers staff (Zone Mechanics) more effectively, and develop an annual performance appraisal process for maintenance workers.

During the course of this review, Berkshire Advisors identified a number of District accomplishments in the Facilities Maintenance area, some of which are included in Exhibit 11-1 below.

#### *Exhibit 11-1*

#### **The District Has Had Some Notable Accomplishments in Facilities Maintenance in the Last Three Years**

---

- The District has successfully implemented the use of leased employees as an innovative way to augment in-house technical staff without employing additional permanent staff.
  - The District has implemented a comprehensive roofing inspection program to identify incipient problems and initiate corrective actions.
  - The District has implemented enhanced procedures for enforcing warranty repairs for roofs that have resulted in obtaining \$4 million worth of repairs by manufacturers at no cost to the District.
  - The District has successfully implemented an energy efficiency pilot program that has resulted in significant reductions in energy costs.
- 

Source: Miami-Dade County Public Schools.

### Overview of Chapter Findings

---

Berkshire Advisors reviewed the District's facilities maintenance function 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 instance, Berkshire Advisors conducted on-site interviews with District level managers, school level administrators and staff. In all, interviews and focus group discussions were conducted at more than 30 schools. Berkshire Advisors also met with members of the Land Acquisition and Facilities Advisory Board appointed by the Governor and the Legislature. In addition, a great deal

## *Facilities Maintenance*

of information on facilities maintenance activities was gathered and reviewed including facilities maintenance and custodial policies and procedures, the five-year capital outlay budget, operating budget and expenditure records, information on the work order management system, job order contract records, term bid records, maintenance worker overtime records, pertinent collective bargaining agreements and other supporting documentation. 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 an 800 number were established so District stakeholders could provide input to the study process. 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. An overview of chapter findings is presented below.

### **Maintenance Standards And Work Planning**

1. The District’s Maintenance and Operations Department mission, organizational structure, and operating procedures are established in writing. (Page 11-5)
2. The District has not incorporated maintenance standards in its short- and long-term plans for providing appropriately and equitably maintained facilities within budget and in accordance with its five-year facilities work plan and annual budget. (Page 11-7)
3. The District does not clearly identify and communicate performance standards and expected outcomes for maintenance and operations staff. (Page 11-9)
4. The District does not provide sufficient financial support to ensure that maintenance and custodial standards are regularly updated to implement new technology and procedures. (Page 11-11)
5. The District does not methodically obtain and use customer feedback in a structured manner to implement program improvements. (Page 11-13)
6. The District has informal and insufficient accountability mechanisms to address performance and efficiency of the maintenance and operations program. (Page 11-15)

### **Budgeting And Financial Management**

7. The District accurately projects cost estimates for major maintenance projects when it uses outside contractors, but its estimates for smaller projects to be completed by District trades staff are inadequate. (Page 11-18)
8. The District’s facilities maintenance accounting practices do not adequately document the use of 2 Mill funds and there are imbalances in the way funds are allocated to some critical areas. (Page 11-21)
9. The District maintains a maintenance reserve fund for one-time expenditures, but this fund is insufficient to serve the District’s needs. (Page 11-26)
10. The Maintenance and Operations Department does not regularly evaluate its activities to determine the most cost-effective method of providing service. (Page 11-28)
11. The District is generally minimizing equipment costs through its purchasing practices, but improvements in preventative maintenance practices could reduce costs even further. (Page 11-31)
12. With some notable exceptions, the District does not do a good job of using proactive maintenance to reduce overall maintenance costs. (Page 11-32)
13. Supervision And Training-Maintenance Operations reviews its organizational structure from time to time. (Page 11-34)
14. Maintenance Operations review of staffing levels has not prevented it from becoming overly dependent on maintenance worker overtime. (Page 11-34)
15. The maintenance and operations department ensures qualified staff by using appropriate hiring practices. (Page 11-35)
16. The Maintenance and Operations Department has a written job description for each position. (Page 11-36)
17. The current practice of not conducting performance evaluations of maintenance workers has prevented the Department from providing appropriate supervision of maintenance and operations staff. (Page 11-36)
18. The District provides insufficient training for maintenance and operations staff. (Page 11-38)
19. The District provides maintenance and operations staff with the tools and equipment required to accomplish their assigned tasks. (Page 11-39)

## Maintenance Management Systems

20. A computerized control and tracking system is used to accurately track work orders and inventory however it is not used in a consistent and structured manner to improve staff performance. (Page 11-39)
21. The Maintenance and Operations Department has an effective system for prioritizing maintenance needs uniformly throughout the District. (Page 11-41)

## Health, Safety And Energy Efficiency

22. The District has policies and procedures in place that adequately address the health and safety conditions of its facilities. (Page 11-42)
23. The District has implemented several strategies to contain energy costs. (Page 11-43)
24. The District has an effective energy management system in place, though communication of results could be improved. (Page 11-44)
25. The District does a good job of complying with federal and state regulatory mandates regarding facility health, safety and energy efficiency. (Page 11-45)
26. The District is preparing for the new permitting and inspection requirements under the Florida Building Code. (Page 11-45)

## Fiscal Impact of Recommendations

---

Six of this chapter’s recommendations have a direct fiscal impact—the recommendation to develop an annual training program for maintenance workers; the recommendation to reimburse maintenance workers for memberships in professional societies; the recommendation to modify the custodial staffing formula; and the recommendation to establishing a staffing formulae for maintenance trades. Exhibit 11-2 summarizes these recommendations and their fiscal impacts.

### Exhibit 11-2

#### Six Facilities Maintenance Action Plan Recommendations Have Fiscal Impacts

Recommendation	Five Year Fiscal Impact
<ul style="list-style-type: none"> <li>• Action Plan 11-5: We recommend that the District develop an annual training program that focuses on increased technical training for maintenance workers.</li> </ul>	<ul style="list-style-type: none"> <li>• This recommendation will require an investment of \$250,000 annually. Over the next five years this will amount to \$1,250,000.</li> </ul>
<ul style="list-style-type: none"> <li>• Action Plan 11-6: We recommend that the District reimburse maintenance workers for memberships in professional societies and that the District subscribe to professional magazine subscriptions.</li> </ul>	<ul style="list-style-type: none"> <li>• This recommendation will require an investment in fiscal year 2001-2002 of \$100,000. Over the next five years the total investment will be \$500,000.</li> </ul>
<ul style="list-style-type: none"> <li>• Action Plan 11-13: We recommend that the District modify its custodial staffing formula to more closely reflect national and State of Florida standards for custodial coverage.</li> </ul>	<ul style="list-style-type: none"> <li>• 208 positions can be discontinued by implementing this recommendation which in turn will reduce costs by approximately \$6.18 million per year. Phased in over a three-year period this will save \$18.5 million over five years.</li> </ul>
<ul style="list-style-type: none"> <li>• Action Plan 11-14: We recommend the District require head custodians to work during the shift when most non-supervisory custodians are working and when most cleaning activity occurs.</li> </ul>	<ul style="list-style-type: none"> <li>• This recommendation will require an added labor cost of \$185,000 per year in shift differential pay. Over the next five years the total expense will be \$925,000.</li> </ul>

Recommendation	Five Year Fiscal Impact
<ul style="list-style-type: none"><li>Action Plan 11-15: We recommend that the District develop a staffing formula for the maintenance trades areas based on historical work order activity data.</li></ul>	<ul style="list-style-type: none"><li>The amount of savings will depend upon how quickly the District can reduce staffing in low usage trade categories. However, by reducing overall staffing levels to industry standards, the District can eliminate 71 trades positions which will result in reduced costs of approximately \$3.4 million per year (or \$17.0 million over five years).</li></ul>
<ul style="list-style-type: none"><li>Action Plan 11-19: We recommend that responsibility for unskilled maintenance such as changing light bulbs and heating, ventilating and air-conditioning filters be assigned to custodial staff or outside contractors.</li></ul>	<ul style="list-style-type: none"><li>The District can avoid as much as \$18 million in costs over the next five years by shifting responsibilities for unskilled maintenance from zone mechanics to custodians. This will enable the District to increase the work done by the zone mechanics without increasing the number of mechanics on staff. Based on the number of work-hours spent on this kind of maintenance, and the lower salaries of custodians as compared to the higher paid zone mechanics, the District could avoid up to \$3.6 million per year, or \$18 million over a five-year period.</li></ul>

Source: Berkshire Advisors, Inc.

## Background

The Miami-Dade County School District Maintenance Operations Department is responsible for all aspects of preventative, routine, and emergency upkeep for the District's 357 facilities. Approximately 34 million square feet of building space is maintained. Additional responsibilities include the maintenance of all grounds and athletic fields, and the installation and relocation of portable classrooms.

The Department employs approximately 1,328 people in various skilled trades, clerical, supervisory and maintenance support positions. The Department had an adopted operating budget of \$ 119,116,851 for the 2000-2001 fiscal year. Of that amount \$8,166,300 was for capital contracted services, with \$6,572,000 spent on contracted maintenance services.

The Department is headquartered at 12525 Northwest 28<sup>th</sup> Avenue, Miami, FL 33167 and is managed by a Chief Facilities Officer-Maintenance Operations. This manager reports directly to the Superintendent of Schools and is a member of the superintendent's cabinet. The Maintenance Operations Department was a division of the Facilities Construction Department until May 16, 2001, when the Miami-Dade County School Board approved separating it into a stand-alone division and elevating the former Assistant Chief position to Chief Facilities Officer - Maintenance Operations.

Maintenance Operations is divided into nine (9) sections. There are two (2) District directors each with responsibility for overseeing line maintenance operations in half of the District. The other units consist of:

- Maintenance Contract Management, headed by a District Director, is responsible for the planning and management of all maintenance contracts including job order contracts and term bid contracts.<sup>1</sup> In addition, this unit is responsible for managing the construction and relocation of all of the District's portable classrooms.

<sup>1</sup> Job order contracts are competitively bid indefinite quantity contracts for construction and repairs. Term bid contracts are competitively bid and obligate a vendor to provide specific services at a fixed price for a specific period of time, usually one year.

- Maintenance Employment Standards is led by an Executive Director and oversees hiring and staffing of non-administrative positions, coordinates payroll and employment testing, maintains and updates job descriptions, departmental organization chart and employee handbooks.
- The Division of Management Systems and Controls coordinates the department's budgets and expenditures. An Executive Director leads this Division.
- The Division of Operations Management and Planning, which is led by an Executive Director, oversees the work order management system and all other data processing needs for the department. The Department of Plant Operations coordinates the training and evaluation of custodial services. A Director supervises this department.
- The Department of Asbestos, led by a Director I, is responsible for asbestos abatement activities.
- The Department of Safety, is responsible for coordinating all safety training and inspection in the District.
- The Division of Energy, Communications and Fiscal Management is responsible for coordinating all energy management and telecommunications operations and acquisition.

The Department has had to operate under an almost total hiring freeze since 1996. During the past three years the District has added 2,494,014 gross square feet of space, but the number of maintenance workers has been essentially flat. This has necessitated extensive overtime for maintenance workers and an increasing reliance on contractual services, specifically job order contracts and term bids.

## ***Maintenance Standards And Work Planning***—————

### **1 The District's maintenance and operations mission, organizational structure, and operating procedures are well established and in writing.**

#### **Maintenance Operations' mission, organizational structure, and operating procedures are well documented**

Maintenance Operations' mission, organizational structure and operating procedures are all documented in the maintenance and custodial handbooks that are provided to new principals and all Maintenance Operations staff. As stated in the Maintenance Operations Employee Handbook the Department's mission is to: "provide facilities support to Miami-Dade County Public Schools."

The organization chart presented in the Maintenance Operations Employee Handbook has not been updated to reflect the way the Department is currently organized. For example, the organization chart in the employee handbook does not include the Division of, Energy, Communications, and Fiscal Management.

The maintenance procedures the Department has documented and published in numerous handbooks are comprehensive in scope. These procedures cover a variety of areas including the acquisition and use of equipment, supplies and materials; personnel staffing and timekeeping; the use and management of facilities; and facilities standards. In addition, the procedures detail responsibilities in each area for managers, maintenance workers, custodial staff and principals at schools. Moreover, staff interviews and a review of sample documents confirm that Maintenance Operations operates according to these written procedures and that copies are available to all staff and to the public upon request.

## Operating procedures are not current

Maintenance Operations has not updated the various handbooks and manuals that document its procedures since 1999. While there is no evidence that staff used incorrect procedures, failure to update procedural manuals on an annual basis (or as significant changes in procedures occur) may confuse workers, contribute to project delays and/or result in unanticipated costs. For example, if procedures relating to work order processing is out of date, employees might incorrectly create work orders. If a supervisor does not identify such a problem the result might be both a delay in completing a maintenance project and increased costs.<sup>2</sup> It should be emphasized that the Executive Director of Employee Services is aware that written procedures need to be updated and has indicated that the employee and site administrator handbooks are currently in the process of being updated.

## Maintenance Operations develops a five-year facilities work plan that details the maintenance projects it intends to complete

Maintenance Operations publishes a Five Year Maintenance and Operations Capital Outlay Budget Plan that delineates by site all planned maintenance projects that are estimated to exceed \$5,000 in cost. No capital projects are commenced that have not been included in this Five Year Plan, which is approved by the Board.

