OFFICE OF INSPECTOR GENERAL

MONTGOMERY COUNTY PUBLIC SCHOOLS
BUS TRANSPORTATION PROGRAM

PERFORMANCE AUDIT REPORT

JUNE 2000

OFFICE OF INSPECTOR GENERAL

Norman D. Butts
Inspector General

TO THE HONORABLE COUNTY COUNCIL AND COUNTY EXECUTIVE FOR MONTGOMERY COUNTY, MARYLAND, AND BOARD OF EDUCATION AND SUPERINTENDENT OF MONTGOMERY COUNTY PUBLIC SCHOOLS:

We have conducted a performance audit of the school bus transportation program and its management by the Department of Transportation of the Montgomery County Public Schools to address an item in our four-year work plan. Our audit was conducted in accordance with Government Auditing Standards issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to provide a reasonable basis for our findings and conclusions. Accordingly, we performed such procedures as we considered necessary in the circumstances.

The objectives of our audit were to determine whether MCPS transportation management has provided cost-efficient transportation for its students; whether MCPS transportation management has maintained an adequate transportation fleet to meet its current and future needs; and whether MCPS transportation management has provided a safe transportation system that complements educational needs.

This report is the result of our audit of the issues noted above and is intended for the information of the County Council, the County Executive, the Board of Education, the Superintendent of Schools, and management of the Department of Transportation of the Montgomery County Public Schools. This restriction is not intended to limit distribution of this report, which upon delivery to the County Council and County Executive is a matter of public record.

Office of Inspector General

November 30, 2000

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LIST OF ABBREVIATIONS

ASE	Automotive Service Excellence
BOCA	Building Officials and Code Administrators
BRS	Bus Route Supervisor
CARTS	Computer-Assisted Routing Transportation System
C.I.P.	Capital Improvement Program
COMAR	Code of Maryland Administrative Regulations
DMM	Department of Materials Management (MCPS)
DOT	Department of Transportation
ESC	Employee Services Coordinator
FASTER	Fleet Administrative Solutions and Transportation Equipment Reporting System
FY	Fiscal Year
GAAP	Generally Accepted Accounting Principles
GAAS	Generally Accepted Auditing Standards
MCPS	Montgomery County Public Schools
MSDE	Maryland State Department of Education
NAPT	National Association for Pupil Transportation
NHTSA	National Highway Transportation Safety Administration
NTSB	National Transportation Safety Board
OFM	Office of Financial Management (MCPS)
OIG	Office of Inspector General
PSSAM	Public Schools Superintendent's Association of Maryland
RO	Repair Order
TIMS	Transportation Information Management System
VIN	Vehicle Identification Number

MONTGOMERY COUNTY, MARYLAND
OFFICE OF INSPECTOR GENERAL

MONTGOMERY COUNTY PUBLIC SCHOOLS BUS TRANSPORTATION PROGRAM

PERFORMANCE AUDIT REPORT

JUNE 2000

SUMMARY

Purpose and Scope of Audit

This audit was performed as a part of our four-year work plan and was conducted in accordance with generally accepted governmental auditing standards. It describes and analyzes Montgomery County Public Schools (MCPS) transportation management practices with regard to efficiency and effectiveness; adequacy; and safety. The audit period includes MCPS fiscal years July 1, 1994 through June 30, 1999 unless otherwise noted.

Background

The school bus transportation program is managed by the MCPS Department of Transportation (formerly the Division of Transportation, Department of School Support Operations). The department provides daily transportation to and from school for more than 90,000 students. During fiscal year 1999 the department operated a fleet of approximately 1,000 school buses from five locations employing 1,427 full-time equivalent employees, logging more than 17.0 million miles, and expending $54.6 million.

Results in Brief

Our audit contains a total of 22 findings and recommendations. The MCPS Department of Transportation (Transportation) concurred with 10 of our findings, concurred in part with nine findings, and did not concur with three. Major findings included the following:

- identification of $376,134 in potential cost savings by fully implementing MapNet, a computerized bus route scheduling program (**Finding No. 1, p. 13**);

- identification of $475,524 in potential cost savings by outsourcing maintenance of 629 non-bus vehicles (**Finding No. 2, p. 15**);

- need for more reliable data and timely, clear, and concise management reporting to support operational decisions (**Finding No. 3, p. 18**);

SUMMARY (Continued)

- Need to improve monitoring and documentation of on-time performance (**Finding No. 5, p. 22).**

Other findings documented the need for Transportation management to improve analysis of maintenance costs on a depot-by-depot basis, to establish "repair versus replace" standards, and to reduce the number of "take-home" vehicles assigned to management employees and to collect full reimbursement for commuting mileage. Findings also documented the need for management to strengthen procedures relating to personal use of telephones and handling of employee timesheets. Additionally, management needs to seek improvements in the areas of mechanic training, benchmarking with other jurisdictions, confirming fixed assets, supervising and documenting bus repairs, resolving state inspection issues, supervising bus routes, establishing student walking distances, evaluating employee facilities, and effectively handling customer complaints. Finally, in the area of safety concerns, Transportation management needs to consider enhancements in bus depot security, drug and alcohol testing of drivers, the installation of child safety seats, and discontinue the use of non-conforming vehicles.

Findings Summary

No.	Finding	Page	Council/Board Action Required	Agency Response
	EFFICIENCY AND EFFECTIVENESS			
1.	Transportation Should Fully Implement Mapnet As A Basis To Schedule And Pay Drivers (Potential Savings -$376,134)	13	No	Concur In Part
2.	Transportation Should Outsource Repair And Maintenance Of Non-School Bus Vehicles (Potential Savings - $475,524)	15	No	Do Not Concur
3.	Transportation Should Evaluate Data Requirements To Support Operational Decisions	18	No	Concur In Part
4.	Transportation Should Expand Analysis Of Maintenance Costs By Vehicle And By Depot	20	No	Concur In Part
5.	Transportation Should Improve Monitoring And Documentation Of On-Time Performance	22	No	Concur
6.	Transportation Should Establish "Repair Versus Replace" Standards	23	No	Concur In Part
7.	Transportation Should Reduce The Number Of "Take-Home" Vehicles	24	No	Concur In Part

SUMMARY (Continued)

No.	Finding	Page	Council/Board Action Required	Agency Response
8.	Transportation Should Collect Full Reimbursement For Personal Commuting Mileage (Potential Savings - $26,745)	26	No	Concur In Part
9.	Transportation Should Properly Assign Duties For Processing Bus Operator And Attendant Timesheets	28	No	Concur
10.	Transportation Should Follow MCPS Policy Concerning Telephone Records Review And Retention	29	No	Concur
	ADEQUACY			
11.	Transportation Should Improve Its Customer Information And Complaints Handling Process	30	No	Concur
12.	Transportation Should Identify Appropriate Peer Jurisdictions And Establish Efficiency And Effectiveness Benchmarks	33	No	Concur
13.	Supervision Of Operators And Attendants By Bus Route Supervisors Should Be Improved	33	No	Concur In Part
14.	Transportation Should Promote Training And Certification Of Mechanics	35	No	Concur
15.	Transportation Should Improve Fixed Asset Accounting Procedures	37	No	Concur
16.	Transportation Should Review The Adequacy And Quality Of Its Office And Meeting/Training Space	38	No	Concur
17.	Transportation Should Review Measurement Points Used In Determining Walking Distances	39	Yes	Do Not Concur
	SAFETY			
18.	Transportation Should Ensure Adequate Training And Monitoring Of The Installation Of Child Restraint Systems	41	No	Concur In Part
19.	Transportation Should Discontinue Use Of Non-Conforming Vehicles For Student Transportation	42	Yes	Concur

SUMMARY (Continued)

No.	Finding	Page	Council/Board Action Required	Agency Response
20.	Transportation Should Revise Its Random Drug-Testing Notification Procedures	43	No	Concur In Part
21.	Transportation Should Adequately Secure Its Buses	45	No	Do Not Concur
22.	Transportation Should Improve Documentation And Supervisory Review Of Maintenance And Repair Actions	46	No	Concur

Report Outline

The following sections of this report present our analysis of MCPS transportation management practices with regard to efficiency and effectiveness; adequacy; and safety. **Chapter 1** contains background information, including information on organization and management, facilities and programs, and financial and operating results. This section also contains information about the audit's scope, objectives and methodology. The chapter concludes with a statement concerning Transportation's significant achievements. **Chapter 2** contains our findings and recommendations grouped into sub-chapters on efficiency and effectiveness, adequacy, and safety. A short conclusion is found in **Chapter 3.**

MONTGOMERY COUNTY, MARYLAND
OFFICE OF INSPECTOR GENERAL

MONTGOMERY COUNTY PUBLIC SCHOOLS BUS TRANSPORTATION PROGRAM

PERFORMANCE AUDIT REPORT

JUNE 2000

1. INTRODUCTION

1.1 Background

Student transportation is a critical service that is often under appreciated. The job of putting more than 90,000 students into more than 1,000 buses and getting them to school and back safely is a complex and difficult task subject to many variables including weather, traffic, time, and state mandates. Transportation challenges change daily, buses breakdown, drivers and attendants are always in short supply. There are service delivery complaints to contend with on a daily basis – the bus was late, the bus was early, the driver was rude. Day after day the job gets done. This section of the report briefly summarizes various aspects of school transportation services including organization and management, facilities and programs, and financial and operating results.

1.1.1 Organization and Management

Student transportation services are provided by the Montgomery County Public Schools Department of Transportation. During fiscal year 2000 Transportation was budgeted 1,427 full-time equivalent employees assigned to four units (bus operations, fleet maintenance, transportation support, and safety training) and the director's office (Appendix B). Transportation operates out of five locations. Each location has parking for buses, depot offices, and a maintenance facility. The largest of the five depot facilities is located at Shady Grove in the central portion of Montgomery County. Other depot locations include West Farm (the newest facility, opened in August 1997) serving the Route 29 corridor, Randolph in the eastern section of the County, Bethesda located just off I-270 near the Beltway and serving the down-county area, and Clarksburg serving the northern part of the County (Appendix C).

1.1.2 Facilities and Programs

The bus operations unit, headed by the bus operations manager, is the largest Transportation unit with 1,296 full-time equivalent employees including depot managers (5), bus route supervisors (18), drivers (975), attendants (280), dispatchers (5), timekeepers (5), and financial and clerical staff (7). Bus operations is responsible for assigning bus drivers

and attendants to each route and transporting approximately 93,000 students to and from school each day.

The fleet maintenance unit, headed by the auto repair specialist, has 101 full-time equivalent employees including mechanics (60), service workers (19), fueling assistants (5), parts staff (5), and supervisory and clerical staff (11). Fleet maintenance is responsible for the repair and maintenance of nearly 1,100 school buses and 629 other vehicles. Each depot maintenance facility operates two shifts five days a week. In addition, Shady Grove, West Farm, and Randolph operate a third shift each day.

The transportation support unit, headed by the transportation support manager, has 17 full-time employees including eight routers, a transportation specialist, a user support specialist, a data support specialist, an employee services coordinator, a transportation assistant supervisor, an account assistant, and two secretaries.

The safety training unit, headed by the training and safety supervisor, has seven full-time employees including four safety trainers, a personnel assistant, and an office assistant.

The director's office has six full-time employees including the director, an assistant director, a transportation information specialist, an accountant, an administrative secretary, and an office assistant.

As was mentioned above Transportation's job is to get students to school. Transportation does this by serving two different types of student transportation needs at the same time – regular and special education. With regard to regular transportation, buses deliver students to their neighborhood schools. For a bus driver making a full run this means delivering students to up to four schools. A full run includes delivering students to a high school by 7:25 AM, a middle school by 7:55 AM, and to two elementary schools at 8:50 AM and 9:15 AM. The whole process is repeated over a two-hour period in the afternoon. With regard to special transportation, buses deliver students requiring special education services to schools within and outside their neighborhood (and sometimes outside cluster boundaries) and magnet school students to their assigned schools. In addition to regular and special transportation services Transportation also provides services for Headstart students, midday service to kindergarten students, activity runs after school hours, field trips, and athletic teams.

1.1.3 Financial and Operating Summary

Using data reported to the Maryland State Department of Education (MSDE), we analyzed Transportation financial and operating results from two perspectives – over time and among peer jurisdictions. During fiscal year 1999 MCPS reported spending $54.6 million for transportation services. During the audit period, FY95 through FY99, transportation costs increased 13.8 percent from $48.0 million to $54.6 million. During that same period the total number of students eligible to be transported increased 5.5 percent from 85,725 to 90,427. Costs per rider increased from $560 in FY95 to $604 in

1. INTRODUCTION (Continued)

FY99, an increase of 7.9 percent over five years. The increases in costs are largely due to inflation and changes in enrollment. (Table 1).

Table 1 **Costs and Riders**
(Costs in Millions)

FY		Costs	Riders	$ Per Rider	
99	$	54.6	90,427	$	604
98	$	52.0	91,069	$	571
97	$	51.2	88,718	$	577
96	$	48.6	88,027	$	552
95	$	48.0	85,725	$	560

Source: OIG analysis of MSDE data.

A significant variable contributing to transportation costs is the number of miles driven for students with special transportation needs. This situation has not changed very much over the past five years. On average 92.5 percent of all students received regular transportation services between their homes and neighborhood schools. The other 7.5 percent were given more extensive services and were transported to schools or programs outside their neighborhood. In some cases special education students had an attendant assigned to accompany them on the bus. Special transportation services accounted for an average of 46.3 percent of all school transportation miles identified during the audit period, a disproportionate number of miles relative to the population. (Table 2).

Table 2 **Regular and Special Transportation**
(Miles in Millions)

	Regular Transportation		Special Transportation	
FY	Riders	Miles	Riders	Miles
99	83,781	9.2	6,646	7.8
98	84,978	8.6	6,091	7.8
97	82,030	8.6	6,688	7.4
96	81,881	8.1	6,146	7.1
95	79,616	8.6	6,109	7.3

Source: OIG analysis of MSDE data.

The number of school buses utilized on a daily basis by Transportation increased from 887 in FY95 to 999 in FY99 an increase of 12.6 percent (the numbers include some buses used for training purposes and others kept as “spares”). The cost per mile to operate a bus increased by 18¢ between FY95 and FY99 from $3.03 to $3.21 (5.9 percent). The cost per bus to operate during the same period fluctuated, going down between FY95 and FY96, rising the next year, declining the following year, and increasing between FY98 and FY99. The overall cost per bus for the five-year period rose slightly from $54,149 in FY95 to $54,638 in FY99, an increase of less than 1 percent.

1. INTRODUCTION (Continued)

Perhaps the single best statistic to measure overall transportation efficiency is "load factor." Load factor is a commonly used benchmark in the transportation industry. Load factor as presented here is a composite number including buses used primarily for special education with very low load factors and buses used primarily for regular education with very high load factors. This benchmark measures the average number of students carried on a bus in one day and is calculated by dividing the number of students by the number of buses in the fleet. The higher the load factor the more efficient the operation. Efforts to improve load factor require attention to bus sizing, scheduling, and routing. Between FY95 and FY99 Transportation's load factor declined 6.3 percent from 96.6 to 90.5. (Table 3). For each increase of one point in load factor Transportation could potentially save the equivalent of ten buses. For a comparison with the 100 largest school bus fleets, see Appendix D.

