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Student Transportation

The Miami-Dade County Public School District transports some 70,000 students to and from school each day, but needs to establish better accountability and improve efficiency.

Conclusion

While there are opportunities to improve the operational efficiency and cost-effectiveness of student transportation services in Miami-Dade County Public Schools, the District will not be able to address these opportunities unless it first addresses a more fundamental deficiency – the general absence of a system of accountability based on measurable goals and objectives. Without a system of accountability, and the management infrastructure needed to support it, Department of Transportation (DOT) managers will have neither the information needed to analyze improvement opportunities nor the support systems needed to drive change. Examples of areas where management systems and accountability are lacking are numerous.

- Specific goals and clearly defined and measurable objectives have not been established.
- Basic student transportation information such as on-time performance, cost per mile, and accident rates per miles traveled are not readily available, nor is such information regularly analyzed for potential opportunities for improvement.
- Bus driver performance is not evaluated and the evaluations of supervisors are not based on measurable outcomes.
- There is a compelling need to integrate and modernize the current information systems and computer support.

Moreover, the lack of management and accountability systems are exacerbated by the DOT's organizational structure. Many organizational units currently operate on a semi-autonomous basis with little oversight associated with effectively managing operations. The absence of an effective system of accountability is magnified by this weak oversight.

Not surprisingly in an environment in which needed management and accountability systems are not in place, numerous opportunities exist to improve operational efficiency and effectiveness. Areas in which efficiency and cost-effectiveness can be improved include bus route scheduling practices, bus driver retention, bus purchases, vehicle retention, staffing formulas, and contracting out.

During the course of this review, Berkshire Advisors identified a number of District accomplishments in the student transportation area, some of which are included in Exhibit 12-1 below.

Exhibit 12-1

The District Recently Has Had a Number of Notable Accomplishments in Student Transportation.

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- The Vehicle Maintenance operation unit has taken steps to reduce costs by outsourcing many maintenance and repair jobs that can be performed more cost-effectively by outside contractors than by in-house staff.
 - The DOT has a very effective inventory control system in place that has virtually eliminated errors and losses.
 - The District has a strong incentive program for vehicle mechanics to achieve American Service Excellence (ASE) certifications in repair techniques and nearly half of all mechanics are currently taking part in the program.
 - DOT generates a profit when warranty work is completed in-house and the warranty company is charged back for labor.
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Source: Miami-Dade County Public Schools, Department of Transportation.

Overview of Chapter Findings

An overview of chapter findings is presented below.

Safety and Operational Efficiency

1. The District's efforts to ensure the safety of bus routes are generally effective while its efforts to ensure efficient school bus routing are not. (Page 12-9)
2. Regular school bus routes and activity trips operate in accord with established routines, while prepared for unexpected contingencies. (Page 12-15)
3. The District effectively recruits bus drivers, but needs to improve its retention efforts. (Page 12-16)
4. The District provides comprehensive training programs, but needs to shore up its evaluation process and discipline policy. (Page 12-18)
5. The District provides transportation services to exceptional students in a coordinated fashion and accurately reports to the State ESE students transported. (Page 12-20)
6. The District responds promptly and appropriately to accidents. (Page 12-21)
7. The District takes steps to ensure that appropriate student behavior is maintained on school buses. (Page 12-24)

Acquisition and Maintenance of School Buses

8. The District has established a process to ensure that a sufficient school bus fleet is acquired and available to meet the District's student transportation needs, but needs evaluate its policies to ensure efficient practices. (Page 12-24)
9. The District does a good job of providing timely routine servicing for buses and other District vehicles and responds quickly and effectively to breakdowns and other unforeseen contingencies. (Page 12-29)
10. The District's fuel purchase, management and dispensation procedures are cost-efficient and operationally effective. (Page 12-32)
11. The District's maintenance facilities are generally convenient, secure and supportive of maintenance activities. (Page 12-33)
12. The District's maintenance staffing and training is generally adequate, but some improvements could be made. (Page 12-36)
13. The District maintains an inventory of parts, supplies, and equipment, but needs to improve its tracking systems and its procurement practices. (Page 12-38)

Management Oversight And Accountability

14. The technological and computer support for student transportation functions is evolving, but has significant shortcomings and substantial future efforts are required. (Page 12-42)
15. The District has no accountability system in student transportation and no tracking or reporting of performance. (Page 12-43)
16. The DOT coordinates longer-term planning and budgeting for student transportation within the context of District planning efforts, but needs to provide more cost reduction options to the superintendent and school board. (Page 12-45)
17. The District monitors the fiscal condition of student transportation functions by regularly analyzing expenditures and reviewing them against the budget, but needs to improve its tracking systems. (Page 12-46)
18. The District provides accurate counts of eligible students transported on the periodic FEFP survey. (Page 12-47)
19. The District has not adequately analyzed the potential for expanded contracting of student transportation and vehicle maintenance. (Page 12-48)
20. The District has taken steps to minimize administrative layers, but more needs to be done. (Page 12-49)

Fiscal Impact of Recommendations

Berkshire Advisors recommends five actions in the student transportation area that would have a fiscal impact on the District. However, other recommendations have been made that, when implemented, would have a beneficial fiscal impact for the District that cannot be estimated at this time.

Exhibit 12-2

Five Student Transportation Action Plan Recommendations Have Fiscal Impacts

Recommendation	Five-Year Fiscal Impact
<ul style="list-style-type: none"> • Action Plan 12-1: Develop transportation plan to increase bus occupancy 	<ul style="list-style-type: none"> • By increasing bus occupancy, the District could realize an additional \$1.7 million annually and \$8.5 million over five years in state funding.
<ul style="list-style-type: none"> • Action Plan 12-1: Centralize bus routing function 	<ul style="list-style-type: none"> • Eliminating unneeded routing staff will reduce personnel costs by \$500,000 per year and \$2.5 million over a five-year period.
<ul style="list-style-type: none"> • Action Plan 12-5: Reduce the spare bus ratio to no more than 12% of daily routes 	<ul style="list-style-type: none"> • Reducing the spare fleet to 12% of current daily routes would result in a reduction of 62 spare buses. The District could receive a one-time cost recovery of \$173,000. • The District could also receive a one-time cost recovery of \$290,000 from the sale of its stockpile of “emergency” buses kept in addition to its spare fleet.
<ul style="list-style-type: none"> • Action Plan 12-5: Review bus size in the transportation fleet 	<ul style="list-style-type: none"> • Operating smaller buses could reduce both operating and capital costs. Depending on routing efficiencies achieved, estimated capital savings could amount to about \$616,000 per year and \$3.1 million over five years. Up to an additional \$438,000 per year and \$2.2 million over five years might result from a reduction in fuel expenses associated with operating smaller vehicles.
<ul style="list-style-type: none"> • Action Plan 12-16: Centralize select functions 	<ul style="list-style-type: none"> • Saving in personnel costs should amount to approximately \$350,000 per year and \$1,750,000 over five years.

Source: Berkshire Advisors.

Background

Background information on transportation services in the Miami-Dade County Public School District is presented in two subsections. The first subsection presents general information on the scope of the transportation services provided by the District, state support for transportation services, the number of students transported and expenditures. The second subsection outlines how the DOT is organized to provide needed services.

General Information

Located along the southeast tip of the Florida peninsula, the Miami-Dade County Public School District covers 1,955 square miles—an area larger than the states of Rhode Island and Delaware—and is the largest metropolitan area in the State of Florida. It is bounded by Biscayne Bay and the Atlantic Ocean to the east, Everglades National Park to the west, the Florida Keys to the south, and Broward County to the North. One-third of Miami-Dade County is located in Everglades National Park. Most of the 2.2 million inhabitants live on the eastern side of the county in an urban environment. With 1.3 million registered cars and 1.6 million registered drivers, many of the county's main traffic arteries are congested, resulting in extended driving times during peak travel periods.

The Miami-Dade Public School District's DOT employs over 3,100 people—including over 1,800 bus drivers—and is responsible for the home to school transportation of over 70,000 students on some 1,472 routes. The DOT also maintains over 4,000 vehicles including school buses, school police cars, delivery trucks, and various maintenance department vehicles. The 2001-02 annual operations budget for DOT amounts to \$88.7 million (see display of budget and actual expenditures in Exhibit 12-5).

Florida law requires school districts to provide student transportation. The state helps districts fulfill this mandate by providing transportation funding for the following groups of students:

- students who live two or more miles from their school;
- elementary school students (sixth grade and under) who live within two miles of their school but who would be required to walk through hazardous conditions (defined by the state) to attend school;
- students with disabilities;
- participants in teenage parent programs; and
- special education, vocational, and dual enrollment students transported from one school to another.

Transportation costs for other students (courtesy riders), extracurricular trips, and costs that exceed the state allotment are paid with district funds.

The state allocates student transportation funding to school districts based on a set formula. The formula makes adjustments for

- the Florida Price Level Index which is generated from the measure of a “market basket” of goods and services in each of the 67 Florida counties,
- a Bus Occupancy Index that rewards districts that have higher load factors (students per bus), and
- a Rurality Index, derived from the Florida Statistical Abstract, which adjusts a district's funding upward based on the number of rural inhabitants and downward based on the number of urban inhabitants.

Exhibit 12-3 presents selected student transportation data for the District and four peer districts in the state for the 2000-01 school year. Listed below are several conclusions that may be drawn from this data.

- The percentage of students transported in the Miami-Dade County Public Schools (17.8%) is less than half the average percentage of students transported in the four peer districts (39.2%). The primary factor contributing to the lower percentage ridership is Miami-Dade's concentrated urban environment in which greater numbers and

percentages of students live within a two-mile radius of their school and are, therefore, ineligible for state funded transportation.

- The District transported fewer regular students per day to more schools, but used more buses and drove more miles compared to its peers. The District’s low average bus occupancy is driven in part by transporting fewer students to more schools and the District using more of its fleet to transport students with special needs compared to peers.
- Student transportation staff as a percentage of all District staff was 8.28% in Miami-Dade, which ranked second highest when compared with four peer school districts (which range from 7.71% to 9.65%) and it was above the peer average of 7.73%.