## Recommendation

---

- *We recommend that the Maintenance Operations department update its organization chart and written procedures at least annually or more often if significant changes are made.*

Action Plan 11-1 provides the steps needed to implement this recommendation.

### Action Plan 11-1

<b>Organization Charts and Written Procedures Should Be Updated At Least Annually</b>	
Strategy	Update organization charts and written operating procedures annually or more often to reflect significant changes.
Action Needed	Step 1: Review each procedural manual and identify sections that have changed due to new and revised Board Rules, changes in state or federal laws, or District or departmental revisions to operating procedures. Step 2: Prepare updated pages for insertion in procedural manuals. Step 3: Update organization chart once per year or more often as significant changes occur. Step 4: Develop method for distributing organization charts and updated pages. Step 5: Prepare cover letter highlighting changes. Step 6: Distribute updates to all Maintenance Operations staff.
Who is Responsible	Director II for Maintenance Employee Resources.
Time Frame	June 2002
Fiscal Impact	This recommendation may be implemented with existing resources.

Source: Berkshire Advisors, Inc.

---

<sup>2</sup> It should be stressed that this is a hypothetical example only. No significant consequences to policies and procedures documentation not being current have been identified by the consultants.

## **2 The District has not incorporated maintenance standards in its short- and long-term plans for providing appropriately and equitably maintained facilities within budget and in accordance with its five-year facilities work plan and annual budget.**

### **The District's approach to both short-term and long-range planning for maintenance needs can be improved**

Maintenance Operations' five-year work plan is a useful document for anticipating and planning future capital projects. The plan delineates projects by site and by trade or type of work (e.g., fire alarm system replacements and roof repairs) and estimates the capital costs associated with these activities. As a document for planning and managing overall maintenance operations, however, the five-year work plan has a number of deficiencies. These shortcomings include the following:

- Lack of well defined goals and objectives for each year.
- Lack of standards that can be used to assess whether maintenance staff is being used efficiently.
- Lack of projections of multi-year staffing needs.

A discussion of each of these areas where improvement is needed follows.

**Goals and objectives.** Maintenance Operations' five-year plan does not articulate the specific goals and objectives the unit expects to accomplish during each year of the plan. Without clearly defined goals and objectives there is no way to ensure that the maintenance activities performed are in alignment with the District's overall maintenance needs. Moreover, unless goals and objectives are clearly defined (and measures have been established to assess progress against goals) there is no way to hold managers accountable for the success or failure of maintenance efforts.

**Maintenance standards.** Maintenance Operations' short- and long-term plans contain no reference to any maintenance standards. This lack of standards makes it difficult if not impossible to determine if maintenance staff are being deployed efficiently because there is no objective standard against which the success of various deployment strategies can be gauged. Furthermore, the lack of maintenance standards prevents managers and the Board from determining if additional (or fewer) resources are warranted. In the absence of maintenance standards, a case can be made that providing additional resources will improve service but not that the level of service currently provided is inadequate and therefore additional resources are needed to address service deficiencies.

**Staffing projections.** Maintenance Operations prepares a multi-year projection of contract services needs. However no such forecast or projection is made to project internal staffing needs over time. One way to project staffing needs is to determine the number of full-time-equivalent staff needed to complete anticipated in-house work orders for repairs and corrective maintenance – based on prior experience – and to add to this number the staffing needed to perform in-house routine and preventive maintenance. Services provided by outside contractors should, of course, be subtracted from this staffing estimate. The District's failure to project long-term staffing needs makes it difficult to develop appropriate recruiting and retention strategies and may also result in operating budgets that are either excessive or inadequate to meet maintenance needs.

### **Effective procedures have been established to ensure that all schools are treated equitably in terms of the maintenance services they receive**

The results of interviews with both Maintenance Operations staff (e.g., the Chief Facilities Officer-Maintenance, the North and South Area District Directors, and a sample of the Satellite Directors) and school-based staff (e.g.,

## Facilities Maintenance

teachers and principals) suggest that all schools are treated equitably in the provision of maintenance services. In addition, the Deputy Superintendent for School Operations, who supervises the Region Superintendents, also indicates his satisfaction with the equity of services provided by Maintenance Operations. With the exception of emergencies, work orders are processed on a first-in, first-out basis to ensure no school receives preferential treatment.<sup>3</sup>

## Recommendations

---

- *We recommend that the District develop specific and measurable short and long-term goals and objectives and standards for the maintenance of its buildings and incorporate these goals and objectives into its five-year plan.*

Action Plan 11-2 provides the steps needed to implement this recommendation.

- *We recommend that the District modify its five-year plan to include services provided by in-house maintenance staff and a projection of future staffing needs.*

Action Plan 11-3 provides the steps needed to implement this recommendation.

### Action Plan 11-2

Develop Short and Long Term Goals and Objectives	
Strategy	Prepare and disseminate to Maintenance Operations managers and staff short and long-term goals and objectives.
Action Needed	Step 1: Chief Facilities Officer-Maintenance should meet with his leadership team to develop specific and measurable short and long-term goals and objectives. Step 2: Prepare draft goals and objectives. Step 3: Obtain feedback from Facilities Construction and the Superintendent. Step 4: Receive approval from the Superintendent. Step 5: Distribute goals and objectives to Maintenance Operations staff. Step 6: Make quarterly report to the Superintendent on progress towards achieving goals and objectives.
Who is Responsible	Chief Facilities Officer-Maintenance
Time Frame	September 2002
Fiscal Impact	This recommendation may be implemented with existing resources.

Source: Berkshire Advisors, Inc.

---

<sup>3</sup> Emergency work orders address fire and life safety issues and repairs that are necessary to ensure that classroom instruction can occur.



**Action Plan 11-3**

<b>Include Projections Of In-House Maintenance Staff Needs in Five –Year Work Plan</b>	
Strategy	Modify the five-year plan to include services provided by in-house maintenance staff and a projection of future staff needs.
Action Needed	<p>Step 1: Establish standards for various types of work orders.</p> <p>Step 2: Develop annual projections of actual staff hours required to achieve approved goals based on specific numbers and types of work orders expected.</p> <p>Step 3: Include staffing projections for next five years in the five-year work plan to meet existing and expected future workload.</p> <p>Step 4: Determine what future projects or types of projects can (or cannot) be completed with various levels of staffing.</p> <p>Step 5: Provide Five-Year Maintenance and Operations Capital Outlay Budget to Superintendent, school board, public and District staff.</p>
Who is Responsible	Maintenance and Operations Department
Time Frame	September 2002
Fiscal Impact	This recommendation may be implemented with existing resources.

Source: Berkshire Advisors, Inc.

### **3 The District does not clearly identify and communicate performance standards and expected outcomes to maintenance and operations staff.**

#### **Maintenance Operations does not use cost estimates effectively as a tool for improving performance**

Maintenance Operations uses a number of approaches to estimating the labor, parts, and supplies that will be required to complete maintenance work projects. For projects expected to cost in excess of \$200,000 the department’s Contract Management staff use R. S. Means construction cost estimating software to estimate the size of job order contracts. <sup>4</sup> For smaller projects that are typically completed by in-house staff, cost estimates are completed in one of three ways.

- An estimate may be prepared by the Zone Mechanic if he or she is the originator of the work order.
- The customer service representative who takes the call may prepare the estimate.
- The foreman for the trade to which the work order is assigned may prepare an estimate.

Use of the R. S. Means cost estimating software to prepare estimates for smaller projects is limited because the R. S. Means software is not integrated into the department’s COMPASS work order management system and because not all satellite trade foremen have been trained in its use.

While it is certainly worthwhile to prepare these estimates the extent to which they are used as a management and supervisory tool is inconsistent. Currently, it is left up to the trade foremen to determine when time or materials used on a project are excessive. Indeed, in interviews Maintenance Operations staff expressed reluctance to enforce cost estimates for most routine in-house work. The explanation most often provided was that each project is different and therefore difficult to compare to other similar projects.

<sup>4</sup> Projects in excess of \$200,000 are typically let to outside contractors for completion.

## Facilities Maintenance

Not using cost estimates as a management and supervisory tool creates a number of problems. First, unless the labor time and materials budgeted for projects are compared to project expectations, it is difficult to objectively determine which workers are efficient and which workers are improperly trained or inefficient. In addition, consistent use of cost estimates can help managers control the maintenance budget (i.e., more efficient use of maintenance worker time can reduce the need to expend funds for contracting out of maintenance services).

### **Performance standards have been developed and are effectively communicated for custodial activities and for work that is assigned to contractors but standards have not been developed for other in-house maintenance activities**

Maintenance Operations has not only established standards for work assigned to Job Order Contractors (JOCs) but has also developed an effective process for communicating failures to meet these performance standards. These standards are clearly defined in the terms and conditions of the JOC contracts and in the JOC Procedures Manual.

Likewise, specific custodial cleaning standards have been established, are published and communicated to staff, and are reflected in the performance appraisals of site administrators. Moreover, the Plant Operations unit conducts custodial cleaning audits annually. The results of these audits are communicated to the principal and the appropriate region office. Failure to meet custodial cleaning standards can result in the re-training or re-assignment of custodial staff. Performance standards have not been developed for in-house maintenance activities (other than custodial work).

Maintenance Operations does not establish or publish work standards for the completion of routine repairs. Instead the development of “standards” is left to the discretion of individual foremen. Needless to say, this creates a situation where standards can vary from foreman to foreman. Moreover, because individual foremen monitor performance against standards each foreman might take a different approach to addressing (or failing to address) instances where performance falls short of expectations.<sup>5</sup> The ultimate consequence of the lack of performance standards and productivity measures for the completion of in-house work orders, from the perspective of individual workers, is that only subjective goals can be used to monitor employee performance. From a department level perspective the ultimate consequence is that there is no way to assess how efficiently and effectively Maintenance Operations is carrying out its mission.

## **Recommendations**

---

- *We recommend that the District use the R.S. Means cost estimating software to estimate the cost of all work orders and that an easy method of accessing this software be developed.*

Action Plan 11-4 provides the steps needed to implement this recommendation.

### **Action Plan 11-4**

#### **Estimate Costs for All Work Orders**

Strategy	Require all shop foremen and coordinators to estimate the time and materials needed for each work order using a standardized methodology.
----------	---

---

<sup>5</sup> The District currently has no mechanism to track how these issues are dealt with.

Action Needed	<p>Step 1: Train all satellite trades staff in the use of the R.S. Means estimating software.</p> <p>Step 2: Modify operating procedures to require a cost estimate for all work orders regardless of size.</p> <p>Step 3: Begin placing time and material estimates in all work orders prior to beginning work.</p>
Who is Responsible	North and South Area Maintenance Directors
Time Frame	January 2003
Fiscal Impact	Implementing this recommendation is estimated to cost \$375,290 over the next five years but improvement management capabilities may offset some or all of the costs.

Source: Berkshire Advisors, Inc.

## **4 The District does not provide sufficient financial support to ensure that maintenance and custodial standards are regularly updated to implement new technology and procedures.**

### **Trade publications are not provided to maintenance staff and participation in state and national professional organizations is not supported**

If Maintenance Operations managers, supervisors and employees are to remain current with technological breakthroughs, with improvements in operational methods and approaches that will support their efforts to make sound purchasing and management decisions they must be kept abreast of the latest and best thinking in their areas of expertise. At present, however, the District does not support the efforts of individual employees to enhance their “human capital.” Instead, managers and employees must use their own money to keep current on issues that are of importance to their work.

For example, Maintenance Operations does not currently subscribe to various trade publications. Instead, individual employees who wish to must subscribe to such publications at their own expense and, if they are so inclined, share these professional publications with their colleagues. Staff who do not subscribe to these publications or do not receive the publications as part of a personal membership in a professional society may not have access to information about new developments in maintenance technology and methods.

In addition, despite the fact that the mission of most professional organizations typically includes enhancing the professional development of members, the District does not financially support participation in national and state organizations. Professional organizations usually make workshops, newsletters, journals and training materials available to their members. Maintenance Operations staff, however, are not reimbursed for the cost of becoming members of professional organizations. Consequently only those employees who are willing to pay membership fees themselves benefit from the professional development such organizations provide.

### **The District devotes insufficient attention to ensuring maintenance staff receive needed training**

The impact of Maintenance Operations’ lack of funding for subscriptions and memberships in professional societies is exacerbated by a paucity of funding to support internal professional development activities. Maintenance Operations does not even have an annual training plan. Instead, staff receive professional development when satellite directors determine that a need exists or when federal, state, or local law mandates training. Despite the fact

## Facilities Maintenance

that maintenance workers are expected to operate and maintain increasingly complex equipment, an estimate of the total training each employee receives each year is but eight hours.<sup>6</sup>

It should be stressed that many maintenance workers are required to have certificates of competency (COCs) from Dade County to maintain their positions. Employees working under these COCs must meet a continuing education requirement. However, meeting this bi-annual requirement is the responsibility of each individual employee. The District provides no support for these efforts.

Maintenance Operations managers recognize the need for increased professional development. In recent years, however, the resources needed to fund such programs simply have not been available. For example, managers have acknowledged that equipment being installed in schools is becoming increasingly complex and requires that maintenance worker skills develop accordingly.