Table 3 **Buses, Costs Per Mile, Costs Per Bus, and Load Factor**

FY	Buses	$ Per Mile	$ Per Bus	Load Factor
99	999	$ 3.21	$ 54,638	90.5
98	974	$ 3.18	$ 53,341	93.5
97	927	$ 3.21	$ 55,225	95.7
96	910	$ 3.19	$ 53,450	96.7
95	887	$ 3.03	$ 54,149	96.6

Source: OIG analysis of MSDE data.

OIG chose FY99 to compare MCPS Transportation with peer jurisdictions in Maryland. This year was chosen because it has the most recent statistics reported to the Maryland State Department of Education. A comparison of types of riders among jurisdictions shows that Montgomery County's percent of special riders and percent of special rider miles were higher than the other peer jurisdictions and the state as a whole. For example, the state average percent of special riders was 4.6 percent while Montgomery County's percent was significantly higher at 7.4 percent. The state average percent for special rider miles was 33.1 percent while Montgomery County's was 45.9 percent, a substantial difference. This difference has a big impact on costs and load factor. (Table 4).

Table 4 **Regular and Special Transportation -- FY99**
(Miles In Millions)

	Regular Transportation		Special Transportation	
Jurisdiction	**Riders**	**Miles**	**Riders**	**Miles**
Anne Arundel	50,509	6.2	1,669	3.4
Baltimore County	72,591	7.0	3,167	5.3
Montgomery	**83,781**	**9.2**	**6,646**	**7.8**
Prince George's	89,317	14.4	5,857	7.3
State of Maryland	577,135	75.7	27,552	37.4

Source: OIG analysis of MSDE data.

1. INTRODUCTION (Continued)

Comparing cost per rider, Baltimore County's $439 was 27.3 percent lower than Montgomery County's $604, while Anne Arundel County's cost per rider was $502, or 16.9 percent lower. The state average cost per rider in FY99 was 13.6 percent percent lower than Montgomery County's $604. Load factor analysis was among the peer jurisdictions and with the state shows significant differences. Baltimore County's load factor was 107.61 or 18.9 percent higher than Montgomery County's 90.5. Anne Arundel County's load factor was 110.78 or 22.4 percent higher than Montgomery County's. The average load factor for the state including the Eastern Shore and western Maryland counties was 97.94 or 8.2 percent higher than Montgomery County's load factor. (Table 5).

Table 5 **Cost Per Rider, Cost Per Mile, Cost Per Bus, and Load Factor -- FY99**

Jurisdiction	$ Per Rider	$ Per Mile	$ Per Bus	Load Factor
Anne Arundel	$ 502	$ 2.75	$ 55,584	110.78
Baltimore County	$ 439	$ 2.69	$ 47,273	107.61
Montgomery	**$ 604**	**$ 3.21**	**$ 54,638**	**90.52**
Prince George's	$ 665	$ 2.92	$ 56,351	84.75
State of Maryland	$ 522	$ 2.79	$ 51,110	97.94

Source: OIG analysis of MSDE data.

1.2 Scope, Objectives, and Methodology

We performed our audit of the Montgomery County Public Schools bus transportation program in accordance with generally accepted governmental auditing standards. Accordingly, we included such procedures as we considered necessary in the circumstances.

1.2.1 Scope and Objectives

This report describes and analyzes the operation and management of the bus transportation program by Montgomery County Public Schools Department of Transportation from July 1, 1994 through June 30, 1999. Although some issues occurring outside that timeframe have been taken into account, the primary focus of this audit remains within the identified audit period.

We focused on management issues related to school bus transportation. Our focus addressed the following specific objectives:

1. Does the MCPS bus transportation program provide efficient and effective services for its students?

2. Does the MCPS bus transportation program provide adequate resources to meet current and future needs?

3. Does the MCPS bus transportation program provide a safe transportation system that complements educational needs?

1.2.2 Methodology

To obtain general background information and to develop an understanding of the bus transportation program, we reviewed reports, articles, audits, and research papers published by the State of Maryland as well as other states and the federal government, professionally-recognized associations, and non-governmental organizations.

In designing the methodology for our audit we used three basic approaches to obtain background information about the Montgomery County Public Schools bus transportation program. First, we conducted forty-one (41) structured planning interviews as follows: current and former department administrators (4), mid-level managers and supervisors (12), rank-and-file employees including mechanics and drivers (17), and MCPS non-transportation personnel including school principals (8). Second, we surveyed transportation administrators and supervisors regarding management controls. Third, we reviewed state laws and regulations; board of education regulations and policies; MCPS and Transportation organization charts; financial reports and budgets including capital improvements programs; contracts and vehicle leasing documents; and numerous feasibility, consultant, and management reports.

To obtain information necessary for us to achieve our audit objectives, we used standard methods – document and file reviews, structured interviews, fieldwork sampling and testing, and descriptive analysis. To identify issues related to efficiency and effectiveness we interviewed department officials and employees and reviewed and analyzed revenue, expenditure, operational data including payroll and timekeeping information, employee job descriptions, labor agreements, maintenance reports, and computerized routing information as well as other management information. We compared MCPS bus operations with other similar jurisdictions in Maryland and elsewhere including the 100 largest school bus fleets in the nation (Appendix D). We also compared MCPS bus maintenance operations with industry norms. To determine the adequacy of the bus transportation program we interviewed department officials and employees. We reviewed portions of MCPS parent and student surveys pertaining to transportation; reviewed 97 e-mails we received from parents and others; reviewed data concerning employee turnover; and conducted a review and analysis of a sampling of bus inspections. To determine the safety aspect of bus transportation we interviewed department officials and employees and reviewed and analyzed National Transportation Safety Board (NTSB) safety recommendations, National Highway Transportation Safety Administration (NHTSA) guidelines, and state bus accident reports.

1.2 Significant Achievements

It is important to recognize that performance auditing by its nature is a critical process, designed to identify problems or weaknesses in past and existing practices. We note here

a number of successful and positive practices, procedures, and programs that we observed and for which sufficient documentation was available for verification.

1.3.1 Technological Innovation – CARTS, FASTER, and TIMS

The department has been and continues to be involved with three innovative technology improvement projects involving a computer assisted routing transportation system (CARTS), a fleet administrative solutions and transportation equipment reporting system (FASTER), and a transportation information management system (TIMS).

CARTS has allowed the department to improve efficiency in bus routing and preparation of reports, driving directions, and route sheets. The department also uses CARTS to determine student load counts, miles traveled, rider eligibility, and route auditing. CARTS also allows the department to timely and accurately simulate "what if" scenarios such as costs and time requirements for new schools. Most regular education bus routes and some special education bus routes are handled through CARTS.

The fleet management information system, FASTER, is currently being implemented as part of a Technology Innovation Fund grant from the County. FASTER should allow for improved asset management, vehicle replacement, benchmarking, and maintenance of parts inventory accounting. FASTER will help the department keep better track of mechanic labor hours and costs, work order handling, tire replacement, and fuel consumption. FASTER was scheduled to be fully implemented and on-line by July 1, 2000. Problems in the County's fleet management services division with whom the department is partnering have pushed that date back by at least a year.

The Transportation Information Management System (TIMS), a state-of-the-art database management program, tracks information about personnel, routes, payroll, field trips, fleet management, safety and training, bus accidents, dispatch, leave records, utilities, route bidding, schools, special education, and Head Start. TIMS provides full functions and accounting, for each supervisor at their workstation.

1.3.2 Community Services

The department has provided many services to the community above and beyond its normal duties to transport students to and from school on a daily basis. The department provided transportation to MCPS students participating in the Governor's Inaugural Parade, provided on-site support for several United States presidential visits to MCPS schools, and provided support for summer recreation programs for the County and several incorporated cities. In addition the department has worked with the County's Department of Health and Human Services to provide free transportation for foster children to the Andrews Air Force Base air show and to provide appropriate transportation for homeless children.

MONTGOMERY COUNTY, MARYLAND
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BUS TRANSPORTATION PROGRAM

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2. FINDINGS AND RECOMMENDATIONS

2.1 Efficiency and Effectiveness

Does MCPS Transportation provide efficient and effective services for its student riders? To help us answer that question we began by looking at whether Transportation was able to accurately account for all program costs, both direct and indirect. MCPS Transportation budgeting and financial accounting follow procedures mandated by state law and regulations. We found some Transportation costs such as employee benefits, insurance, and debt service payments for capital projects are budgeted separately, but with Transportation staff assistance we were able to identify, reasonably quantify, and include most of those items in our review and analysis. We were also able to identify some costs budgeted and accounted for in Transportation but not associated with school bus transportation, primarily costs for repair and maintenance of vehicles used by other departments and programs.

We examined two specific areas where we were able to identify over $850,000 in potential cost savings and other program efficiencies. One area involved full implementation of computerized routing ($376,134). The other area involved outsourcing the repair and maintenance of non-school bus vehicles ($475,524). We questioned Transportation data and information systems and found them to be in need of improvement. The improvements we recommend should allow better analysis of data for operational decision-making, such as depot-by-depot cost comparisons. Such analysis can potentially lead to the identification of "best practices" at the depot level which in turn can be easily translated system-wide into greater Transportation efficiencies.

We reviewed several areas where we concluded that simple to implement nuts-and-bolts type recommendations could strengthen operations and lead to greater efficiency and effectiveness – monitoring and documenting on-time performance and establishing repair-versus-replacement standards. We also scrutinized management controls in certain corners of Transportation operations and found a need to tighten some procedures relating to such administrative matters as the assignment of take-home vehicles, employee telephone use, and processing driver and attendant timesheets.

2. FINDINGS AND RECOMMENDATIONS (Continued)

Finding No. 1: Transportation Should Fully Implement MapNet As A Basis to Schedule And Pay Drivers (Potential Savings - $376,134)

Transportation could save $376,134 annually by fully implementing MapNet times as a basis to pay drivers. MapNet, a computerized bus routing software program, is supposed to be the standard used by MCPS to determine the time necessary for drivers to complete bus routes. However, drivers are paid based on times assigned to the route in the MCPS mainframe payroll system and these times often do not match MapNet times.

MCPS purchased MapNet in the summer of 1993 and by the fall of 1994 had piloted use of the software in two high school clusters. The scheduling of all regular education runs using MapNet was completed by January 1998. The school year 1998-1999 marked the first time all regular runs were designed by computer. In the fall of 1999 Transportation announced that for school year 2000-2001 MapNet times would be the official times for all runs. In January 2000 Transportation began converting all remaining manual-routed special education runs to MapNet. MapNet times are confirmed with real world testing.

We reviewed documents prepared by Transportation showing times assigned to each route in both MapNet and the mainframe timekeeping/payroll systems. In our review, there were a total of 951 runs (514 regular education routes and 437 special education routes). A total of 497 routes (467 regular education routes and 30 special education routes) had both mainframe and MapNet times (the remaining 407 special education routes and 47 regular education routes had one time or the other). Of the 497 routes with both times, MapNet and mainframe times did not match in 438 cases (88.1 percent). The 438 cases showed a net difference of 1,011 hours that would be saved every biweekly pay period if MapNet times were used as the basis for driver pay.

By calculating the average hourly bus operator salary and adding a 40 percent fringe benefit factor recommended by MCPS budget office, we estimate MCPS would save $376,134 if bus operator pay was based on MapNet for all 497 routes as opposed to just 59 routes. Drivers are paid at scheduled rates for 198 days per year. Our estimate was based on information in the following table.

Table 6. **Annual Savings Estimate Using MapNet**

Hourly bus operator salary (avg.)	$ 13.42
Hourly bus operator fringe benefits (avg.)	$ 5.37
Total hourly bus operator costs (avg.)	$ 18.79
MapNet daily "savings" (hours)	101.1
Annual savings (198 days)	$376,134

Source: OIG analysis of MCPS Transportation data.

Based on experience to date, the savings are likely to increase further once MapNet times are used as the basis for calculating driver and attendant pay for all 951 runs.

Recommendation:

Transportation should fully implement MapNet route times as the basis for calculating the pay for drivers for all runs**.**

Agency Response:

We concur in part.

The Department of Transportation agrees that MapNet should be used as a starting point in calculating driver schedules and driver pay. It may be premature to assess a dollar value without a detailed analysis of this finding.

Use of MapNet as a basis for driver pay only became possible in FY 2001. Our internal review of the 438 cases cited revealed the failure of the MapNet database to accurately reflect mid-day route times and after-school scheduled activities. These work times were accurately reflected in the mainframe payroll system and are responsible for over 80 percent of the disparity between the two systems. All such anomalies are being addressed in the FY 2001 database. Based on this error, the Department of Transportation cannot determine, as a result of this change, the amount of savings but agrees that savings will be realized.

In June 2000, the director of the Department of Transportation (DOT) notified all employees that computerized routing will be the starting point in determining route times and hours paid. Route times will still need to be modified when changes are justified due to such elements as changing traffic and road conditions, bell time changes, or additions or deletions to the route.

A new review process is also being initiated to ensure that the DOT pays employees fairly for all hours worked. This process provides for equitable adjustment of time between the MapNet route simulation and the behind the wheel audit. An appeal process has also been developed. Both management and the Montgomery County Council of Supporting Services Employees agreed to this process.

All special education routes are currently being placed into the MapNet routing system. The DOT recognizes that using MapNet to process route/employee hours will generate additional cost savings. However, we cannot project the amount of savings at this time.

<u>OIG Rebuttal</u>:

The dollar figure cited in the finding ($376,134) represents our analysis based on information MCPS provided to us as of February 18, 2000. We recognize that the information was "a moving target" subject to change every day as drivers and routes changed. Our analysis showed the likelihood of significant savings and transportation has agreed "using MapNet to process route/employee hours will

generate additional cost savings." The most important aspects of this finding are to highlight the potential of fully utilizing MapNet capabilities, to implement cost savings in a timely manner, and to support transportation management in this endeavor.

Finding No. 2: Transportation Should Outsource Repair And Maintenance Of Non-School Bus Vehicles (Potential Savings $475,524)

Transportation could save $475,524 annually in maintenance costs through outsourcing the repair and maintenance of non-school bus vehicles. Transportation provides repair and maintenance services for approximately 1,100 school buses and 629 other MCPS vehicles. Transportation employs 101 full-time maintenance staff and in FY99, the last year for which there is complete information, spent $10,578,174 to maintain all 1,729 vehicles. These costs include items such as fringe benefits and insurance not found in the Transportation budget.

To calculate vehicle maintenance costs, we reviewed the TR-4 report and other information provided by Transportation. The TR-4 report provides the best available maintenance cost information by vehicle. The TR-4 reports repair costs by the following categories: parts, direct labor, sublet (work performed by subcontractors), fuel, oil and tires, indirect labor, and overhead for each vehicle. The individual vehicle costs are sub-totaled into the following operational units: buses, other Transportation vehicles, maintenance, food service, supply, and motor pool. All labor costs and most of the other costs for non-bus repairs are shown in the Transportation budget, thereby overstating Transportation's costs and understating the costs of other programs.