Exhibit 12-3

Comparative Student Transportation Data for Miami-Dade County School District and Four Peer Districts for 2000-01

Measure	Miami-Dade	Broward	Hillsborough	Orange	Palm Beach	Peer Average
Square Miles	1,955	1,211	1,053	910	1,993	1,292
Number of Students Enrolled	368,123	251,080	164,224	150,538	153,853	179,924
Number of Students Transported	62,992	69,752	80,207	63,432	59,095	68,122
Percentage of Students Transported	17.11%	27.78%	48.84%	42.14%	38.41%	39.29%
Number of School centers Served	318	215	178	173	151	179
Number of Buses (Daily Service)	1,471	1,127	1,018	906	566	904
Number Annual Route Miles	26,400,000	20,553,080	23,917,302	16,753,379	10,753,560	17,994,330
Average Bus Occupancy	43	62	79	70	104	79
Percentage of Fleet Used Primarily for Special Needs	40.00%	0.00%	20.00%	36.60%	23.00%	19.90%
Number of Student Transportation Staff	3,116	1,826	1,525	1,695	989	1,509
Total of all District Staff	37,636	24,829	18,626	17,567	17,312	19,584
Percentage of Student Transportation Staff	8.28%	7.35%	8.19%	9.65%	5.71%	7.73%
State Allocation	\$30,430,125	\$26,386,799	\$32,975,602	\$25,693,150	\$25,954,022	27,752,393
Percentage of Student Transportation Funding by State	34.88%	36.32%	68.86%	52.17%	75.75%	58.28%
Student Transportation Expenditures	\$88,509,055	\$72,641,335	\$47,889,961	\$49,249,850	\$34,263,675	51,011,205
Student Transportation Expenditures Per Annual Mile	\$3.35	\$3.53	\$2.00	\$2.94	\$3.19	\$2.92
Student Transportation Expenditures Per Student (including bus purchases)	\$1,282	\$1,007	\$585	\$751	\$555	\$725

Source: Draft Q-Link: Florida School District Transportation Profiles 2002, for 2000-01. Department of Education, School District Data for 2000-01. Berkshire Advisors calculations.

- The District has a much lower percentage of its transportation costs funded by the state, as compared to peer districts, primary because of the impact that the District’s low bus occupancy has in the state funding formula

Student Transportation

calculations. As the following table shows, only 38% of transportation costs are funded by the state in Miami-Dade while the average in three of four peer districts (Hillsborough, Palm Beach, and Orange) is 68% (or almost twice as much as the percentage of costs reimbursed in Miami-Dade.).

- The District's student transportation expenditures per (annualized) mile was \$3.35, which ranked it second highest when compared with four peer districts (which range from \$2.00 to \$3.53), and was above the peer average of \$2.92.
- The District's student transportation expenditures per student (including bus purchases) was \$1,282, which ranked it highest when compared with four peer districts (which range from \$555 to \$1,007), and was above the peer average of \$725.

As Exhibit 12-4 shows, the District currently transports more than 70,000 students. More than three out of five of these students (62.9%) are transported either because they live more than two miles from their school or because they are Elementary students who, if required to walk to school, would encounter certain state-defined hazards--termed "regular students" under Florida law. In addition, 29.4% of students are transported because they participate in either Magnet Programs or Exceptional Student Education programs. The District also transports vocational students, alternative education students, gifted students, and students in the teen parent program.

Exhibit 12-4

One-Third of Students Transported in Miami-Dade Are for Special Programs

Category	Number Transported Per Day	Percentage Of Transported Students
Regular Students	44,681	62.9%
Magnet Students	11,428	16.1
Exceptional Students	9,429	13.3
Vocational Students	2,165	3.0
Alternative Education Students	1,955	2.8
Teen Parent Students	752	1.1
Gifted Students	632	0.9
Total	71,042	100.0

Source: Miami-Dade County Public Schools, Department of Transportation. February 2001 FEFP Transportation Survey.

In addition, the District transports a number of courtesy riders (students not otherwise eligible for state funding) on a "space available" basis. Space available courtesy riders are assigned to school buses at the discretion of school site principals. District reports indicate that the number of courtesy riders is less than 3,000 per day. It is the District position that courtesy riders do not add to transportation costs because they are transported on a space available basis and additional bus stops are not incorporated into bus routes to accommodate these students.

As Exhibit 12-5 indicates, operating expenditures have averaged 91.5% of the total DOT expenditures for each of the past two fiscal years while expenditures for capital outlays have averaged 8.5% of total DOT expenditures.

Exhibit 12-5

Budget and Actual Expenditures of the DOT

	Budget 1999-00	Actual 1999-00	Budget 2000-01	Actual 2000-01	Budget 2001-02
Operating Funds	90,379,610	87,388,169	97,694,659	94,106,511	94,598,504
Capital Outlay Funds	20,783,359	7,312,201	25,224,775	9,694,022	25,537,937
Total DOT	111,162,969	94,700,370	123,189,434	103,800,533	120,136,441

Source: Miami-Dade County Public Schools, Budget Office.

The budget for the Operating Fund includes specific DOT direct expenses such as personnel, fuel, parts, other direct support costs. This budget excludes certain items that are budgeted centrally such as electricity, phones, water and sewer and salary increases. It should be noted that the Capital Outlay Fund (which includes costs for buses and vehicle maintenance facilities) includes projects that overlap several years. This accounts for the apparent “under expenditure” each year. Buses, for example, are paid for over two fiscal years.

Organization

Organizationally the administrative director who leads the DOT reports to the deputy superintendent of School Operations through the associate superintendent of School Operations. As illustrated in Exhibit 12-6, the administrative director oversees three major functional areas: Student Transportation (which operates seven regional Transportation centers); Vehicle Maintenance (which operates nine garage facilities) and the DOT’s administrative units.

School bus operations are organized into seven (7) decentralized units called Transportation centers that are dispersed throughout the District. Each center is managed by a center director and has its own routing staff, dispatch unit, bus drivers, substitute drivers, and administrative unit.

Vehicle Maintenance is responsible for maintaining and repairing the more than 3,600 vehicles owned by the District, as well as for inspecting over 230 contracted private buses used to transport the students in the district. Each of the nine maintenance centers is managed by a maintenance manager. Three fleet maintenance coordinators each manage three of the managers. The coordinators report to an executive director who is responsible for all of Vehicle Maintenance. The Inventory Control unit also reports to this executive director. Vehicle Maintenance currently has 172 mechanics and 133 administrative and support staff.

The DOT executive director is responsible for financial and other administrative support functions as well as serving as the deputy director of bus operations.

Exhibit 12-6

Typical Staffing of a Transportation center

Transportation center		
Proto Typical Listing of Personnel for 2001-2002		
Position-Title	Job Code	Positions
Director I	403	1
		1
Coordinator I	881	1
		1
Administrative Assistant	882	2
		2
Payroll/Per Assistant II	4335	1
Field Trip Clerk	4438	1
Executive Secretary I	4534	2
Word Processing Operator	4543	1
Copy Machine Operator II	5067	1
Chief Data Input Clerk	5097	1
		8

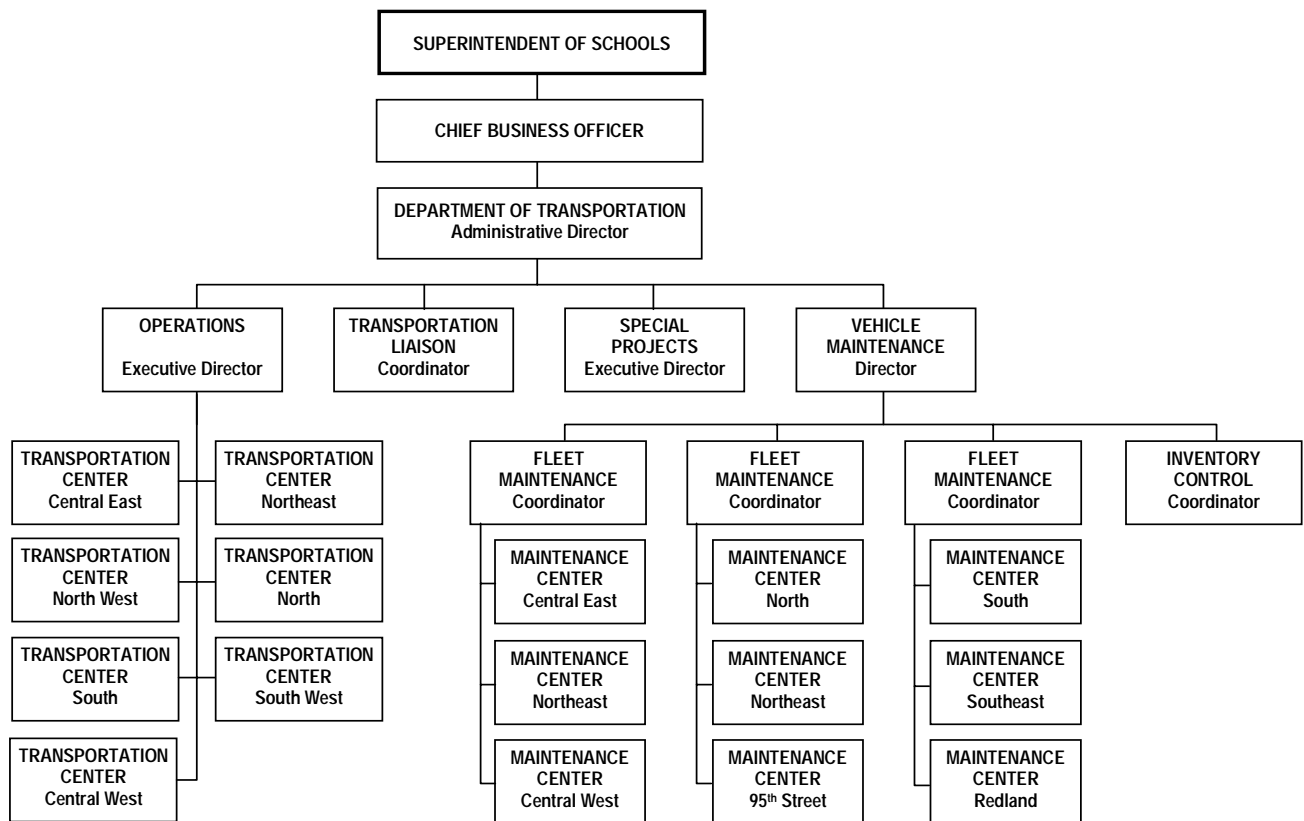
Student Transportation

Transportation center Proto Typical Listing of Personnel for 2001-2002		
Position-Title	Job Code	Positions
Route Manager	6275	1
Field Operations Specialist	6278	4
Route Manager Specialist	6279	3
Radio Dispatch Operator	6301	4
		12
Operations Helper	5503	2
		2
Lead Custodian	5607	1
Head Custodian	5608	1
Custodian - 12 months	5615	1
		3
Total		29

Source: Miami-Dade County Public Schools, Department of Transportation.