## Recommendations

---

- *We recommend that the District prepare an annual training plan and include funding for the program in its five-year budget plan.*

Action Plan 11-5 provides the steps needed to implement this recommendation.

- *We recommend that the District subscribe to professional magazines and partially reimburse maintenance workers for memberships in professional societies.*

Action Plan 11-6 provides the steps needed to implement this recommendation.

### Action Plan 11-5

<b>Develop And Implement An Annual Training Plan</b>	
Strategy	Develop and implement an annual training plan for maintenance workers and supervisors.
Action Needed	Step 1: Review staff job descriptions and interview maintenance supervisors to identify training needs. Step 2: Develop a flexible training proposal that can adjust to any funding level. Step 3: Request funding during the annual budget development process. Step 4: Determine method of tracking and recording actual courses attended so that supervisory staff and managers can easily access data. Step 5: Upon approval of funding, inform all maintenance staff of new training program. Step 6: Schedule training.
Who is Responsible	Executive Director of Maintenance Employment/Employee Resources, Policies and Procedures
Time Frame	January 2003
Fiscal Impact	This recommendation will require an investment of \$250,000 annually for a total of \$1,250,000 over the next five years.

Source: Berkshire Advisors, Inc.

---

<sup>6</sup> Reliable information on the actual amount of training received is unavailable because the Department's human resource system does not track staff training unless it is required to by law – for example, for asbestos certification.

**Action Plan 11-6**

<b>Subscribe To Magazine And Reimburse Memberships in Professional Societies</b>	
Strategy	Subscribe to trade journals and provide partial reimbursement of memberships in professional societies.
Action Needed	<p>Step 1: Interview staff, and collect background information on specific professional societies and job-related magazines.</p> <p>Step 2: Determine method of tracking staff participation in this program so that supervisors and management can refer to it in performance evaluation process.</p> <p>Step 3: Compile list of approved organizations and magazines.</p> <p>Step 4: Prepare flexible budget proposal.</p> <p>Step 5: Request funding during annual budget development process.</p> <p>Step 6: Subscribe to selected magazine and begin partial reimbursements.</p>
Who is Responsible	Executive Director for Maintenance Employee Resources, Policies and Procedures.
Time Frame	September 2002
Fiscal Impact	This recommendation will require an investment of \$100,000 annually and \$500,000 over the next five years.

Source: Berkshire Advisors, Inc.

**5 The District does not methodically obtain and use customer feedback in a structured manner to implement program improvements.**

**While Maintenance Operations staff actively solicit informal feedback from customers a more systematic approach to receiving customer feedback would be beneficial**

Maintenance Operations staff employ a variety of approaches to soliciting informal feedback from customers. Most notably, staff at all levels participate in meetings with customers to discuss performance and issues of common concern. For example, Department staff attend the monthly Construction meetings held with regional instructional staff, the Chief Facilities Officer – Maintenance attends monthly regional principal meetings, and Zone Mechanics attend regularly scheduled bi-weekly meetings with the satellites. In addition, region staff have access to the COMPASS work order system that they can use to enter queries on the status of specific open work orders and the backlog of work orders by school.

While the feedback obtained from meetings is useful it is also extremely informal and little effort is made to systematically evaluate the feedback received. In fact, meeting minutes are seldom prepared and the meetings are typically not structured to receive formal feedback.

Other approaches the Department could employ to receive more systematic feedback from customers are currently not used. For example, Maintenance Operations does not conduct annual surveys using a written instrument to determine the Department’s strengths and weaknesses. Such surveys can provide useful data regarding the quality and timeliness of maintenance services, especially if they are anonymous. Moreover, this data, when shared with staff and customers, can assist in identifying areas in need of improvement and in developing and implementing corrective action plans. Without this sort of systematic feedback Maintenance Operations has no way to objectively determine if it is satisfying its customers.

**The employee survey conducted as part of this engagement suggests that while improvement is needed Maintenance Operations is doing a reasonably effective job of addressing the needs of its customers**

Although Maintenance Operations does not conduct its own customer survey, the employee survey conducted as part of this study can provide useful feedback to Maintenance Operations managers on customer perceptions with regard to the quality of work they perform. In general, the survey results suggest that “customers” are reasonably satisfied with the level and quality of maintenance service received. As shown in Exhibit 11-3 for all but one survey item – whether non-emergency maintenance requests are addressed in a timely manner – the percentage of survey respondents who “agree” or “strongly disagree” with the statement exceeds 50 percent and for four of the seven items exceeds 60%. However, for each survey item the percentage of survey respondents who “disagree” or “strongly disagree” with the statement is too high, suggesting that continued improvement in the level and quality of maintenance services provided is needed.

**Exhibit 11-3**

**Employee Survey Results Suggest That Maintenance Operations Is Doing A Reasonably Effective Job Of Addressing The Needs Of Its Customers**

Survey Item	Percentage Who “Strongly Disagree”	Percentage Who “Disagree”	Percentage Who Are “Neutral”	Percentage Who “Agree”	Percentage Who “Strongly Agree”
The building within which I work is well-maintained	10.7%	15.7%	12.1%	38.9%	22.6%
The building within which I work is clean	9.2%	12.8%	13.2%	39.6%	25.3%
The temperature at my school is kept at a comfortable level	8.9%	18.6%	8.8%	42.8%	20.9%
Emergency maintenance requests are addressed in a timely manner	6.7%	14.7%	11.7%	44.0%	23.0%
Non-emergency maintenance requests are addressed in a timely manner	11.3%	31.1%	11.3%	27.8%	18.5%
Maintenance staff work diligently to complete repairs as quickly as possible	7.7%	22.7%	17.7%	31.1%	20.7%
The quality of work performed by maintenance staff is high	5.1%	19.3%	23.0%	35.8%	16.9%

Source: Berkshire Advisors Employee Survey.

**Recommendations**

- We recommend that the District solicit feed back in writing or via email on a quarterly basis.

- We recommend that the District conduct an annual anonymous customer feedback survey as a method of obtaining more candid and quantifiable feedback concerning the quality and timeliness of its work and the responsiveness of its staff.

Action Plan 11-7 provides the steps needed to implement these recommendations.

**Action Plan 11-7**

<b>Conduct Annual and Quarterly Customer Feedback Surveys</b>	
Strategy	Continuously solicit customer feedback both in writing and via e-mail (on a quarterly basis) and through an anonymous customer survey (on an annual basis).
Action Needed	<p>Step 1: Create a link on the Maintenance Operations web page where District staff and the public can provide comments on the quality of maintenance services.</p> <p>Step 2: Summarize and report on these comments quarterly by sharing results with satellite directors.</p> <p>Step 3: Require satellite directors to describe improvements or corrective actions taken as a result of comments.</p> <p>Step 4: Develop an annual anonymous customer service survey.</p> <p>Step 5: Distribute the survey to all principals, teachers’ union chapter chairpersons and central site administrators.</p> <p>Step 6: Summarize survey results and report them to the Superintendent.</p>
Who is Responsible	North and South area District Directors of Maintenance
Time Frame	June 2002
Fiscal Impact	This recommendation may be implemented with existing resources.

Source: Berkshire Advisors, Inc.

**6 The District has informal and insufficient accountability mechanisms to address performance and efficiency of the maintenance and operations program.**

**Effective procedures have been established to hold some contractors accountable for the quality of their work**

Maintenance Operations maintains strong control over contractual services. As previously discussed, the Department has established clearly stated goals and measurable objectives for services provided by job order contractors and term bid contractors and has implemented strategies to continually assess the reliability of program performance and cost data. A monthly report is prepared that tracks all costs for each phase of the construction process. As contractual service work orders are completed, left over funds are reallocated to work orders that are projected to exceed the original budget, or set aside for additional yet unfunded work orders. The forgoing indicates a strong control of contractual services.

**With one exception, rigorous accountability mechanisms have not been established for in-house maintenance staff**

At present, accountability for in-house maintenance staff is limited primarily to informal meetings and reviews of work. For example, satellite coordinators, supervisors, and foremen informally evaluate the work of their respective staff. In addition, Maintenance Operations senior staff meets on a regular basis to assess the Department’s

## *Facilities Maintenance*

performance and to discuss areas for improvement. In general, aside from these informal reviews a systematic evaluation of in-house maintenance work is not performed.

Two factors currently hinder efforts to establish a more effective accountability system. First, performance and accountability measures have not been established. At present, the Maintenance Department does not use any established performance standards, cost-efficiency measures or interpretive benchmarks to evaluate its in-house work order fulfillment program.

The second factor that hinders efforts to establish a more effective accountability system stems simply from the fact that accountability is not a high management priority. As mentioned earlier in this chapter, the majority of area and satellite directors interviewed do not see a need for cost control for every project being performed by in-house staff. Likewise, Maintenance Operations managers have shown little interest in benchmarking maintenance projects and activities against other Florida school Districts. Given the lack of priority given to accountability, it is hardly surprising that both the North and South area District directors and three out of six satellite directors have indicated that they do not regularly use the COMPASS work order management system to evaluate performance data for individual maintenance workers. Moreover, given this state of affairs, it is not surprising that Department senior managers have not required the COMPASS system to be used as a workload management tool.

It should be noted, however, that efforts to establish accountability have been successful in one area. An annual goal to conduct cleaning audits at each District school has been established and met. This cleaning and equipment audit program, which is managed in the Plant Operations Office, has proved very effective at identifying custodial staff that are in need of technical assistance as well as those who are performing at a very high level.

### **Few adjustments to operational and management practices have been made to maximize performance and efficiency**

Maintenance Operations has made some operational adjustments to improve performance and efficiency. In particular, the number staff allocated to each satellite has been modified to reflect changes in the square footage of buildings maintained in each geographical region. In addition, adjustments to contractual services occur when the Maintenance Operations annually modifies its capital budget allocations based upon the perceived needs of each satellite office. The Maintenance Operations department does not systematically review its operating procedures to ensure that they reflect the most efficient practices.

## ***Recommendations***

---

- *We recommend that the District develop performance and cost-efficiency measures and interpretive benchmarks from similarly sized Districts and use this information to inform management decision-making.*

Action Plan 11-8 provides the steps needed to implement this recommendation.

- *We recommend that the District implement a strategy to regularly monitor and assess the reliability of all maintenance performance and cost data.<sup>7</sup> This can only be accomplished after establishing performance standards for in-house maintenance workers and in-house projects.*

Action Plan 11-9 provides the steps needed to implement this recommendation.

---

<sup>7</sup> This recommendation can only be implemented after performance standards for in-house maintenance workers and in-house projects have been developed.



**Action Plan 11-8**

<b>Benchmark Maintenance Services</b>	
Strategy	Use data from other school Districts to assist in developing performance and cost efficiency measures.
Action Needed	Step 1: Identify sample Districts inside and outside of Florida to use for comparisons. Step 2: Develop performance measures that will be used for comparisons. Step 3: Survey identified sample Districts. Step 4: Prepare comparative analysis of Districts' data with Miami-Dade County Public Schools. Step 5: Summarize results of survey and share with Maintenance Operations managers, the Superintendent and the cabinet. Step 6: Institute operational and/or procedural improvements to address most common issues raised in survey unless they conflict with collective bargaining agreements, statutes or are too costly.
Who is Responsible	Chief Facilities Officer - Maintenance
Time Frame	January 2003
Fiscal Impact	This recommendation may be implemented with existing resources.

Source: Berkshire Advisors, Inc.

**Action Plan 11-9**

<b>Monitor Maintenance Performance and Cost Data</b>	
Strategy	Regularly assess the reliability of performance and cost data.
Action Needed	Step 1: Select or design appropriate maintenance work order reports. Step 2: Establish performance and cost standards initially for 100 most common maintenance tasks and eventually for all other work orders. Step 3: Begin generating monthly reports and distribute them to appropriate Maintenance Operations staff. Step 4: Begin using reports as a management tool. Step 5: Develop process to audit the reliability of the performance and cost data reported on these reports. Step 6: Implement audit process.
Who is Responsible	Executive Director of Operations Management and Planning
Time Frame	June 2002 for 100 most common work orders and January 2003 for all others.
Fiscal Impact	These recommendations may be implemented with existing resources.

Source: Berkshire Advisors, Inc.

## **Budgeting and Financial Management** ---

### **7 The District accurately projects cost estimates for major maintenance projects when it uses outside contractors, but its estimates for smaller projects to be completed by District trades staff are inadequate.**

#### **The District accurately projects cost estimates for major maintenance projects when it uses outside contractors**

The District uses pre-priced job order contracts (“JOCs”) for many maintenance items. The price standards used for these contracts are determined by a consultant based on national historic pricing data and other local market factors. For most JOC areas, the established prices are reset each year. In addition, every JOC project is independently estimated by District staff using R.S. Means standards. If staff’s estimate is greater than 10% above the contractor’s estimate, the JOC contractor is asked to revise its estimate before the project is approved. This process is generally effective at monitoring job prices prior to engagement of a contractor.

The District also employs term bid contracts for maintenance services. These contracts are competitively bid and budget a total expenditure amount not to be exceeded for the particular service, such as bleacher repair. For each use under the contract, the vendor provides project cost estimates. Staff reviews the contractor’s proposal for line item accuracy and completes a detailed independent internal cost estimate prior to the commencement of work.

