MONTGOMERY COUNTY COUNCIL

OFFICE OF LEGISLATIVE OVERSIGHT
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TITLE

An Evaluation of the Plant Maintenance Program of the Montgomery County Public Schools

CONTENTS

I. SUMMARY AND MAJOR CONCLUSIONS/RECOMMENDATIONS

The operating budget of the Montgomery County Public Schools (MCPS) represents almost half of the annual Montgomery County Operating Budget. With the exception of the Washington Suburban Sanitary Commission, the BOE has the largest plant and equipment inventory. To maintain these school facilities and equipment at normal operating efficiency requires an annual budget expenditure which has for the past few years averaged 3% of the MCPS operating budget.

The Division of Maintenance is responsible for the plant maintenance of 196 MCPS facilities--186 of which are operating schools--with almost 16 million square feet of area on approximately 2,500 acres of land. Plant maintenance is defined as those expenditures (labor and material) to maintain the buildings, grounds and fixed equipment (and selected moveable equipment such as television sets, typewriters, sewing machines, etc.) at a reasonable condition of working efficiency, completeness or appearance. Plant maintenance includes repair, replacement, preventive and code correction maintenance functions. Plant maintenance does not include vehicle or bus maintenance, remodeling and modernization or custodial type services.

To accomplish the plant maintenance tasks, 403 positions were authorized in the FY 79 BOE Operating Budget and are recommended in the FY 80 budget. Of this number, 388 positions are craftsworkers or general maintenance workers.

The overall conclusion of this evaluation is that the plant maintenance program of the Montgomery County Public Schools is an effective and efficient operation, accomplishing its primary objective of maintaining MCPS facilities and grounds in a safe, operating condition.

The major conclusions and recommendations of this evaluation are:

--The recently completed decentralization of maintenance operations from a single maintenance facility to five maintenance service areas located in four separate, dispersed depots has reduced travel time, increased the available time for performing maintenance and contributed to closer coordination and cooperation between maintenance service area craftsworkers and the school personnel whom they serve.

--Because the maintenance workforce is mature and experienced, MCPS has placed minimal emphasis on a program to recruit inexperienced personnel with technical or vocational aptitudes who, through training, could eventually replace the plant maintenance workforce as they retire.

--While recognizing that the development of work measurement standards and the integration of data processing into maintenance procedures require the expenditure of resources, both appear desireable and necessary for further improvements in the efficiency and economy of the MCPS plant maintenance program.

--There appears to be sufficient similarity in plant maintenance and plant operation functions to warrant an examination of the

feasibility and cost benefits of combining those two functions into a single organizational framework.

--The several County agencies should establish a mechanism to examine and hopefully increase the exchange of plant maintenance technology, equipment, service and information.

--Considering the high cost of maintaining an inhouse refuse collection capability and recent new legislation which improved commercial refuse collection standards, MCPS should seriously examine the cost benefits of returning to contract refuse collection.

--The Board of Education, the Montgomery County Council of Parent Teachers Associations, business, civic and student organizations and governmental agencies should come together in a concerted effort to reduce, and hopefully eliminate, vandalism and theft of MCPS facilities and equipment.

II. AUTHORITY AND SCOPE

1. Authority: Council Resolution 8-2170, subject, FY 79 Work Program of the Office of Legislative Oversight, adopted September 5, 1978, directed that this Office evaluate the maintenance program for buildings and grounds of one County agency.

2. Scope: To examine the maintenance policies and operational procedures of the Montgomery County Public Schools system; evaluate the effectiveness and cost efficiency of the maintenance program; and make recommendations concerning maintenance policies and procedures of that agency and the cost benefits in conducting a similar evaluation of the maintenance programs of other County or bi-County agencies.

III. BACKGROUND, FACTS AND DISCUSSION

Background

1. General. The operating budget of the Montgomery County Public Schools (MCPS) represents almost half of the annual Montgomery County Operating Budget. With the exception of the Washington Suburban Sanitary Commission, the MCPS has the largest plant and equipment inventory. To maintain these school facilities and equipment at normal operating efficiency requires an annual budget expenditure which has for the past few years averaged 3% of the MCPS operating budget.

At the direction of the County Council, the Office of Legislative Oversight (OLO) examined the Montgomery County Public Schools (MCPS) plant maintenance program. The data, evaluations and opinions presented in this examination were developed during on-site visits to schools and maintenance facilities, interviews with maintenance personnel and maintenance service recipients and examinations of maintenance reports and records.

Throughout this evaluation the MCPS staff was extremely cooperative and displayed an enthusiastic, positive and professional approach to plant maintenance, management and operations.

2. Definitions. Plant maintenance is defined as those expenditures (labor and material) to maintain the buildings, grounds and fixed equipment (and selected moveable equipment) at a reasonable condition of working efficiency, completeness or appearance. Plant maintenance includes maintenance on heavy equipment (loaders, graders), but does not include any maintenance on vehicles which are used primarily to transport students or employees. Plant maintenance is often subdivided into the following categories.

a) Repair/Replacement Maintenance. Repair/replacement maintenance (often referred to as emergency maintenance) is that maintenance which is required to restore an item which is no longer functioning to its orginally intended operating condition. The repair or replacement can be caused by normal wear and tear, accidental breakage, an act of nature, vandalism or theft. Examples include: replacing a broken light switch, opening a clogged drain, replacing a damaged basin, replacing a broken window, replacing a stolen thermostat, etc.

b) Preventive Maintenance (PM): The preplanned and scheduled (on the basis of time or use) inspection, replacement or servicing of an item to maintain the item at normal, operating efficiency. This type maintenance is sometimes referred to as routine or programmed maintenance. Examples include: painting, changing oil, replacing or cleaning filters, boiler retubing, servicing air conditioners, oiling motors, fertilizing playing fields, etc. The object of a PM program is to reduce periods when an item is non-operational or to avoid expensive breakdown repairs.

c) Code Correction: Although not strictly a maintenance function per se, the frequently changing and increasingly stringent code requirements require a considerable effort by maintenance personnel to comply with safety, health, environmental and fire codes. Examples include: installing safety railings and smoke detectors, shielding fluorescent light fixtures, enlarging exhaust capabilities in art and chemistry classrooms, replacing asbestos contaminated crushed stone and combustible or asbestos ceiling tiles, etc.

d) Miscellaneous: Also included in maintenance are those miscellaneous activities which do not fit precisely into the above four specific categories, but are necessary for the safety and health of the occupants. Examples include: snow removal from roads and parking lots, pest control, installation of pollution control devices on boiler systems, etc.

e) Activities not included in plant maintenance. Not included in plant maintenance are remodeling or alterations involving the expenditure of capital funds to alter a facility's original function, or modify its composition. Examples include converting a store room to a teacher's lounge, installing new light fixtures, closing a doorway in a room, constructing an outside storage shed, etc. Also not included in maintenance, but often performed by maintenance personnel using maintenance operating funds, are construction projects such as building shelves, bookcases, and bulletin boards. Finally, to emphasize the point, the actual operation of the plant and building custodial services are not part of plant maintenance and the personnel who perform these functions are not assigned to the Maintenance Division. Plant operations and custodial services are under School Plant Operations in the Department of School Services. School plant operations will be discussed later in this report under Other Matters.

3. Inventory of MCPS Facilities and Grounds. At Exhibit A is an inventory of MCPS facilities as of June 30, 1978. Overall, there are 196 facilities with almost 16 million square feet of area, on approximately 2500 acres of land, representing an original investment in excess of $330 million (building, site and equipment).