Exhibit 12-7

Transportation center Organization



Source: Miami-Dade County Public Schools, Department of Transportation.

The center director, with support from the coordinator and administrative assistant, has overall responsibility of bus operation conducted from the center. The routing and scheduling personnel plan and maintain the center's bus

routes, including the mapping of bus stops and the control of run times. Field Operation Specialists (FOS) provides direct supervision of bus drivers and school bus operations. Specific FOS duties include monitoring of pre-trip bus checks by drivers, performing accident investigations, and coordinating bus activities with school-based personnel. Staff of the Radio Dispatch unit maintains communications with school buses in the field. In addition, they assign substitute drivers to routes and combine routes if a substitute driver is not available.

Nine decentralized maintenance centers are dispersed throughout the District. Seven of these co-locate with the seven bus operations centers. The other two provide maintenance services to non-bus vehicles.

Methodology

Berkshire Advisors reviewed the District's student transportation operations using the Best Financial Management Practices and associated performance indicators developed by the Office of Program Policy Analysis and Government Accountability (OPPAGA) and adopted by the State Commissioner of Education. Berkshire Advisors employed a number of methodologies to develop chapter conclusions and action plans. For instance, the consultant conducted on-site visits and interviews with DOT staff at many levels and locations and gathered and reviewed documentation of their activities. The consultants also interviewed district-level and school site-based administrators regarding their views and experiences with the District's pupil transportation operations. The results of these interviews were supplemented by the results of a survey that was distributed to a representative sample of staff from throughout the District. The consultants also received input from parents and other citizens on transportation issues during public forums held in various parts of the District and while visiting school sites. These inquiries and observations were also supported by the examination and analysis of various District records and supporting documentation.

Safety and Operational Efficiency

1 The District's efforts to ensure the safety of bus routes are generally effective while its efforts to ensure efficient school bus routing are not.

The District takes a number of prudent steps to ensure the safety of school bus routes

At the beginning of each school year, bus drivers conduct a "dry run" of transportation routes. These test runs are used to determine the safety and timing of the bus routes. Bus routes are then modified based on the resulting input from the bus drivers. The route planning staff does not conduct regular on-the-scene reviews to evaluate the safety of routes and stops, but relies on the feedback from the bus drivers. In accordance with the DOT Rules and Policies Manual, drivers are required to report all hazardous conditions promptly and are advised to take all necessary precautions to safeguard students.

When safety concerns are expressed by parents, school site personnel, or bus drivers; an FOS is dispatched from Transportation centers to evaluate the situations. Routes are then modified based on the recommendations of the FOS. Since most complaints are not documented, Berkshire Advisors were unable to determine frequency or timeliness of responses to safety concerns.

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In addition to the required identification and reporting to the state Department of Education of hazardous conditions that qualify for state funding, Berkshire Advisors noted a number of situations where the District has provided transportation for students facing locally defined hazards. These include situations where students would have to cross busy thoroughfares that do not qualify for state funding because traffic congestion prevents sufficiently high traffic speeds to be considered a hazard by the state. The District works with other local governmental agencies to mitigate hazardous conditions through the use of crossing guards.

Bus dispatch personnel at Transportation centers print out “route displays” for substitute bus drivers to aid them in filling in for regular drivers who are absent. These print outs include the identification of bus stops, schedule times, and students to be transported. In some cases the DOT may also provide hand-written Direction of Travel Forms to assist substitute drivers. Neither of these forms, however, was observed to identify any route hazards. In recognition of these inadequacies the Director of DOT has established a Customer Focus Team of DOT managers to develop improvements in the route directions for substitute drivers.

The District’s transportation operation is comparatively inefficient, in large part because of school district policy decisions that limit increasing bus occupancy

As part of the District’s efforts to ensure operational efficiency, Miami-Dade has established staggered school start/close times, thus enabling buses to run multiple routes each day. The opening and closing times for school are published each year and, by board rule, reported to the board of education 60 days prior to their effective date. The schedule for regular schools for the 2001-2002 school year is as follows:

- Elementary Schools: 8:30 A.M. - 3:00 P.M.
- Middle Schools: 9:00 A.M. - 3:40 P.M.
- Senior High Schools: 7:30 A.M. - 2:30 P.M.

A review of the District’s routes by Berkshire Advisors indicated that the DOT takes full advantage of the staggered start/close times in the utilization of its buses. Most bus routes examined included three runs in the morning and three runs in the afternoon serving elementary, middle, and senior high schools. However, the District has the lowest average bus occupancy compared to its peer school districts and is the third lowest in the state. As shown in Exhibit 12-8, Miami-Dade transports about the same number of students each day as its peer school districts, but by using substantially more buses. For example, the Broward County School District transports, on average, 6,760 more students per day than Miami-Dade with 344 fewer buses.

Exhibit 12-8

Miami-Dade County Public Schools Average Bus Occupancy Is Lowest Among Peers

District	No. of Buses in Daily Service	Average No. of Students Transported	Average Bus Occupancy
Broward	1,127	69,752	61.89
Hillsborough	1,018	80,207	78.79
Miami-Dade	1,471	62,992	42.82
Orange	906	63,432	70.01
Palm Beach	566	59,095	104.41
Peer Average	1,018	67,096	72.00
State Average	14,351	985,684	68.68

Source: Q-Link: Florida School District Transportation Profiles, draft July 2002, Department of Education.

The main reasons for the District's low bus occupancy is due to the policy decisions made by the District regarding bell schedules and exceptional student education (ESE) and magnet school student transportation. The District's bell schedule precludes the DOT from scheduling longer routes to pickup more students per bus. Further, the District's policy to permit early release of students at elementary schools requires additional bus routes that do not have time to make subsequent runs to take middle school students home.

Also, 75% of regular students transported ride for less than one half hour and 96% less than one hour (see Exhibit 12-9 in section 2 of this chapter) resulting in the use of more buses with fewer riders than could be achieved with longer ride times. By extending the time-lag between schools' start times and finish times they could extend student bus ride times and thereby accommodate more students per bus on longer routes.

By amending the school bell schedule, significant reductions in the number of bus routes operated could be achieved. For example, the DOT estimated that changing the bell schedule for Jose de Diego Middle School one hour later could eliminate the need for 15 buses at a savings of \$350,000 and by changing the bell schedule for Charles Drew Middle School one hour later could eliminate the need for six buses at a savings of \$140,000.

The District's policy to provide ESE student transportation to specialized schools or programs where few other students share their transportation destination increases the number of buses and routes. Miami-Dade transports over 9,500 ESE students. According to the Director of DOT, over 40% of the District's fleet is used for ESE transportation. If ESE students were to attend their regularly assigned neighborhood school, bus occupancy on regular transportation routes could be increased where special accommodations are not necessary.

By transporting ESE students to their neighborhood schools, significant reductions in the number of bus routes operated could be achieved. For example, the DOT's analysis of transporting 87 ESE students to the Southwest Senior High School who are out of that school's region requires the use of approximately eight additional buses at an annual cost of about \$186,500. Chapter 5 of this report contains recommendations relating to the placement of ESE students within neighborhood schools, which could favorably impact the cost of ESE transportation by providing services to these students at locations closer to their homes.

District policies provide that qualified magnet school students can receive district paid transportation to and from their designated magnet school. Similar to ESE student transportation, there are often only a very few magnet school students from a particular geographic area who will attend a specific magnet school, which results in very low ridership per bus. By transporting students to magnet school programs only within their region could help to increase bus occupancy. Or, requiring parents to transport or pay for the transportation when outside the region could help reduce transportation costs to the District.

Bus occupancy is not only critical in the number of buses and drivers required to transport students, but affects the state funding the school district receives for student transportation. The Department of Education, School Transportation Management Section estimates that each 3.3 students of decrease or increase in the average bus occupancy state funding could change by 1%. For instance, if Miami-Dade increased its bus occupancy by 19 students to match that of the Broward County School District, the District could receive an additional \$1.7 million in state funding annually.¹

The District's methods of routing and scheduling are inherently inefficient

The District lacks modern computer support for its routing efforts and its decentralized staffing of routing personnel does not contribute to effective cross-area routing. Further, there is little effort to control the number of non-eligible student riders.

¹ Using the DOE estimate, increasing the District's bus occupancy by 19 would increase the state funding by 5.76% (19/3.3). The state funding allocation for Miami-Dade in 2000-01 would have increased from \$30,430,125 to \$32,182,900, or by \$1,752,775.

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- Computer systems While the District currently maintains its Computerized Automated Transportation System (CATS), this system is not Windows based, is not web enabled, and does not provide graphical user interfaces. The system requires extensive manual effort to maintain and has limited utility for the routing and scheduling of school buses. Berkshire Advisors observed the process for the routing of school buses that includes: the copying, cutting, and taping together of area maps, the placement of various colored adhesive dots on the maps (representing students residences and school locations), the manual “taping-off” of route areas, and the manual construction and entering into CATS of the created bus routes. Transportation staff relies heavily on these manual records and other paper documents to do their jobs. The DOT is currently testing a replacement system, MAPNET NT, in one of its seven centers; however the staff interviewed by Berkshire Advisors indicated that the new system was very complex to use effectively.
- Decentralized routing The DOT maintains seven routing and scheduling operations at each of its Transportation centers. This configuration creates a high risk of inefficient routing, poor utilization of staff, and inconsistent procedures and routing standards. Each center receives a listing of students to be transported based on the geographic area of their residence and assigned school. Even though adjacent transportation centers may also receive listings of students to be transported to the same schools, there is no formal coordination to ensure that the most efficient routes are established and maintained. While the bus routing for some districtwide programs is coordinated centrally; there is little emphasis at transportation centers on routing efficiently. Berkshire Advisors identified at least two routes that should have been combined and a large number of routes with very low ridership.
The DOT employs 32 route specialist at \$34,300 per year and 8 route managers at \$39,000 per year, excluding employee benefits, at the transportation center. This amounts to over \$1.7 million per year for this function for salaries and employee benefits (estimated at 20% of salaries). The ratio of routing personnel (40) to buses in daily service (1,472) is approximately 1 to 36. Increasing this ratio to 1 to 50 would enable a reduction in routing staff by 30%.
- Non-eligible bus riders- School site personnel issue bus passes to non-eligible student bus riders on a “space available” basis. These transported students are referred to as Courtesy Students. There is little effort to control the number of courtesy riders and some evidence that larger than necessary buses are used to accommodate greater numbers of these riders. There is also some evidence that many of the Courtesy Students may not be counted in the periodic surveys of bus ridership and these riders are not identified in the CATS system. It is the District’s position that courtesy riders do not add to transportation costs because they are transported on a space available basis and additional bus stops are not incorporated into bus routes to accommodate these students.