We compared Transportation staffing to a model developed by a nationally recognized fleet management consultant. While total staffing for maintenance operations is in line with the model, it did suggest some staffing realignment could make the operation more efficient. We then broke the operation down into two distinct parts – bus maintenance and non-bus maintenance. Our analysis, based on the model, showed 74 employees were needed to maintain 1,100 buses and 24 employees were needed to maintain the 629 non-bus fleet.

Next we looked more closely at non-bus maintenance operations. Based on available data, we estimated FY99 non-school bus vehicle maintenance costs to be $1,731,997 or an average of $2,754 for each of the 629 vehicles. In comparison, County government costs for the contractor maintained fleet of 1,740 vehicles was $1,998 per vehicle for FY01. While Transportation's non-bus fleet is not identical to the County government fleet in every way, we believe there are enough similarities to provide a basis for preliminary comparison.

To better understand what it might cost to outsource the repair and maintenance of a fleet similar to the MCPS non-school bus fleet, we spoke with management professionals associated with private sector fleet maintenance. After describing the characteristics of the MCPS Transportation non-bus fleet, we received five "ballpark" estimates ranging from $815,000 to $1 million with the average cost per vehicle at $1,401, which is lower than the County government average of $1,998 per vehicle.

Outsourcing non-school bus vehicles will increase the overall efficiency of MCPS fleet operations and allow Transportation mechanics to concentrate on their core service constituency, school buses. A conservative analysis suggests Transportation could save $475,524 annually. This amount is calculated in the following table.

Table 7. **Annual Savings Estimate for Outsourcing Non-Bus Maintenance**

MCPS cost per vehicle	$2,754
County cost per vehicle	$1,998
Savings per vehicle	$756
Number of vehicles	629
Annual estimated savings	**$475,524**

Source: OIG analysis of MCPS Transportation data.

Recommendation:

We recommend Transportation:

- develop a formal cost allocation and chargeback system that correctly identifies vehicle maintenance and repair costs for non-Transportation program users;
- analyze internal repair and maintenance costs versus outsourcing;
- review all costs associated with providing vehicle maintenance and ensure all costs are captured in the TR-4 report or other appropriate vehicle maintenance report;
- review all indirect labor and overhead cost allocations for equity; develop written documentation to support allocation methodology; and
- outsource repair and maintenance of non-school bus vehicles.

Agency Response:

We do not concur.

The Department of Transportation (DOT) does not concur with this finding or the financial analysis that reached this conclusion.

MCPS already outsources some vehicle maintenance, for both buses and non-buses. Costs are included in the TR – 4 Report the OIG used as the basis for calculating total maintenance cost per vehicle. These costs need to be removed from the projected savings, which are based solely on internal MCPS expenses.

The allocation of costs between buses and other vehicles apportions indirect costs on a per vehicle basis. The removal of non-bus vehicle maintenance will not eliminate unique staff positions, which support both buses and non-buses. There are only two tire repair

employees in the department, one fuel technician per location, one parts clerk per location, and one fiscal assistant to track expenditures. This will cause indirect costs of bus repairs to rise, thus eliminating a major portion of any projected savings.

Our findings indicate the comparative prices quoted for current county cost per vehicle are limited to county vehicles rated less than 1 ton. Since more than 20 percent of the MCPS non-bus fleet exceeds that rating, we believe the per vehicle comparison based on the total MCPS non-bus fleet is incorrect. Furthermore, the TR-4 report lists gross costs for parts and does not recognize reimbursements received for returned cores, insurance recovery, and parts under warranty. Therefore, the gross $2,754 per vehicle cost used in the comparison is overstated. It also includes costs for work already outsourced. Finally, the analysis did not include the age or condition of the fleet. Without comparable data between MCPS and county fleets, it may not be realistic to assume that a vendor would quote a similar price per vehicle.

MCPS already charges back parts and contractor costs to other departments. If we develop a full charge back system to allocate all vehicle maintenance and repair costs to user departments, it will only shift expenses within the MCPS budget and effect no true savings to the county.

MCPS DOT plans to continue refining the true net cost per vehicle of all maintenance activities as part of its implementation of FASTER. We also are investigating the allocation of indirect costs on a more programmatic basis. Once the analyses are complete, we will have the data to test the marketplace for potentially cost-effective alternatives. However, we believe the recommendation as presented at this time is premature.

OIG Rebuttal:

Evaluating any program with an eye toward potential savings as a result of outsourcing is hardly ever an easy task. But the challenges presented with outsourcing non-bus maintenance are just that, challenges, not insurmountable obstacles.

We recognize that Transportation employees and their union would have to play a key role in any decision-making. Transportation employees should be given the opportunity and strong support to bid on any work along with any other interested private parties. Historically, union employees have always been strong supporters of enhanced efficiency and effectiveness. They understand the competitive nature of the market place and they know that labor-management cooperation strengthens job security.

With regard to the "unique staff positions" concern, Transportation might have to reconfigure job descriptions so that, for example, one employee at each location is responsible for fueling, parts, and tire repair or some reasonable portion thereof.

Outsourcing maintenance for 629 vehicles out of a fleet of 1,729 means fewer parts to maintain and fewer tires to repair. It can be done.

With regard to County fleet and Transportation non-bus fleet comparison concerns, obviously any OIG analysis can be questioned because the fleets are not exactly alike. For example, a high percent of the County fleet are police vehicles that receive a much higher level of maintenance services than non-police vehicles. Transportation is concerned about the age and condition of its non-bus fleet, but has no repair-versus-replace standards or analysis of its own to support its position. A perfect comparison is unlikely to happen. The perfect is often the enemy of the good.

With regard to FASTER implementation allowing Transportation to further refine the true net cost per vehicle of all maintenance activities, OIG suggests that waiting for the full implementation of FASTER, which could easily be several years away, will unnecessarily slow decision making.

Finding No. 3: Transportation Should Evaluate Data Requirements To Support Operational Decisions

Transportation does not have a good understanding of data requirements needed to support operational decisions. In order to understand an operation and to evaluate efficiency and effectiveness of decisions, management must have valid and reliable data to support those decisions. Without such data, managers may make decisions based on inaccurate anecdotal information or observations of atypical events. The quality of available data has a direct bearing on the quality of decision-making.

To evaluate data requirements Transportation management should ask the following questions:

- What data do we need?
- What data do we collect?
- How do we ensure data validity and reliability?
- Do we use the data we collect?

During our review we observed areas where data to support management decisions was either lacking, of poor quality, or contradictory. Examples include but are not limited to the following:

- Transportation does not collect data to document on-time arrivals at school bus stops and schools;
- Transportation does not identify vehicle maintenance costs in its budget which are attributable to other MCPS programs;
- Transportation collects maintenance cost information in the TR-4 report, but employees were unable to explain the basis for overhead cost calculations;

2. FINDINGS AND RECOMMENDATIONS (Continued)

- Transportation does not have a single route time and cost assigned to most of its routes;
- Transportation staff does not use the TR-4 report as the basis for repair or replace decisions; and
- Transportation staff does not analyze maintenance costs at the depot level.

Management has the responsibility to report measures of efficiency and effectiveness that are valid and reliable. Good management requires good data. Management control standards require that organizations have an adequate control system to measure, report, and monitor program economy and efficiency. Information is the heart of any operation. Operations with poor data risk uneconomical and inefficient use of program assets.

Recommendation:

Transportation needs to identify key management areas such as on-time performance, maintenance costs and efficiencies, and route operations costs and efficiencies and evaluate data needs to support operational decisions in those areas.

Agency Response:

We concur in part.

We agree that good, reliable, and consistent data are necessary to a smooth and efficient operation. We are currently working to establish and track key performance indicators and to conform to the Malcolm Baldrige standards for managerial excellence.

The department of transportation has identified the key results areas needed to achieve its mission of safe and efficient student transportation. The key results are published in the department's FY 2001 budget and are as follows:

1. *Fewer than 9.1 collisions per million miles traveled*

2. *98 percent of buses arrive in a timely manner, with timely being defined as:*
   - *All buses arrive at their schools between 5 and 20 minutes before the morning bell*
   - *80 percent of buses arrive at their schools within 5 minutes of the afternoon bell*
   - *no buses arrive later than 20 minutes after the afternoon bell*

3. *98 percent of parents surveyed rate transportation as average or above on a 5 point Liekert scale with 50 percent giving the highest rating*

4. *On a daily basis, 95 percent of buses are operational, 98 percent of positions are filled with well trained staff, 93 percent of staff report to work daily, and 99 percent report on time*

Baseline data has been established for Key Results 1, 3, and 4 above and plans are to continually collect data measures. The collection of data to improve on-time performance as stated in Key Result #2 are detailed in Finding #5.

The department agrees that cost data be collected for other programs as detailed in Finding #2. We will explore with our new management system the feasibility of calculation of overhead costs.

OIG Rebuttal:

Transportation's response identified areas where it will benchmark performance. However, management has not addressed the need to identify specific data it should collect, record, and analyze in order to fully support its benchmarking goals.

Finding No. 4: Transportation Should Expand Analysis of Maintenance Costs By Vehicle And By Depot

Transportation should expand its analysis of maintenance costs by vehicle and by depot. Vehicle maintenance costs represent 20 percent of Transportation's budget, are a significant use of resources, and therefore should have the highest level of controls. Data analysis shows potential areas for savings. Transportation could realize $90,000 annually for each one percent in savings.

We reviewed the TR-4 report that is prepared for the state summarizing maintenance costs by bus. We sorted the buses by depot using the bus roster provided by Transportation and cross-referenced this information with TR-4 information for the same school year. We had two concerns about using TR-4 data. First, management had expressed concern about the validity of the "Gas, Oil, Tire" column. Second, we were unable to locate anyone in Transportation or elsewhere in MCPS who could explain the methodology for allocating "indirect labor" and "overhead" costs to individual buses. However, because this was the best data available and because management told us that depot level analysis of maintenance costs had not been done, we felt some analysis in this area was necessary and would be an important first step.

When we examined the data on a depot-by-depot basis we noticed some interesting issues which Transportation management might want to explore further:

- Overall costs per mile varied by 20.0 percent across depots (the cost per mile for buses garaged at the depot with the lowest cost per mile was 20.0 percent less than for buses at the depot with the highest cost per mile).
- The line item with the most consistency in cost per mile was "Gas, Oil, Tires." Costs in this category varied by 14.2 percent across depots.
- Overhead costs were more variable than direct costs on a per mile basis. Direct costs varied by 17.3 percent, indirect costs varied by 26.1 percent.

- The area with the greatest variability in cost per mile was "Sublet" or work contracted out, such as major engine and transmission work and glass replacement. This area represented the smallest percent of costs. Costs varied by 52.9 percent across depots and represent an average of 4.0 percent of maintenance costs.
- Overhead costs represented 39.8 percent of all maintenance costs, with indirect labor (28.2 percent) as the single largest line item of maintenance costs.

According to the TR-4 report, Transportation spent more than $9 million on maintenance for FY 99. This represents 20 percent of the department's $45 million budget for that year. The information we found in our analysis suggests the potential to save money if “best practices” identified at one depot could be implemented at all depots.

Management controls are designed to ensure that resources are used consistent with the agency mission; that resources are protected from waste, fraud, and mismanagement; and that reliable and timely information is obtained, maintained, reported, and used for decision-making. Specific control standards require adequate documentation of significant events.

Recommendation:

We recommend Transportation:

- review data needs in the maintenance area;
- review current data collection and make any changes to the collection process based on the review of data needs;
- review the collected data to ensure its validity;
- use the data to analyze maintenance costs and patterns to look for “best practices” and potential cost savings on a depot-by-depot basis; and
- implement appropriate “best practices” and other cost saving strategies at all depots.

Agency Response:

We concur in part.

Although total maintenance costs per vehicle are not currently analyzed by depot, we do not believe such an analysis is necessarily significant to the operation of the department. Buses are frequently moved between depots, during and at the end of each year, to meet operational requirements and union negotiated bus reassignment. In addition, the percentage of buses of a given make and model year is not uniform between the depots. As maintenance costs vary by make and model, depots with a greater percentage of such vehicles will show a higher maintenance cost. We plan to use FASTER to help identify true differences by vehicle and by depot and, to the extent “best practices” are identified, replicate them at all depots.

The concern about the allocation of indirect labor and overhead costs to individual buses is valid. We are developing a new algorithm for the allocations in the future. This process will be done and used in the FY 2001 TR-4.

OIG Rebuttal:

To maximize cost savings transportation will need to look not only at maintenance costs by year, make, and model of bus, but also to analyze whether there are cost patterns across depots. Such data can not only support improvements in maintenance practices, but can also support better evaluation of bid specifications for new buses.

Finding No. 5: Transportation Should Improve Monitoring And Documentation Of On-Time Performance

Transportation needs to improve monitoring and documentation of on-time performance of school buses. The main function of the department is to transport students to and from school and the objective is to do so in a safe and timely manner. The department has identified as a "key result" the timely arrival of buses. The stated performance measure of timely arrival is the percentage of buses that arrive within 5 minutes of the scheduled arrival time as measured by staff observations.

CARTS prepares detailed route schedules, which include the time and location of each stop and subsequent school arrival time. The route schedules are communicated to students and parents. The students and parents rely on the bus schedules and expect the department will follow the schedule with few exceptions. A department manager stated that the department has not attempted to document bus arrival time. Instead, Transportation has deferred monitoring bus arrival time at schools to school staff. Transportation relies on the schools to notify it if a bus is habitually late.

There are two opportunities to measure on-time performance: (1) arrival time at school, (2) arrival time at route stop locations. Ideal arrival times for each route are established by CARTS. The department has adopted a working standard for on-time school arrival as one occurring within a 15-20 minute window of the scheduled arrival time. While the reasonableness of a school arrival window of 15-20 minutes may be debatable, a 15-20 minute margin of error at individual bus stops is not acceptable to most parents and students, particularly where students must stand exposed to the prevailing weather conditions at most bus stops.

We solicited comments about the department from various stakeholder groups. A common theme among the numerous comments pertained to on-time performance of buses. A recurring complaint was that buses were late or never came at all.

The department has identified on-time arrival as a key result. Management controls are the policies and procedures used by an agency to reasonably ensure that programs achieve their

intended results. Management control standards require adequate and continuous supervision to ensure objectives are met. Monitoring on-time performance requires a higher priority. Further, management control standards require documentation of events. Without documentation there is no way to measure program performance. The department should implement procedures to measure on-time performance directly and not rely on other divisions of the organization to report anomalies.

Recommendation:

We recommend Transportation:

- increase monitoring activities at route stop locations and at schools;
- implement procedures to routinely document bus arrival time at both schools and bus route pick-up/drop-off locations; and
- evaluate on-time performance using published industry performance standards.

Agency Response:

We concur.

Monitoring on-time performance is very important in the transportation industry. In fact, it is the department's Key Result #2 as described in Finding #3. All schools have one or more staff members responsible for meeting the buses and/or patrolling the bus area. They are available to provide the data on arrival and departure times. BRS's and other DOT managers can use the raw data for analysis. Schools are very cooperative in providing this data. Alternatively, we are exploring self-reporting of arrival times by bus operators and working with the Office of Shared Accountability to sample our outcomes.