MCPS Plant Maintenance Program

1. General. The recent reorganization of the Montgomery County Public School system established three major offices under the superintendent. One of these is the Office of Supportive Services. Two departments subordinate to that office are concerned with plant maintenance and maintenance related functions. One is the Department of Facilities which includes the division of construction and capital projects and the division of maintenance. School security, site administration and joint occupancy are also part of School Facilities. The other is the Department of School Services which has responsibility for operating the schools in addition to supply and warehouse activities. Although the Division of Maintenance has direct responsibility for the plant maintenance program, the Department of School Services has maintenance related responsibilities in that plant operators and building service personnel perform some preventive maintenance functions, and the department processes and warehouses maintenance materials, supplies and parts.

2. Organization of the Division of Maintenance. The Division of Maintenance is organized for centralized planning and direction and decentralized operation. For FY 79, there are 403 authorized positions in the Division of Maintenance, organized to operate from a central maintenance depot and from three depots geographically dispersed within the County.

The central maintenance depot is located on Crabbs Branch Way off Shady Grove Road in the County Service Park. Colocated with the central maintenance depot is one of five area maintenance service offices--Maintenance Service Area 3. Maintenance Service Areas 1 and 4 are located at the Bethesda Maintenance Center on Westlake Drive off Route 270. Maintenance Service Area 2 is located on Randolph Road in Wheaton and Maintenance Service Area 5 is located at Clarksburg. Each maintenance service area is colocated with a MCPS bus maintenance depot. The plant maintenance responsibility of the five maintenance service areas corresponds to the schools and other facilities which are located in each of the five MCPS Administrative Areas. The total facilities located in each of the five maintenance service areas for FY 79 are as follows:

Area	Elem. & Secondary Schools	Special Ed.	Other Facilities	Total
1	37	3[a]	2[b]	42
2	39	0	1[c]	40
3	36	3[d]	4[e]	43
4	37	0	1[f]	38
5	30	1[g]	1[h]	32
Other	0	0	1[i]	1
TOTAL	179	7	10	196

Notes:
a) Concord, McKenney Hills, Stephen Knolls
b) Area 1 Office, Service Center
c) Area 2 Office
d) Rock Terrace, Carl Sandburg, Mark Twain
e) Area 3 Office, Lincoln Center, Educational Service Center, Service Park
f) Area 4 Office
g) Longview
h) Area 5 Office
i) Smith Center

At the central maintenance depot in the County Service Park are located the director and assistant director of maintenance, and approximately half of the maintenance workers representing over thirty crafts and assigned to thirteen repair shops. A breakout of the shops and crafts at this maintenance depot are at Exhibit B.

Decentralization of maintenance operations was completed in FY 78. The result was a major reduction in travel time between the previously used single depot located in Rockville and the 196 facilities scattered throughout the County.

Each of the five maintenance service areas has a maintenance supervisor and a complement of craftsworkers responsible for maintenance of those MCPS facilities and grounds located in their jurisdiction. The crafts represented are: carpentry, glaziery, electrical, plumbing, shade repair, general maintenance, electronics, roof and flashing repair, air conditioning and refrigeration. At Exhibit C is an example of the number of employees and the type crafts assigned to Maintenance Service Area 5 in Clarksburg.

Each of the maintenance service area supervisors is responsible for all plant maintenance within the capability of the craftsworkers assigned to his area. The principal maintenance efforts of area craftsworkers are the repair/replacement necessary to maintain the plant in a safe operating condition and plant preventive maintenance. The maintenance service area supervisor works closely with the area associate superintendent and the individual school principals in establishing priorities and in planning and scheduling maintenance.

3. Maintenance Division Personnel. The authorized positions for the Maintenance Division funded in the FY 79 operating budget are 403, which is four less than authorized in FY 78. The Maintenance Division is also authorized 26 positions in the capital budget to accomplish capital modifications and alterations. (These capital funded positions and the modification program are discussed later in this report under Other Matters.) The following table represents an eight year history of authorized positions within the Maintenance Division in the MCPS operating and capital budgets:

Maintenance Division
Authorized Positions

	Operating Budget	Capital Budget
FY 72	405	0
FY 73	420	0
FY 74	405	24
FY 75	413	24
FY 76	424	26
FY 77	415	26
FY 78	407	26
FY 79	403	26
Average	412 (8 yrs)	25 (6 yrs)

The 403 maintenance positions represent 83 separate job classifications and include seven supervisors, eight administrators and 388 craftsworkers and general maintenance workers. Included in the 388 positions are twenty-one "working foreman" positions. Each of the five maintenance service areas is authorized one of these working foremen oversee the general maintenance workers, with the remaining sixteen foremen located in the several maintenance shops at the central maintenance depot.

The number of employees located to the central maintenance depot and each of the five areas varies with attrition. The following table is a breakdown of positions as existed in early FY 79:

Location	# Employees	Total # Facilities
Central Maintenance Depot	191	1 (Smith Center)
Maintenance Service Area 1	42	42
Maintenance Service Area 2	47	40
Maintenance Service Area 3	42	43
Maintenance Service Area 4	42	38
Maintenance Service Area 5	39	32
	403	196

The variety of crafts and skill levels has permitted upward mobility within the maintenance division and contributed to a relatively stable work force. To illustrate, the FY 77 turnover rate was 5.8% and the average turnover rate for the period FY 74-FY 77 was 5.2%. Besides being relatively stable, the maintenance division work force is also experienced. The average age of the craftsworkers (projected as of end FY 79) is 40.6 years with average years of service with MCPS of 11.3 years. This long experience contributes to efficient job performance and facilitates the use of a minimum number of supervisors.

4. Maintenance Training. Within the maintenance division there is a modest training program for craftsworkers. Some craftsworkers are sent to trade schools to learn the latest maintenance techniques and to disseminate those techniques to other workers in the craft. Other craftsworkers maintain their proficiency by conducting classes in the various adult education programs. Finally, there is an informal on-the-job training program (OJT) for those wishing to expand their capabilities. The maintenance division has provided part-time OJT (full-time during summer vacations) for students in work-oriented curriculum programs. Under these programs, the students learned a trade under experienced craftsworkers, and were a source of potential employees trained on the school system's equipment to the standards of the trained maintenance employees.

5. Equipment, Tools, Supplies and Materials. To carry out the maintenance program requires an extensive assortment of service vehicles, equipment and tools. As of October 1978, the Maintenance Division had an inventory of 261 vehicles and 54 pieces of specialized equipment such as air compressors, tractor mowers, tar pots, cement mixers and graders. The maintenance division uses its vehicles (primarily

vans and trucks) to transport maintenance personnel and as mobile shops. Many of the larger trucks are equipped with plows for removing snow from roads and parking lots on school property. The maintenance division is not responsible for maintaining any vehicles; however, the division does maintain its 54 pieces of equipment.

The repair shops at the central maintenance depot are equipped with the necessary fixed tools, machinery and testing equipment to diagnose and repair equipment used to operate the plant and instruct students in the classroom (typewriters, sewing machines, televisions, etc.). The mobile maintenance vans and trucks are equipped with those tools which are necessary to perform the required maintenance at the facility.