Berkshire Advisors has been advised that the District has other reviews being conducted. For example, the District’s Office of Management and Compliance Audits is conducting a review of the DOT’s current routing practices. Also, the Florida Sterling Council recently issued its interim assessment of the District’s support operations. In its preliminary assessment, Sterling Examiners report that DOT employees consistently understand the critical safety requirements of their customers. However, the DOT does not use complaint management processes that ensure all complaints received are tracked and resolved and that the resulting information is aggregated and analyzed for improvement purposes. The DOT does not have systems in place to measure overall customer satisfaction.² As the District implements changes to improve its operational efficiency, it will be important to reconcile customer service issues efficiently and effectively.

² The Florida Sterling Council examiners evaluate public and private organizations using the Sterling Criteria for Organizational Performance Excellence, which is based on the internationally acclaimed Baldrige Criteria for Performance Excellence. In December 2001, four Miami-Dade County Public Schools’ departments participated in the Sterling Navigator survey process to obtain explicit feedback on systematically improving their management approaches.

Recommendations

- We recommend that the DOT present to the superintendent and school board a transportation plan to increase bus occupancy to include cost analyses of options regarding revised school bell schedules and transportation of ESE and magnet school students.
- We recommend that the District move rapidly to complete the installation of an effective computerized routing and scheduling system.
- We recommend that the District centralize its routing staff in order to improve the efficiency of designing routes that overlap the geographic areas of the various transportation centers, to improve route planning staffing efficiency, and to ensure consistent adherence to routing standards
- We recommend that the District establish and maintain an effective complaint monitoring system to log and summarize the concerns of parents, schools, and the community, and to document the efforts to resolve these concerns.

Action Plan 12-1 provides the steps needed to implement these recommendations

Action Plan 12-1

Develop Transportation Plan to Increase Bus Occupancy	
Strategy	The Department should analyze options to increase bus occupancy including options regarding revised bell schedules and transportation of ESE and magnet school students.
Action Needed	<p>Step 1: Identify policy options to evaluate that have the greatest impact on increasing bus occupancy such as bell schedules and transportation of ESE and magnet school students.</p> <p>Step 2: Conduct cost-benefit analysis of policy options.</p> <p>Step 3: Produce a report and present it to the superintendent and school board to make a decision on how to increase bus occupancy.</p> <p>Step 4: Implement school board decision.</p>
Who Is Responsible	Administrative Director, Department of Transportation
Time Frame	December 2002
Fiscal Impact	By increasing bus occupancy, the District should realize an increase in state funding annually. By matching the bus occupancy of the Broward County School District, the District could realize an additional \$1.7 million annually and \$8.5 million over five years in state funding. By increasing bus occupancy, the District could reduce the number of bus routes operated, which would reduce the number of buses needed, number of drivers needed, and reduce maintenance and fuel costs. The District could reduce its fleet in daily use by over 300 buses by matching the Broward County School District's operation. The transportation plan to increase bus occupancy should detail these savings and how to phase them in over time.

Computerized Routing and Scheduling System	
Strategy	The District should move rapidly to complete the installation of an effective computerized routing and scheduling system.
Action Needed	<p>Step 1: Assign the responsibility for the implementation of an effective computerized Routing and Scheduling System to one of the DOT's executive directors.</p> <p>Step 2: Complete the evaluation, testing, and selection of a new system on an expedited schedule.</p>

Student Transportation

Step 3:	Provide the new computerized routing and scheduling resource to the centralized routing staff with the appropriate training on its effective utilization..
Step 4:	Conduct routing and scheduling activities for the 2002-03 school year utilizing the new system.
Step 5:	Evaluate and report improvements in the number routes and related ride-times and develop process for identifying and implementing additional procedural improvements.
Who Is Responsible	Administrative Director, Department of Transportation
Time Frame	July 2002
Fiscal Impact	Resources for this project are currently in the District's budget.

Centralize Bus Routing Function

Strategy	Centralize the routing staff currently located at each of the Transportation centers to improve the efficiency of designing routes that overlap the geographic areas, improve route planning staffing efficiency, and to ensure consistent adherence to District routing standards.
Action Needed	<p>Step 1: Assign the responsibility for District-wide routing and scheduling of school buses to one of the DOT's executive directors</p> <p>Step 2: Analyze and modify, as appropriate, routing protocols and procedures.</p> <p>Step 3: Physically bring together routing resources and train staff on uniform standards and procedures.</p> <p>Step 4: Conduct routing and scheduling activities for the 2002-03 school year in a centralized and coordinated fashion.</p> <p>Step 5: Evaluate and report improvements in the number of routes and related ride-times and develop process for identifying and implementing additional procedural improvements.</p>
Who Is Responsible	Administrative Director, Department of Transportation.
Time Frame	July, 2002
Fiscal Impact	<p>This recommendation will result in the reduction of resources required for this function. There are currently 40 route managers and specialists involved in this function at an estimated annual payroll cost of \$1.7 million. A saving of at least \$500,000 (or 30%) per year can be achieved in this area and \$2.5 million over five years.</p> <p>In addition, the more efficient routing achieved through this and other related recommendations in this report should reduce the number of routes. The specific dollar savings from reductions in the number of routes is indeterminate.</p>

Complaint Monitoring

Strategy	The District should establish and maintain an effective complaint monitoring system to log and summarize the concerns of parents, schools, and the community, and to document the efforts to resolve these concerns.
Action Needed	<p>Step 1: Assign the responsibility for the implementation of a complaint monitoring system to the Coordinator of Operations and Training.</p> <p>Step 2: Establish a system for the uniform reporting of complaints from schools, students, parents and the community.</p> <p>Step 3: Establish a system for the collection, summarization, and analysis of complaint data.</p> <p>Step 4: Evaluate and report complaint information on a timely basis and institute changes in operations and communications reduce complaints and improve customer relations.</p>

Who Is Responsible	Administrative Director, Department of Transportation
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

2 Regular school bus routes and activity trips operate in accord with established routines, while prepared for unexpected contingencies.

Regular bus routes

Through its system of routing and scheduling the DOT establishes route plans that list pick up and drop off locations and scheduled times. These plans are validated by “dry runs” by the bus driver at the start of the school year and monitored as necessary by FOS personnel from each of the Transportation centers. The DOT provides driver handbooks and training to ensure compliance with established procedures and protocols.

Bus route times and numbers of students per bus are monitored by route planning personnel to avoid overcrowding and ride times in excess of established standards. Computer generated exception reports are used to identify routes with apparent excessive ride times. The FOS personnel investigate complaints of excessive ride time or overcrowding and appropriate corrective action is taken.

Exhibit 12-9 displays the standard ride-time for various categories of students. While these times represent the scheduled times for these routes, variances do occur. The frequency and extent to which these scheduled times are not achieved is not known because the District does not maintain “on-time” data for its school buses. The longer ride times for ESE and Magnet students reflect the longer routes to geographically desperate locations of specialized programs.

Exhibit 12-9

Most (75%) Regular Students Ride the Bus Less Than 30 Minutes

Student Category	Less than 30min.	31-60 minutes	61-90 minutes	More than 90 min.
Regular	75%	21%	3%	1%
ESE	18%	42%	27%	13%
Magnet	10%	44%	35%	11%
All Others	13%	42%	33%	12%

Source: Miami-Dade County Public Schools, Department of Transportation.

Drivers have written instructions and receive training on policies such as where students can be discharged from their buses. For example, Drivers are specifically prohibited from “... discharging students at any stop other than the authorized stop, unless given written permission by the principal or designee”.

The DOT has established effective standardized procedures to deal with breakdowns, accidents, and other unexpected events. In such circumstances the school bus driver uses the on-board radio to call his Transportation center dispatch operator. In non-emergency break down situations the dispatch office notifies the center’s garage, which responds with an appropriate replacement bus driven by a mechanic. The students are transferred to the replacement bus and the mechanic sees to the repair of the bus. In the 2000-01 school year there were 2,105 breakdowns that required transferring students to another bus in order to complete the trip in progress. Since the District does not maintain data relating to on-time arrivals, the number of breakdowns that actually resulted in students being late to school is not known (procedures related to bus accidents are described in section 6).

Student Transportation

Each transportation center maintains an inventory of spare buses to meet emergency situations as well as deal with normal out-of-service conditions such as bus maintenance and inspections. Each center has 15 to 20% of its fleet as spares.

To avoid delays in the transportation of students and deal with bus driver absences, each Transportation center maintains a cadre of substitute bus drivers. The number of substitute drivers approximates 15% of the regular drivers at each center.

Standardized procedures addressing driver absences and tardiness are included in the driver's handbook under the subject, Attendance Policy. Drivers are required to provide advance notice and approval of absences when possible and to otherwise check in within five minutes of their scheduled start time. While the District does not have an automated system for handling calls from employees who will be absent or for making substitute driver assignments, the Dispatch operators monitor driver sign-in and assign the routes of absent or tardy drivers to substitute drivers to ensure the on-time transportation of students. The dispatch offices maintain established "doubling-up" routing routines in the event there is a shortage of substitute drivers. These procedures prevent routes from being missed because of driver absences.

Activity trips

The DOT has established standardized procedures for the ordering of activity bus trips by schools and the billing for these services back to the appropriate school accounts. Because District buses are not available during normal student transportation times, schools are also authorized to use certain pre-approved contract bus companies for activity trips. These contract companies are pre-screened by the Procurement Department and their buses inspected on a regular basis by the DOT.

When DOT buses are used for activity trips, drivers are assigned to these trips in accordance with the provisions of the union contract, which essentially provides for the rotation of these assignments. Schools are invoiced for these services by the Transportation centers at a pre-established rate of \$32 per hour, with a three-hour minimum charge. The rates charged by the District appear to be reasonable based on hourly salary rates of bus drivers and operating costs per mile and appears to cover all incurred costs. DOT provided field trips are summarized by each center each month to include the number of trips and total mileage. This information is summarized in an annual year-end report.

3 District effectively recruits bus drivers, but needs to improve its retention efforts.

Effective recruitment efforts

The District is effective in its recruiting efforts in that it is able to fill a large number of vacant positions. The recruiting efforts include advertisements in local newspapers as well as "now hiring" signs and flyers distributed throughout the community and the posting of employment opportunities on its website. The District does not keep statistics on how prospective employees find out about job openings and, therefore, the District does not know which recruitment techniques are most effective.