#### **Estimates for smaller projects to be completed by District trades staff are not adequate**

While the District makes some effort to estimate the cost of small projects to be completed by in-house staff these efforts are insufficient. Zone Mechanics stationed at school sites are generally the initial estimators for most maintenance projects. These Zone Mechanics are expected to be accurate with their estimates for materials, but the time estimate for all such work orders is set at two hours, regardless of the size of the project. The maintenance foreperson assigned the work order can, and often does, change the estimates for labor hours when he or she assesses the work order. The reassessed labor estimates are based primarily on the past practice and the experience of the individual completing the estimates. No effort is made to “validate” these estimates using actual cost data from completed projects. Moreover, no formal analysis of past work orders has been undertaken to determine the accuracy of the District’s cost estimates.

In summary, other than the process used for JOCs, there are no formal processes in place for evaluating projected costs for accuracy or for analyzing information from past projects to improve future estimates. All of these processes are informal and based on periodic management meetings or general feedback among department units. None of these informal processes are documented, and the information discussed at the meetings is not disseminated to all relevant staff members.

#### **Increases in maintenance costs due to inflation are not consistently factored into long-term maintenance budgets**

While inflation for salaries and benefits is factored into the District’s five-year budget plan, inflationary expectations are not consistently considered when determining the future cost of materials, supplies, and contract services. Indeed, future budgets are often held constant over several years, and the estimated cost for major items does not change from year to year. This budgeting shortcoming does not necessarily result in a reduction in service since the

District in recent years has never fully funded the five-year budget plan anyway. But without appropriate inflationary calculations, the Department does not even have an accurate sense of the District’s maintenance needs.

**Capital budget estimates do not consistently reflect differences in schools**

When developing its five-year Capital Outlay Budget, the District does not always develop cost estimates that accurately reflect the unique needs and characteristics of schools. Rather than identifying the key features of schools (e.g., square feet, age, and configuration) that affect the cost of capital projects, the District often lumps all schools of a certain type (i.e., all elementary schools, all middle schools, and all high schools) together for the purposes of estimating capital expenditures. For example, as Exhibit 11-4 shows, the projected cost for the purchase and installation of replacement fire alarm systems is pegged at \$195,000 for elementary schools and \$325,000 for middle schools from the current fiscal year through the 2004-2005 fiscal year.<sup>8</sup> No attempt has been made to vary these cost estimates by, for example, considering the physical size of schools within each category.

**Exhibit 11-4**

**Fire Alarm System Replacement Costs Do Not Vary Within Categories Of Schools**

Facility	Year Slated	Estimated Cost	Approximate Sq. Ft.	Cost/Sq. Ft.
Charles Hadley Elementary	2003-04	\$150,000	125,000	\$1.20
Joella Good Elementary	2001-02	\$195,000	127,000	\$1.54
Morningside Elementary	2004-05	\$195,000	70,000	\$2.79
Pine Lake Elementary	2002-03	\$195,000	66,000	\$2.95
Kendale Elementary	2003-04	\$195,000	64,000	\$3.05
Earlington Heights Elementary	2004-05	\$195,000	61,000	\$3.20
Neva Cooper Elementary	2001-02	\$195,000	51,000	\$3.82
Jose Marti Middle	2003-04	\$325,000	158,000	\$2.06
Centennial Middle	2001-02	\$325,000	130,000	\$2.50
Parkway Middle	2003-04	\$325,000	110,000	\$2.95
Carol City Middle	2004-05	\$325,000	106,000	\$3.07
Braddock Sr. High	2002-03	\$487,500	398,000	\$1.22

Source: MDCPS Capital Outlay Budget, Fiscal Years 2001-2006.

**Recommendations**

- We recommend that the District establish a formal process for evaluating and improving the accuracy of its cost estimates including conducting periodic comparisons of in-house estimates with actual costs.

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

- We recommend that the District use an estimated inflation rate in its five-year maintenance operations budgeting process to more accurately reflect the true cost of maintenance needs in the out years.

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

<sup>8</sup> School-by-school detail on fire alarm systems is not provided for the 2005-2006 fiscal year.

**Action Plan 11-10**

<b>Establish A Formal Process For Evaluating And Improving Cost Estimates</b>	
Strategy	Establish a formal process for evaluating and improving the accuracy of cost estimates including undertaking a periodic comparison of in-house estimates and actual costs.
Action Needed	<p>Step 1: Maintenance managers responsible for JOCs, term bids, and in-house project estimating should work together to develop a system for tracking initial cost estimates and actual job costs for all projects.<sup>9</sup></p> <p>Step 2: Develop a quarterly report that summarizes and provides the back-up detail on the accuracy of the various groups' cost estimates compared to actual expenditures.</p> <p>Step 3: Pending contract negotiations, revise personnel performance evaluation process to include a review of estimation accuracy for cost estimators.</p> <p>Step 4: Revise contractor performance evaluation process to include a review of estimation accuracy.</p>
Who Is Responsible	Executive Director of Maintenance Contract Management, North and South Area District Directors
Time Frame	June 2002
Fiscal Impact	The resources spent by the District will not be change but budget and planning processes will be improved.

**Action Plan 11-11**

<b>Use An Estimated Inflation Rate To Develop Five-Year Maintenance Operations Budgets</b>	
Strategy	Include an estimated inflation rate when developing five-year maintenance operations budgets to improve the accuracy of maintenance cost estimates in the out years.
Action Needed	<p>Step 1: Select a readily accessible inflation index from a reliable source such as the Consumer Price Index.</p> <p>Step 2: Apply the adopted inflation rate for years two through five to all spending categories in the five-year Capital Outlay Budget.</p>
Who Is Responsible	North and South Area District Directors, Executive Director of the Division of Management Systems and Controls
Time Frame	September 2002
Fiscal Impact	The resources spent by the District will not change but budget and planning processes will be improved.

Source: Berkshire Advisors, Inc.

<sup>9</sup> This system should be electronic, should track the individual providing the estimates, and should track material and labor separately for in-house projects.

## **8 The District’s facilities maintenance accounting practices do not adequately document the use of 2 Mill funds and there are imbalances in the way funds are allocated to some critical areas.**

### **The District’s accounting practices prevent it from documenting the use of 2 Mill funds**

As discussed in detail in Chapter 9 of this report, due to its poor accounting practices the District cannot currently document that it has used 2 Mill funds in accordance with state regulations. Addressing this problem is extremely important because if the District is found to have used 2 Mill monies inappropriately, the State has the authority to recoup misused funds.

### **A lack of resources prevents the District from using the budget process to set achievable goals**

Despite the problems with 2 Mill accounting and documentation, the Department’s annual and long-term budget process is clearly focused on facilities maintenance priorities, but budget constraints are too restrictive for goals to be reasonably set and achieved. The most prominent factor in determining next year’s budget is the current budget level, not the actual condition of the District’s buildings or the projected maintenance costs associated with those buildings. While not ideal, these budget practices reflect the reality that all the resources needed to address maintenance priorities are unlikely to be available. In addition, while there is a process for the periodic evaluation of actual versus planned expenditures, these evaluations are not consistently used to adjust future budgets.

### **Insufficient resources are devoted to preventive maintenance**

Insufficient resources are dedicated to preventative maintenance, and many major repairs are put off until they become “a problem.” Consequently, the actual budget for deferred maintenance items is much higher than it would otherwise be. For example, the District applies a 20-year replacement schedule for school roofs, yet most roofs do not last for 20 years.<sup>10</sup> As a result, “emergency repairs” must be made when leaks occur. Generally, by the time roof leaks are noticeable inside the building, interior walls, floors, carpets, equipment and even electrical systems may have already been damaged exposing the District to additional repair costs beyond the cost of repairing or replacing the roof.<sup>11</sup>

In some areas the District has managed to do a good job of ongoing preventative maintenance, though mostly this has been accomplished in areas, such as HVAC, where long-term maintenance contracts with outside vendors are in place. Other than the Zone Mechanics, the District has only 15 maintenance staff workers dedicated exclusively to preventative maintenance.

Moreover, at present, the District is not conducting any evaluations to determine the cost—in repair and replacement—of inadequate preventative maintenance. When major repairs, such as roofs, are planned, the District makes no attempt to determine whether the cause of the problem was due to lack of maintenance.

---

<sup>10</sup> The warranty on most existing school roofs is 15 years.

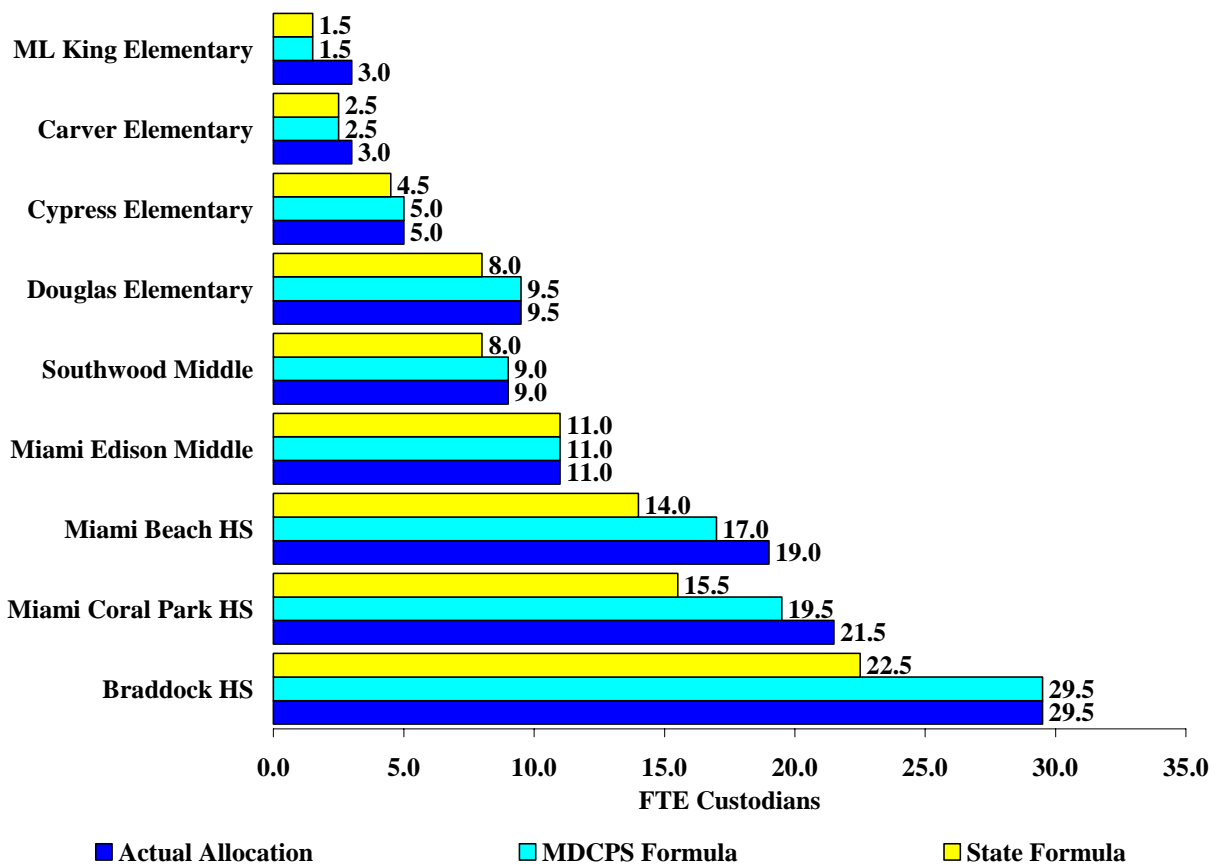
<sup>11</sup> It should be noted that the Maintenance Department has instituted an innovative process to minimize damage to school buildings from roof leaks. A small team of roof inspectors evaluates every school roof twice per year in an attempt to make an early identification of any roof problems. The District then uses the results of these inspections to target its scheduled and emergency roof repairs where they are most needed.

## The formula for allocating custodians to schools may overstate the number needed

The District has a complex formula for the allocation of custodians to schools. The formula begins with a base allocation of one custodian for every 17,500 square feet and then modifies the allocation based upon such factors as building space, site acreage, food service programs, early/after care programs, exceptional education programs, and nighttime classes. However, this formula may overstate the number of custodians needed to adequately clean and maintain the District’s school buildings. The formula recommended by the Florida Department of Education calls for one custodian for every 19,000 square feet of building space with an additional modifier added depending upon school type.<sup>12</sup> Miami-Dade’s custodial allocation averaged 26.3% higher than the state recommended levels at the nine schools reviewed for this study.

### Exhibit 11-5

#### Custodial Allocations Are Higher Than State Recommendations



Source: Berkshire Advisors, Inc., based on square footage contained in the FISH database.

In addition, as shown in Exhibit 11-5, it appears that the District’s own formula is not consistently implemented across all schools. At the nine schools reviewed, only five had budgeted custodian positions that corresponded to the levels recommended by the District’s formula.

<sup>12</sup> The state formula calls for 0.5 FTE for elementary schools, 0.75 FTE for middle schools and 1.0 FTE for high schools in addition to the calculation by square feet.