About one third of the maintenance materials, supplies and parts are purchased by the Procurement Division on public bid and stored at a central warehouse adjacent to the central maintenance depot which is operated by the Department of School Services. These are primarily high volume, fast moving stocks and replacement parts which experience has shown to be most critical to the schools' operations (pumps, motors, etc.). The number of line items in the warehouse is approximately 1600. Parts used by the individual repair shops (typewriter, office machine, electronic, etc.), are stored in the shop. The remainder of the maintenance materials, supplies and parts are procured on a prebid, blanket purchase order from vendors so as to expedite repairs and reduce the requirement for a large inventory of the less frequently needed items.

Forty percent of the expenditures for supplies and materials are for carpentry, roofing and general maintenance projects. Forms and records have been developed to insure that all purchases are first approved by a supervisor (after-the-fact in emergencies). Periodically, all direct purchases from vendors under blanket purchase orders are reviewed by the Director of Maintenance for possible addition to the warehouse inventory.

6. Maintenance Budget. Outlined in the following table is the Maintenance Division operating budget for the present and two previous fiscal years and reflects that the plant maintenance operating budget has remained relatively consistent at 3% of the MCPS operating budget.

FY	BOE Operating Budget	Maint. Div. Operating Budget	Maint. Div. Budget as a % of MCPS Budget
77	240,666,417 (actual)	7,501,984 (actual)	3.12%
78	254,319,945 (actual)	7,794,805 (actual)	3.06%
79	270,905,219 (approved)	8,187,636 (approved)	3.02%

The maintenance operating budget is divided into five major categories (the FY 79 percentage is in parenthesis): salaries and wages (79%), contractual services (4%), supplies and materials (11%), other--travel, fuel, motor maintenance--(3%) and furniture and equipment--vehicles, bleachers, mowing equipment--(3%).

7. Maintenance Procedures. An effective and efficient plant maintenance program requires more than the ability to repair or replace broken fixtures and equipment. In addition to performance, a total maintenance program requires planning, scheduling, control and administration. Although each of these are interrelated, they are discussed individually in subsequent paragraphs.

a) Maintenance Planning. Maintenance planning involves defining what maintenance work is to be performed. Within MCPS, formal maintenance planning is conducted for a variety of plant maintenance operations, most of which come under the broad heading of preventive maintenance and include: retubing boilers, grounds maintenance, painting, shade and blind repair, electronic equipment repair and maintenance inspections of plumbing, electrical, air conditioning and mechanical systems.

Planning involves specific attention to the scope of the maintenance operation to be performed, the specific craftsworkers required, the tools, equipment and materials to be used, and time and travel requirements. Except for minor routine jobs, all projects are costed-out for labor and materials. For some maintenance operations, planning requires scheduled equipment shut-downs, e.g. boiler retubing and repair of air conditioning cooling towers, for which coordination with the school principal, the Plant Equipment Operators (in secondary schools) and the Building Service Managers (in elementary schools) are necessary.

b) Maintenance Scheduling. Maintenance scheduling involves applying the maintenance plan to a timetable so as to maximize the efficient use of craftsworkers and equipment and to minimize the impact on normal school operations. As with maintenance planning, scheduling is performed at each of the repair shops at the central maintenance depot and in the five maintenance service areas.

Maintenance is scheduled by type maintenance--grounds, boilers, electrical, painting, etc., with first priority going to those projects which correct an unsafe condition or enable a school to remain open. Examples of such first priority "emergency" maintenance projects include correcting a clogged sewer or electrical short, or repairing an inoperable stove or a broken water line in the cafeteria, or returning heat to a school. As in the case of maintenance planning, the school principal is involved in maintenance scheduling so as to minimize interference with school activities. Long range scheduling is possible for such maintenance services as boiler retubing, roof repair, painting and air conditioning overhaul.

Prior to 1976, a formal master maintenance schedule for each school was prepared and published. In recent years this has been discontinued; however, the Maintenance Division is considering reinstituting a form of master maintenance scheduling.

As all maintenance projects are not able to be performed within present staffing capabilities and available time, some maintenance projects must be postponed, which is referred to as "backlogged," i.e. recognized as unfulfilled maintenance to be accomplished at some future period. As of the end of FY 78, the maintenance projects which were backlogged included painting (an approximate four year backlog); grounds maintenance (a two year backlog); and a number of preventive maintenance projects--roofing, locker repair and concrete work (a two-three year backlog). Several preventive maintenance projects which had been backlogged in the past are now on schedule. These include preventive maintenance on shades and blinds and electronic teaching equipment. Currently only backlogged painting is kept to a scheduled timetable, with the other backlogged maintenance projects accomplished when labor is available.

c) Maintenance Performance. As discussed previously in this report, maintenance is performed by craftsworkers in a variety of repair shops located at the central maintenance depot in the County Service Park and at the individual MCPS facilities by craftsworkers assigned to the five maintenance service areas. A little less than one half of the work force is located at the central maintenance facility with the remainder divided between the five maintenance service areas. The craftsworkers assigned to the maintenance service areas are completely mobile in trucks and vans carrying tools, equipment, supplies and materials to perform the most often needed repairs.

The Maintenance Division had written maintenance procedures to cover a centralized maintenance operation. Since decentralization, the outdated written procedures have been in the process of revision. In the interim until an overall written maintenance procedure is completed, the maintenance effort operates under standard operating procedures (SOPs). These SOPs include a formal, pre-printed work order system for requesting maintenance and several individual work procedures for specific maintenance functions, such as boiler retubing, equipment servicing and preventive maintenance operations.

d) Maintenance Control. Maintenance control relates to the monitoring of maintenance activities to determine whether the maintenance was completed as planned and scheduled and to the desired performance standards. Maintenance control is performed primarily by the maintenance director and assistant director, the five maintenance service area supervisors and the several "working foremen." Also involved in evaluating maintenance performance are the area associate superintendents and, more directly, the individual school principals. Although maintenance control procedures include a variety of records, check lists and reports, the school principal is the ultimate judge as to whether the maintenance service performed in the school was timely and effective.

Two common maintenance control procedures do not appear to be part of MCPS maintenance procedures. One is the formal supervisor's subjective inspection report which is used by a supervisor to evaluate individual job performance. The other involves the use of work measurement standards as a criteria in evaluating performance. More will be said on work measurement standards in the next section of this report.

e) Maintenance Administration. The maintenance division operates with a minimal administrative staff which represents only 2% of the authorized positions. Assisting the Director are two clerical and two accounting personnel. Four of the five area maintenance service supervisors have an assigned clerk-typist. The limited administrative staff, however, results in supervisors and craftsworkers performing routine administrative and clerical tasks, which detract from their primary job.

Administrative support such as procurement, contracting, warehousing and personnel services are provided the maintenance division by other departments within MCPS. These services, although necessary, do not constitute a significant expenditure of resources by the other departments.

Evaluation of the MCPS Plant Maintenance Program

1. General. Evaluating a plant maintenance program is difficult, especially to evaluate objectively along the lines of any of the classical program evaluation models: before-after comparison, similar group comparison or planned vs actual performance comparison. Adding to the difficulty of evaluating a plant maintenance program is the generally accepted belief that probably half the factors which influence the maintenance condition of a plant are outside the control of the maintenance manager. Examples of factors beyond the control of maintenance personnel, but impacting on the plant maintenance program, are: the age of the plant; plant design; original construction decisions (award to lowest bidder, installing a roof in the rain); the care and manner in which the plant is operated; the annual maintenance budget; maintenance personnel staffing levels; various policies relating to personnel and employee work conditions (leave, union agreements, training); and periodic changes in the fire and safety codes.