Job postings indicate that candidates must apply in person at the central personnel offices. This requirement may discourage potential employees from the more distant parts of the District from applying and may account for alleged higher vacancy rates in some of the more remote transportation centers.

Job applications are completed, and interviews are conducted, at the central personnel offices. Applicants successfully completing the interview process have their driving records checked. Those candidates with acceptable

driving records are referred to a state mandated dexterity test, physical examination, and federally required substance abuse testing.

Having completed these screenings successfully, candidates are eligible for the District’s training program. It takes about three weeks to fully train a new driver, including classroom and the on-the-road components and costs the District over \$3,000 per driver.

While the DOT does provide for the recognition of bus drivers with seniority and good safe driving records, the District does not employ effective programs for retaining school bus drivers as demonstrated by its high turnover rate.

High bus driver turnover rate

The DOT does not maintain turnover data for bus drivers and other employees. Berkshire Advisors calculated the approximate turnover rate among bus drivers to be about 20% per year, or 350 employees annually, based on the number of new drivers trained each year compared to the authorized positions. A review of bus drivers by years of service indicates that well over half of the drivers have less than four years with the District. The high turnover rate and low level of experience could adversely affect both efficiency and safety.

Once a school bus driver leaves the District and the position becomes vacant, part-time drivers bid by seniority for these positions. This process takes place each month. It usually takes approximately two to four weeks to fill a bus driver vacancy.

The DOT collects comparative salary and working hours data from other school districts in the state. This data indicates that Miami-Dade’s salaries and working hours are competitive with adjacent school districts, although slightly lower for hourly wages (see Exhibit 12-10 below). Bargaining unit officials representing the bus drivers contend, however, that the high employee turnover rate is a function of low pay rates and limited work hours. The DOT does not conduct exit interviews to help determine reasons for its high turnover rates.³

Exhibit 12-10

Miami-Dade Hourly Wages Are Lower Than Adjacent Districts

	Miami-Dade	Broward	Palm Beach
Hourly Wage	\$9.41	\$9.70	\$9.50
Weekly Hours Guaranteed	30	30	30

Source: Miami-Dade County Public Schools, Department of Transportation.

Recommendations

- We recommend that the District maintain turnover statistics for bus drivers and other job classifications in order to measure its effectiveness in retaining trained and experienced employees.
- We recommend that the District conduct exit interviews with terminating employees to determine their reasons for leaving the District and develop programs to improve employee retention in order to improve efficiency and safety and reduce costs of training and recruitment.

³ In its preliminary assessment, Florida Sterling Council Examiners report that DOT has some strong human resource management approaches, such as an employee recognition program and training programs. However, the factors that drive satisfaction, retention, and high performance are not identified.

Student Transportation

- We recommend that bus driver applications and initial interviews be completed at the Transportation centers to help draw job applicants from through out the District.

Action Plan 12-2 provides the steps needed to implement these recommendations.

Action Plan 12-2

Employee Turnover Data and Exit Interviews	
Strategy	Maintain turnover statistics for bus drivers and other job classifications and conduct exit interviews with employees to determine the District's effectiveness in retaining trained and experienced employees.
Action Needed	Step 1: Assign the responsibility for turn over statistics to the coordinator operations and Training. Step 2: Establish system for the uniform collection of retirement, resignation, and termination data by employee classifications. Step 3: Establish a process for conducting exit interviews to determine factors in employee resignations. Step 4: Evaluate and report turnover statistics and documented reasons for employee resignations. Step 5: Identifying and implement systemic improvements to help retained quality employees.
Who Is Responsible	Administrative Director, Department of Transportation.
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources

Decentralize Bus Driver Job Applications and Interviews	
Strategy	Bus driver job applications and initial interviews should be completed at the transportation centers to help draw job applicants from through out the District.
Action Needed	Step 1: Assign the responsibility for the process bus driver job applications and initial interviews to the coordinator of Operations and Training. Step 2: Establish system, in coordination with Human Resources Department, for the dissemination of bus driver job applications at the transportation centers. Step 3: Establish a process, in coordination with Human Resources Department, for the initial job interview of potential bus drivers at the transportation centers.
Who Is Responsible	Administrative Director, Department of Transportation.
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

4 The District provides comprehensive training programs, but needs to shore up evaluation process and discipline policy.

Training programs

The DOT provides comprehensive training programs that encompass the needs of both new employees and continuing staff. In-field driver trainers who provide behind-the-wheel assistance to drivers in need of skills improvement supplement formal training classes.

New bus driver training includes two days of preparatory training for those seeking to obtain their Commercial Drivers License (CDL). These classes include a review of the 1986 Commercial Motor Vehicle Act and several practice tests. In addition, new drivers must successfully complete 40 hours of pre-service training that includes segments on pupil management and District procedures.

Training is provided to continuing staff on an on-going basis. These in-service training sessions cover topics ranging from student management to how to handle parent contact to safe driving techniques. Continuing staff is required to attend at least eight hours of in-service training each year.

For the 2000-01 school year the DOT reported 102 accidents to the state. Of this number only 39 were deemed to be preventable accidents. The accident reports are not, however, regularly analyzed to detect trends that would guide training efforts. Although the most frequent type of preventable accident is a rear end collision (see Exhibit 12-12).

Each transportation center holds monthly meetings to provide an opportunity for drivers and supervisors to interact and share concerns. While this is a worthy concept, the drivers are not on paid time for these meetings and they are not well attended.

Supervision

While a degree of oversight and monitoring of bus drivers is done through the FOSs, the DOT does not do an annual evaluation of drivers' performance. The current collective bargaining agreement with the American Federation of State, County, and Municipal Employee (AFSCME), which represents both the bus drivers and the FOSs, does not provide for an evaluation of bus driver performance. It is District management's position that evaluations cannot be imposed on bus drivers without a provision in the AFCME contract.

Each transportation center maintains records of required annual physical examinations and tracks the assessment of infraction points under the Safe Driver Plan. Bus drivers who are trained on the Safe Driver Plan sign a form each year indicating they have read and received a copy of this plan. In addition, the Safe Driver Plan is covered in a comprehensive manner in the *Handbook for School Bus Drivers*. The District receives weekly downloads from the State's traffic violations database, which are used to update DOT records and ensure driver eligibility.

The District complies with the provisions of the Anti-Drug Act of 1988, Workers' Compensation Law, and the Omnibus Transportation Employee Testing Act (OTETA) of 1991 by establishing and updating its Drug-Free Work Place Policies. The District conducts drug and alcohol testing in accordance with the provisions of OTETA that include pre-employment, "reasonable suspicion", return-to-work, post-accident, and random testing. The District also provides an Employee Assistance Program for its staff.

Berkshire Advisors observes that District personnel policies allow school bus drivers who have tested positive for drugs or alcohol to continue transporting children, once they have completed a professionally prescribed diversion program. Only after a second positive test result for drugs or alcohol are school bus drivers dismissed. Berkshire Advisors believe that an employee in a safety sensitive position, such as a school bus driver, who tests positive for drugs or alcohol should be terminated from service and that the District's current policy needlessly places District students in harm's way.

Recommendations

- *We recommend that the District negotiate an annual employee performance evaluation in its contract with AFSCME to improve employee performance and accountability*
- *We recommend that the District establish a zero tolerance policy for drugs and alcohol usage in safety sensitive positions by making a positive drug test result grounds for immediate termination.*

Action Plan 12-3 provides the steps needed to implement these recommendations.

Action Plan 12-3

Employee Performance Evaluations	
Strategy	Negotiate an annual employee performance evaluation with AFSCME to improve employee performance and accountability
Action Needed	Step 1: Assign the responsibility for the employee evaluation process to the coordinator of Operations and Training. Step 2: Develop an annual employee evaluation process and related forms. Step 3: Negotiate an annual employee performance evaluation in the District's contract with AFSCME. Step 4: Implement the system of annual performance evaluations for DOT employees. Step 5: Use the performance evaluation process as a staff development tool to improve service levels.
Who Is Responsible	Administrative Director, Department of Transportation.
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Zero Tolerance For Bus Driver Substance Abuse	
Strategy	Establish a zero tolerance policy for drugs and alcohol usage in safety sensitive positions by making a positive drug test result grounds for immediate termination.
Action Needed	Step 1: Develop a draft board policy establishing zero tolerance for substance abuse in safety sensitive positions. Include immediate termination as the consequence of a positive drug test for employees in safety sensitive positions in the policy statement Step 2: Obtain school board approval of the Zero Tolerance Policy. Step 3: Publish and disseminate the Zero Tolerance Policy at least annually.
Who Is Responsible	The Board of Education.
Time Frame	January, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

5 The District provides transportation services to exceptional students in a coordinated fashion and accurately reports to the State ESE students transported.

Serving special needs

The key to strong support services to Exceptional Student Education (ESE) is good communication with the ESE instructional staff and parents. To that end, the District has created a liaison position to assist schools and parents with ESE transportation issues. DOT staff is brought into the Individual Educational Plan (IEP) process on a timely basis to ensure transportation options are given appropriate consideration in the planning phase.

The District transports some 9,400 ESE students accounting for about 14% of the total transported students (but about 40% of the routes). Approximately 85% of students receive special accommodations. Where appropriate, ESE students ride regular school buses; however, many have special needs that are best addressed through special transportation accommodations. These special accommodations may include lift buses that are designed to handle wheel chairs. The DOT has over 400 lift buses of various sizes in its fleet to accommodate special situations. In some individual situations transportation may be provided in vans or other alternatives to regular school buses.

State reporting and Medicare funding

Four times a year counts of students transported are collected for the Florida Education Finance Program (FEFP). In this process the name and student numbers of all students receiving transportation services are collected by bus drivers and validated by transportation center support staff. In addition, for ESE riders, drivers annotate special needs students on their survey forms. This information is cross-referenced to the CATS and Students Information System by transportation center support staff (normally the routing specialists) to ensure proper coding of ESE riders for the State survey. The counts of students with special needs are also used for planning purposes when acquiring new buses.

In April 2000 the District entered into a contract with Deloitte Consulting to implement procedures for obtaining reimbursement for services provided to Medicaid eligible students. DOT staff worked with the consulting firm to establish effective procedures to capture necessary student transportation information through the use of Medicaid Trip logs. The District receives Medicaid reimbursement for 1,450 transported ESE students.

6 District responds promptly and appropriately to accidents.

Accident response

The District has well defined written procedures to be followed in case of a bus accident. These procedures are communicated to bus drivers and other DOT personnel in their annual renewal training so that each is acquainted with their role and responsibility in emergencies.