## **Assigning custodians to work the day shift is not an effective practice**

It is a common practice in the Miami-Dade County Public Schools—as it is in many urban school Districts—for the head custodian to work the daytime shift. The reality, however, is that most custodial activity occurs during the second shift after students have been dismissed, and therefore the largest number of custodial staff are assigned to work this shift. Having the head custodian—the position in which the District has invested leadership and supervisory training—working the shift to which the fewest number of custodians are assigned is not a good use of human resources.

## **The District does not employ a staffing formula for its maintenance trades**

Ideally, staffing levels for maintenance trades (e.g., painters, carpenters, plumbers and electricians) should be closely related to the amount of activity in each trade generated by District work orders and should also take into account the types and amounts of maintenance contract services available to the District each year.<sup>13</sup> For the MDCPS, however, in-house staffing levels have been constrained by a District hiring freeze that has been in effect since 1996. Thus, because attrition has not been even across all trades staffing levels for some trades do not correspond with need. Managers report that 152 trade positions have been lost since the hiring freeze was put in effect.

In addition, due to the hiring freeze managers have had little incentive to undertake an analysis of historical work order data to determine the proper mix of trades. Indeed, some managers suggest that such an analysis would require a great deal of time and effort to complete—requiring someone’s job to go undone while he or she completes the analysis—and once completed, the effort would be futile since the hiring freeze and other budgetary constraints would prevent additional trade staff from being hired or additional funds being added to the contract services budget.

Even if managers had an incentive to undertake a detailed analysis of operations, the ability of the District to adequately analyze its operations would be significantly hampered by the work order system that only stores data for 13 months. This shortcoming is further compounded by inconsistencies in the quality of information on completed work orders entered in the system. For example, virtually all work orders that are completed by the school-based Zone Mechanics appear in the system as having required two hours of labor to complete (these issues are discussed in greater detail in Section 10 of this chapter).

## **The District focuses insufficient resources on addressing safety and fire code issues**

Although the District allocates funds for the correction of deficiencies identified in the annual “Safety to Life” and “Fire Code Violations” reports, and these funds are used as intended, the resources allocated to Facilities Maintenance and Capital Construction have been insufficient to effectively correct deficiencies in a timely manner. Consequently, the District continues to have exceptions—often the same ones—on its Safety to Life report from year to year. For example, hazardous “wall projections” at Calusa Elementary school were first noted in a Safety-to-Life inspection in 1983. The corresponding repair was first scheduled in June of 1988 and was finally corrected in February of 2001. The District has begun to address this issue. Last year, \$30 million was allocated to address priority items from the Fire Code Violations report, and the District did manage to clear a greater proportion of those items than it has in the past. However, without additional resources and/or improved efficiencies, the problem of uncleared safety-related work orders will continue.

---

<sup>13</sup> For most school Districts the high volume work orders are generated for electricians, plumbers, carpenters and painters.

## Recommendations

- We recommend that the District conduct a thorough cost/benefit analysis of its deferred maintenance program to determine if increasing expenditures on preventative maintenance could save significant long-term resources.

Action Plan 11-12 provides the steps needed to implement this recommendation.

- We recommend that the District modify its custodial staffing formula to more closely reflect national and State of Florida standards for custodial coverage.<sup>14</sup>

Action Plan 11-13 provides the steps needed to implement this recommendation.

- We recommend that the District require its head custodians to work the second shift when most non-supervisory custodians are working and when most cleaning activity occurs.<sup>15</sup>

Action Plan 11-14 provides the steps needed to implement this recommendation.

- We recommend that the District establish staffing formulae for the maintenance trades areas based on historical work order activity data.

Action Plan 11-15 provides the steps needed to implement this recommendation.

### Action Plan 11-12

<b>Conduct A Thorough Cost Benefit Analysis Of The Deferred Maintenance Program</b>	
Strategy	Conduct a thorough cost/benefit analysis of deferred maintenance program to determine if increasing expenditures on preventative maintenance could save significant long-term resources.
Action Needed	<p>Step 1: Establish spending categories of maintenance work orders:</p> <ul style="list-style-type: none"> <li>• Under \$5,000</li> <li>• \$5,000 to \$24,999.99</li> <li>• \$25,000 to \$99,999.99</li> <li>• \$100,000 or more</li> </ul> <p>Step 2: Sort all work orders for the last year into these spending categories.</p> <p>Step 3: Review a random sample of work orders from each category (not fewer than 50 from each group) and make a determination as to whether the work order could have been avoided or delayed had routine preventative been performed.</p> <p>Step 4: Determine the work that would be avoidable with preventative maintenance and estimate the cost (both time and materials) associated with the requisite preventative maintenance for each work order.</p> <p>Step 5: Based on the sample averages, estimate the percentage of work orders from each spending category that could have been avoided with a preventative maintenance program as well as the estimated costs of such programs.</p>
Who Is Responsible	Chief of Facilities Maintenance and Operations
Time Frame	June 2003
Fiscal Impact	The amount of potential savings will depend upon the analysis.

Source: Berkshire Advisors, Inc.

<sup>14</sup> This recommendation may require the renegotiation of existing labor agreements.

<sup>15</sup> This recommendation may also require the renegotiation of existing labor agreements.



**Action Plan 11-13**

<b>Modify The Custodial Staffing Formula</b>	
Strategy	Modify custodial staffing formula to more closely reflect national and State of Florida standards for custodial coverage.
Action Needed	<p>Step 1: Adjust the base allocation rate to one custodian for every 19,000 square feet regardless of school size.</p> <p>Step 2: Recalculate custodial allocations for all schools using the base allocation plus additional District modifiers.<sup>16</sup></p> <p>Step 3: Plan and initiate phased in staff reduction.</p>
Who Is Responsible	Director, Department of Plant Operations
Time Frame	July 2004
Fiscal Impact	The District could reduce its personnel budget by \$6 million per year based on a reduction of District custodial staff by 208 positions. This represents an 8.5% reduction in custodial staffing. Phased in over a three-year period this would generate \$18.5 million in savings.

Source: Berkshire Advisors, Inc.

**Action Plan 11-14**

<b>Require Head Custodians To Work The Second Shift</b>	
Strategy	Require head custodians to work during the shift when most non-supervisory custodians are working and when most cleaning activity occurs.
Action Needed	<p>Step 1: Revise job descriptions and collective bargaining agreements to reflect the second shift requirement.</p> <p>Step 2: Make all promotions to head custodian contingent upon working the second shift.</p>
Who Is Responsible	Chief of Facilities Maintenance and Operations, Director of Department of Plant Operations
Time Frame	December 2002
Fiscal Impact	Implementation of this recommendation will cost the District approximately \$185,000 per year in additional shift differential pay for Head Custodians. Over the next five years the total expense will be \$925,000. <sup>17</sup>

Source: Berkshire Advisors, Inc.

**Action Plan 11-15**

<b>Establish Staffing Formulae For The Maintenance Trades Areas</b>	
Strategy	Establish staffing formulae for the maintenance trades areas based on historical work order activity data.
Action Needed	Step 1: Identify a target average number of “hands-on” maintenance personnel for the District based on industry standards. <sup>18</sup>

<sup>16</sup> Under the District’s current formula, the base rate can range from as little as 1:8,000 square feet up to 1:17,500 square feet. The existing modifiers in the District’s formula will still allow some flexibility for unique conditions in some District schools. As a result, the District will continue to allocate custodians at a higher rate than the State formula suggests. The long-term goal, however, should be to attain the 1:19,000 ratio suggested by the state.

<sup>17</sup> By existing labor agreement standards, custodians are given an additional 40¢ per hour for second shift and 45¢ per hour for third shift. For 315 schools, 40 weeks per year on second shift, this amounts to \$176,400. The additional \$8,600 is an estimated “cushion” to cover any added differential expense for those Head Custodians that will be required to work third shift.

	Step 2: Review work orders from a recent 12-month period to determine the amount of staff hours spent by District maintenance staff. <sup>19</sup>
	Step 2: Compare the percentage of work order hours generated by trade group to corresponding percentages of trade staff.
	Step 3: Determine the proper ratio of trades based upon a ranking of work order demand. <sup>20</sup>
	Step 4: Ease the hiring freeze for high volume trades where insufficient staffing exists.
Who Is Responsible	Chief of Facilities Maintenance and Operations
Time Frame	December 2002
Fiscal Impact	The fiscal impact of this recommendation will depend upon the analysis. However, by reducing overall staffing levels to industry standards, the District would eliminate 71 trades positions for an approximate savings of up to \$17 million over five years. <sup>21</sup>

Source: Berkshire Advisors, Inc.

## 9 The District maintains a maintenance reserve fund for one-time expenditures, but this fund is insufficient to serve its needs.

### The size of the maintenance reserve fund is inadequate to address all of the District's deferred maintenance needs

Although the District budgets maintenance reserve funds for non-recurring repairs, these budgets are often unreasonably low given the scope of existing problems and the fact that an adequate preventative maintenance program has not been established in most areas. For example, the Capital Outlay budget cites a need for \$23.9 million for roof repair for the current year, yet the current budget for roofs is only \$12 million. Furthermore, the Capital Outlay budget—which is supposed to reflect all District needs without regard to budget constraints—often underestimates critical needs. For example, the Capital Outlay budget includes a line item for “Renovation and Repair of Aged Facilities” which refers to correcting the structural “envelope” of school buildings, such as foundations, facades and concrete overhangs. For the five years currently projected, the line item is never greater than \$4.5 million in any given year. This amount of funding is clearly inadequate. If these funds were limited only to schools over 50 years old, total funds devoted to correcting the structural envelopes of school would average \$90,000 per school. If these funds were expected to be used in all schools over 40 years old, the allocation would amount to only \$27,000 per school.

In addition to budgeted line items for each category of repair, the five-year Capital Outlay budgets \$600,000 for “emergency” repairs that must be authorized directly by the Superintendent. However, this amount – an average of \$2,000 per school – is insufficient to address the needs of a District the size of the Miami-Dade County Public Schools given the significant level of repairs required. See Exhibit 11-6 for peer district comparison.

<sup>18</sup> According to one private sector specialist in institutional facilities maintenance, some urban school Districts attain ratios in the range of one maintenance worker for every 35,000 to 40,000 square feet of occupied building space. Currently Miami-Dade’s ratio last year was one maintenance worker for every 32,500 square feet. (These figures are for production staff only, not for administration.)

<sup>19</sup> Work orders should be sorted by trade group. In addition, if sampling is used, the samples should be drawn evenly from each month.

<sup>20</sup> Some of the higher-use trade categories may warrant a higher portion of staffing than the work orders would indicate because the District may decide to eliminate in-house staffing of some lower-use trade categories altogether.

<sup>21</sup> Staff reports that 70 trades positions have recently been eliminated from the District’s budget.

**Exhibit 11-6**

**The District’s Contingency Budget is Smaller than those of Florida Peers**

School District	Emergency Contingency Budget	Average Amount Per School
Miami-Dade	\$600,000	\$1,904
Pinellas	\$1,223,000	\$7,890
Broward	\$2,030,000	\$9,063

Source: Florida Smart Schools Clearinghouse, 2000-01 5-Year Work Plans.

On a positive note, there is adequate flexibility in the budget process to allow funds to be shifted from one reserve category to another, as needed. In addition, funds not spent (or repairs not completed) in one fiscal year are typically carried over to the next program year in the same category.

**Recommendations**

- We recommend that the District analyze its history of emergency repairs—by type, cost and age of building—and use this information to establish an adequate maintenance reserve funds.

Action Plan 11-16 provides the steps needed to implement this recommendation.

**Action Plan 11-16**

<b>Analyze Historical Data On Emergency Repairs To Establish An Adequate Maintenance Reserve Fund</b>	
Strategy	Analyze historical data on emergency repairs—by type, cost and age of building—and use this information to establish an appropriate emergency reserve fund.
Action Needed	<p>Step 1: Review work order data for a recent 12-month period and determine which work orders were “emergencies.”</p> <p>Step 2: Sort emergency work orders by building and type of work order.<sup>22</sup></p> <p>Step 3: From the sorted data, determine average emergency costs by type of work order and age of building.</p> <p>Step 4: Establish campus-by-campus contingency funds based on the historical averages for buildings by age of facilities. Reserves should be adjusted based on the age of major building improvements.<sup>23</sup></p>
Who Is Responsible	Chief of Facilities Maintenance and Operations
Time Frame	June 2005
Fiscal Impact	The exact fiscal impact will be determined by the analysis, but based on emergency contingency budgets maintained by other large Districts, MDCPS might need to increase their budget by \$8 million to \$10 million over the next five years.

Source: Berkshire Advisors, Inc.

<sup>22</sup> For example, roofs, air conditioning, disaster-related, etc.

<sup>23</sup> For example, if an older building has had its roof replaced recently, it may be unnecessary to budget an emergency contingency for that building’s roof.