Finding No. 6: Transportation Should Establish "Repair Versus Replace" Standards

Transportation has not established written standards and cost criteria to use when making a decision on whether to repair or replace a bus. Management follows a state mandated twelve-year replacement cycle for the regular purchase and disposal of school buses. During a typical twelve-year life cycle, a bus may experience significant engine problems or sustain substantial body damage. Management must then decide whether to repair or replace the vehicle.

Management told us that generally repairs will be made unless the bus is in the last year of its twelve-year service cycle. Even in its twelfth year of service, a bus will be repaired unless Transportation determines the effect of removing the bus from service can be covered by the spare bus fleet or through other means. Sometimes repairs are made with parts cannibalized from other out-of-service buses. The annual operating costs or historical maintenance problems for a particular bus are not considered in making a repair or replace decision.

Transportation may find that in some instances it is more cost effective to replace a bus prior to the twelfth year than to repair it. Written standards should establish criteria, such as, threshold dollar amounts for estimated repairs – possibly on a sliding scale based on the age of a bus – which would trigger a more detailed cost-benefit analysis by management before a repair is automatically authorized.

Management control standards include management objectives for each activity and are to be logical, applicable, and reasonably complete. Decisions to repair or replace buses prior to the state mandated twelve-year service period may have substantial fiscal implications and should be based on written standards and organizational objectives, and supported by valid and relevant data.

Recommendation:

Transportation should develop written standards and criteria for use in making "repair versus replace" decisions.

Agency Response:

We concur in part.

Current state law mandates the replacement of buses after 12 years. We are currently in the 2nd year of a planned three-year replacement of 300 buses purchased in 1986, 1987, and 1988. This plan is supported by the Maryland State Department of Education and the County Council as a fiscally responsible way to meet the state's legal requirements. A waiver to phase these buses out of service has been approved by the state. Any consideration of an alternative method of determining bus replacements will have to wait until development of the FY 2003 budget.

OIG Rebuttal:

We believe the development of written standards and criteria could serve as a guide to managers in making cost-effective decisions to replace or repair vehicles. The written standards would apply to the entire vehicle fleet and not just the phased replacement of the 300 buses that are more than 12 years old. There is no reason to delay development of the standards.

Finding No. 7: Transportation Should Reduce The Number Of "Take-Home" Vehicles

Transportation should reduce the number of take-home vehicles. Eleven Transportation managers out of 16 (68.8 percent) have been assigned take-home vehicles. County Council policy concerning take-home vehicles states, "Take-home cars should assigned only on the basis of pre-specified criteria that demonstrate substantial, quantifiable savings and/or efficiencies for the agency." Additionally, Board of Education policy concerning the use of take-home vehicles states, "Permanent assignment of MCPS vehicles will be made only to

those employees whose duties require such assignment." The policy further states, "The permanent assignment of staff vehicles is based on the employee's need to handle ***frequent emergencies and/or meetings during off-duty hours***." (Emphasis added.)

We could find no documentation that substantiated assignment on the basis of criteria that demonstrated substantial, quantifiable savings. Neither could we find documentation that clearly demonstrated most employees with take-home vehicles were frequently handling emergencies or frequently attending meetings during off-duty hours.

We were given two reasons by Transportation management for assigning full time, year-round take-home vehicles. One is to evaluate road conditions during periods of bad weather. However, during most winters school closings and late openings occur no more than ten times with perhaps another ten days where road conditions need to be evaluated. A second reason given by management for assigning take home vehicles is to respond to accidents. A review of MCPS accident statistics published by Maryland State Department of Education for school years 1995-6, 1996-7, and 1997-8 shows that MCPS averaged one school bus accident per school day. The data show that 173 of the 174 accidents during the 1997-8 school year (99.4 percent) occurred during the school week and 163 of 174 (93.7 percent) occurred during daylight hours. Full time, year-round use of a school vehicle by eleven managers is not justified by the infrequent need to respond to weather-related incidents and school bus accidents.

Recommendation:

Transportation should adequately document the need for each take-home vehicle assigned. This documentation effort should, at a minimum, include monthly or quarterly reporting by employees with take-home vehicles as to the number of emergencies handled and the number of off-duty meetings attended. Based on this reporting Transportation should work to steadily reduce the number of take-home vehicles by at least half within one year.

Agency Response:

We concur in part.

Take-home cars are necessary for the efficient and timely operation of the transportation department. Managers with such vehicles are on-call 24-hours per day, 7-days per week, and are required to be able to respond to an emergency. Assignment of these vehicles is consistent with Montgomery County Government's definition of Assigned Emergency/ Administrative Vehicle. A significant impact to respond to emergencies in a timely manner, and to overall departmental efficiency, would occur if transportation department managers had to use their personal vehicles to reach specially equipped staff vehicles before responding to an emergency situation.

The allocation of, and policies governing, take-home cars is being reviewed. The number of take-home cars will be reduced.

Finding No. 8: Transportation Should Collect Full Reimbursement For Personal Commuting Mileage (Potential Savings - $26,745)

For FY00 Transportation employees with take-home vehicles underpaid MCPS by $26,745 for their personal commuting miles. MCPS regulations require employee reimbursement through payroll deduction. Employees are to be charged for the use of take-home vehicles in commuting to and from work in accordance with a rate per mile established by MCPS executive staff.

We reviewed a list of Transportation employees with take-home vehicles and their biweekly reimbursements maintained by the Office of Financial Management (OFM) as well as a copy of the form employees use to provide this information. The MCPS form contains a formula for calculating biweekly reimbursements based on an employee reporting to work 228 days out of 260 week days in a year (the difference reflects 12 holidays and the assumption an employee will take four weeks of leave during the year). Deductions for the full year are made in 20 installments or prorated for a part year take-home vehicle. MCPS uses the Internal Revenue Service mileage reimbursement rate to compute its commuting mileage reimbursements.

Using OFM biweekly reimbursement information we calculated current total annual reimbursements. We then obtained the home addresses of the eleven Transportation employees who have take-home vehicles and calculated travel distances between home and primary duty station for each employee. We then recal-culated total annual reimbursement amounts and found some significant differences.

Table 8. **Annual Take-Home Vehicle Reimbursement**

Employee	Reimbursement - OFM Records	Reimbursement - OIG Calculation	Difference
A	$ 793.70	$ 5,269.99	$ 4,476.29
B	$ 1,013.50	$ 5,313.43	$ 4,299.93
C	$ 222.20	$ 3,807.71	$ 3,585.51
D	$ 571.50	$ 4,068.32	$ 3,496.82
E	$ 115.70	$ 2,968.90	$ 2,853.20
F	$ 63.50	$ 2,461.26	$ 2,397.76
G	$ 29.10	$ 2,146.73	$ 2,117.63
H	$ 629.40	$ 2,533.65	$ 1,904.25
I	$ 36.30	$ 1,230.63	$ 1,194.33
J	$ 442.60	$ 738.38	$ 295.78
K	$ 108.60	$ 231.65	$ 123.05
Total	**$4,026.10**	**$30,770.65**	**$26,744.55**

Source: OIG analysis of MCPS Transportation data.

The chart above provides a comparison between annual reimbursements based on the biweekly amount currently reported to OFM and our calculations. (The official reimbursement rate changed in January of this year from $.31 to $.325 per mile so we calculated half the reimbursement at the old rate and half at the new rate.)

Recommendation:

We recommend Transportation:

- require employees to reimburse the full cost of commuting from home to primary duty station;
- require employees to reimburse for personal use of take-home vehicles for each day worked; and
- collect all back reimbursement owed from the time the take-home vehicle was issued.

Agency Response:

We concur in part.

MCPS has always collected full reimbursement for personal commuting mileage. However, as detailed in discussions with the OIG, MCPS had calculated the mileage reimbursement payroll deduction based on the distance from the employees home to the nearest MCPS facility rather than the primary duty station. This was based on the premise that non-take-home cars are to be parked at an MCPS facility when not being used for official business. Therefore, the reimbursable mileage was assumed to be from the normal parking place to/from the home location. Effective September 1, 2000, mileage reimbursements were recalculated from home to the primary duty station.

Since the calculation for reimbursement was determined by the school system and the individual employees were following this calculation methodology, the system will not seek retroactive mileage reimbursement.

OIG Rebuttal:

Individual employees were not following the MCPS calculation methodology. We reviewed employee reimbursement records and compared them to our calculations for each employee commuting from home to the nearest MCPS facility. We found employees were reimbursing only 48.8 percent of the total under the more favorable MCPS calculation methodology.

Finding No. 9: Transportation Should Properly Assign Duties For Processing Bus Operator And Attendant Timesheets

Transportation does not assign bus operator time keeping responsibilities according to written job descriptions. The timekeeping process should work as follows. The dispatcher should maintain a daily log of buses, routes, and operators. The time and attendance assistant should gather, prepare, and submit payroll data; post employee time and attendance to pay vouchers from daily work sheets and run records using a calculator; balance period-end amounts and transfer information to payroll vouchers. Ultimately, the depot manager is responsible for preparation of payroll data.

In practice, initial recording of daily time is done by dispatchers at some depots and by bus route supervisors at others. A dispatcher or timekeeper may transfer daily information to the Transportation Information Management System (TIMS). The timekeeper reenters the TIMS information into the MCPS mainframe payroll system. MCPS payroll staff reviews biweekly information and compares it to location totals and individual information to information provided by MCPS personnel office. The current payroll processing with its wide variability of task assignments, blurring of roles, and poor oversight leads to the increased possibility of errors occurring in the timekeeping process and difficulty in identifying who is or should be the responsible party for completing each task.

Payroll processing functions should be separated among the three individuals whose job descriptions include this task. The dispatcher should maintain the daily logs, the timekeeper should post the information to TIMS and MCPS payroll. The depot manager should oversee the process and review the timekeeper's work.

Management controls are the organization, policies and procedures used to reasonably ensure that resources are protected from fraud, waste, and abuse. Specific control standards require separation of duties for recording, processing, reviewing, and authorizing transactions. Payroll costs for bus operators and attendants represent over half of the department's budget. Preparation of the biweekly bus operator and attendant payroll is a significant event and should have the highest level of controls.

Recommendation:

We recommend Transportation:

- formalize bus operator and attendant payroll processing roles according to job descriptions so as to strengthen management controls and improve separation of duties;
- cause daily recording on logs to be done by someone other than the person who does the daily TIMS or mainframe entry; and
- require depot managers to review the TIMS payroll for completeness and accuracy.

Agency Response:

We concur.

As TIMS implementation proceeds, the department will implement these recommendations.

Finding No. 10: Transportation Should Follow MCPS Policy Concerning Telephone Records Review And Retention

Transportation does not follow MCPS regulations concerning the review of long-distance telephone bills and their retention. The rules governing the use of phones within the school system are found in Regulation EGD-RA, Telephone Services and Costs. The regulation states that phones bills are to be issued monthly to unit administrators. The administrator is to account for all long-distance and other toll calls on the bill. All calls are to be identified and staff are to indicate whether each call was business related or personal. If calls are identified as personal, funds are to be collected from the employee and forwarded to the Department of Financial Services along with a copy of MCPS Form 202-3. Unit administrators are supposed to file current year and two prior years phone bills on site and retain copies of Form 202-3.

A May 7, 1998 audit by the Internal Audit Unit of the Department of Educational Accountability produced a report entitled "Report on Review of Certain Telephone Costs." In that report auditors cited a need for increased supervisory oversight of telephone use. They noted that in 1998 over $110,000 was spent on long-distance calls. In a three-month period while the telephone audit was in progress, reimbursements were nearly $2000. During the same three-month period in the prior year only $1,100 was collected in reimbursements. A conservative estimate is that five percent of all long-distance calls are not business-related.

We asked several Transportation management employees for copies of telephone regulations, old bills, and reimbursement information. None was provided. Telecommunications Services and Financial Management personnel did not recall receiving a form 202-3 from Transportation in the past year and thus could not provide us with information on whether Transportation staff had reimbursed for personal long-distance telephone calls.

Recommendation:

We recommend Transportation:

- follow reimbursement procedures described in Regulation EGD-RA;
- get copies of past phone bills, review them, and collect any money owed for personal calls; and

- extend this supervisory oversight to cellular phone bills.

Agency Response:

We concur.

The Department of Transportation will follow and monitor MCPS Regulation EGD-RA for all telephone bills.

2.2 Program Adequacy

Does Transportation provide adequate resources to meet current and future needs? The issues surrounding the concept of program adequacy went beyond simply determining the right number of buses and required us to look first at Transportation's "customers" and "competitors." Transportation's customers are the students transported to and from school each day and their parents as well as other MCPS entities. We found that MCPS surveys parents and students about transportation issues on a regular basis. We also found Transportation management eager to meet with parents and other stakeholders to discuss pertinent issues. However, we found a need for improvements to the processes by which Transportation handles routine requests for information and customer complaints.

Most government-run programs do not have "competitors" in the traditional sense and MCPS Transportation is no different in that respect. However, benchmarking efforts can help customers and others compare the efficiency and effectiveness of Transportation programs with similar programs in other jurisdictions. The Transportation benchmarking effort is inadequate and needs to be strengthened.

In other areas we questioned the adequacy of support services for Transportation employees including the supervision of drivers and attendants, training and certification for mechanics, and the quality of office and meeting space. We also observed that basic management controls dealing with fixed asset accounting procedures were inadequate. A final adequacy issue concerned the matter of computing walking distances in specific cases involving unique school property and building placement decisions. This last issue might be more appropriately labeled an equity or customer service issue.

Finding No. 11: Transportation Should Improve Its Customer Information And Complaints Handling Process

Transportation needs to improve its customer information and complaint handling process. Transportation's FY 2000 budget identified as a key result "customer confidence that transportation services are safe, timely, and efficient." We solicited comments about school transportation from various stakeholders including parents who told us of instances in which requests for information or complaints were not responded to satis-

factorily, were passed to various levels of management, or were never responded to at all despite assurances that the customer would be contacted.

Due to the structure of the organization, requests for information and complaints about school transportation presently enter the system at a number of points, i.e. (1) at a depot through the dispatcher, bus route supervisor, or depot manager; (2) at the Transportation central office through a number of management employees. Requests for information and complaints may be resolved at the initial entry point or may work their way up or down the chain of command. Transportation does not provide guidance on the best contact for handling certain types of complaints. For the most part, requests for information and complaints are not formally documented and are not tracked to resolution.

One of the strategies identified to improve customer relations included a web page. As of 1997, the most recent year information is available, 42 percent of Montgomery County households had computers and Internet access. As of the end of fieldwork we did not find information related to school transportation on the MCPS web site. Nor did we find transportation-related projects listed among proposed enhancements to the MCPS web site.

A review of six peer jurisdictions (Fairfax County, Virginia, Anne Arundel, Baltimore, Frederick, Howard and Prince George's Counties in Maryland) showed three jurisdictions with transportation-related information on their school system web pages. Two sites list all regular education routes, stops and times. One lists general transportation information and how and who to contact with comments and complaints.