However, an evaluation of the MCPS plant maintenance program is possible if one recognizes the above limitations and accepts subjective impressions and opinions. In subsequent paragraphs, I will outline some comparative data with other school districts, present evaluations by others, and present my subjective evaluation of selected aspects of the MCPS plant maintenance program.

2. Comparison with other school systems. Because of the many variables, comparing the MCPS plant maintenance program with the programs of other school systems is only of marginal value. After examining several jurisdictions, I found that the characteristics of the Baltimore County Public School System was the one most similar to MCPS.

Outlined below are some selective comparative data of the two school systems for FY 79.

	Baltimore County	Montgomery County
Enrollment	106,629	107,430
No. of Facilities	212 (196 schools)	196 (186 schools)
Sq. Footage of Facilities	14.5 mil.	15.6 mil.
BOE Operating Budget	$223,784,541	$270,905,219
Plant Maintenance Operating Budget	$ 8,155,586[a]	$ 8,187,636[b]
Plant Maintenance Operating Budget as a % of BOE Operating Budget	3.64%	3.02%
Number of Craftsworkers	330 (approx.)[a]	388[b]
Contract Services	$ 3,440,000	$ 347,500
Percent of Maintenance Budget dedicated to contract service	42%	4%
Number of Maintenance Depots	1	4
Average Age of Facilities	10-15 yrs (est.)	19.2 yrs.

Notes a) Does not include all grounds maintenance. In the Division of Plant Operations, there are an additional 155 personnel and $1,655,000 budgeted for grounds maintenance, snow removal, lawn care, etc.

b) Includes all grounds maintenance

From the above statistics it is obvious that Baltimore County (BCPS) relies heavily on contract maintenance; however, their workforce is not smaller than MCPS. In addition to the grounds maintenance workforce in Plant Maintenance, there is an even larger grounds workforce in Plant Operations. An additional item is that all BCPS secondary schools maintain an employee in the facility 24 hours a day, 7 days a week. The employees on the evening and weekend shifts perform preventive maintenance tasks such as replace belts and filters, oil machinery, clean equipment, etc.

The significant comparison is in the percentage of the overall operating budget devoted to plant maintenance. In FY 79, MCPS was 3.02% while in BCPS it was 3.64% of the maintenance budget (more if all grounds maintenance is included). A check with three metropolitan area school systems revealed that, for the recent past fiscal years, their maintenance operating budgets have averaged 4% of their total school operating budgets.

3. Evaluation by Others.

a) IAC Evaluation. In the summer of 1973, the Maryland Interagency Committee (IAC) for State Public School Construction conducted a comprehensive building maintenance survey of every operating public school buildings in the State of Maryland. The purpose of the survey, as stated in the IAC report, was "to assess the quantity and quality of building maintenance that was being conducted by the local boards of education...." In all, 1259 Maryland schools were inspected between May and September 1973. The total schools inspected in Montgomery County was 196, with ratings as follows:

Condition	# Schools	(%)	Remarks
Poor	2	(1%)	At the time of the inspection both schools were funded in the CIP for major renovation.
Fair	19	(10%)	At the time of the inspection fourteen of the 19 schools were programmed in the CIP for renovation or remodeling
Good	120	(61%)	
Superior	55	(28%)	
	196	(100%)	

The IAC has not conducted a maintenance survey since 1973. Instead, each BOE submits an annual report on the appropriated funds, expenditures, and activities associated with the current plant maintenance plan. (For Montgomery County, a copy of the BOE operating budget with some narrative is submitted). The IAC staff reviews the submission and evaluates what resources are being committed to plant maintenance. Some oral discussions concerning the plant maintenance plan are conducted, but IAC does not make site visits to evaluate plant maintenance.

b) User Evaluation. A more current examination of MCPS maintenance was revealed in a review of correspondence concerning maintenance performance from principals and area associate superintendents and through interviews with principals and other school officials. Overall, those who use the schools and facilities appear very satisfied with the timeliness and quality of maintenance services, especially with emergency maintenance services which allow a school to remain open. Like any maintenance program, budget and time constraints require that priorities be set, which in turn generate differing opinions concerning those priorities. Nonetheless, it is readily apparent to this evaluator that principals and faculty give very high marks to the MCPS plant maintenance program.

c) Commercial Auditor. Finally, a review of management reports from the Board of Education's outside auditor, Touche Ross and Company for fiscal years 1976 thru 1978 reveals no adverse reference to the MCPS plant maintenance program management.

4. Office of Legislative Evaluation.

a) Overall. The Montgomery County Public Schools plant maintenance program is an effective and efficient operation accomplishing its primary objective of maintaining MCPS facilities and grounds in a safe, operating condition. In subsequent paragraphs, this evaluator will comment on specific aspects of the plant maintenance program and suggest areas where additional effectiveness and efficiencies may be realized; however, this report will not detail all of the many positive, effective and efficient activities which are being performed by the MCPS Maintenance Division.

b) Organization. The recent decentralization which moved approximately half of the maintenance division workforce from a single maintenance location to four dispersed maintenance depots has improved maintenance operations in two important ways. First, travel distance has been significantly reduced, thus permitting more time to be devoted to performing maintenance in the school or other facility; and second, a closer feeling of cooperation and "belonging" has been developed between the maintenance service area craftsworkers and the school personnel. In conversations with principals, staff and craftsworkers this evaluator was impressed that there was no "us-and-them" attitude; rather, a feeling that these were "our schools."

There appear to be at least two drawbacks to the current maintenance organization. The first concerns the span of control of the area maintenance service supervisors and the approximately 40 craftsworkers under each supervisor. This is not a critical problem now, primarily because of the years of experience of the supervisors and craftsworkers; however, the potential for a problem exists as the experienced supervisors and craftsworkers retire and are replaced by lesser experienced supervisors and especially a lesser trained workforce. The second drawback is that decentralization has left five highly skilled former crafts foremen (electronics, carpentry, electrical, plumbing and refrigeration and air conditioning--in grades 16 to 19) with no employees to supervise, as the employees were transferred to the five maintenance service areas. Although the Director of Maintenance is currently using these employees as inspectors, it appears that their highly specialized talents, both as craftsmen and supervisors, could be more fully utilized. Later in this report are some suggestions how they may be further utilized.

c) Personnel and Training. The MCPS maintenance program is currently staffed with skilled craftsworkers. The average age of the craftsworkers is just over 40 years with an average service to the school system of just over 11 years. The benefits from having a mature and experienced workforce are reflected in the high quality of the maintenance work, the minimal supervision required to motivate and control the workforce, and the obvious satisfaction of the principals and staff with the maintenance performed. Nonetheless, there is one area of concern to this evaluator. There does not appear to be a vigorous recruitment or a deliberate and preplanned training program to develop a corps of younger craftsworkers moving into the maintenance division workforce. Training opportunities are currently available for

craftsworkers to improve their individual skills, but there is no formal program. Neither is there a discernible program to recruit inexperienced and semi-skilled workers with technical and vocational appitude and, with a combination of on-the-job training (OJT) under skilled craftsworkers, correspondence courses and formal inhouse or contract training programs, develop these apprentices into the skilled maintenance personnel who could eventually replace the current work-force as they retire.