## **10 The Maintenance Department does not regularly evaluate its activities to determine the most cost-effective method of providing service.**

### **The District does not currently analyze the least costly method of completing maintenance projects**

Maintenance Operations has procedures in place to maximize the cost-effectiveness of general support activities, primarily by attempting to determine the least costly and quickest way to get work orders completed (either through JOCs, term bid contracts or in-house labor). However, in practice, the decision to use outside contractors is based on the availability of staff, not the most efficient way to complete the project. In most instances, outside contractors are used only if District trade staff is spread too thin to take on more work. Although the District has in the past outsourced major maintenance activities that were previously conducted by in-house staff, there is no active process for determining if there are other areas where outsourcing might be cost-effective.

A more efficient process would identify the costs associated with each method of completion and shift resources in order to ensure capacity exists. For some types of projects, the District might end up increasing JOC and/or term bid activity. For others, in-house staff might actually need to be increased. But in the long term, if the District is using the least-costly method, overall expenditures should decrease.

### **The performance of contractors is not consistently evaluated for each project completed**

The Maintenance Department has established a standard evaluation process for monitoring the performance of contractors, and evaluations are being completed for most contracted work. However, the evaluations of JOC and term bid contractors are completed at the end of the contract term, not for each project completed by the contractor. In addition, “customer service” feedback from end users (i.e., school principals) is not a formal part of the evaluation process. Nor are end users involved in evaluating the quality and customer service of work orders performed by in-house trades staff. Since it is ultimately the users of the buildings that are affected by maintenance activities, some form of end user customer satisfaction reporting should be a part of maintenance evaluations.

### **Zone Mechanics do not devote sufficient time to maintenance activities that require their skills and experience**

The District has established a Zone Mechanic system and principals generally like the program. Under a Zone Mechanic system, skilled maintenance “generalists” are assigned to one or more schools. Their role is to identify maintenance needs in their school(s), write up an initial work order for repairs, and complete “minor” work orders that do not require the specialized skills of the trades staff. In addition, Zone Mechanics are also on site to provide a level of preventative maintenance in the schools, such as changing air filters and replacing light bulbs.

Given their scope of responsibilities, the amount of preventative maintenance that can reasonably be provided by Zone Mechanics is very small. In some cases, the District has one full-time Zone Mechanic for a school of over 400,000 square feet. In other cases, the Zone Mechanic must split time between two or more schools. While it is not practical for Zone Mechanics to perform significant preventative maintenance, a recent informal survey conducted by a maintenance department official found that nearly half of the Zone Mechanics’ time is spent changing light bulbs and filters. These unskilled jobs do not require the skill level—and commensurate pay—that the Zone Mechanics possess. In short, the Zone Mechanic program is a good way to identify repair needs and more effectively write up work orders, but it is considerably less effective as vehicle for completing front-line preventative maintenance activities.

## Recommendations

- We recommend that the District establish a dollar limit over which all projects must be formally analyzed to determine the least expensive service delivery method.

Action Plan 11-17 provides the steps needed to implement this recommendation.

- We recommend that the District incorporate customer feedback from end users on work orders and that this feedback be used to evaluate in-house staff and outside contractors.

Action Plan 11-18 provides the steps needed to implement this recommendation.

- We recommend that the District shift the responsibility for unskilled maintenance tasks, such as changing light bulbs and filters, to custodial staff or to contracted service providers and that Zone Mechanics should focus on writing up work orders and performing more technical routine maintenance items.<sup>24</sup>

Action Plan 11-19 provides the steps needed to implement this recommendation.

### Action Plan 11-17

<b>Establish A Dollar Limit Over Which All Projects Must Be Formally Evaluated To Determine The Least Expensive Service Delivery Approach</b>	
Strategy	Establish a dollar limit over which all projects must be formally analyzed to determine the least expensive service delivery method.
Action Needed	<p>Step 1: Determine who will be responsible for analyzing and comparing expected costs.</p> <p>Step 2: Determine how many such analyses can be completed by that individual or group in a given time frame.</p> <p>Step 3: Review the average number of work orders generated by the District over the given time frame.</p> <p>Step 4: Back into the dollar threshold based on the amount of expected analysis workload.</p> <p>Step 5: Assess whether this threshold is reasonable.</p> <p>Step 6: Without regard for internal capacity, review all new work orders with cost estimates above the dollar threshold to determine the least costly method of completion.</p> <p>Step 7: If outside contractors are less costly than in-house trade areas with excess capacity, the District should consider downsizing in those areas.</p>
Who Is Responsible	Chief of Facilities Maintenance and Operations
Time Frame	June 2002
Fiscal Impact	The amount of potential savings will depend upon the analysis.

Source: Berkshire Advisors, Inc.

<sup>24</sup> This recommendation may require the renegotiation of existing labor agreements.

**Action Plan 11-18**

<b>Incorporate Feedback From End Users Into The Evaluation Of In-House Trades Personnel And Outside Contractors</b>	
Strategy	Incorporate customer feedback from end users for all work orders and use this feedback to evaluate in-house staff and outside contractors.
Action Needed	<p>Step 1: Develop a customer service rating form for maintenance work.<sup>25</sup></p> <p>Step 2: Require customer service rating forms for all work orders not completed by the in-school Zone Mechanics. School administrators should complete forms, though delegation of this responsibility to Zone Mechanics would be acceptable.</p> <p>Step 3: Compile and track customer service ratings for various categories:</p> <ul style="list-style-type: none"> <li>• By satellite</li> <li>• By trade</li> <li>• By service provider (in-house, JOC, term bid)</li> </ul> <p>Step 4: Use customer service rating data for internal and external evaluations.</p>
Who Is Responsible	North and South Area District Directors, Executive Director of the Division of Management Systems and Controls
Time Frame	December 2002
Fiscal Impact	The amount of resources spent by the District will not be affected, but the information will help the District to identify staff and contractors who need to improve their performance.

Source: Berkshire Advisors, Inc.

**Action Plan 11-19**

<b>Reassign Responsibility For Unskilled Maintenance Tasks To Custodians Or To Outside Contractors</b>	
Strategy	Shift the responsibility for unskilled maintenance tasks, such as changing light bulbs and filters, to custodial staff or to contracted services in order to allow the Zone Mechanics to focus on more technical routine maintenance.
Action Needed	<p>Step 1: Amend job descriptions, collective bargaining agreements and resource allocations for outside contracting, as necessary, to allow the reassignment of responsibility from Zone Mechanics for changing air filters and burned out light bulbs.</p> <p>Step 2: Develop an estimate, by building, of the amount of time required to change bulbs and air filters.</p> <p>Step 3: If custodial staff cannot assume these responsibilities, enter into agreements with outside contractors to provide bulb and filter changing services.</p>
Who Is Responsible	Director of Department of Plant Operations, Executive Director of Maintenance Contract Management
Time Frame	December 2002
Fiscal Impact	The District can avoid as much as \$18 million in costs over the next five years by shifting responsibilities for unskilled maintenance from zone mechanics to custodians. This will enable the District to increase the work done by the zone mechanics without increasing the number of mechanics on staff. Based on the number of work-hours spent on this kind of maintenance, and the lower salaries of custodians as compared to the higher paid zone mechanics, this District could avoid up to \$3.6 million per year, or \$18 million over a five-year period.

Source: Berkshire Advisors, Inc.

<sup>25</sup> This form should solicit information on the timeliness with which work orders are completed, the courteousness of maintenance staff, and the quality of the workmanship.

## **11 The District is generally minimizing equipment costs through its purchasing practices, but improvements in preventative maintenance practices could reduce costs even further.**

### **The District has established a number of effective practices to minimize equipment acquisition costs**

The District does a generally good job of ensuring that prices it pays for equipment are reasonable. In particular, procedures have been established and are being followed for conducting cost comparisons prior to contracting for maintenance related goods and services. In addition, volume purchases are being made for a variety of parts, supplies and services. Contracts are also periodically re-bid to enhance competition.

### **The District does not adequately consider life cycle costs when considering equipment purchases**

The District focuses primarily on acquisition costs when making purchasing decisions and does not generally consider equipment operating and maintenance costs. Indeed, the most heavily weighted factors when making a purchasing decision are equipment and installation costs. Maintenance operations managers, Zone Mechanics and other “hands on” maintenance workers are generally not asked to comment on routine maintenance issues relating to major equipment purchases. In some instances, this has resulted in increased JOC and term bid fees and in-house overtime charges for routine and corrective maintenance increases on certain equipment.

### **The District does not systematically evaluate whether equipment should be refurbished, repaired, or replaced**

From time to time, the Maintenance Department does refurbish and repair equipment as an alternative to replacement, but this is less a function of cost analysis and more one of affordability: if the budget permits replacement, an item will be replaced. There is no systematic process in place to determine if less costly alternatives to equipment replacement are available. Likewise, no systematic analysis is done to determine when it is cost-effective to replace equipment rather than to make repairs. As a result, the District is likely to sometimes spend more than necessary to remedy major equipment problems.

### **The District does not verify the accuracy of replacement projections for major plant and equipment**

Replacement projections for major plant and equipment are factored into the District’s five-year Capital Outlay budget, however, little is done to verify the accuracy of these projections or to improve the methods used to predict costs in the out years.<sup>26</sup> Since only a fraction of the Capital Outlay budget is ever funded during the District’s budgetary process, maintenance operations managers have little incentive to commit the time and effort needed to improve the accuracy of the Capital Outlay budget. As previously mentioned, inflation costs for major equipment is not consistently applied as part of the five-year budget planning.

---

<sup>26</sup> For example, the District does not evaluate life cycle data on major items, such as gym floors and flat roofs, to determine how long they typically last before needing to be replaced. Having life cycle data on major equipment and tying that to schedules in individual schools would greatly improve the accuracy of replacement projections.

## Recommendations

- We recommend that the District formally consider ongoing preventative maintenance costs when evaluating the cost of replacement equipment.

Action Plan 11-20 provides the steps needed to implement this recommendation.

- We recommend that the District establish replacement schedules based on actual historical data on major equipment and adhere to the schedule in order to minimize “emergencies.”

Action Plan 11-21 provides the steps needed to implement this recommendation.

### Action Plan 11-20

<b>Consider Life Cycle Costs When Acquiring New Equipment</b>	
Strategy	Consider ongoing preventative maintenance costs when evaluating the cost of replacement equipment. <sup>27</sup>
Action Needed	<p>Step 1: Amend the approval process for all major equipment purchases to require the consideration of annualized maintenance costs.</p> <p>Step 2: Calculate the present value of the projected maintenance costs for the expected life of the equipment and consider those costs when making acquisition decisions.</p>
Who Is Responsible	Chief of Facilities Maintenance and Operations, Chief Facilities Officer (Facilities Planning & Construction), Executive Director of the Division of Management Systems and Controls.
Time Frame	September 2002
Fiscal Impact	The amount of potential savings will depend upon the results of the analysis performed.

Source: Berkshire Advisors, Inc.

### Action Plan 11-21

<b>Establish Replacement Scheduled For Major Equipment</b>	
Strategy	Establish replacement schedules based on actual historical data for major equipment and adhere to the schedule in order to minimize “emergencies.”
Action Needed	<p>Step 1: Review historical life cycle information and determine the average actual life for major equipment.</p> <p>Step 2: Use calculations to modify the District’s five-year Capital Outlay budget.</p>
Who Is Responsible	Chief of Facilities Maintenance and Operations, North and South Area District Directors
Time Frame	December 2002
Fiscal Impact	The amount of potential savings will depend upon the results of the analysis performed

Source: Berkshire Advisors, Inc.

# 12

**With some notable exceptions, the District does not do a good job of using proactive maintenance to reduce overall maintenance costs.**

The cost of operating and maintaining non-major equipment and systems is generally not considered during the equipment selection and facility design processes.

<sup>27</sup> The District might set a cost threshold for this strategy over which an evaluation would be required.



The cost to operate major equipment and systems is evaluated as part of the facility design process, but operational and maintenance costs for smaller, everyday items are generally not addressed. These smaller items, though much less costly than major systems, often burden preventative maintenance procedures unnecessarily. For instance, recessed lighting requires special, costly light bulbs that are difficult—and time-consuming—to change.

### The District generally does not do a good job of proactive maintenance

As discussed in detail in Sections 2 and 4 of this chapter, the District generally does not do a good job of proactive maintenance. However, the District’s effort to outsource the preventative maintenance of major HVAC systems to private contractors has been successful.

As previously mentioned, the Zone Mechanic program is in place and serves to enhance preventative maintenance, but the small scale of the program limits its effectiveness. Many preventative maintenance items which could easily be repaired by the Zone Mechanic must be written up as work orders and handled by the trades because the Zone Mechanic is simply spread too thin. Still other more technical work orders that some Zone Mechanics are fully capable of completing must be handled by the trades due to the time required to complete them and current labor contract restrictions.<sup>28</sup>

## Recommendations

- *We recommend that the District consider allocating more resources to preventative maintenance activities—especially the Zone Mechanic program—to help reduce excessive deferred maintenance costs.*<sup>29</sup>

Action Plan 11-22 provides the steps needed to implement this recommendation.