A formal customer information and complaint handling process can provide many benefits to management. Requests and complaints from stakeholder groups may alert management to potential breakdowns in program services and identify issues management may need to address to improve program efficiency. To derive full benefit from a customer information and complaint handling process management control standards would require adequate documentation of requests and complaints. For example, a formal processing system can provide the following:

- assurance that a direct response is made to all requests and complaints and each is appropriately resolved;
- feedback to management on the performance of programs and personnel;
- ability to categorize and analyze the nature of requests and complaints for further management review.

Recommendation:

We recommend Transportation implement a formal customer information and complaint handling process designed to accomplish the following:

- document the receipt of all requests and complaints;

- document the resolution of each request and complaint;
- ensure requests for information and complaints are handled consistently by all locations in the organization;
- assign management review responsibility to someone in Transportation's central office; and
- provide data to management for further review and analysis of problem areas.

We further recommend Transportation routinely and publicly disseminate procedures for its customers to follow to access information or make a complaint, i.e. contact phone numbers, e-mail addresses, web-site information, etc. This information should be published on the Internet in addition to being made available through more traditional channels and should include all regular education routes, information on who to contact for problem resolution, and general transportation information.

Agency Response:

We concur.

The Department of Transportation (DOT) concurs with this recommendation and has already actively implemented measures to create a more comprehensive complaint and inquiry process.

In November 1999, DOT assigned a transportation specialist whose primary responsibility is to respond to parent and other stakeholders' complaints and inquiries. The transportation specialist helps resolve concerns and prepares appropriate responses. All complaints and inquiries received are logged in our correspondence file manager, TIMS. The transportation specialist monitors all incoming complaints and inquiries to ensure their timely responses.

The TIMS correspondence log has the ability to assist DOT in analyzing the volume of complaints and inquiries, the nature of the most predominate type or types of complaints and inquiries, the number of complaints and inquiries pertaining to any one school, and the area of the county with the greatest number of complaints and inquiries. This analytical review is used by DOT to improve service delivery.

The DOT is in the process of being the fourth of the seven counties noted in the OIG report to integrate a Web page on the MCPS Web site. Our goal is to launch our Web page in the FY 2001 school year. Additionally, the possibility of incorporating information relating to "who to contact" for general transportation information and problem resolution will be reviewed with the Department of Planning and Capital Programming on their School Assignment Locator Web page, which currently houses school information including address, phone numbers, and principal's name.

Finding No. 12: Transportation Should Identify Appropriate Peer Jurisdictions And Establish Efficiency And Effectiveness Benchmarks

Transportation does not routinely benchmark outcomes for comparison with peer jurisdictions. When we asked management about benchmarking we received a variety of responses. Some cited MCPS inclusion in surveys listing the largest school bus fleets as the primary benchmarking effort. Some considered Prince George's, Anne Arundel, Baltimore, Fairfax, and Loudoun counties as peer jurisdictions.

Benchmarking is a way to measure changes in efficiency and effectiveness over time. It is a way to evaluate practices, discontinue those that don't work well or justify continuing those that do work well. Benchmarking is a way to inform the public about how well a program is performing. Every organization has room for improvement. One of the best ways to validate and improve operations is to analyze comparative strengths and weaknesses through benchmarking.

Recommendation:

Transportation should identify six to eight peer school districts and publish comparative statistics for selected benchmarks of efficiency and effectiveness at least annually. At a minimum benchmarks should include load factor, miles per bus, cost per mile, cost per pupil, and cost per bus.

Agency Response:

We concur.

We acknowledge the value of benchmarking key performance measures, such as load factors and cost per pupil. Cost per mile is already evaluated as part of the maintenance metrics to determine engine and chassis performance and is reflected in bid specifications for new buses.

Benchmarking of load factors, cost per student, and accidents per student mile already are part of the State of Maryland's performance review of all jurisdictions. In addition, the MCPS Department of Transportation participates in the annual national benchmark surveys conducted and published by School Bus Fleet Magazine and School Transportation News. Both of these sources have ranked MCPS bus operations at or near the top of bus fleets in the country operated by the jurisdiction.

Finding No. 13: Supervision Of Operators And Attendants By Bus Route Supervisors Should Be Improved

Bus route supervisors (BRS) devote an inadequate amount of time providing first-line supervision to bus operators and bus attendants. There are eighteen BRS positions distributed among the five transportation depots. The BRS serves as the first-line

supervisor for operators and attendants. At the present time, a BRS supervises an average of 62 bus operators and 24 bus attendants, a total of 86 employees. A survey of bus route supervisors indicated that on average a BRS devoted approximately twelve (12) hours per week to direct supervision of assigned bus operators and bus attendants. With an average of 86 assigned employees, a BRS spends less than nine minutes per week supervising each assigned employee. Several BRS told us they might not have personal contact with an operator or attendant for weeks at a time.

The amount of time a BRS can to devote to direct supervisory activities is determined to a large extent by the overall scope of duties assigned to a BRS. The scope of duties currently assigned to a BRS may be excessive. In addition to first-line supervisory duties, other duties include:

- dispatching buses (regular and special education);
- driving buses to cover open runs;
- observing bus operators at stop locations and evaluating on-time performance;
- visiting schools to check on on-time performance;
- participating in safety programs; implementing bus evacuation drills;
- responding to citizen complaints regarding bus operator/attendant performance;
- investigating complaints regarding bus operator/attendant behavior;
- responding to bus accident scenes; assisting in accident investigations;
- checking bus stop locations for safety hazards;
- attending meetings with depot managers; and
- reviewing bus runs to determine validity of MapNet times.

The variety of demands placed on a BRS, particularly the need to dispatch buses and cover open runs, has hindered the BRS from providing more direct personal supervision of operators and attendants. The MCPS Transportation function continues to experience problems with operator/attendant turnover and operator/attendant daily attendance. Lack of more direct supervision may contribute to these problems.

The main function of Transportation is to transport students to and from school and the objective is to do so in a safe and timely manner. The effort is labor intensive. The human resources dedicated to this effort (primarily the bus operators and attendants) need to be adequately supervised.

Management control standards dictate that an organization provide qualified and continuous supervision of resources to ensure the organization objectives are met. At the present time, the department may not be not providing adequate first-line supervision to its largest resource - bus operators and bus attendants.

Recommendation:

We recommend Transportation review the scope of duties assigned to bus route supervisors with the express purpose of:

- emphasizing the role of the bus route supervisor as a first-line supervisor;
- reducing and streamlining areas of responsibility to minimize or exclude non-supervisory activities; and
- increasing substantially the daily time to be devoted to supervisory activities between BRS and bus operators and attendants.

We further recommend that all bus route supervisors receive appropriate supervisory training, including strategies to improve employee performance and attendance.

Agency Response:

We concur in part.

We agree that bus route supervisors have too many bus operators to supervise.

The span of control of bus route supervisors has increased significantly. During the audit period (FY 1994-1999), the enrollment of the school system, the size of the bus fleet, and the number of operators and attendants has grown approximately 20 percent. However, the priorities of the school system's budget precluded adding bus route supervisor positions to offset this growth. To compensate increasing job responsibilities of bus route supervisors, some duties have been reviewed and given to other staff. For example, safety trainers now perform behind the wheel evaluations of bus operators and do the in-service training previously performed by the bus route supervisor. Dedicated router positions have been established to remove routing responsibilities from the bus route supervisor. In FY 2001, a bus operator II position was reconstituted to create an additional bus route supervisor position. In both FY 2001 and FY 2002, the need for additional bus route supervisors was proposed to executive management as a budget initiative.

The department believes that it is not possible to further decrease or reassign the responsibilities. As we continue to grow, additional front-line supervisors are required.

Finding No. 14: Transportation Should Promote Training And Certification Of Mechanics

Transportation does not have a written policy establishing minimum annual training standards or promoting professional certification for mechanics. Qualified mechanics are needed to efficiently maintain school buses in a dependable and safe operating status.

New hires must pass an MCPS-developed test but no further training or professional certification is required once on the job. We are familiar with one certification program, the Automotive Service Excellence (ASE) certification, that is a nationally recognized

professional standard for mechanics (there may be other similar programs). ASE offers certification in the specialized field of school bus technician. Transportation does not require ASE or any other certification or training as a condition of hire, continued employment, or promotion for its mechanics.

Transportation does not have a formal training program for the mechanics. Training can best be described as ad hoc on-the-job training and vendor sponsored training as new products enter the vehicle fleet. A Transportation manager told us that training for mechanics, such as ASE training, is encouraged but not mandatory. Several mechanics have pursued ASE training and certification on their own.

Management controls are designed to reasonably ensure that resources are used consistent with the agency mission. General control standards require management to ensure that personnel maintain a level of competency that allows employees to accomplish their assigned duties in an efficient manner. Transportation has a paramount interest in maximizing bus fleet availability for service on any given day and minimizing out-of-service time due to repairs. To accomplish those tasks, the mechanics must be proficient. Training is essential to maintain the proficiency of the mechanic workforce. Establishing annual training requirements and requiring ASE certification, or similar professional certification, is one method to ensure the mechanic workforce is qualified and proficient.

Recommendation:

We recommend Transportation:

- establish minimum annual training requirements for mechanics;
- encourage mechanics to achieve ASE certification, or similar professional certification;
- provide incentives to mechanics who obtain professional certification, particularly those who obtain certification as a school bus technician.

Agency Response:

We concur.

Transportation requires (at a minimum on an annual basis) mechanics to attend "all shop" training sessions on new features of buses and new diagnostic tools being installed in the shops. Mechanics, like all support service employees, are encouraged to take courses at local community colleges and training institutes. Tuition reimbursement is available to these employees as part of the overall staff development initiative. In addition, the department reimburses mechanics for test fees for each part of the ASE certification.

Current contract provisions have established a career ladder task force to explore promotional opportunities for supporting services employees. The DOT is a member of that task

force and is actively pursuing use of metrics such as ASE certifications in establishing criteria for promotional opportunities.

As additional staff development opportunities are designed for all MCPS employees, we will explore and advocate inclusion of additional training for mechanics.

Finding No. 15: Transportation Should Improve Fixed Asset Accounting Procedures

We found significant differences between the fixed asset list kept by Transportation and the fixed asset list kept by the Department of Materials Management (Materials Management) with respect to Transportation fixed assets. Neither Transportation nor Materials Management has conducted fieldwork designed to independently confirm Transportation's fixed asset inventory. We examined Transportation's fixed assets using a report produced by Materials Management. On that report dated July 19, 1999 we found buses listed that Transportation no longer owns. We examined Materials Management acquisition and disposal reports for the period January 1997 through October 1999. No bus acquisitions or disposals were recorded in those reports even though Transportation acquired and disposed of numerous buses during that time. Even though Transportation personnel told us they have no buses purchased before 1986 in their current fleet, the most recent Materials Management report we reviewed showed buses with 1982 purchase order dates and date paid information.

Materials Management fixed asset reports are used by the MCPS Office of Financial Management in compiling MCPS audited financial statements and the MCPS Comprehensive Annual Financial Report. If that information is not correct financial statements may be misstated. According to Materials Management personnel, equipment and other fixed assets located at all schools and other MCPS organizational units are supposed to be counted and confirmed on a triennial basis. For Transportation, the most recent inventory date is three years ago. However, more than 90 percent of all items have no date listed in the "Date Last Inventoried" column. This suggests to us that Materials Management has not provided independent confirmation of the existence and location of Transportation's fixed assets.

Recommendation:

We recommend Transportation:

- provide adequate training to ensure personnel have sufficient understanding of management control issues pertaining to fixed assets;
- test acquisition and disposal of assets to ensure adequate and timely documentation exists to support each transaction in both Transportation and Materials Management records.

- work with Materials Management to provide for periodic physical inventories of Transportation's fixed assets by someone other than the custodian of the assets.

Agency Response:

We concur.

During the summer of 2000, the departments of Materials Management and Transportation reconciled the fixed asset inventory records. Subsequently, a request is being made to the MCPS Internal Audit Unit that they conduct regular (every third year) inventories of fixed assets. The involvement of the Internal Audit Unit will satisfy the GAAP & GAAS requirements that someone other than the custodian of the fixed assets confirm the inventory.

The Department of Materials Management will provide documentation to the controller's office each time an acquisition or a disposal of an asset occurs to ensure adequate records exist.

Finding No. 16: Transportation Should Review The Adequacy And Quality Of Its Office And Meeting/Training Space

Transportation may have inadequate office and meeting space. During our review we visited all Transportation facilities. Office and meeting space were generally adequate at West Farm and the Germantown Government Center, the two newest building locations in the Transportation space inventory. In other locations Transportation personnel are housed in mobile trailers similar to those found on construction sites. It is our understanding that these facilities were intended to be temporary, although they have been used for many years.

When we interviewed Transportation personnel a consistent complaint we heard was the lack of adequate office space and the poor quality of the existing space. There were multiple complaints of dead animals in offices, poor air quality and circulation, inadequate space for management to meet privately with staff and visitors in their office, lack of auditory privacy for supervisor offices, and broken windows, wallboard, and ceiling tiles. We observed many of these conditions at Bethesda, Clarksburg, Randolph and Shady Grove depots.

These conditions have led to health complaints and poor employee morale.

The County's Administrative Procedure 5-12 (Space Allocation), and the BOCA property maintenance code may provide some guidance in this area. The administrative procedure has clear guidelines for space allocations for personnel depending on the type of position. Office space allocations range from 280 square feet for an agency or program director

down to 36 square feet for less senior staff. In addition to office space guidelines, the administrative procedure provides allowances for conference/meeting rooms, reception areas and training rooms. The guidelines do not include walkways or other general circulation space. The BOCA code includes standards concerning ventilation requirements for office and commercial space.

Recommendation:

We recommend Transportation:

- survey all offices to determine whether they meet standards for size and ventilation;
- consider bringing all substandard spaces up to standard;
- repair all broken elements such as windows, wallboard, and ceiling tiles; and
- clean out and appropriately seal crawl spaces beneath all offices.

Agency Response:

We concur.

The Department of Transportation has been working for the past several years to articulate its space needs. Studies have been conducted identifying the need for an additional transportation depot to meet the growth projections in northwestern Montgomery County and to relieve overcrowded conditions at the Bethesda and Shady Grove facilities. The preliminary design specifications have included relief for office and training space problems.

Budget priorities have deferred adding a new depot. However, the FY 2001 Capital Improvements Program includes planning funds for a new depot.

Finding No. 17: Transportation Should Review Measurement Points Used In Determining Walking Distances

Measurement points used by Transportation to determine walking distances appear to be inequitable in some cases. The Board of Education has adopted a student transportation policy that includes criteria under which students are required to walk to school. The policy dictates walking distances be measured from the "nearest point of residential property to nearest point of school site."