It must be noted that a training program requires dedication of resources: personnel, funds and, probably most critical, time not being spent performing maintenance. In the opinion of this evaluator, the expenditure of some resources to ensure the continued availability of skilled craftsworkers would be cost effective. As for experienced craftsmen to conduct the inhouse and on-the-job training, the five former "working foremen" who were reassigned when the maintenance program was decentralized would appear to be highly qualified and available. Currently, some planning is underway by a joint committee from employee recruitment and training and plant maintenance to set up a recruitment and training program. Undoubtedly, the highly skilled foremen will be included in any OJT aspects of the program. It must be noted that any training program will have to consider current labor contractual agreements, equal employee training opportunities and employee morale.

d) Maintenance Budget. The plant maintenance operating budget has remained consistent over the past several years at approximately 3% of the BOE operating budget, as reflected in the following table:

	FY 65	FY 70	FY 75	FY 79
MCPS Operating Budget	$59,533,115	$125,578,623	$212,243,808	$270,905,219
Maint. Oper. Budget	$ 1,800,000	$ 3,757,251	$ 6,520,362	$ 8,187,636
Maint. Oper. Budget as a % of MCPS Oper. Budget	3.02%	2.99%	3.07%	3.02%
Student Enrollment	106,197	125,344	121,439	107,430

e) Contract Maintenance. For several years, approximately 4% of the maintenance division operating budget has been dedicated to contract maintenance. The major contract expenditures include asphalt resurfacing of parking lots and playareas, resealing running tracks, graffiti removal, and for service contracts relating to the repair of elevators, computers, data processing equipment, duplicating and reproduction machines, mechanical equipment and controls beyond the maintenance capability of the staff. The relatively small percentage of maintenance funds allotted to contract maintenance in MCPS indicates a strong dependence on an inhouse maintenance capability. (Note, in the County government, contract services account for approximately 22% of the maintenance budget; in the Fairfax County Public Schools, 7%-8%; and in Baltimore County Public Schools, 42% of the maintenance budget.)

f) Maintenance Procedures. The MCPS Maintenance Division currently plans and schedules maintenance activities, primarily preventive maintenance (grounds care, servicing air conditioning equipment, etc.) programmed maintenance (boiler retubing, painting, etc.) and large maintenance projects (roof repair, replacing water and sewer pipes, etc.). Considering the amount of maintenance to be performed and the available maintenance personnel, the degree of planning and scheduling appears to be sufficient to ensure effective utilization of personnel, time and equipment. There also appears to be a sufficient degree of maintenance control to ensure that maintenance objectives are being met. Nonetheless, this evaluator has two observations concerning maintenance procedures.

The first concerns the general absence of any documented work measurement standards. By work measurement standards, I do not mean "eight hours work for eight hours pay." Rather, work measurement standards are written performance procedures for the myriad of maintenance tasks, with a standard time required to perform each task (and can also include written instructions for materials to be used). Work-time standards exist for a few recurring maintenance projects such as interior and exterior painting, boiler retubing and grass mowing. There appears to be two reasons why formal work measurement standards are not a part of the MCPS maintenance program. The first is that the long experience and job stability of maintenance personnel have enabled the MCPS maintenance program to function efficiently with a minimum number of supervisors and with a high percentage of the workforce actually performing maintenance. Stated another way, MCPS supervisors know their men and the craftsworkers know their trade. The second reason concerns priorities. Developing work measurement standards requires a commitment of time on the part of supervisors and craftsworkers--time which is now spent performing maintenance.

The second observation concerns the role of data processing in the MCPS maintenance program. Although the computer is now used in some industrial plant maintenance operations (planning, scheduling, control, cost analysis, reports, etc.) it is only recently being considered for school plant maintenance operations. No school system in the Washington Metropolitan Area has a computerized maintenance operation; however, some have particular data processing applications to maintenance related operations. These include energy management in MCPS (which is discussed later in this report); maintenance supplies and materials inventory and control; and maintenance personnel management. The potential for integrating data processing applications into school system plant maintenance operations appears to be high with corresponding cost savings. As examples, the computer can be used to produce workorders, records and histories; make manpower assignments; for inventory control of parts and materials; to schedule preventive maintenance; and to develop data with which to perform evaluations and analyses.

It is my understanding that the MCPS has a long range program to study the use of computers in maintenance operations and determine the requirements for a maintenance subsystem. The program should be continued as the benefits in efficiency and economy appear to be favorable. However, it should be noted that the development of work measurement standards, discussed above, is a necessary prerequisite to automating any maintenance program.

Other Matters

1. In the course of this evaluation, other matters relating to the MCPS maintenance program were reviewed. These other matters are presented in subsequent paragraphs to give the reader a complete evaluation of the subject. In some instances, this evaluator will make recommendations concerning the subject matter.

2. School Plant Operations. Equal in importance to an efficient plant maintenance program is a program for the efficient operation of the plant. While responsibility for maintenance is in the Department of Facilities, responsibility for plant operations is in the Department of School Services, specifically in School Plant Operations. Both of these departments are subordinate elements in the Office of Supportive Services.

School Plant Operations has a direct impact on the MCPS maintenance program. Obviously, facilities and equipment which are improperly operated will require more maintenance than properly operated and serviced equipment. The approximate 1,000 building service managers and workers and plant equipment operators perform many operational duties which can be classified as preventive maintenance or maintenance related. Examples include: changing filters, oiling motors, spot painting, grounds care, cleaning boilers (secondary schools only) shampooing rugs, monitoring and recording operational characteristics of HVAC equipment and general custodial services.

Building service and plant equipment operating personnel work under the direct supervision of the school principal. Supervision by the Department of School Services is exercised through five Area Building Service Supervisors, colocated with the five area associate superintendents.

Although this project did not call for an evaluation of plant operations, it was obvious from visiting schools and talking to plant maintenance and operating personnel that the two activities have many common and even overlapping functions. For example, where the two functions--plant operations and plant maintenance--placed into one organizational framework there could be an immediate consolidation of supervisory and administrative overhead, with a potential reduction of some positions. It would appear that MCPS should look into the feasibility and cost benefits of combining plant operations and maintenance.

3. Energy Management. The recently installed energy management system within MCPS has impacted on the maintenance program. The system uses a computer to control the operation of equipment used to heat, cool and light the schools. The computer system uses four control philosophies to reduce energy usage:

a) Shedding: Prevents the energy demand from exceeding preselected limits by turning off devices in prearranged user-selected sequence.

b) Cycling: Enables devices which consume large amounts of power to be cut-off for specific periods, thereby reducing power consumption.

c) Scheduling: Insures that equipment will not be operated unless needed. Equipment is turned on at the start of the day and turned off when the facility is no longer occupied--adjusting also to lunch periods, breaks and other times the facility has reduced occupancy.

d) Monitoring: Monitors the on-off status of specific functions and prints out the status of these functions.

As of early FY 79, the system was operational in seven schools, with funds available to connect five additional schools for a total operational level of 12 schools by the end of FY 79. The proposed FY 80 budget is requesting funds to install the system in 10 additional schools.

The impact of this system on the maintenance program is that the total operating time of the heating, ventilating and air conditioning equipment in those schools where the system is installed is reduced. Also, the computer is able to monitor and record the instant a piece of equipment malfunctions. The malfunction can then be relayed to the maintenance division for prompt corrective action.

4. Capital Improvements. Capital improvements are a combination of State and local funding. Since 1971, the State has assumed responsibility for public school construction and major renovations. State capital projects are listed in the annual Capital Improvements Program (CIP) and include those major modernization and construction projects which are funded by the capital budget. No maintenance projects are funded by the State. The capital budget and CIP are submitted to the State IAC and approved by the State Board of Public Works.