### Action Plan 11-22

Allocate More Resources To Preventive Maintenance Activities	
Strategy	Allocate more resources to preventative maintenance activities—especially the Zone Mechanic program—to help reduce excessive deferred maintenance costs.
Action Needed	<p>Step 1: Review a recent 12-month period of work orders and sort out those that could have been handled by “generalist” Zone Mechanics.</p> <p>Step 2: Calculate the number of full-time equivalent Zone Mechanics that would be required to complete those work orders.</p> <p>Step 3: Shift the equivalent number of trade staff to the Zone Mechanic program.</p>
Who Is Responsible	Chief of Facilities Maintenance and Operations
Time Frame	July 2002
Fiscal Impact	The amount of resources spent by the District will not immediately be affected, but the reduced effort that will need to be devoted to corrective maintenance as preventive maintenance practices are implemented and efficiencies in the completion of school-based work orders will, over time, free maintenance resources for other priorities.

Source: Berkshire Advisors, Inc.

<sup>28</sup> Zone Mechanics are prohibited from completing any repair requiring more than two hours.

<sup>29</sup> This recommendation may require the re-negotiation of existing labor agreements.

## Supervision and Training

---

### **13** Maintenance Operations reviews its organizational structure from time to time.

#### **Maintenance Operations' organizational structure is modified from time to time**

Regular organizational reviews allow managers to determine the most efficient organizational structure and modify an organization as District goals, objectives and priorities change. Maintenance Operations has made some changes to its organizational structure over the past few years. Most recently, at the direction of the new Superintendent, the Division of Safety, Energy, Communications and Fiscal Management was transferred to the Department. Prior to that, on May 15, 2001, the Chief Facilities Officer – Maintenance position was created. However, many of the organizational changes recommended in an organizational and management review by Arthur Andersen study were not implemented. We could not determine why the Arthur Andersen recommendations to improve the organizational structure were not implemented.

The department's organization is generally sound and current lines and spans of authority are reasonable. A depiction of the organizational structure is included in all of employee handbooks and internal audit reports and changes in the structure are reported promptly to the Board as it is changed.

### **14** Maintenance Operations review of staffing levels has not prevented it from becoming overly dependent on maintenance worker overtime.

#### **Maintenance Operations has become increasingly dependent on overtime in recent years**

The increase in maintenance worker overtime in the past three years has been staggering. As Exhibit 11-7 shows, from June 1998 to June 2001 the number of hours of overtime paid to maintenance workers increased by 242% while the overtime compensation paid to these workers almost tripled (overtime compensation increased by 296%). During the fiscal year ended June 30,2001 the Maintenance Operations Department paid its staff for 287,980 overtime hours. These funds could have been used to fund approximately 150 additional maintenance worker positions. The Miami-Dade County Public Schools' internal auditor recently issued a report that included a recommendation to consider the establishment of a second shift as a method of reducing the need for maintenance overtime.

#### *Exhibit 11-7*

#### **Maintenance Worker Overtime Has Increased Dramatically In Recent Years**

<b>Maintenance Worker Overtime July 1998-June 2001</b>	<b>Hours</b>	<b>Dollars</b>
July 1998-June 1999	84,121	\$2,156,060.7
July 1999-June 2000	159,945	\$4,270,520.8
July 2000-June 2001	287,981	\$8,547,542.8
Increase, fiscal 1998-99 to 2000-01	203,860	\$6,391,482.0
Percentage Increase July 1998 to June 2001	242%	296%

Source: MDCPS Maintenance Department.

Two primary factors have contributed to this explosion in maintenance overtime expenditures. First, as discussed in section 8, the hiring freeze to which Maintenance Operations has been subjected over the past five years has created an imbalance in maintenance staffing.<sup>30</sup> Consequently, some trades simply do not have the capacity to complete the work orders assigned to them during regular work hours and must use overtime to complete these tasks. Second, the Dade County Fire Department identified a significant number of fire code violations during the 1999-2000 fiscal year. The District chose to address this problem with increases in maintenance worker overtime commencing with the 2000-2001 fiscal year. Third, the lack of performance standards and effective management and supervisory practices has also increased overtime expenditures. Typically, as overtime usage increases workers have less incentive to complete their work assignments during their normal working hours because they will receive more compensation if their work is completed on overtime. Consequently, organizations that do not place strict limits on the availability of overtime must manage staff aggressively to ensure that only work that cannot be completed during normal work hours is completed on overtime. At present, however, Maintenance Operations managers and supervisors do not manage their subordinates aggressively, in part because doing so is not a Department priority and in part because the performance standards needed to facilitate improved management are not in place.

### **Maintenance and custodial staffing allocations are adjusted each year and reflect changes in workload and need**

Maintenance Operations annually reviews staffing and redistributes staff to balance out the number of maintenance workers assigned with the square footage of building space maintained. A much more sophisticated reallocation of custodial staff also takes place as new schools and additions are placed in service. The custodial allocation formula takes into account changes in building area, enrollment growth, and changes in the number of special education classes. The MDCPS School Board has approved the custodial allocation formula. However, as discussed in Section 8 of this chapter, no similar allocation formula has been approved for maintenance workers.

## ***Recommendation***

---

- *We recommend that the District reduce its growing dependence on overtime and immediately establish a staffing formula based on historical work order activity data for maintenance staff.*

Action Plan 11-15 (in section 8 of this chapter) provides the steps needed to implement this recommendation.

## **15 Maintenance Operations ensures qualified staff by using appropriate hiring practices.**

### **Maintenance Operations employs appropriate hiring practices including the use of informative job vacancy notices and applicant background checks**

Effective procedures have been developed for attracting qualified applicants for Maintenance Operations positions, however, the District's long-standing hiring freeze has precluded any significant hiring for other than custodial staff. The hiring process, when it is used, functions adequately. Vacancy notices are descriptive and published both as postings at the Human Resources office and in the Weekly Reader that is distributed to all schools. Principals have

---

<sup>30</sup> Maintenance Operations has been under a hiring freeze for five years during which time only custodial staff have been exempt from the freeze. The hiring freeze was recently made into a permanent reduction when the District cut all of the vacant maintenance worker positions –approximately 70 positions during the budget development process for the 2001-2002 fiscal year.

## *Facilities Maintenance*

indicated that they have not had any difficulty attracting applicants for custodial positions. In addition, Personnel Management and Services does an adequate background check of all new employees.

Some maintenance worker job descriptions require county certificates of competency (COCs). Applicants must take a written test administered by Dade County to obtain a COC. In addition, the District administers a practical examination to confirm competency.

## **16 Maintenance Operations has a written job description for each department position.**

Maintenance Operations has developed a written job description for each department position that details job responsibilities and position requirements (including required county certificates of competency). The Department's Employee Resources unit updates these position descriptions as needed in consultation with appropriate staff. Typically a broad cross-section of staff prepares new job descriptions. Job descriptions are available to maintenance workers who can review them upon request.

## **17 The current practice of not conducting performance evaluations of maintenance workers has prevented the Department from providing appropriate supervision of maintenance and operations staff.**

### **Annual performance appraisals are not completed for maintenance workers**

Both Maintenance Operations' Trades Handbook and its Administrators Handbook describe in detail the performance evaluation process for staff in various classifications and collective bargaining units. Nonetheless, the department does not conduct performance evaluations of maintenance workers who have satisfactorily completed their four-month probationary period.<sup>31</sup> Maintenance workers may therefore work for years at a sub-par level and not receive any systematic objective feedback on their performance from management. The impact of failing to provide regular and consistent feedback on performance can increase District costs in two ways: 1) through the hiring of additional maintenance workers to make up for the ones who are performing below par and 2) by increasing reliance on outside contractors to perform work that in-house staff is not getting done. In short, the lack of a formal evaluation process for maintenance workers, a group of employees that earned more than \$30 million during the 2000-2001 fiscal year, deprives the department of one of its most effective tools in providing workers with incentives to improve their performance and productivity.

Maintenance Operations staff have stated that the reason they do not conduct performance evaluations is that collective bargaining agreements with the unions representing the majority of maintenance workers prohibit performance evaluations for other than probationary employees. A review of the collective bargaining agreements for the workers did not disclose this prohibition. Indeed, the collective bargaining agreement clearly allows supervisors to hold conferences-for-the-record (CFRs) with employees and these conferences can serve the same purpose as a performance appraisal. According to the collective bargaining agreement, a CFR may be scheduled whenever a supervisor believes that there has been a perceived "violation of any rule, regulation or policy". Currently, CFRs focus mainly on attendance, tardiness and other working condition rules rather than productivity. Moreover, they are conducted at the initiative of a supervisor and are not systematic.

---

<sup>31</sup> These performance evaluations are performed in accordance with Board Rules and directives from the labor relations office.

Please note that the development of performance standards should precede any effort to strengthen the performance appraisal process. Indeed, without performance standards, the expectations for performance that should be included in any performance evaluation system would lack rigor and consistency across workers.

**Levels of authority have been clearly defined and are published.**

Organization charts have been published that identify the level of authority for each position in very broad terms. In addition, both the Trades Handbook and the Administrators Handbook describe the approvals needed to perform critical departmental tasks.

**Supervisory ratios for maintenance operations have not been established.**

The Maintenance Department has not implemented the supervisor/employee ratios recommended in the Arthur Andersen report due to “budget constraints”. In addition, the long-standing hiring freeze has eliminated the significance of a maintenance worker staffing allocation formula. Custodial supervisory positions are allocated based upon a Board approved formula, however.

***Recommendation***

- *We recommend that the District develop a maintenance worker performance evaluation process that includes productivity measures in addition to compliance with “rules, regulations and policies”.*

Action Plan 11-23 provides the steps needed to implement this recommendation.

***Action Plan 11-23***

<b>Conduct Annual Performance Evaluations for Maintenance Workers</b>	
Strategy	Conduct annual performance evaluations and use the process to enhance the productivity of all maintenance staff.
Action Needed	Step 1: Develop draft annual performance evaluation document and procedures. Step 2: Obtain feedback from District’s labor relations office. Step 3: Revise draft and share it with the leadership of affected unions. Step 4: Finalize performance evaluation document and procedures for administering it. Step 5: Develop training plan for staff that will be responsible for administering the performance evaluation document. Step 6: Commence training of coordinators, forepersons and all others who supervise maintenance workers. Step 7: Administer performance evaluations.
Who is Responsible	Executive Director Maintenance Employment/Employee Resources, Policies and Procedures
Time Frame	October 2002
Fiscal Impact	This recommendation can be implemented with existing resources.

Source: Berkshire Advisors, Inc.

## **18 The District provides insufficient training for maintenance and operations staff.**

### **The District devotes insufficient attention on ensuring maintenance staff receive needed training**

Maintenance Operations devotes a paucity of funding to support internal professional development activities. As of October 22, 2001 Maintenance Operations did not even have a training plan for the balance of the year. Instead, staff receives professional development when satellite directors determine that a need exists or when federal, state, or local law mandates training. The type of training provided includes procurement procedures, supervisory skills, contract service procedures, and technical training on the use of certain equipment. This training is provided both by outside instructors and internal staff. Despite the fact that maintenance workers are expected to operate and maintain increasingly complex equipment, employees receive just an estimated eight hours of total training each year. No reliable information on the actual amount of training received is available because the Department's human resource system does not track staff training unless it is required to by law – for example, for asbestos certification. Computerized training records are not maintained that indicate in each employee file what courses they have attended.

It should be stressed that many maintenance workers are required to have certificates of competency (COCs) from Dade County to maintain their positions. Employees working under these COCs must meet a continuing education requirement. However, meeting this bi-annual requirement is the responsibility of each individual employee. The District provides no support for these efforts.

Maintenance Operations managers recognize the need for increased professional development. In recent years, however, the resources needed to fund such programs simply have not been available. For example, managers have acknowledged that equipment being installed in schools is becoming increasingly complex and requires that maintenance worker skills develop accordingly.

### **Assistance from the District's curriculum development department is not solicited to support the development of Maintenance Operations training activities**

The Maintenance Department does not use the services of the District's curriculum development department to produce a planned, sequential program for personnel skills development. The Executive Director and Director of the Employee Resources unit are both educators thereby obviating the need for technical support help from this Department. As noted before, resources, not technical skills are the primary barrier to developing a more effective training program.

Participants for each course provided complete training evaluation forms. These forms are reviewed and used to determine the effectiveness of the course and the instructor.

### **The District does not have an apprenticeship program**

Maintenance Operations does not currently have an apprentice program. The Chief Facilities Officer-Maintenance advised that the on-going hiring freeze has precluded the Department from establishing such a program.

## ***Recommendation***

---

- *We recommend that the District develop an annual training program that focuses on increased technical training for its maintenance workers.*

Action Plan 11-5 (in section 4 of this chapter) provides the steps needed to implement this recommendation.

## **19** **The District provides maintenance and operations department staff the tools and equipment required to accomplish their assigned tasks.**

The Maintenance Operations department has procedures in place to provide small tools to its trades staff in accordance with the requirements of their respective collective bargaining agreements. Infrequently used tools may be obtained from the area shops.

## ***Maintenance Management Systems***

---

## **20** **A computerized control and tracking system is used to accurately track work orders and inventory however it is not used in a consistent and structured manner to improve staff performance.**

### **The work order tracking system that is used by the District has both strengths and limitations**

Maintenance Operations uses a work order tracking system called COMPASS. This system captures a great deal of useful work order information and can be used to analyze this information. In addition, the system interfaces with the District's materials management system can be used to track and update supply inventories and to generate pick lists from the actual work orders entered into the system.<sup>32</sup> The system also maintains the minimum inventory levels that will generate requisitions to reorder (i.e., economic re-order) quantities for all items. These reorder quantities are constantly re-evaluated by Procurement and Materials Management staff to ensure their appropriateness.