The initial information of a bus accident normally comes into the dispatch unit of a transportation center via the Districts radio network. Each school bus is equipped with a two-way radio that drivers use to report relevant information regarding an accident. The District is in the process of acquiring a new radio system that will improve reliability and functionality. All accidents, regardless of how minor, must be reported. A driver's failure to report an accident can result in dismissal from service.

Upon receipt of an accident call, the dispatch unit notifies the appropriate resources to respond to the situation. Such resources may include: emergency 911 and police, if injuries are involved; school personnel; an FOS trained in accident investigation; and garage personnel to deal with a damaged bus. The dispatch unit is also responsible for notifying the director of Transportation and the deputy superintendent.

Accident investigation reports are completed for all accidents that involve injury to a student or property damage in excess of \$500. Accident reports are prepared and submitted to the Department of Education as required by law. For the 2000-01 school year the DOT reported 102 accidents to the state Department of Education.⁴ With 26 million miles traveled by District buses, this results in an accident rate of 3.9 per one million miles up from 2.1 accidents per one million miles in the previous year (1999-2000) as shown in Exhibit 12-11 below.

For the prior year, 1999-2000 (the most recent year for which comparable data is available at this time), the District reported 57 accidents. The following chart compares the Miami-Dade accident rate per million miles with peer districts. Miami-Dade's bus accident rate compares quite favorably with peer districts and adjacent districts (Broward and Palm Beach) in particular.

⁴ Of 102 accidents, 39 (38%) were deemed to be preventable accidents in which the driver's actions could have reasonably avoided the accident.

Exhibit 12-11

Miami-Dade Has Second Lowest Reportable Accident Rate Per Million Miles Compared to Peer Districts for 1999-2000

School District	Number of Accidents	Annual Miles (000 omitted)	Accident Rate per Million Miles
Broward	99	20,324	4.9
Hillsborough	37	23,964	1.5
Miami-Dade	57	27,440	2.1
Orange	82	16,270	5.0
Palm Beach	66	11,288	5.8

Source: Department of Education, School Transportation Management Section.

The Florida Department of Highway Safety and Motor Vehicles reports a high rate of accidents in Dade County in the category of school buses. Their statistics include the large number of privately owned school buses operating in the Miami area and their data, as a result, is not representative of the comparatively good accident rate achieved by Miami-Dade schools.

Exhibit 12-12 displays school bus accident data of Miami-Dade by cause of accident.

Exhibit 12-12

Rear-End Collisions Are the Most Preventable School Bus Accidents

Cause of Accidents	Number
Rear End Collision	15
Backing	8
Sideswipe	8
Turning, hit fixed object	6
Other	2
Total	39

Source: Miami-Dade County Public Schools, Department of Transportation. DOT bus accident reports 2000-2001.

The accident records of bus contractors are closely monitored, although accident rates are not computed for contract providers. It should also be noted that private contractors running district routes are not provided with DOT two-way radios. Contact with these buses must go through the contractor's bus dispatch operation.

An ounce of prevention

The DOT has the ultimate responsibility for student safety while they are on a school bus. On the other hand, school staff is responsible for school bus evacuation training. This required student training is supported by the DOT but documentation that the training has been conducted is, in most instances, maintained at the school site. The DOT should establish a system to ensure that schools have in fact conducted prescribed training.

The DOT has established procedures to monitor school bus drivers' pre-trip inspection procedures. FOS personnel frequently observe the twice a day inspection process and bus drivers are required to sign off on a pre-trip inspection log and check list.

Recommendations

- We recommend that bus accident reports be summarized and analyzed to detect trends and guide bus driver training.
- We recommend that all buses transporting District students, including contractors, be provided with District radios or be required to have the ability to be in continuous contact with the DOT dispatch operators.
- We recommend that the DOT develop a system to ensure that schools have conducted the required school bus evacuation training.

Action Plan 12-4 provides the steps needed to implement these recommendations.

Action Plan 12-4

School Bus Accident Data	
Strategy	Summarize and analyze bus accident reports to detect trends and guide bus driver training.
Action Needed	<p>Step 1: Assign the responsibility for bus accident statistics to the coordinator Operations and Training.</p> <p>Step 2: Establish procedures for the compilation and analysis on accident statistics.</p> <p>Step 3: Evaluate and report bus accident statistics and identify reoccurring reasons.</p> <p>Step 4: Incorporate finding from the analysis on buss accident statistics in the bus driver training programs.</p>
Who Is Responsible	Administrative Director, Department of Transportation.
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Communications With DOT Dispatch Operators	
Strategy	All buses transporting District students, including contractors, should be provided with District radios or be required to have the ability to be in continuous contact with the DOT dispatch operators.
Action Needed	<p>Step 1: Incorporate a provision in the contracts with private bus companies that they are to acquire and install radios compatible with the District's dispatch system in their vehicles.</p> <p>Step 2: Implement provisions of private carries contracts (above) and conduct periodic inspections and tests to ensure compliance.</p>
Who Is Responsible	Administrative Director, Department of Transportation.
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Track Bus Safety Training at Schools	
Strategy	Develop a system to ensure that schools have conducted the required school bus evacuation training.
Action Needed	Step 1: Assign the responsibility for a process to ensure that schools have conducted the required school bus evacuation training to the executive director (Transportation Operation).

	Step 2: Develop a process where schools provide positive reporting of bus safety training.
	Step 3: Monitor bus safety training at schools sites and follow up on a timely basis at those sites that are not in compliance.
Who Is Responsible	Administrative Director, Department of Transportation.
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

7 The District takes steps to ensure that appropriate student behavior is maintained on school buses.

The Miami-Dade school board had adopted policies emphasizing appropriate student behavior including The Code of Student Conduct, in elementary and senior high versions. These documents indicate that the code is in force while students are being transported on a school bus and refer to the loss of bus privileges as the consequence for breaking the rules of the bus.

Bus drivers are regularly trained in student management and the *Handbook for School Bus Drivers, Aides and Operations Staff* covers the rules for maintaining acceptable student conduct and the procedures for reporting discipline problems. The handbook also includes the Student Case Management Referral Form (SCMR) and instruction on its purpose and its use. The SCMR form is turned over to the school principal with the driver and the FOS keeping copies. The school site personnel, in turn, notify the bus driver of action taken relating to the student. Bus drivers may be consulted in particularly unique, difficult, or continuing cases involving behavioral problems on the school bus.

For the 2000-01 school year 468 incident reports were filed with the DOT. By far the most common incidents involved horseplay or fighting, which accounted for over 40% of the reports. Other frequent incidents included; “slip/fall on bus step”, “object thrown at/from bus”, and “student illness”.

Acquires and Maintains Safe School Buses —————

8 The District has established a process to ensure that a sufficient school bus fleet is acquired and available to meet the District’s student transportation needs, but needs evaluate its policies to ensure efficient practices.

The District has not systematically evaluated whether its 12-year replacement schedule for school buses is economical

The only factor the District consistently uses to determine whether or not to replace a bus is the age of the vehicle. By policy, the District currently keeps buses in operation for 12 years with older buses used on shorter routes or as spares. The DOT keeps detailed multi-year records on its bus inventories, where the buses are assigned, and when they should be removed from service. Variation from this 12-year time period is extremely rare and is usually based on capital budgetary constraints determined outside of the DOT. For example, a bus may be kept in the spare inventory slightly past its twelfth year if funds for bus replacement are limited. In addition, all major repairs are

analyzed to determine whether it is more economical to make repairs or replace a bus. Projected student population, by school is also used to determine the demand for transportation services and the number of buses that need to be purchased. Student projections, however, which are provided to the DOT from School Operations, are made only on a year-to-year basis; multi-year projections are not used in determining bus purchase needs. All new buses are purchased through the state’s pool purchase agreements.

While the District’s bus acquisition and replacement policies and processes are well documented and generally adhered to by DOT staff, there may be room for improvement. The 12-year replacement schedule the District uses exceeds the State’s 10-year recommended replacement schedule. While it may turn out that a 12-year replacement schedule is indeed more economical for the District than a 10-year replacement schedule (or an 11-year replacement schedule for that matter), no analysis has been done to determine whether the current replacement schedule is cost-effective. The schedule was set as policy over a decade ago and ever since it has been accepted as “the way things are.” Indeed, a recent report by the District’s Office of Management and Compliance Audits found indications that the 12-year schedule is inadequate given the fact that many of the buses auctioned off by DOT end up in use by bus vendors and transporting District students. The report also found that although the District’s replacement policy establishes a 12-year age and 250,000 mile limit for school buses, buses are only averaging 150,000 miles after 12 years.

The District has not systematically evaluated the number of spare buses that are needed

The District targets its spare bus ratio at 18% of total routes, but the 18% target is an arbitrary standard and is probably too high. No analysis has been done to verify whether or not an 18% spare bus ratio is appropriate. Rather, the current ratio is used simply because that is “the way it has always been done.” The goal of any school district transportation department should be a 12% spare ratio. If the District were able to reduce its spare buses to only 12% of its routes, it could recover approximately \$173,000.⁵ Additional savings would accrue to the District in reduced maintenance costs, since all spare buses have to be serviced every 20 days as well as daily buses.

In addition to its daily spare buses, the District keeps 104 emergency buses at its auction yard. DOT managers state that these buses are needed as a contingency against any sudden influx of students to the District such as was caused by the Mariel Boat Lift in 1980. However, although they are not in daily use, the value of these buses declines over time reducing the amount the District receives for them at auction. Furthermore, when added to the District number of spare buses, the District’s spare ratio shoots up to 23.3% (see Exhibit 12-13). A more practical emergency contingency plan might be to rely on bus vendors in the event of an unforeseen ballooning of student population. If the District were to sell off its fleet of emergency buses, it might receive as much as \$290,000 for it.⁶

Exhibit 12-13

Miami-Dade Maintains a Large Inventory of Spare Buses

Category	Bus Inventory
Buses in Daily Service	1,472
Regular Spare Buses	239
Emergency spare Buses	104
Total District Buses	1,815
Regular Spare Bus Ratio	16.2%
Total Spare Bus Ratio	23.3%

Source: Miami-Dade County Public Schools, Department of Transportation.

⁵ This estimate is based on the average sale price of \$2,795 for the 87 buses over 12 years old that the District sold at its November 2000 auction.

⁶ This estimate is based on the average sale price of \$2,795 for the 87 buses over 12 years old that the District sold at its November 2000 auction.