Minor modernization (renovation/alteration) projects are funded under local capital improvements. In FY 74 the County Council approved changing the funding for local capital improvements from the operating budget to a specific project (PDF) in the capital improvements budget. The craftsworkers who perform the local capital improvements have since FY 76 remained constant at 26 and are located in the Maintenance Division under the supervision of the director.

Local capital improvement projects are not maintenance projects. They include modifications, renovations, alterations and minor new construction which require a lesser degree of major mechanical improvements than CIP projects. Examples of local capital improvements would be installing new ceilings and lights, renovating classrooms, making alterations to cafeterias by relocating vending machine outlets and serving lines and converting a custodial storeroom to a faculty bathroom.

5. State Impact on Maintenance. Although the State does not fund any maintenance projects, there is continuing State interest in the maintenance programs of the many public school systems. The statewide survey of school facilities conducted in 1973 by the Interagency Committee for Public School Construction (IAC) was discussed earlier. Also discussed in this report was the IAC annual review of all school systems' maintenance programs.

In addition, the IAC periodically publishes maintenance procedures guidelines. Currently, these guidelines specify the goal of local maintenance programs as "keeping grounds, fixed equipment and buildings at their original condition of completeness or efficiency...during the 40 year life expectancy of the building." Recently, IAC has distributed a revised Interim Maintenance Guidelines which defines the various categories of maintenance--repair, scheduled, preventive, etc. The MCPS will be submitting comments on these revised guidelines to IAC sometime this fiscal year.

6. Community Use of Schools. Montgomery County has an active program of community use of school facilities and is preparing to expand that program with the recent enactment of the School Facilities Utilization Act which established an Interagency Coordinating Board for Community Education Services and a Director of Community Use of Educational Facilities and Services.

The current program recognizes the requirement for the MCPS staff to operate and secure the facilities when community groups are using them. Current fee schedules include personnel and utility costs.

However, the fee schedules do not reflect maintenance costs resulting from the community use of the facility and equipment. It is the consensus of the MCPS maintenance staff that additional use of facilities will result in additional maintenance requirements.

The recent Report of the Community Education and Services Task Force on Community Use of Public Schools and School Facilities recognizes that maintenance and repair costs of equipment and grounds must be accounted for in contractual arrangements (Recommendation 26); and recommends fee schedules for the use of vocational training equipment include maintenance costs (Recommendation 34). It is this evaluator's understanding that the Interagency Coordinating Board will be developing a fee structure to cover additional maintenance costs resulting from the community use of schools. The current Joint Occupancy fee structure includes maintenance costs and will be used in developing a maintenance fee structure for community use.

7. Cooperative Education Programs. The Montgomery County Public Schools sponsor several cooperative education programs where students can participate in one of several work-study programs. In the 1977-78 school year over 2,200 students worked and received pay for almost 1-1/2 million hours in one of five programs: Hotel-Motel, Cooperative Work Experience, Distributed Education (DA), Work Oriented Curriculum (WOC), and Cooperative Office Education.

In the past, students have worked in the maintenance division under the cooperative education program. Students worked part-time in the heating, carpentry, plumbing and general maintenance shops, in horticulture activities and in a vocational program of bricklaying. Some students remained on to work full-time during the vacation months. Besides giving the student an opportunity to learn a trade, the program benefited the maintenance program in two ways: providing additional maintenance manpower at a low cost (usually the minimum wage) and providing a source of potential employees trained and familiar with equipment in the school system.

The maintenance division has set aside funds to employ students under the cooperative education program. In the opinion of this evaluator, maintenance funds should continue to be dedicated to the support of this program as it benefits both the student and the maintenance program.

8. Surplus Schools. The closing of surplus schools impacts on the MCPS maintenance program. Since 1975, a total of 24 closed schools have been either deeded (6) or leased (12) to the County government or retained by the school system (6). (Note: the first schools closed were deeded to the County; however, a ruling was made that any school with an outstanding debt must be transferred to the County government on long term lease.)

In the process of transferring the 18 schools to the County, the staffs of MCPS and County government have developed a mutually agreed upon process for the terms and conditions under which the property is transferred. The latest Memorandum of Agreement between the Director of School Facilities and County Director of Facilities and Services addresses: fixed and moveable property, furniture and equipment, security services, inventories and maintenance. Under maintenance, the agreement states that any maintenance services which are supplied in the interim between MCPS transfer of the school to the County and the County's establishing a staff to maintain the school will be performed by MCPS maintenance personnel with the County reimbursing MCPS for actual material and labor costs.

However, nowhere in the Memorandum of Agreement does it mention what will be the condition of the school when it is transfereed, i.e., "as is," "fully operational," or some other status. In the past, there was concern on the part of the County government staff that MCPS had reduced the level of maintenance to some extent in schools scheduled to be closed and devoted maintenance resources to those schools which would continue in operation. A series of meetings between the two agencies in which the Superintendent and County Chief Administrative Officer participated, resulted in an agreement that MCPS maintenance personnel would perform all maintenance affecting the structure,

safety and security of a school right up to the time of transfer.

It should be obvious that the age and plant condition of a school are among the primary considerations when considering which school to close. Likewise, the maintenance condition of a transferred school is a major factor when the County government is considering whether to retain a particular school for its own use, to attempt to lease it or to raze the facility.

It is understandable that MCPS would be hesitant to expend maintenance funds for many categories of maintenance in schools scheduled to be closed, such as painting, seeding and fertilizing, tile replacement, and similar repairs or replacements which do no actually affect the operation and safety of the building. Nonetheless, MCPS should not defer maintenance which contributes to the deterioration of the facility and, in turn, either prevents the economical re-use of the school or requires the expenditure of County government funds to return the facility to a useable condition. It appears that the present transferring agreement between the MCPS and County government staffs is working satisfactorily in that MCPS is keeping up the maintenance of the critical areas affecting the structure, security and safety of schools scheduled to be transferred.

In the case of the six closed schools retained by the MCPS, four of the former schools are used exclusively by MCPS and continue to receive the same level maintenance services as when they were active schools. The remaining two, Tuckerman and Sandburg, are jointly occupied by MCPS activities (area office and supplemental education center) and private enterprises (a school and day care center). All services provided by MCPS--utilities, custodial, security, and maintenance--are included in the joint occupancy lease agreements with charges levied on a cost per square foot basis.

9. Authorized Leave for Maintenance Personnel. In the course of reviewing maintenance personnel matters it became apparent that a significant number of working hours are lost as a result of authorized, paid absences.

At Exhibit D is a breakdown of leave for MCPS Maintenance Division personnel for FY 76 and FY 77.

A review of this Exhibit reveals that there are many authorized categories of paid leave--more than the three most common categories: annual leave, sick leave and holidays. For FY 77, there was a total of 164,996 paid hours of authorized leave or 19% of the available working hours (based on 40 hours per week) in the Maintenance Division. At the FY 77 average salary-per-hour of $6.61, this amounted to over $1 million or 15% of the total FY 77 maintenance operating budget.

costs are: salaries and fringe for nine positions-$149,326; commercial maintenance on the compactors-$7,500; and operating expenses for the compactors (gas, oil, parts, insurance)-$20,000 (estimate). Thus, over $275,000 is programmed in FY 80 to haul an estimated 8500 tons of refuse, for an average cost of over $30 per ton.