On the other hand, the COMPASS system also has a number of limitations. For one thing, it is old and not very user friendly (i.e., not very intuitive). In addition, principals cannot use the system to initiate work orders online but instead must call in work orders to customer service representatives. Maintenance satellite staff is generally satisfied with the usefulness of the work order information obtained through this process. Perhaps the most significant shortcoming from a management perspective, however, is that system only allows access to data for the past 13 months. This precludes comparisons between fiscal years. Useful work order information can reduce or in some instances eliminate the need for a site visit prior to commencement of the repair.

---

<sup>32</sup> The procurement of supplies and equipment is handled by the Department of Procurement and Materials Management, which is independent of Maintenance Operations.

## Work order information is not used systematically to improve performance

The ability to access historical work order data and compare it with current data such as hours spent per project and cost of materials used per project has the potential to be a critical tool in developing building and equipment life cycle cost data, projecting staffing needs, and controlling materials costs. In addition, comparing the maintenance worker time and materials used on a project with previously developed standards can be a powerful for analyzing the efficiency of maintenance operations and evaluating the performance of individual workers. At present, however, Maintenance Operation does not use such information to improve performance.

There is no evidence that Maintenance Operations managers and supervisors analyze information on effective work hours, hours scheduled versus hours worked and project completion times. Indeed, both the North and South Area Directors and satellite directors advise that while foremen are expected to monitor maintenance worker productivity they are not expected to use COMPASS system data for this purpose. Moreover, the Executive Director of Operations Management indicated that he did not believe that any of the supervisors, coordinators or directors in Maintenance Operations are systematically using reports generated by the COMPASS system as a management tool.

To its credit, Maintenance Operations has recently developed a data warehouse tool that will facilitate accessing historical COMPASS data to facilitate analysis of data over a number of years. While this is certainly a worthwhile endeavor it must be coupled with an effort to require managers to make more effective use of information as a management tool.

## Recommendation

---

- *We recommend that the District expedite the completion of the data warehouse development and develop standard reports to facilitate the use of work order management system data by foremen and coordinators.*

Action Plan 11-24 provides the steps needed to implement this recommendation.

### Action Plan 11-24

Enhance The of Work Order Management system	
Strategy	Begin using a data warehouse to facilitate the use of the COMPASS system for workload analysis.
Action Needed	Step 1: Design standard COMPASS reports to analyze worker productivity and material usage between current year and past years. Step 2: Train managers and coordinators in the use of new COMPASS workload reports.
Who is Responsible	Executive Director of Operations Management and Planning
Time Frame	June 2002
Fiscal Impact	This recommendation can be implemented with existing resources.

Source: Berkshire Advisors, Inc.



## **21 Maintenance Operations has an effective system for prioritizing maintenance needs uniformly throughout the District.**

### **The prioritization of work orders is equitable**

Maintenance Operations take prudent steps to ensure that the priority with which work orders are completed is even handed and reflects both District and school needs. Emergency work orders are given the highest priorities. These work orders include life safety repairs (such as air conditioning and roof repairs), and other repairs that are necessary to allow the learning process to occur.<sup>33</sup> All other work orders are handled on a “first in, first out” basis.

Department staff also meets monthly with Regional instructional staff to discuss outstanding maintenance issues and to ensure maintenance issues are being addressed. The Chief Facilities Officer-Maintenance also participates in these meetings with principals and assistant principals. By working collaboratively with these school-based and instructional staff, Maintenance Operations strives to ensure that changes in priorities are understood and are acceptable to school operations staff.

By all accounts, these efforts have been successful. Discussions with principals and the Deputy Superintendent for Operations confirm that they perceive the work order prioritization process as being equitable.

### **Procedures for handling emergency maintenance needs are adequate**

In some cases, emergency repairs must be funded from the emergency maintenance fund. The Department has written procedures for using this fund that require the approval of the Superintendent of Schools. The maintenance area and satellite staff interviewed confirms that these procedures are adhered to and that the process for accessing emergency maintenance funds is effective. Although the Chief Facilities Officer-Maintenance indicates that the emergency budget is adequate, given the number of unmet needs in Maintenance Operations Capital Outlay Budget, the current budget of \$600,000 is insufficient.

## ***Recommendation***

---

- *We recommend that the District analyze its history of emergency repairs and establish maintenance reserve funds accordingly.*

Action Plan 11-16 (in section 9 of this chapter) provides the steps needed to implement this recommendation.

---

<sup>33</sup> A review of the five-year capital plan confirms that life safety issues take precedence over all other repairs.

## Health, Safety And Energy Efficiency

### **22** The District has policies and procedures in place that adequately address the health and safety conditions of its facilities.

The District has clearly written health and safety standards for general safety, construction safety, emergency management, blood borne pathogens and internal pest management. However, there is no ongoing evaluation of the cost effectiveness of these health and safety standards. In fact, unit managers do not even track workers compensation claims to determine if additional health and safety issues need attention.

In addition, each year the District evaluates the condition of each school and documents its findings in the annual Safety-to-Life report. These reports are completed consistently and on time each year as the law requires. As mentioned earlier in this chapter, however, due to insufficient resources being allocated to correcting Safety to Life work orders and fire code violations, the District does a poor job of remedying these issues.

## Recommendations

- *We recommend that the District establish a formal process for evaluating the cost effectiveness of its safety plans including the analysis of workers compensation claims and lost productivity for each category of health, safety and emergency management.*

Action Plan 11-25 provides the steps needed to implement this recommendation.

### **Action Plan 11-25**

<b>Establish A Formal Process For Evaluating The Effectiveness Of Safety Plans</b>	
Strategy	Establish a formal process for evaluating the cost effectiveness of its safety plans including an analysis of workers compensation claims and lost productivity for each category of health, safety and emergency management.
Action Needed	Step 1: Review worker's compensation claims on an ongoing basis and categorize them by type of health and safety issue. Step 2: Periodically review this information to determine if patterns of problems are developing. <sup>34</sup>
Who Is Responsible	Executive Director, Maintenance Employment Standards
Time Frame	December 2002
Fiscal Impact	The resources spent by the District will not immediately be affected, but costs associated with future workers' compensation claims and staff illnesses may be reduced.

<sup>34</sup> For example, several claims involving injury to a particular group of workers should be investigated to determine if work practices in that group are the cause of the problem.

## 23 The District has implemented several strategies to contain energy costs.

### The District has implemented several strategies to control energy costs

The Miami-Dade County Public Schools has been proactive in its efforts to contain energy costs. The effective steps it has taken in this regard include the following:

- The District has established a written energy cost containment program.
- Pilot projects have been established with three energy management services companies.
- The District has worked collaborative with utility providers, government agencies, and industry experts on energy efficiency issues.

A discussion of each of the energy conservation initiatives follows.

**Cost containment program.** The Division of Energy has an established, written cost containment program that identifies energy reduction measures, by school, for a five-year period. The information is tracked on a monthly basis and reported back to the schools.

**Energy management pilot programs.** The District has hired three separate energy management services companies to assist in an energy management pilot program at 18 school buildings. This program is now in its fifth year. Extensive benchmarks for the pilot have been set and are monitored on an ongoing basis. An additional 27 schools have been added to the program based on selection criteria developed from the District's experience during the first phase of the pilot.

**Collaboration with energy stakeholders.** The District has actively collaborated with utility providers, government agencies, and industry experts to control energy costs. For example, the District takes advantage of energy rebate programs and other incentives offered by local utility companies. In addition, the District participated in the Institutional Conservation Program that provided state and federal matching grant funds for energy conservation projects.<sup>35</sup> District staff members have also periodically participated in seminars, workshops and conferences on effective demand-side energy management, technological developments, and associated best practices sponsored by government agencies, trade associations and private companies.

One approach the District could take to further strengthen energy conservation measures is to be more aggressive in addressing problems where energy usage reports reflect irregular usage patterns. At present, the Division of Energy, which tracks school-level energy usage, does not proactively suggest possible fixes for schools where usage has increased, nor does it attempt to determine why usage may have decreased at some schools so that this experience might be replicated at other schools.

### The District does not perform routine air quality inspections

The District has a written plan for indoor air quality as required by the State Environmental Protection Agency. In developing its plan, the District made a conscious decision to implement a complaint driven process rather than a process that requires routine air quality inspections. This decision was based on an informal analysis of costs and benefits performed by Division management. The District's rationale for establishing a complaint driven process is that because there are so many things that could cause airborne illness, and because some people are more sensitive to certain microbes than others, blanket testing of air quality would be cost prohibitive.<sup>36</sup> The District's air quality

---

<sup>35</sup> The District curtailed its use of this incentive when it was changed from a grant program to a loan program.

<sup>36</sup> An example of this is an illness caused by an allergy. The level of dust or mold tolerable by most people might cause a severe allergic reaction in a few. Blanket testing for "problem" levels of dust or mold would be impossible without knowing the tolerance levels of each individual in the building.

plan does, however, articulate a thorough process for corrective action when air quality issues are raised, and these procedures are consistently applied when air quality issues arise in District buildings.

## Recommendations

- We recommend that the District use the energy usage data it collects for each school to identify problems for early correction and to identify “best practices” at the school level that can be instituted at other District school buildings.

Action Plan 11-26 provides the steps needed to implement this recommendation.

### Action Plan 11-26

Identify Energy Efficiency “Best Practices” For District School Buildings	
Strategy	Use the energy usage data it collects for each school to identify problems for early correction and to identify “best practices” at the school level that can be instituted at other District school buildings.
Action Needed	<p>Step 1: From the monthly energy usage reports produced for each school, identify schools that have drastically increased or decreased energy usage.</p> <p>Step 2: Investigate the reasons for the changes and determine if changes are lasting or if they were simply anomalies.</p> <p>Step 3: For energy usage increases determined to be lasting, brief the building administration on methods they can use to permanently reduce energy usage.</p> <p>Step 4: For energy usage decreases determined to be lasting, attempt to determine what practices have caused the decrease and publicize those practices to other schools.</p>
Who Is Responsible	Director of Energy Programs
Time Frame	July 2002
Fiscal Impact	The amount of potential savings will depend upon the analysis.

## 24 The District has an effective energy management system in place, though communication of results could be improved.

The District prepares a monthly report that shows year-to-year energy costs and consumption by school building. This report is provided to principals. The District has also established an Energy Rebate Program through which a percentage of an individual school’s energy cost savings are rebated to the school’s discretionary fund. However, as noted in section 11, the monthly energy consumption reports are not systematically used to investigate and correct potential problems or to inform schools of “best practices” they should emulate. Also, few students and teachers are aware of the Energy Rebate Program at the school level. As it is the daily activities of students and staff that most affect the District’s energy usage, it would serve the District well to have everyone—not just principals—focused on reducing energy usage. Principals at several District schools recognize this and publicize the program within their schools, but that practice is not universal.

The District is also involved in a pilot project with three energy management companies that seeks to reduce energy costs at schools by installing several different energy efficiency improvements such as centrally-regulated energy control equipment, occupancy sensors, heat barriers, photo electric cells, and more efficient lighting systems. Based on reports that show year-to-year costs and usage, the program is having a positive impact. Analysis has also been done to compare the usage at the pilot schools with usage at other District schools. Based on the positive results of this analysis, the District has added additional schools to the pilot project in its second phase. It should be noted that routine reports are generated by the division to monitor energy usage in the schools and to verify that the energy

management systems are working. These reports are used to evaluate the District's return on investment from the systems installed.

## **25 The District does a good job of complying with federal and state regulatory mandates regarding facility health, safety and energy efficiency.**

The District's health, safety and energy procedures are reasonable and do not violate any relevant federal, state or local laws, or regulations in any material way. Mandatory employee safety programs are periodically provided for maintenance and custodial workers. The District also voluntarily participates in EPA's Energy Star program and has been recognized by that program for innovation in energy conservation measures.<sup>37</sup>

The District has also forcefully and consistently communicates the importance of compliance with state and federal regulations to its employees. For instance, over a 10-month period in 2000 and 2001 when local water restrictions were in effect, only 12 District schools received warnings for violating the irrigation schedule. District executives issued several strongly worded memos on the matter, and virtually all schools complied with the regulations. The District only received one citation during the 10-month period that officials ascribe to a malfunctioning sprinkler timer at a remote playing field.

## **26 The District is prepared for the new permitting and inspection requirements under the Florida Building Code.**

The District has taken prudent steps to prepare for changes in the Florida Building Code and the new process of "self permitting." Training of maintenance staff for the new standards and procedures has begun and is currently ongoing. The new standards took effect on January 1, 2002, and have not been reviewed prior to this study. However, under the previous process, the District had adequate procedures in place to ensure that required permits were obtained prior to the commencement of major projects.

---

<sup>37</sup> EPA's Energy Star Program is a federally sponsored program in which a governmental agency agrees to measure, track and benchmark its energy performance using Energy star tools; develop and implement a plan to improve energy performance in its facilities and educate its staff about the benefits of using Energy Star approved electrical equipment.