The use of school property lines as measurement points has created inequities in some school communities where school buildings are sited on large tracts of land. If the upper limit of the established walking distance only gets the student to the property line, the actual walking distance to enter the school may be well in excess of the approved walking distance as set by policy. For example, the walking distance from the property

lines to the main entrance of the Silver Spring International Middle School can be as much as 4/10 of a mile. Students who are bused are not dropped-off at the school property line. They are delivered in close proximity to a school entranceway. Equity suggests that the measurement point used for walking students should be in close proximity to the school entranceway used by bused students. In the alternative, a point common to all school buildings, such as a flagpole generally located near the main entrance, could be used as the measuring point.

Recommendation:

We recommend Transportation:

- review the school site measurement points used to determine walking distances;
- establish an equitable, common reference point at all schools; and
- recommend to the Board of Education any necessary student transportation policy revisions regarding walking distance measurement points.

Agency Response:

We do not concur.

The walking distances and measurement algorithms (including measurement points) are set by Board of Education Policy EEA and Regulation EEA-RA. These are not subject to change by the Department of Transportation.

2.3 Safety

Does Transportation provide a safe transportation system that complements educational needs? The short answer to that question is "yes." We found the Transportation routing system is periodically reviewed to provide maximum safety and efficiency. Transportation staff, including drivers and attendants, and pupils have been instructed and rehearsed in the procedures used in an accident or disaster. In addition Transportation has implemented hiring and training policies designed to employ and retain an adequate number of appropriately qualified bus drivers and attendants. Transportation has adopted and clearly communicated a drug and alcohol policy in compliance with state and federal law and regulations.

As with any program, there is always room for improvement. We have made recommendations in areas where improvement is possible. These include more emphasis on properly installing child safety seats on buses, discontinuing the use of non-conforming vehicles in the transportation of students to school-related activities, strengthening drug testing procedures for drivers, properly securing buses at night, and improving documentation and supervision of maintenance and repair actions.

Finding No. 18: Transportation Should Ensure Adequate Training and Monitoring of the Installation of Child Restraint Systems

Transportation should ensure adequate training and monitoring of the installation of child restraint systems. We examined child safety seats installed on randomly selected buses at all five bus depots. All the child safety seats we examined (with the exception of two seats in one bus) did not appear to us to be properly installed. The child safety seats were not secured against the bus seat and could be easily moved side to side and lifted away from the bus seat bench and back using one hand. We asked several Transportation employees about the installation and use of child safety seats. We were told that the department provided no training on the use and installation of the seats and that they are routinely moved and re-installed.

While school bus transportation in general is the safest mode of vehicular transport, pre-school age children transported in school buses should always be transported in properly installed child restraint systems.

Parents expect Transportation to maximize children's safety while on a school bus. Pre-school age children and other special needs children have additional safety requirements that cannot be met simply by sitting unsecured in a traditional school bus seat. These children need the additional protection of a child restraint system appropriately and safely installed. Children who require the use of a child restraint system are put at greater risk every time they ride in an improperly installed child restraint system.

Recommendation:

We recommend Transportation:

- implement a training program on the proper installation and use of child restraint systems;
- establish a program to adequately supervise and inspect the installation of child restraint systems on its buses; and
- work with County Department of Housing and Community Affairs staff and private sector partners to develop a child restraint system installation and use training program for transportation staff.

Agency Response:

We concur in part.

It is true that many child safety seats can be moved sideways and can be lifted away from the seat back of the bus' bench seat. However, these findings are neither due to "improper

installation" or a lack of training. They are "normal" conditions on current school buses and do not compromise student safety.

The National Association for Pupil Transportation (NAPT) and the National Highway Transportation Safety Administration have endorsed the "compartmentalization standard" as the means of minimizing injury to students on a school bus in the event of an accident. The use of seat belts is not recommended for school buses. MCPS school buses do not have seat belts. All manufacturers' recommended installation instructions for child safety seats were developed for passenger cars and assume that seat belts are installed. The absence of seat belts on school buses precludes following those instructions. While not an "ideal" solution, the finding of "incorrect installation" due to the lack of seatbelts does not apply for school buses.

We certainly share the concern for optimal child safety. MCPS is investigating the customized fabrication of a tie down system, similar to a removable seat belt that can be temporarily installed when a child safety seat is needed. Feasibility, design, availability, and costs are yet to be determined.

With regard to training, and the recommendation to work with other agencies to develop a training program, the MCPS training staff already includes a certified child safety seat technician who provides these services to MCPS and to the fire and police departments' community outreach programs. In addition, all MCPS bus operators and attendants needing to use child safety seats receive training and on-site assistance in installing these devices. The issue is therefore neither training nor skill; it is the inability of currently available equipment to provide a more secure installation of child safety seats on school buses.

Random inspections of child safety seat installation is being conducted by the safety trainers on buses needing these seats to assure appropriate installation techniques are being followed.

OIG Rebuttal:

It is not clear to us with which part of this important safety issue transportation does not concur. Also, we did not find that improper installation was "due to the lack of seatbelts."

Finding No. 19: Transportation Should Discontinue Use Of Non-Conforming Vehicles For Student Transportation

MCPS allows the use of non-conforming vehicles to transport students to school-related activities. The non-conforming vehicles are commonly known as "window vans" and usually are designed to seat 9 to 15 passengers. The window vans are not used to transport students to and from school but are used to transport students to school-related

activities during the school day. There are significant safety issues related to the use of window vans to transport students.

The National Highway Transportation Safety Administration Safety Program Guideline 17, Pupil Transportation Safety, which establishes minimum recommendations for pupil transportation safety, recommends that vehicles used to transport students meet Federal structural standards for school buses. The National Transportation Safety Board (NTSB) classifies window vans as "non-conforming buses" because the vehicles do not meet minimum structural standards for school buses. The non-conforming vehicles lack roof rollover protection, energy-absorbing seats, and have insufficient body joint strength.

The NTSB has conducted an investigation into four accidents involving "non-conforming buses" that occurred in 1998 and 1999, in which there were nine fatalities and 36 injuries. The NTSB concluded that the structural collapse and body joint failure of the non-conforming vehicles contributed to the number of fatalities and the severity of the injuries.

Transportation management stated that the use of window vans is not under its control. Rather, the use of the window vans falls under the control of other divisions within the MCPS organization. Regardless of the MCPS division making the decision to use the vans, students are being transported in vehicles that do not meet minimum federal safety standards. Students are more at risk and the County may be exposed to greater potential liability every day the non-conforming vehicles remain in use.

Recommendation:

Transportation should carefully review the use of non-conforming vehicles and consider recommending their continuing use to transport students to school-related activities be prohibited.

Agency Response:

We concur.

The Board of Education, at its September 13, 2000 meeting, adopted a resolution to phase out all uses of passenger vans for school related student activities by FY 2004.

Finding No. 20: Transportation Should Revise Its Random Drug-Testing Notification Procedures

Procedures used by Transportation to notify employees of selection for a random drug test are subject to potential compromise. All department employees holding a commercial driver's license are subject to mandatory random drug and alcohol testing as dictated by COMAR. The school system must test a certain percentage of its eligible employees each calendar quarter. The MCPS personnel office randomly selects a pool of employees

from which the actual employees to be tested are picked. The list of employees in the initial pool is forwarded to Transportation where the employee services coordinator (ESC) is assigned to administer the selection process. The ESC is responsible for ensuring the security of the list of potential test subjects. The ESC randomly selects the specific employees to be tested on a given date and e-mails the names of the employees to be tested the following day to each depot (the notification normally occurs late in the day). The individual employees are notified the next day (day of the test) at the beginning of their shift that they will be tested at the end of their run.

The initial pool of employees subject to testing in a particular quarter contains more names than the department actually needs to test to comply with COMAR. Therefore, not all employees in the "pool" will be selected or need to be selected for testing. Some employees selected for testing will not actually be tested. The ESC stated that on occasion an employee will not be available for testing on the day selected, i.e. employee on leave. In those cases, the test for that particular employee is canceled for that day but the employee is not selected for testing on a subsequent day. Rather, the absent employee is simply skipped-over for testing.

Under the current notification procedure, it is possible that an employee selected for testing could learn of his or her selection the day before the test and avoid the test simply by not working the following day. Because the employee is not automatically rescheduled for testing on another date, the employee could in effect avoid the random testing procedure.

Minimizing the potential for breaches in the security surrounding the selection process is an essential feature of an effective random testing program; otherwise the element of surprise is lost. Management control standards require control techniques to be effective and efficient in accomplishing their objectives. In this program, mandated by COMAR, security procedures must be implemented to reasonably ensure the integrity of the testing process.

Recommendation:

Transportation should revise its depot notification procedure so that the depot does not receive notification of employees selected for random testing until the day of the test. The employee notification procedure would remain the same. An employee who is excused from testing because of work status, i.e. on leave the day of testing, should be rescheduled for testing during that testing cycle.

Agency Response:

We concur in part.

The Department of Transportation (DOT) is willing to review and modify its procedures to ensure more "security" in informing bus operators of scheduled random drug tests.

However, the Department of Human Resources and the DOT believe that present procedures already address confidentiality and the element of surprise.

Since many bus operators leave the depots before 6:00 a.m., it is necessary to deliver the list to depot management the day before the scheduled test. However, given the concerns expressed by the OIG, we have modified our procedures. The depot manager will prepare a sealed envelope containing the names of those to be tested. The dispatcher, in the presence of a witness, will open the envelope only on the morning of the test.

We are investigating changes required in programming to replace names in the quarterly "pool" once it is drawn.

Finding No. 21: Transportation Should Adequately Secure Its Buses

Transportation does not adequately secure its buses during evening hours. On several occasions we observed bus lot gates unlocked during evening hours without any apparent supervision of the gate or the buses. We entered bus lots during evening hours and were not challenged.

Buses are left with keys onboard. Depot gates are left unlocked during evening hours. Thus buses are potentially accessible to unauthorized users. Buses should be better safeguarded against unauthorized use and vandalism. Bus depot gates should be locked. This simple precaution will significantly enhance the security of these valuable assets and lower the risk of damage to people and property. A recent example of unauthorized bus use in Northern Virginia caused an estimated $100,000 in damage.

Recommendation:

Transportation should lock bus lot gates in the evening after buses have returned to the lot.

Agency Response:

We do not concur.

Gates at depots are only open during hours when operations or fleet maintenance staff is present. During evening/night hours, fleet maintenance personnel are in and out of the lot on parts runs and test driving buses. When the last staff member leaves a depot, the gates are closed and locked. This would typically happen after second shift at Bethesda and Clarksburg and on weekends and holidays at Shady Grove, Randolph, and West Farm, since they are staffed around the clock. To keep gates closed during all hours that the depot is staffed would cause unnecessary delays leaving and entering the depot. Staff on duty during evening shifts is responsible for lot security.

Leaving keys in vehicles is common in the transportation industry. Most if not all fleets of significant size are parked with keys. This is primarily done to avoid the nightmare of managing the keys if they are removed. It also avoids potential service delays when keys are lost. Many fleets, like Ride-On and Metro, purchase vehicles that require no key for this reason. Most of their buses start with the push of a button. Having keys rather than push-button starters in our buses allows us to remove the keys for short periods of time when buses are unattended.

Finding No. 22: Transportation Should Improve Documentation And Supervisory Review Of Maintenance And Repair Actions

Adequate supervision and documentation of repairs and inspections is an integral part of any common carrier's responsibilities. According to the Code of Maryland Regulations (COMAR) buses must be inspected on the following schedule:

- an annual preventive maintenance inspection,
- a minimum of three safety inspections performed according to state inspection standards, and
- a pre-operational check of each vehicle performed each day the vehicle is operated.

We examined the maintenance and repair records of 149 buses. Thirty buses at each of the five depots were chosen at random (one of the 150 buses had been sold reducing the total sample size to 149). We reviewed documentation related to the state-required inspections including the annual preventive maintenance inspection and three additional inspections. Documentation in each bus file confirmed Transportation is in compliance with COMAR regarding the annual preventive maintenance inspection and the three safety inspections. We also examined daily driver "pre-trip" inspections documentation. In addition we examined supervisory reviews of the repairs and inspections.

Documentation of Major Repairs

Transportation does not adequately document correction of major repairs or "tag" items. COMAR requires school buses to be inspected four times a year. Inspection violations are noted either on a vehicle repair order issued by a state inspector or a "defects school bus inspection" form filled out by Transportation personnel. Violations fall into two general categories. The first category includes major safety defects called "tag" violations. The second category includes minor violations. Major or tag violations make the vehicle "unfit or unsafe for transporting passengers." The vehicle may not be driven until the violation is resolved. State inspectors are authorized to remove the tags (license plates) from the vehicle until the repairs are made. According to COMAR, if the inspection is conducted by a state inspector, and "[i]f a major defect is discovered and corrected during an inspection, the school vehicle inspector shall record the defect and **note** that it was corrected during the inspection."(Emphasis added.)

If the noted major defect is not corrected during the inspection, the state inspector issues a school vehicle repair order and suspends the vehicle's registration until the repair is completed. If a major defect is noted during an inspection supervised by someone other than the state inspector, the state is supposed to be notified immediately and the vehicle removed from service until the defect is corrected.

School vehicle repair orders can be used to note both major and minor violations. Minor defects, such as cracked light bulb covers must be corrected within 30 calendar days and the bus may be driven in the interim. Major defects, such as brake problems, must be repaired before the bus can be used again.

It is the practice of Transportation mechanics to sign-off on a vehicle repair order only after all defects, major and minor, have been corrected. In instances where a bus has both major and minor defects, Transportation staff told us the bus may be returned to service after the tag item is corrected and before the non-tag items are completed. However, the mechanic would not sign the repair order as complete until all violations were corrected. Therefore, there would be no documentation noting the actual date repairs of major defects are completed. This lack of documentation is critical. Without the documentation it is impossible to determine whether a bus was used to transport students before a major defect was corrected.

In our review of maintenance documents for the 149 buses we noted seven files (4.7 percent) where a vehicle repair order noted a major defect and the bus was driven between the date of the inspection and the date the mechanic certified on the repair order that all work was completed.

Resolution of Minor Repairs

Transportation does not resolve items noted on state bus inspection reports in a timely manner. COMAR requires the local supervisor of transportation or the supervisor's authorized agent to certify on the school vehicle equipment repair order when all minor defects are corrected and return the repair order to the motor vehicle administration within 30 days of the inspection.

We examined 329 state inspection records and found 35 cases (10.6 percent) where the repair order was signed certifying the work as complete more than 30 days after the inspection report date.

Documentation of State-Required Daily Inspections

Transportation needs to improve compliance with pre-trip inspection requirements. State regulations also require buses be inspected by drivers every day. Transportation has developed a "pre-trip book" for bus operators to use for the daily inspection. Drivers are

to sign the book every time they use a bus; thus a bus may have more than one record per day. When a book is complete it is supposed to be turned into the driver's BRS. A current book should always be found on the bus. When problems are noted, a copy of the multi-part daily inspection report is supposed to be given to maintenance staff. We inspected 149 buses for the pre-trip book, noted their presence or absence, and reviewed the book for completeness. There were problems in 46 reviews (30.9 percent). The problems included: book not on the bus, book not signed on a daily basis, book not filled out when bus was used, completed books not turned in to BRS, pages noting repair issues not turned in to maintenance staff.