It appears that MCPS should examine the cost benefits of returning to contract refuse collection. It is my understanding that the poor quality of prior contract service was a major reason why MCPS changed to inhouse refuse collection. In the years since MCPS cancelled its refuse collection contract, new legislation has made commercial refuse collection more competitive and has put more teeth into the Department of Environmental Protection's regulatory, licensing and enforcement procedures concerning commercial refuse collectors.

12. Vandalism and Theft. In FY 78, vandalism and theft cost the Board of Education over $400,000. For the same fiscal year, only $10,174 was collected in restitution proceedings. At Exhibit E is a detailed summary report on property destruction for FY 77 and FY 78. An examination of that report reveals the following:

a) Loss from property damage, glass breakage and theft has increased 17% from FY 77 to FY 78.

b) In FY 78, loss in all categories increased, with the greatest increase in glass breakage--33%.

Not only is the incidence of vandalism and theft increasing, but the types are increasing. In addition to graffiti on walls and stealing tools from shops, examples of property destruction and theft include: breaking toilets, door panic bars, and smoke detectors; damaging lawns by driving on them; bending flag poles; and stealing driver education cars, electronic equipment, laboratory equipment, pictures off the walls and furniture.

Recently the media have run several articles on this growing waste--the National Association of Realtors sets the annual national cost of vandalism at over $800 million. Within Montgomery County, the Montgomery County Board of Realtors and the Montgomery County Police Department joined in October 1977 to initiate a community project to draw attention to the rising cost of vandalism in County schools. In a selected group of Area 3 elementary and intermediate schools where the program was tested, positive improvements in reducing vandalism were realized.

While commending the above program, it is obvious that it is simply not enough to even reduce the rising waste associated with vandalism and theft, let alone begin to stop it. What is needed is a total community effort which brings to bear all segments of the community--parents, teachers, students, civic groups, governmental organizations, etc.--in a planned and coordinated effort. One can only imagine the success such an all out effort to stop vandalism would have if parents, students, parent-teacher organizations and neighborhood civic and business groups organized and unified their considerable influence and energies as they have marshalled against programmed school closures.

The maintenance division has taken initiatives in an attempt to make theft and vandalism more difficult. These include replacing glass with a high impact resistent polycarbon plastic, Lexan (at over three times the price of glass); constructing "cages" around thermostates and other control instruments; and removing doors from restrooms so destructive activity can be heard by hall monitors. Unfortunately, many corrective measures also fall victim to the determined vandal. For example, Lexan is virtually unbreakable; however, vandals have learned that holes can be burned through it or permanently clouded with a cigarette lighter.

Of no small consequence is the demoralizing effect vandalism has on the maintenance force. This evaluator overheard two glaziers who were replacing several broken panes on the greenhouse at Montgomery Village Junior High comment that the broken panes had only recently been installed after an earlier attack of vandals; one glazier predicted that they were certain to have to return soon to replace these panes.

IV. CONCLUSIONS.

1. The plant maintenance program of the Montgomery County Public Schools is an effective and efficient operation, accomplishing its primary objective of maintaining MCPS facilities and grounds in a safe, operating condition.

2. The recently completed decentralization of maintenance operations from a single maintenance facility to five maintenance service areas located in four separate, dispersed depots has reduced travel time, increased the available time for performing maintenance and contributed to closer coordination and cooperation between maintenance service area craftsworkers and the school personnel whom they serve.

3. The existence of a mature and experienced maintenance workforce has resulted in minimal emphasis being placed within MCPS on a program to recruit and train inexperienced personnel with technical or vocational aptitude who through training could replace the plant maintenance workforce as they retire.

4. While recognizing that the development of work measurement standards and the integration of data processing into maintenance procedures require the expenditure of resources, both appear desireable and necessary for further improvements in the efficiency and economy of the MCPS plant maintenance program.

5. There appears to be sufficient similarity in plant maintenance and plant operation functions to warrant an examination of the feasibility and cost benefits of combining those two functions into a single organizational framework.

6. The several County agencies should establish a mechanism to examine and hopefully increase the exchange of plant maintenance technology, equipment, service and information.

7. Considering the high cost of maintaining an inhouse refuse collection capability and recent new legislation which improved commercial refuse collection standards, MCPS should seriously examine the cost benefits of returning to contract refuse collection.

8. The high cost in employee labor, materials and time which results from the current destructive level of vandalism and theft of MCPS facilities and equipment warrants a total effort by all segments of the community--parents, teachers, students, civic groups and governmental organizations--to reduce this waste.

V. RECOMMENDATIONS.

1. Resources should be dedicated to develop a program to recruit inexperienced personnel with technical or vocational aptitude who, through training, could replace the MCPS plant maintenance workforce as they retire.

2. Resources should be dedicated to develop work measurement standards which would facilitate the future integration of data processing applications to further improve the efficiency and economy of the MCPS plant maintenance program.

3. The feasibility and cost benefits of combining the two presently separated functions of plant maintenance and plant operations should be examined by the MCPS staff.

4. That the County Council designate a County agency to organize an interagency committee of plant maintenance representatives to explore the feasibility of increasing a cooperative exchange of plant maintenance technology, equipment, service and information.

5. The cost benefits of changing from inhouse refuse collection to commercial service should be examined by the MCPS staff.

6. The Board of Education, the Montgomery County Council of Parent Teachers Associations, business, civic and student organizations and governmental agencies should come together in a concerted effort to reduce, vandalism and theft of MCPS facilities and equipment.

7. Based upon lessons learned during this examination, the Office of Legislative Oversight should not conduct a similar evaluation of the plant maintenance programs in other County agencies. Further, copies of this report should be distributed to other County agencies.

VI. AGENCY/DEPARTMENT COMMENTS AND OLO RESPONSE.

The Superintendent, Montgomery County Public Schools and appropriate members of the MCPS staff were provided draft copies of this report for comments. The Office of Legislative Oversight was informed by a member of the MCPS staff that there would be no comments.

Montgomery County Public Schools Inventory

FY 1978 Data (as of June 30, 1978)

Buildings/Grounds	Total #	Gross Sq. Footage of Facilities	Size of Grounds	Est. $ Value of Bldg. and Site (b)	Est. $ Value of Equipment (c)	Avg. Age of Facilitie
Schools		Sq. Ft.	Acres			
Elementary	127	5,953,171	1,064.7	$111,225,088	$ 8,558,003	20.7
Secondary	52	8,748,049	1,217.8	167,874,838	16,187,076	17.2
Special	7	297,434	78.5	5,053,079	487,826	21.6
Other Facilities (a)	10	563,560	117.9	8,571,982	13,633,625	17.4
GRAND TOTAL	196	15,562,214	2,478.9	$292,724,987	$38,866,530	19.2

NOTES:

a) Offices, warehouses, closed schools used for MCPS facilities and/or leased to private organizations.
b) Original costs at time of construction plus original cost of any additions including installed equipment (heating and air conditioning, elevators, etc.)
c) Original cost of "moveable" equipment at time of purchase (not replacement cost). Includes chairs, desks, non-consumable instructional aides (typewriters, sewing machines) etc.