The mix of large and small buses the District uses does not match its transportation needs

The DOT is currently doing no analysis to determine if the size of the buses the District purchases are appropriate to its needs. Instead, DOT managers have adopted a strategy of purchasing small buses only as a response to physical limitations, such as dead-end streets on which larger buses cannot turn around. Actual numbers of students per route, gas mileage and acquisition costs are not considered when deciding what size of bus to purchase. DOT senior managers justify their decision to purchase larger buses with the claim that the difference in price between larger and smaller buses is only “a few thousand dollars;” and since, in their view, the savings that would result from purchasing smaller buses is not great, they prefer the flexibility larger vehicles provide. As Exhibit 12-14 demonstrates, however, there can be a substantial difference in price between vehicles of different capacity.

Exhibit 12-14

Cost Differences for Type C Buses (Without Lifts or A/C) of Different Sizes

Capacity	29 Seats	47 Seats	65 Seats	72 Seats	77 Seats
29 Seats		\$2,517	\$4,857	\$5,419	\$10,489
47 Seats			\$2,340	\$2,902	\$7,972
65 Seats				\$562	\$5,632
72 Seats					\$5,070

* Prices represent the least-costly option from the Spring 2001 DOE Pricing Guide.

Source: Department of Education, School Transportation Management Section.

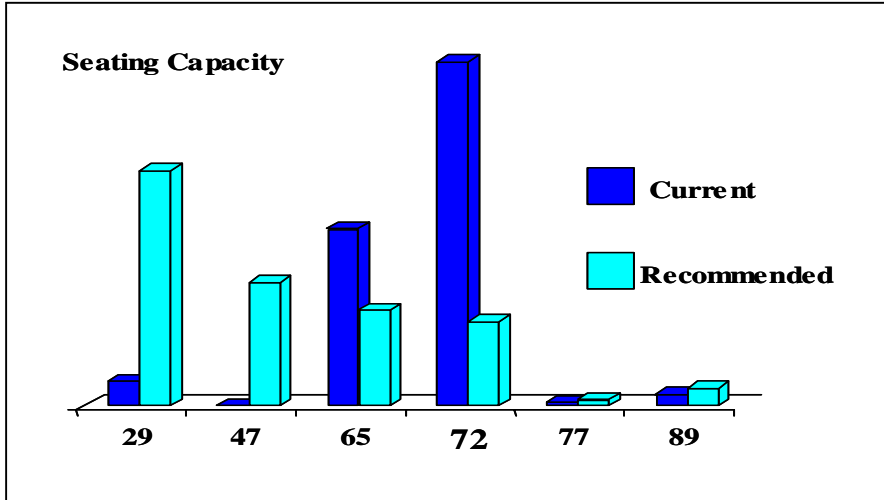
The consultants reviewed a random sample of 100 of the District’s bus routes to determine the actual bus size needed to serve students on each route.⁷ The results of this analysis (which are presented in Exhibit 12-15) demonstrate that the District’s use of 65- and 72-passenger buses is vastly disproportionate to its actual need. While 65- and 72-passenger buses currently make up 93% of the District’s fleet, the District’s existing busing needs (based on the sample data) require that 65- and 72-passenger buses comprise only 32% of the fleet.⁸ Based on this analysis, it is estimated that the District could reduce its annualized acquisition expenditures for buses by \$616,666 per year and reduce costs for gasoline by an additional \$438,000 per year if it more appropriately targeted bus sizes to district needs.

⁷ The random samples were drawn from all seven bus transportation centers in proportion to their percentage of total routes. The sample included both regular and ESE routes.

⁸ As discussed in Section 1, the percentage of smaller buses used can be increased even further by staggering start times within elementary, middle, and high school types.

Exhibit 12-15

The District’s Bus Fleet Should Include a Much Smaller Proportion of Large Buses



Source: Miami-Dade County Public Schools, Department of Transportation and Berkshire Advisors.

If the District altered its bus fleet to reflect the bus sizes recommended in 12-15, it could reduce its annual expenditure on buses by \$616,666, or \$7.4 million in each 12-year bus replacement cycle.

An additional implication of modifying the mix of small and large buses in the District’s fleet is that less space will be available to serve students through courtesy passes. As discussed in Section 1 of this chapter, the use of large buses currently provides a “perk” to schools by increasing the number of students who can be transported using courtesy passes. Schools control courtesy passes and can provide them freely to students so long as there is excess space available on scheduled buses. If smaller buses were to be used—or if greater routing efficiency is achieved—schools would be forced to more closely monitor and ration courtesy passes. In a district in which principals and parents are accustomed to this perk, eliminating it would no doubt have political ramifications.

Moreover, operating cost-efficiencies associated with using smaller buses are also substantial. While maintenance costs might not be affected by bus size, it is indisputable that smaller buses consume less fuel. As Exhibit 12-16 shows, even if the difference in fuel efficiency between small, medium, and large buses is as little as one mile per gallon, the fuel savings that would result from the District from using smaller buses are considerable.

However, if the District improves its routing efficiency and is able to increase the load factors on its larger buses, shifting to smaller buses may not be necessary.

Exhibit 12-16

Smaller Buses Require Significantly Less Fuel Than Larger Buses

Bus Size (estimated mpg)	Fuel Needed Each Year	Current Fleet Mix	Recommended Fleet Mix
29 Seats (8mpg)	1,875 Gallons	115,335	1,100,925
47 Seats (7mpg)	2,143 Gallons	0	659,101
65+ Seats (6mpg)	2,500 Gallons	3,341,220	1,258,200
Total Amount of Fuel Required		3,456,555	3,018,226

Source: Berkshire Advisors.

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Assuming a \$1 per gallon cost for diesel fuel, the District could save as much as \$438,000 in fuel costs each year by altering its mix of buses to reflect current ridership.

Recommendations

- We recommend that the District conduct a cost/benefit analysis to determine whether its policy of replacing buses every 12 years is the most economical method of meeting student transportation needs.
- We recommend that the District reduce its spare bus ratio to no higher than 12% of its daily routes.
- We recommend that the District review its bus capacity needs more critically once routing efficiency has been improved. If warranted at that time, the District should purchase smaller buses for those routes where the higher seating capacity is not needed.

Action Plan 12-5 provides the steps needed to implement this recommendation.

Action Plan 12-5

Analyze 12-Year Bus Replacement Schedule

Strategy	Conduct a cost/benefit analysis of the cost-effectiveness of maintaining a 12-year bus replacement schedule. This analysis should be repeated periodically as conditions, vehicle costs, maintenance labor costs and other major factors change.
Action Needed	Step 1: For a representative sample of the entire bus fleet, determine year-by-year life cycle maintenance costs. Step 2: Determine the average age and sale price for District buses of differing sizes and configurations when sold at auction. Step 3: Use service records to determine the average and peak number of buses out of service at any one time Step 4: Adjust purchase schedule if indicated by the analysis results. Step 5: Repeat the analysis every five years to determine if policies need to be changed.
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	December, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Reduce the Spare Bus Ratio to No More Than 12% of Daily Routes

Strategy	Set a cap of 12% of daily routes for the number of spare buses maintained by the District.
Action Needed	Step 1: Submit new policy wording to the school board for approval. Step 2: Change standard operating procedures to reflect the change to 12%. Step 3: Plan a scheduled reduction in the new school bus purchases to reflect the change without radically increasing the age of the spare fleet. Step 4: Auction off the District's fleet of "emergency" buses stored at its auction yard.
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	December, 2002
Fiscal Impact	This recommendation will result in a one-time cost recovery of \$173,000. Additional annual savings will accrue to the District in reduced maintenance costs. In addition, the District could receive as much as \$290,000 from the sale of the emergency buses.

Review Bus Sizes in the Transportation Fleet

Strategy	Review District bus capacity needs more critically once routing efficiency has been improved. If warranted at that time, the District should purchase smaller buses for those routes where the higher seating capacity is not needed
Action Needed	Step 1: See Action Plan 12-1 for issues relating to improved routing efficiency. Step 2: Review all assigned routes to determine required seating capacity. Step 3: Alter new bus purchases to reflect actual seating capacity needs.
Who Is Responsible	Administrative Director, Department of Transportation
Time Frame	December, 2002
Fiscal Impact	Based on current routes, this recommendation will result in an annualized capital savings of \$616,666 in reduced bus purchases and \$3.1 million over five years. In addition, savings in reduced diesel fuel expenditures will exceed \$438,000 per year and \$2.2 million over five years. However, until routing efficiencies are implemented, estimated savings from operating smaller buses could change.

9 The District does a good job of providing timely routine servicing for buses and other District vehicles and responds quickly and effectively to breakdowns and other unforeseen contingencies.

The District generally does a good job of providing routine servicing for buses

DOT has an effective system for providing routine inspections and preventative maintenance to buses without disrupting service. Buses and other District vehicles are scheduled in the computer system for inspection and service based on established time periods (i.e., every 20 school days for buses, every 90 days for most cars, every 60 days for certain police vehicles, etc.). In addition, mileage-based services are noted in the computer system and coordinated with the 20-day inspections to minimize the frequency with which vehicles are out of service. To facilitate planning and coordination of bus servicing, the system alerts managers three days prior to scheduled service. Buses are pulled out of service the night before they are to be inspected and spare buses are used to replace buses that are out of service for maintenance.⁹ A random review of vehicle service records at three of the District’s nine service centers confirmed that vehicles are being serviced on schedule. However, as noted in a recent internal audit of the Vehicle Maintenance Department, this process often results in some vehicles being serviced with very low miles between servicing, while others are traveling great distances between servicing.¹⁰ That report also found that some buses were actually inspected two or three days ahead of schedule, but the schedule for the next inspection was not adjusted in the computer system. In some cases, this led to buses going 22 or 23 days between inspections. This occurs when a bus is inspected before schedule for one inspection and then “on schedule” for the ensuing inspection. While this is indeed a problem that DOT should address, it does not appear to reflect an inability of the District to inspect its buses on time.

While procedures are not consistent across transportation centers, the District’s breakdown/accident procedures are effective at minimizing disruption of service to students. For instance, most transportation centers routinely dispatch tow trucks to tow impaired buses back to the transportation center for repair. Some, however, send a mechanic to the scene to attempt on-the-spot repairs. Regardless of the specific approach used, operating procedures are in place

⁹ Computer records of inspections and maintenance activity are kept for 13 months. Paper records are kept for at least as long as the District owns the vehicles.