Supervisory Review of Repairs

Transportation maintenance records are inconsistent across depots and lack supervisory review to clear up errors and inconsistencies. Maintenance files provide documentation of critical events related to bus maintenance and inspection history. At least four vehicle inspections are required annually according to COMAR. Our review of maintenance files was hampered by confusing or incomplete information. Different depots have different standards for document retention. For instance, one depot removes all paperwork prior to the most recent preventive maintenance inspection. Another keeps all the records going back several years. Other depots fall in between these extremes. While the official maintenance file for each bus is maintained at Transportation’s central office, the bus files at each depot should be complete and there should be uniformity in the retention of these important records.

The condition of the 149 files we reviewed was mixed. We found two cases where a repair order related to an inspection report predated the actual inspection. We found five cases where there was no mechanic signature on the repair order. We found seven cases where mileage was not recorded or the mileage was anomalous. For example, for one bus the mileage recorded on a repair order was over 1,000 miles apart for two events on the same day. We found three cases where bus number, tag number, or VIN did not match the other records in the file.

Management controls are the organization, policies, and procedures used to reasonably ensure that resources are protected from fraud, waste, and abuse. Specific control standards require qualified and continuous supervision be provided to ensure that management control objectives are met. Supervisory review of maintenance files should improve the quality of record keeping and hence the accountability of maintenance staff for the safety of buses. Management control standards require documentation of significant events. Recording maintenance and safety inspections are significant events and should have the highest level of controls.

2. FINDINGS AND RECOMMENDATIONS (Continued)

Recommendation:

We recommend Transportation:

- note specifically on all repair orders the date work to correct any major defect or tag item is completed;
- resolve and appropriately document the resolution of all minor repairs noted on state bus inspection reports within 30 calendar days;
- keep all pre-trip inspection books on the bus until complete and then turned into the BRS for review and retention; and
- institute a policy of supervisory review of maintenance files to improve the accuracy and clarity of these important files which document bus maintenance and inspection practices and compliance with COMAR requirements.

Agency Response:

We concur in part.

Most issues cited have been isolated to one depot. However, steps have been taken to improve practices and comply with this recommendation at all depots.

Record keeping and maintenance record retention will be improved for all state inspections. We do all four inspections required by COMAR. There is a reason code on the repair order (RO) that is marked to define the major reason for originating the RO. Several codes exist, but we are limited by the current computer system to mark only one. The Class "A" state inspection, which is preventive maintenance (PM), could be confusing as it is occasionally marked PM instead of Class "A" state inspection. This will be corrected when the FASTER Vehicle Maintenance System is implemented. Staff in the fleet maintenance office monitors all PM and Class "A" inspections, and assures they are performed on time and coded correctly. However, instances exist when a bus may not be completed as scheduled because it is at a vendor's for warranty work, bodywork (collectable), or waiting for parts during a preventive maintenance.

Class "B" inspections are done three times a year, with the MVA present for at least one inspection. These inspections are done no sooner than two months apart, and no later than four months apart. These ROs should be marked "state inspections" in the reason code. We did find a state inspection was performed, but was marked "monthly service." A rubber stamp has been ordered to clearly identify such ROs as "state inspections." The Class "A" inspections also will have a copy of the Class "A" inspection certification attached.

All records of inspections are available in the fleet maintenance office files at the Shady Grove Bus Depot. After two years, they are put on microfilm and retained permanently. Copies at satellite shops are not the official records as vehicles may be reassigned to other

depots during a school year. However, for ease of access, all shops will now be required to keep two years of documents on all vehicles at their location.

Concerns about completeness of information and the need for the mechanics and a supervisory signature will be addressed immediately. "Tag Item" repairs will be dated on the RO. The mileage anomaly cited was due to using data as recorded by the bus operator, not by the mechanic. In the future, this data will be checked and maintained by the mechanic. Any time a bus operator turns a bus in for repairs, and a RO is written, the bus operator must turn in a pre-trip report. This requirement will be reinforced at the in-service training session next fall.

3. CONCLUSION

MCPS Transportation is one of the largest public school transportation systems in the nation. It is responsible for the safe and timely transportation of more than 90,000 students to and from school each day. The department also operates a maintenance unit responsible for maintaining the school bus fleet and other public school vehicles in a safe operating condition.

Transportation management is cognizant of efficiency and effectiveness issues relevant to the transportation function. The staff is experienced and management relies in large part on that experience to accomplish its mission. Management has taken steps to incorporate technology into the operation to improve efficiency and effectiveness. For example, MapNet has been used for several years to route regular education buses and has been expanded to include routing special education buses. Recently, TIMS, a payroll/personnel information system, has been brought on-line and the groundwork has been completed for implementing FASTER, a vehicle and parts inventory management system. Maintaining an adequate complement of staff – particularly bus operators – is a challenge to school transportation officials in jurisdictions across the country. Transportation has responded to that challenge by revamping the recruiting and hiring process in Montgomery County in an effort to attract and retain qualified bus operators.

As with any organization performing a labor- and equipment-intensive function, there are areas in which improvements can be made in order to increase program efficiency and effectiveness, to improve the safety of operations, and to ensure the adequacy of department activities. In the area of efficiency and effectiveness, the department needs to improve data collection and analysis in certain areas, including budget, personnel, operations, and maintenance. Having accurate, reliable information is essential for the analysis of operations that should be done to support management decision-making. The department has implemented several data systems, as noted above, and it needs to fully utilize the capabilities of those systems.

Safety is a paramount concern in Transportation operations. The overall safety record of the department is commendable. Drivers are well trained and vehicles meet all safety standards. There are, however, some practices posing potential safety questions. One is the continued use of non-conforming vehicles for school-related activities. The safety

issues involved in the use of these vehicles are documented and accepted by national transportation experts. During the course of this audit, MCPS took the initiative to phase out over several years the use of these vehicles. The department also needs to improve its documentation of school bus vehicle maintenance work.

The department serves a diverse constituency consisting of students, parents, school system administrators, and its own employees. Good lines of communication to all segments of its constituency are essential. The department recognizes that its complaint handling process is inadequate and has taken steps to improve it. The biggest shortcomings in the area of program adequacy are internal. Management needs to evaluate supervisory span of control, staff training, and the adequacy of its own facilities.

Finally, we note Transportation management staff and employees were receptive to the audit process and were fully responsive to OIG requests for interviews, documents, access to facilities, and other requests throughout the audit process.

APPENDIX A

Montgomery County Public Schools
DEPARTMENT OF TRANSPORTATION

Agency Response to Performance Audit Report

The Montgomery County Public Schools' Department of Transportation (MCPS-DOT) appreciates this opportunity to comment on the Inspector General's Performance Audit Report. We are particularly appreciative of the positive comments found in the Conclusion section of the report regarding the department's concerns about safety, efficiency, and cost effectiveness.

Any performance audit must, by its nature, seek to reveal areas for improvement. The MCPS-DOT welcomes this opportunity to examine its operation and agrees (in full or in part) with 18 of the 22 specific findings. We have corrective action plans in place to address each of these areas. The remaining four findings and many of the general Financial and Operating Results contained in the Introduction section of the report require additional analysis. We suggest an ongoing dialog between the Office of the Inspector General and the Department of Transportation to further analyze the data upon which these findings were based.

The following information is provided to you for your consideration of this recommendation:

The data included in the analyses of Costs and Riders (Table 1); Buses, Costs Per Mile, Costs Per Bus, and Load Factor (Table 3); and the comparison with other jurisdictions of Costs Per Rider, Costs Per Mile, Cost Per Bus, and Load Factor (Table 5) needs further discussion and analysis. Several findings are very similar to the findings in the comprehensive study conducted jointly by MCPS, County Council staff, the community, and a corporate partner in FY 1996. That study, "Transportation Cost Comparison Study," included state and national benchmarks, including Baltimore County, Prince George's County, Fairfax County, and Anne Arundel County. The findings of this study documented the unique and extensive nature of MCPS' Special Transportation and its associated costs. This transportation includes both Special Education and special programs, such as Gifted and Talented Elementary Magnet; French and Spanish Immersion; the International Baccalaureate; Global Ecology; the Math, Science, and Computer Science Magnet; and the Communication Arts Program. These ongoing programs offer unique educational opportunities to students countywide and contribute to the high cost of transportation in Montgomery County. The 1996 study concluded that adjusting for these higher cost programs placed MCPS-DOT well within the cost distribution of similar jurisdictions.

The 1996 study also discovered that the costs reported in the Maryland State Department of Education's Fact Book for Baltimore County were (and continue to be) based on eligible riders while other jurisdictions, including MCPS, use actual ridership. This artificially decreases the cost per student for Baltimore County, as noted in the footnote in that report.

The current OIG analysis does not recognize the impact of special transportation and does not disaggregate special and regular education information. As stated in the OIG analysis, the 6,646

special transportation students (representing 7.35 percent) of the students transported daily, accounted for 46.3 percent of the mileage driven and utilized 481 of the 999 buses; i.e., 48.1 percent of the fleet. Again, as stated by the OIG in Table 3, the percentage of special education transportation in MCPS exceeded the average for the State of Maryland by 39 percent and was significantly higher than any of the jurisdictions used in the comparisons in Tables 4 and 5. To co-mingle regular and special transportation costs or load factors and then draw financial or performance comparisons to other jurisdictions is statistically questionable due to the bias introduced by the disproportionate amount of special transportation included in the MCPS numbers.

It should be noted that federal and state laws mandate special education transportation whenever it is included as a related service on a student's Individual Education Plan (IEP). Student placements/IEPs are determined by a committee within the Department of Special Education "in the best programmatic interest of each child" regardless of distance or cost of transportation. Court decisions have upheld the requirement for MCPS to provide daily transportation services even for a single child, door-to-door, from Rockville or Poolesville to and from Annapolis or Towson. Consideration must be given to the fact that the Department of Transportation has no control over the efficiency of these special education transportation decisions and works to schedule the most efficient routes.

MCPS-DOT has disaggregated the load factors for regular and special education as shown in Table 1 to compare to the OIG's combined load factor (FY 99 = 90.5).

Table 1 - MCPS-DOT Load Factors

FY	Total Route Buses	Regular Education Buses	Special Education Buses	Reg. Ed. Load Factor	Spec. Ed. Load Factor
99	999	518	481	161.6	13.8
98	974	506	468	168.1	12.7
97	927	481	446	170.5	15.0
96	910	472	438	173.4	14.0

If we weight the MCPS-DOT load factor to equalize the effect of the disproportionate number of special education and other special program students who ride special education buses, we find an MCPS combined weighted load factor of 150.74. Using this weighted factor, the MCPS load factor will be similar to or higher than other jurisdictions and the state average.

An analysis of cost per student is also worth review and consideration (Table 2). As noted by the Maryland State Department of Education's Fact Book, computations in Baltimore County are based on eligible riders while other jurisdictions, including MCPS, use actual ridership. This actual ridership includes Special Education; Gifted and Talented Magnet Programs; French and Spanish Immersion Programs; the International Baccalaureate Programs; Global Ecology; the Math, Science, and Computer Science Magnet; and the Communication Arts Program. While we do not have the data to compare to other jurisdictions, we believe MCPS compares favorably with those with the highest load factors.

Table 2 – Disaggregated Costs per Pupil

FY	Total Budget	Regular Education Budget	Special Education Budget	# Regular Education Transp.	# Special Education Transp.	Reg. Ed. Cost Per Child	Spec. Ed. Cost Per Child
99	$57,872,773	$28,717,143	$27,367,383	83,781	6,646	$343	$4,118
98	$54,276,643	$27,140,350	$25,446,235	84,978	6,091	$319	$4,178
97	$53,003,931	$26,490,190	$24,864,169	82,030	6,688	$323	$3,718
96	$50,312,085	$24,776.868	$23,992,325	81,881	6,146	$303	$3,904

Additionally, MCPS-DOT believes that further analysis needs to be conducted regarding potential savings by paying drivers based on MapNet calculations (Finding #1) and by outsourcing non-bus maintenance (Finding #2). MCPS-DOT plans to study both of these areas for possible savings. It is clear that more research will be required before any savings can be objectively quantified.

MCPS Department of Transportation[?]
Organization Chart

Director (Q)	1.0
Assistant Director (O)	1.0
Transportation Information Specialist (23)	1.0
Accountant (22)	1.0
Administrative Secretary (15)	1.0
Office Assistant III (10)	1.0

Fleet Maintenance[??]

Auto Repair Specialist (21)	1.0
Auto Repair Supervisor II (20)	1.0
Auto Repair Supervisor I (19)	4.0
Auto Parts Supervisor (18)	1.0
Auto Mechanic II (16/ND)	6.0
Auto Mechanic II (16)	2.0
Fiscal Assistant III (16)	1.0
Auto Mechanic I (15/ND)	24.0
Auto Mechanic I (15)	26.0
Auto Parts Assistant (13/ND)	1.0
Auto Parts Assistant (13)	1.0
Satellite Parts Assistant (12)	3.0
Secretary (12)	1.0
Tire Repairer (11)	2.0
Account Assistant I (10)	2.0
Auto Service Worker (9/ND)	7.0
Auto Service Worker (9)	12.0
Office Assistant I (8)	1.0
Fueling Assistant (6)	5.0

Bus Operations[??]