SOURCE: Department of School Facilities

EXHIBIT A

Shady Grove Central Maintenance Depot

(A) Carpenter Shop

# of Positions	Position Title
1	Supervising Carpenter II
1	Supervising Carpenter I
2	Carpenter II
4	Welder
4	Mason
7	Floor Covering Mechanic
3	Locksmith
1	Pest Control Worker II
2	Pest Control Worker I
4	General Maintenance Worker III
1	Glazier
(30)	

(B) Paint Shop

1	Supervising Maintenance Painter
8	Maintenance Painter II
1	Plasterer
34	Maintenance Painter I
(44)	

(C) Electric Shop

1	Supervising Maintenance Electrician
(1)	

(D) Shade Shop

1	Supervising Shade Mechanic
1	Shade Repair Mechanic II
1	Reupholsterer
2	Seamster
(5)	

(E) General Maintenance Shop

1	Supervising General Maintenance Worker II
2	Automotive Mechanic I
3	Lawn Mower Mechanic
1	Equipment Operator II
5	Equipment Operator I
1	Automotive Service Worker
1	Compactor Operator II
3	Compactor Operator I
5	Trash Service Worker
(22)	

(F) Oil Burner Shop

# of Positions	Position Title
1	Supervising Heating Mechanic
6	Heating Mechanic II
2	Firebrick and Refractory Repairer
7	Heating Mechanic I
6	Heating Service Worker
3	Maintenance Electrician I
1	Water Treater
(26)	

(G) Plumbing Shop

1	Supervising Maintenance Plumber
(1)	

(H) Industrial Equipment Repair Shop

1	Supervising Industrial Equipment Repair Mechanic
1	Printing Equipment Repairer
1	Electric Motor Repairer
1	Sewing Machine Repairer
1	Compactor Repairer
1	Electrical Appliance Repairer
(6)	

(I) Boiler Shop

1	Supervising Boiler Mechanic
8	Boiler Mechanic
3	Maintenance Plumber I
(12)	

(J) Air Conditioning/ Refrigeration Shop

1	Supervising Refrigeration and Air Conditioning Mechanic
(1)	

(K) Office Machines Repair Shop

1	Supervising Office Machines Technician
9	Office Machines Technician
(10)	

(L) Roofing/Sheet Metal Shop

# of Positions	Position Title
1	Supervising Roof and Sheet Metal Mechanic
2	Roof Mechanic
2	Sheet Metal Mechanic
4	Roof Maintenance Worker
(9)	

(M) Electronics Shop

1	Supervising Electronics Technician II
1	Supervising Electronics Technician I
2	Communication Equipment Technician II
3	Electronic Technician II
11	Electronic Technician I
(18)	

Total of 185 positions

As of August 1978

Area 5

Clarksburg Maintenance Center

# of Positions	Position Title
1	Maintenance Services Supervisor
1	Clerk Typist III
1	Maintenance Carpenter II
5	Maintenance Carpenter I
2	Glazier
1	Maintenance Electrician II
4	Maintenance Electrician I
1	Maintenance Plumber II
2	Maintenance Plumber I
1	Shade Repair Mechanic I
1	Supervising General Maintenance Worker I
1	General Maintenance Craftworker
5	General Maintenance Worker II
5	General Maintenance Worker I
3	Electronic Technician I
1	Roof Mechanic
1	Roof Maintenance Worker
2	Air Conditioning Mechanic
1	Refrigeration Equipment Mechanic
Total 39	Total Crafts - 10

As of August 1978

LEAVE USED
MONTGOMERY COUNTY PUBLIC SCHOOLS
MAINTENANCE DIVISION
(Shop Sections)

July 1, 1975 - June 30, 1976		July 1, 1976 - June 30, 1977	
424 employees (average over 1 yr.) 881,920 hrs. over 1 yr. (2080 hrs. per employee)		417 employees (average over 1 yr.) 867,360 hrs. over 1 yr. (2080 hrs. per employee)	
Total Sick Leave	40,314.5 hrs.	Total Sick Leave	33,876.1 hrs.
Total Family Illness Leave	6,737 hrs.	Total Family Illness Leave	6,577.8 hrs.
Total Annual Leave	63,874.5 hrs.	Total Annual Leave	62,618.6 hrs.
Total B/E Holiday	48,243 hrs.	Total B/E Holiday	40,122 hrs.
Total Bereavement Leave	1,400 hrs.	Total Bereavement Leave	1,412 hrs.
Total Disability Leave	13,412 hrs.	Total Disability Leave	10,583 hrs.
Total Military Leave	336 hrs.	Total Military Leave	728 hrs.
Total Civil Leave (Jury, Witness)	429 hrs.	Total Civil Leave (Jury, Witness)	184 hrs.
Total Personal Leave	8,922 hrs.	Total Personal Leave	8,484.4 hrs.
Total MCCSSE Negotiations	62 hrs.	Total MCCSSE Negotiations	149.5 hrs.
		Total Unusual and Imperative Leave w/pay	224 hrs.
Total Released Time (College Courses)	162.5 hrs.	Total Released Time (College Courses)	37 hrs.
Total Paid Hours	183,892.5 hrs.	Total paid hours	164,996.4 hrs.
Total Absence Without Pay	1,025 hrs.	Total Absence Without Pay	2,147 hrs.
Grand Total	184,917.5 hrs.	Grand Total	167,143.4 hrs.
At an average salary per hour of $6.34 for 183,892.5 hours =	$1,165,878.45	At an average salary per hour of $6.61 for 164,996.4 hours =	$1,090,626.20

EXHIBIT D

MONTGOMERY COUNTY PUBLIC SCHOOLS

PROPERTY DESTRUCTION REPORT-SUMMARY FY 77-FY 78[a]

AREAS	Property Destruction		Glass		Theft		Total Gross Loss		Restitution		Total Net Loss		Fire Cost		Unlawful Entry & Attempts Number[b]		Cost	
	FY 1977	FY 1978	FY 1977	FY 1978	FY 1977	FY 1978	FY 1977	FY 1978	FY 1977	FY 1978	FY 1977	FY 1978	FY 1977	FY 1978	FY 1977	FY 1978	FY 1977	FY 1978
Area I	$ 33,262	$ 30,856	$ 20,308	$ 38,824	$ 23,139	$ 27,217	$ 76,709	$ 96,897	$ 1,965	$ 2,271	$ 74,744	$ 94,626	$ 13,033	$ 2,843	139	224	$ 6,065	$ 6,597
Area II	33,964	37,488	20,316	18,829	17,337	22,432	71,617	78,749	1,946	2,316	69,671	76,433	9,579	8,653	92	109	5,907	5,209
Area III	29,812	34,277	20,078	22,606	18,473	24,343	68,363	81,226	1,747	1,032	66,616	80,194	8,126	1,320	129	121	5,135	10,715
Area IV	47,150	47,908	20,861	28,692	25,698	19,209	93,709	95,809	2,668	2,192	91,041	93,617	2,511	4,926	140	162	5,868	10,068
Area V	13,940	15,950	9,566	12,403	15,288	25,276	38,794	53,629	1,175	1,578	37,619	52,051	862	-0-	70	66	1,741	10,581
Special Education	2,208	1,179	1,390	2,111	1,366	1,993	4,964	5,283	227	107	4,737	5,176	-0-	-0-	11	15	457	75
Administrative Areas	607	1,260	196	166	301	1,335	1,104	2,761	34	678	1,070	2,083	-0-	675	4	7	-0-	-0-
TOTAL	$160,943	$168,918	$ 92,715	$123,631	$101,602	$121,805	$355,260	$414,354	$ 9,762	$ 10,174	$345,498	$404,180	$ 34,111	$ 18,417	585	704	$25,173	$43,245
											Insurance Coverage		$ 33,927	18,125				
											Net Fire Loss		$ 184	292				

Notes a) All costs include labor and materials.
b) Unlawful entries and attempts detected by alarm system during periods buildings are unoccupied.

EXHIBIT E