Bus Operations Manager (25)	1.0
Transportation Depot Manager (23)	5.0
Bus Route Supervisor (15)	18.0
Transportation Dispatcher (13)	5.0
Secretary (12)	6.0
Bus Operator II (10 Month) (11)	21.0
Office Assistant III (10)	1.0
Transportation Time and Attendant Assistant (10)	5.0
Bus Operator I (10 Month) (9)	941.1
Bus Operator I (Head Start) (10 Month)	13.0
Bus Attendant (SPED)(10 Month) (4)	280.3

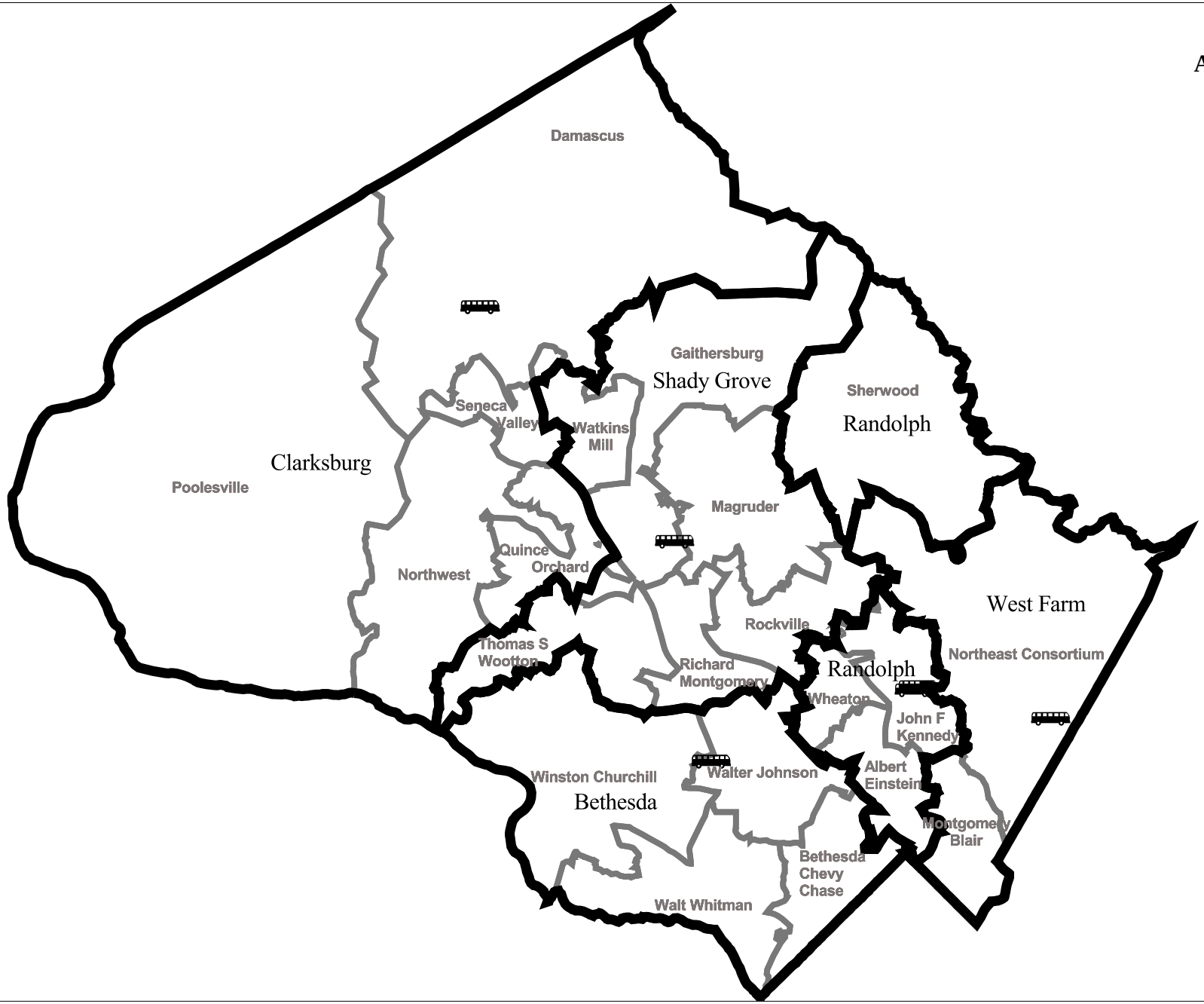
Transportation Support

Transportation Support Manager (25)	1.0
Transportation Specialist (23)	1.0
User Support Specialist II (23)	1.0
Data Support Specialist (21)	1.0
Transportation Employee Services Coordinator (18)	1.0
Transportation Assistant Supervisor (SPED)(18)	1.0
Account Assistant III (14)	1.0
Transportation Assistant Router (13)	5.0
Transportation Assistant Router (SPED)(13)	3.0
Secretary	2.0

Safety Training

Transportation Training and Safety Supervisor (21)	1.0
Transportation Safety Trainer II (12)	4.0
Personnel Assistant II (11)	1.0
Office Assistant III (10)	1.0

? Organization and staffing levels as of June 30, 2000.
?? Located at five depots.



Transportation Service Areas and Depots with Cluster Service Areas

Montgomery County Public Schools
Rockville, Maryland

2 0 2 4 6 8 Miles

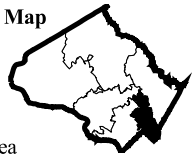
N

Transportation Depot

Cluster Service Area

Transportation Depot Service Area

Vicinity Map



Map Compiled by MCPS Department of Planning and Capital Programming February 2, 2001
Map base provided by Montgomery County DIST Geographic Information System Division

APPENDIX D

NATION'S 100 LARGEST SCHOOL BUS FLEETS

Rank	*District Name*	*Fleet Size*	*Students*	*Load Factor*
1	Nashville, TN	416	62,800	150.96
2	Virginia Beach, VA	550	69,000	125.45
3	Baltimore County, MD	720	88,000	122.22
4	St. Paul, MN	332	40,000	120.48
5	Anoka-Hennepin, MN	329	38,800	117.93
6	Cypress-Fairbanks, TX	398	45,500	114.32
7	Anne Arundel, MD	471	52,170	110.76
8	Howard, MD	341	37,572	110.18
9	Palm Beach, FL	555	61,000	109.91
10	Jefferson, LA	342	36,390	106.40
11	Shelby, TN	214	22,234	103.90
12	Knox, TN	352	36,300	103.13
13	Volusia, FL	243	24,233	99.72
14	Fairfax, VA	1,060	104,935	99.00
15	Pasco, FL	281	27,800	98.93
16	Clark, NV	903	86,591	95.89
17	**Montgomery**	**999**	**95,000**	**95.10**
18	East Ramapo, NY	234	22,000	94.02
19	Fulton, GA	560	52,500	93.75
20	Polk, FL	462	42,756	92.55
21	Gwinnett, GA	778	70,000	89.97
22	Henrico, VA	399	35,522	89.03
23	Lafayette, LA	225	20,000	88.89
24	Prince George's, MD	1,079	95,174	88.21
25	Escambia, FL	371	32,500	87.60
26	Jefferson, KY	829	72,298	87.21
27	Harford, MD	390	34,000	87.18
28	Cobb, GA	795	69,000	86.79
29	Pinellas, FL	532	46,000	86.47
30	Tulsa, OK	234	20,000	85.47
31	Newport News, VA	367	30,700	83.65
32	Clarksville-Montgomery, TN	216	17,900	82.87
33	Northside, TX	400	32,500	81.25
34	Brevard, FL	351	28,500	81.20
35	Minneapolis, MN	655	53,000	80.92

36	Rockford, IL	249	20,100	80.72
37	Norfolk, VA	242	19,250	79.55
38	Prince William, VA	463	36,500	78.83
39	Sarasota, FL	232	18,000	77.59
40	Hillsborough, FL	1,080	83,421	77.24
41	Seminole, FL	340	26,000	76.47
42	Buffalo, NY	490	37,400	76.33
43	St. Tammany, NC	298	22,700	76.17
44	Chesapeake, VA	350	26,000	74.29
45	Albuquerque, NM	399	29,000	72.68
46	Chatham, GA	345	25,000	72.46
47	Wake, NC	700	50,000	71.43
48	Santa Rosa, FL	210	15,000	71.43
49	Conroe, TX	325	23,000	70.77
50	St. Lucie, FL	303	21,000	69.31
51	Collier, FL	217	15,000	69.12
52	Katy, TX	233	16,000	68.67
53	Winston-Salem, NC	346	23,500	67.92
54	Tangipahoa, LA	221	15,000	67.87
55	Seattle, WA	430	28,850	67.09
56	Lee, FL	511	34,240	67.01
57	Marion, FL	345	23,100	66.96
58	Boston, MA	449	30,000	66.82
59	Guilford, NC	585	39,000	66.67
60	North East, TX	300	20,000	66.67
61	Mesa, AZ	348	22,900	65.80
62	Fayette, KY	230	15,000	65.22
63	Orange, FL	983	64,000	65.11
64	Yonkers, NY	370	24,000	64.86
65	Denver, CO	377	23,900	63.40
66	Charlotte, NC	994	63,000	63.38
67	Loudoun, VA	332	21,000	63.25
68	Cumberland, NC	477	30,000	62.89
69	Mobile, AL	475	29,500	62.11
70	Little Rock, AR	296	18,000	60.81
71	Duval, FL	962	57,000	59.25
72	Calcasieu, LA	276	16,000	57.97
73	Jefferson, AL	404	23,000	56.93
74	Buncombe, NC	285	15,900	55.79
75	St. Louis, MO	469	25,900	55.22
76	Austin, TX	365	20,000	54.79

77	Tucson, AZ	296	16,000	54.05
78	Montgomery, AL	275	14,800	53.82
79	Cleveland, OH	504	26,800	53.17
80	Columbus, OH	513	27,000	52.63
81	Pitt, NC	215	10,700	49.77
82	Miami- Dade, FL	1,468	70,000	47.68
83	Kansas City, MO	540	25,100	46.48
84	Memphis, TN	435	20,000	45.98
85	Portland, OR	261	12,000	45.98
86	Fort Worth, TX	375	17,000	45.33
87	San Diego, CA	479	21,600	45.09
88	Wichita, KA	424	18,943	44.68
89	Dallas, TX	1,145	50,000	43.67
90	Milwaukee, WI	1,350	57,000	42.22
91	Rochester, NY	597	24,500	41.04
92	Houston, TX	1,300	47,000	36.15
93	Los Angeles, CA	2,189	75,925	34.68
94	New York City, NY	5,066	170,000	33.56
95	Philadelphia, PA	944	30,015	31.80
96	Baltimore City, MD	348	10,000	28.74
97	Detroit, MI	777	20,800	26.77
98	Chicago, IL	1,987	47,200	23.75
99	St. Louis, MO	285	3,400	11.93
100	Los Angeles Cty, CA	550	5,800	10.55
	Average	570	36,904	64.74

SELECTED COMPARATIVE SCHOOL TRANSPORTATION DATA

Regular and Special Transportation -- FY 99

(Miles in Millions)

	Regular Transportation		Special Transportation	
Jurisdiction	**Riders**	**Miles**	**Riders**	**Miles**
Anne Arundel	50,509	6.2	1,669	3.4
Baltimore County	72,591	7.0	3,167	5.3
Montgomery	**83,781**	**9.2**	**6,646**	**7.8**
Prince George's	89,317	14.4	5,857	7.3
State of Maryland	577,135	75.7	27,552	37.4

Regular and Special Transportation -- FY 98

(Miles in Millions)

	Regular Transportation		Special Transportation	
Jurisdiction	**Riders**	**Miles**	**Riders**	**Miles**
Anne Arundel	49,532	6.3	1,638	3.1
Baltimore County	85,135	6.9	2,837	4.7
Montgomery	**84,978**	**8.6**	**6,091**	**7.8**
Prince George's	83,620	14.4	6,027	7.3
State of Maryland	577,142	73.4	26,892	35.5

Anne Arundel and Prince George's County reported actual ridership to MSDE.

Regular and Special Transportation -- FY 97

(Miles in Millions)

	Regular Transportation		Special Transportation	
Jurisdiction	**Riders**	**Miles**	**Riders**	**Miles**
Anne Arundel	50,286	6.3	1,760	2.9
Baltimore County	88,070	7.2	3,364	4.5
Montgomery	**82,030**	**8.6**	**6,688**	**7.4**
Prince George's	85,296	14.0	5,270	9.1
State of Maryland	568,310	72.9	25,963	35.9

Anne Arundel County reported actual ridership to MSDE.

Regular and Special Transportation -- FY 96
(Miles in Millions)

	Regular Transportation		Special Transportation	
Jurisdiction	**Riders**	**Miles**	**Riders**	**Miles**
Anne Arundel	47,624	6.0	1,633	2.7
Baltimore County	85,474	6.5	3,359	4.1
Montgomery	**81,881**	**8.1**	**6,146**	**7.1**
Prince George's	82,985	19.6	4,918	1.6
State of Maryland	552,510	76.6	24,394	27.6

Anne Arundel and Prince George's County reported actual ridership to MSDE.

Regular and Special Transportation -- FY 95
(Miles in Millions)

	Regular Transportation		Special Transportation	
Jurisdiction	**Riders**	**Miles**	**Riders**	**Miles**
Anne Arundel	48,627	6.0	1,497	2.9
Baltimore County	82,997	6.3	2,412	4.0
Montgomery	**67,239**	**8.6**	**6,109**	**7.3**
Prince George's	79,615	13.6	4,885	6.4
State of Maryland	529,300	70.4	22,801	32.1

Anne Arundel, Montgomery and Prince George's County reported actual ridership to MSDE.

Cost Per Rider, Cost Per Mile, Cost Per Bus, and Load Factor -- FY 99

Jurisdiction	$ Per Rider	$ Per Mile	$ Per Bus	Load Factor
Anne Arundel	$ 501.75	$ 2.75	$ 55,584	110.78
Baltimore County	$ 439.29	$ 2.69	$ 47,273	107.61
Montgomery	**$ 603.62**	**$ 3.21**	**$ 54,638**	**90.52**
Prince George's	$ 664.91	$ 2.92	$ 56,351	84.75
State of Maryland	$ 521.84	$ 2.79	$ 51,110	97.94

Cost Per Rider. Cost Per Mile. Cost Per Bus. and Load Factor -- FY 98

Jurisdiction	$ Per Rider	$ Per Mile	$ Per Bus	Load Factor
Anne Arundel	$ 500.66	$ 2.73	$ 55,693	111.24
Baltimore County	$ 345.39	$ 2.60	$ 44,357	128.43
Montgomery	**$ 570.49**	**$ 3.18**	**$ 53,341**	**93.50**
Prince George's	$ 669.62	$ 2.77	$ 50,829	75.91
State of Maryland	$ 494.81	$ 2.75	$ 47,024	95.03

Anne Arundel and Prince George's County reported actual ridership to MSDE.

Cost Per Rider. Cost Per Mile. Cost Per Bus. and Load Factor -- FY 97

Jurisdiction	$ Per Rider	$ Per Mile	$ Per Bus	Load Factor
Anne Arundel	$ 475.30	$ 2.70	$ 54,368	114.39
Baltimore County	$ 299.29	$ 2.33	$ 41,275	137.91
Montgomery	**$ 577.04**	**$ 3.21**	**$ 55,225**	**95.70**
Prince George's	$ 672.10	$ 2.64	$ 53,914	80.22
State of Maryland	$ 488.05	$ 2.66	$ 46,629	95.54

Anne Arundel County reported actual ridership to MSDE.

Cost Per Rider, Cost Per Mile, Cost Per Bus, and Load Factor -- FY 96

Jurisdiction	$ Per Rider	$ Per Mile	$ Per Bus	Load Factor
Anne Arundel	$ 475.74	$ 2.67	$ 54,245	114.02
Baltimore County	$ 295.21	$ 2.46	$ 40,658	137.73
Montgomery	**$ 552.55**	**$ 3.19**	**$ 53,450**	**96.73**
Prince George's	$ 632.84	$ 2.62	$ 56,533	89.33
State of Maryland	$ 477.57	$ 2.64	$ 46,242	96.83

Anne Arundel and Prince George's County reported actual ridership to MSDE.

Cost Per Rider, Cost Per Mile, Cost Per Bus, and Load Factor -- FY 95

Jurisdiction	$ Per Rider	$ Per Mile	$ Per Bus	Load Factor
Anne Arundel	$ 467.43	$ 2.62	$ 54,741	117.11
Baltimore County	$ 294.54	$ 2.44	$ 40,640	137.98
Montgomery	**$ 654.83**	**$ 3.03**	**$ 54,149**	**82.69**
Prince George's	$ 650.24	$ 2.74	$ 55,839	85.87
State of Maryland	$ 484.38	$ 2.61	$ 45,745	94.44

Anne Arundel, Montgomery and Prince George's County reported actual ridership to MSDE.

Source: OIG analysis of MSDE data.