¹⁰ For example, a number of the cars, trucks and vans tested in the district’s Office of Management and Compliance Audits review sample had preventive maintenance performed on them despite being driven less than 2,000 miles between service intervals. They also found a number of the cars, trucks and vans tested operated for more than 5,000 miles between service intervals.

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and are being followed. The success of these efforts is reflected in the fact that DOT gets high marks from school principals and assistant principals for their handling of breakdowns and accidents.

The DOT employs several quality control procedures for vehicle maintenance, including the use of quality control staff to spot-check a selection of work orders. Warranty dates for major parts and systems are entered into the computer system and these items are also monitored closely to ensure that the District maximizes its service and/or reimbursements for repairs under warranty.

In part because its quality control procedures are effective, the quality of work provided by transportation maintenance is generally high as evidenced by the fact that reported breakdowns are infrequent despite the age of the District's bus fleet. It is also noteworthy that the District received no adverse findings in the last Department of Education Transportation inspection related to the 20-day inspection process or the condition of the District's school buses. The quality of vehicle maintenance services provided by DOT is also supported by the results of the employee survey. Fewer than one in 10 survey respondents (8.3%) "strongly disagree" with the statement, "District maintenance staff provide timely repair and maintenance of District vehicles" while more than half of the survey respondents (50.5%) "agree" or "strongly agree" with this statement. Moreover, only slightly more than one in twenty survey respondents (5.9%) "strongly disagree" with the statement, "District maintenance staff provide high quality maintenance of District vehicles" and 46.4% of the survey respondents "agree" or "strongly agree" with this statement.

Maintenance costs are typically charged back to other District departments

DOT does a good job of tracking and charging back maintenance costs attributable to work performed for other District departments. For the last two years, all labor costs—including support staff and management—have generally been charged back to the departments whose vehicles are serviced by DOT.¹¹ Labor costs are determined using the number of service hours documented on vehicle maintenance work orders. The percentage of total maintenance hours consumed by a particular department is then applied to all other DOT labor categories with the exception of the Director's salary. Expenditures for parts and supplies are also charged directly to the user departments.

The fees charged for vehicle maintenance services are generally considered reasonable. A paltry 2.4% of employee survey respondents "strongly disagree" with the statement, "Fees charged for District vehicle maintenance services are reasonable and appropriate." Moreover, 44.0% of the survey respondents "agree" or "strongly agree" with this statement. The fact that there is little dissatisfaction with the level of fees charged for vehicle maintenance is a testament to the quality of vehicle maintenance services DOT provides.

The existing work order system does not provide the management information needed to support operational improvement efforts

Although DOT does a good job of servicing its vehicles and keeps its buses in good condition, efforts to further improve performance are stymied because the existing work order system does not provide the management information needed to support operational improvement efforts. Most significantly, the District's vehicle work order computer system does not store data for more than 13 months making the tracking of long-term maintenance activities extremely difficult. In addition, the data that is stored on the computer system is not easily accessible. Even relatively straightforward information on average maintenance costs for vehicles over 10 years old is unavailable through the current system. Another shortcoming of the existing work order system is that it is not integrated with other District systems, such as payroll. Payroll data for mechanics is currently recorded four different times to accommodate the various systems that track employee time.

¹¹ The maintenance and fuel costs for approximately 45 "VIP" vehicles have historically been absorbed by DOT. During the course of this study, however, the District ended the practice by eliminating District-provided vehicles for most staff members. Those that remain will now be charged back for all fuel and maintenance service.

Because ready access to such information is not available, no life cycle analysis is currently done to determine how maintenance practices are affecting departmental costs or whether particular makes or models of vehicles require more costly ongoing maintenance than others. Likewise, insufficient information is available to thoroughly analyze whether costly repairs on a vehicle should be completed or whether the vehicle should be replaced. Indeed, at present, completing a simple query as to the number of times a vehicle’s brakes were replaced entails poring through boxes of archived paper files by hand.

Recommendations

- We recommend that the District replace or modify its current work order system with a computer system that can maintain multi-year historical data for as long as the District owns its vehicles and which provides ready access to management information.
- We recommend that the District modify its motor vehicle evaluation procedures to consider expected annual maintenance costs—including labor and overhead costs—and compare that to the average annual cost of replacing the vehicle.

Action Plan 12-6 provides the steps needed to implement this recommendation.

Action Plan 12-6

Replace Or Modify The Current Work Order System	
Strategy	Replace or modify the COMPASS work order system with a computer system that can maintain multi-year historical data for as long as the District owns its vehicles and which provides ready access to management information.
Action Needed	<p>Step 1: Research and select a “tailorable” work order software system that allows scheduling, life-cycle cost tracking and complex queries and reports.</p> <p>Step 2: Train system users (i.e., managers, foremen and lead mechanics) on how to use system functions.</p> <p>Step 3: Code and convert current year information into the new system.</p> <p>Step 4: Switch from COMPASS to new system in stages (i.e., center-by-center).</p>
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	December, 2002
Fiscal Impact	The fiscal impact will depend upon whether the current system can be modified or if replacement is required.

Modify Motor Vehicle Evaluation Procedures	
Strategy	Modify existing motor vehicle evaluation procedures to consider expected annual maintenance costs—including labor and overhead costs—and compare those costs to the average annual cost of replacing vehicles.
Action Needed	<p>Step 1: Update Standard Operating Procedures to require a calculation of annual vehicle maintenance costs.¹²</p> <p>Step 2: Update Standard Operating Procedures to require an estimation of vehicle replacement costs.</p>
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	December, 2003

¹² This procedure should be put in place only after the department has the capability to obtain life-cycle cost information on its computer work order system.

10 The District's fuel purchase, management and dispensation procedures are cost-efficient and operationally effective.

The District's approach to fuel procurement and management is generally quite effective

The District has established a number of effective practices to manage the use and procurement of fuel. These practices include the following:

- effective fuel procurement practices are in place,
- fuel usage is carefully tracked,
- fuel expenses are charged back to the user department,
- fuel inventories are maintained at appropriate levels, and
- inspections of fuel tanks are regular and timely.

A discussion of each of these issues follows.

Fuel procurement. The District purchases fuel through a competitive bid process that is re-bid each year and is coordinated by the Procurement Department.

Fuel use tracking. The District uses the E. J. Ward computerized fuel system to track usage by vehicle and department at its seven fueling stations spread geographically throughout the District. DOT Fuel Attendants pump all fuel and manually log the mileage of each vehicle when it is fueled. Fuel usage, by station and by vehicle, is monitored on a daily basis. Reconciliation of the E. J. Ward system and twice-daily fuel tank measures is also completed daily. Any discrepancies between the computerized tracking system, tank measurements and manual records (kept by fuel attendants and entered on a separate computer system manually by clerks) are investigated the next day. An informal hand-written logbook which lists the anomalies and the corresponding explanations or corrections is kept centrally, though this logbook is not used by anyone other than the staff member responsible for the reconciliation.

Charge backs. All fuel usage is charged back to the user department. Doing so helps to prevent excessive fuel usage because the managers of the using department have a strong incentive to monitor fuel usage. If fuel usage for their departments exceeds an appropriate amount the department's budget will be adversely affected.

Fuel inventories. The daily monitoring of usage and tank levels facilitates the management and timing of fuel purchases. Fuel stations have not run out of fuel, nor have deliveries had to be curtailed because tanks were too full. While the District has experienced low tank levels periodically, this has generally resulted from problems with tankers and delivery, not poor planning on the DOT's part.

Inspections. DOT staff at each of the fueling stations conduct routine checks of wells near underground fuel tanks to determine if fuel is leaking from tanks. Records of these inspections are documented and readily accessible on site. Staff also cooperates with the state EPA officials who inspect each of the maintenance facilities, including the fueling stations, twice per year. The District has responded appropriately to issues raised during these inspections as evidenced by paperwork in place at three fuel centers reviewed by the consultant.

Ineffective support systems hinder fuel management efforts

Staff report that the E. J. Ward system crashes fairly often requiring fuel attendants to log user codes and the amounts of fuel issued on paper for entry into the system at a later time by office clerks. Because of the procedures followed by DOT staff, including the checking and re-checking of system information and the diligent investigation of all anomalies, this process has not resulted in unresolved errors. However, it does slow down the fueling process and increase the workload of fuel attendants, clerks and managers. A more reliable electronic fuel tracking system would therefore be beneficial.

Recommendations

- *We recommend that the District take steps to improve or replace its computerized fuel tracking system to ensure a higher level of reliability and to create a direct interface with the District's general ledger system.*

Action Plan 12-7 provides the steps needed to implement this recommendation.

Action Plan 12-7

Improve or Replace the Computerized Fuel Tracking System	
Strategy	Improve or replace the computerized fuel tracking system to ensure a higher level of reliability and to create a direct interface with the District's general ledger system.
Action Needed	<p>Step 1: Determine whether or not the current fuel tracking system can be modified to improve reliability and interface directly with the general ledger.</p> <p>Step 2: Research other fuel tracking systems that can interface with the District's general ledger computer system.</p> <p>Step 3: Develop and adopt an improvement strategy for the computer system.</p> <p>Step 4: Train system users (i.e., managers, clerks and fuel attendants) on system functions.</p> <p>Step 5: Code and convert current year information into the new system (if necessary).</p> <p>Step 6: Switch from the current system to the new system in stages (i.e., center-by-center).</p>
Who Is Responsible	Administrative Director, Department of Transportation
Time Frame	December, 2002
Fiscal Impact	The fiscal impact to the District will depend upon whether the current fuel tracking computer system can be modified or if replacement will be required.

11 The District's maintenance facilities are generally convenient, secure and supportive of maintenance activities.

Maintenance centers are appropriately located and configured

The District's nine maintenance centers—seven of which are also bus terminals and fueling stations—are spread sufficiently around the geographically large district to provide reasonable convenience to District users. All centers are well lighted, reasonably clean and orderly, and free of obvious safety hazards. Mechanics supply most of their

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own tools,¹³ and each center has space allocated for mechanics to lock their tools in movable tool storage cabinets. There have been no serious problems of tool thefts. Each site also has office space for data entry and other support services. At the 95th Street center, however, available space for support services is very cramped. This center is scheduled to move to a new, larger facility later this year.

Some of the maintenance facilities are ill-equipped to handle a large volume of buses. For example, the Central East maintenance facility has only two enclosed bus lifts while the Northeast facility has six. As a result, the concentration of buses at the various locations is determined more by maintenance capacity than by geographical convenience.

No systematic analysis has been completed on the feasibility and desirability of establishing additional terminals and servicing centers primarily because the cost of acquiring the real estate needed for expansion is assumed by management to be cost-prohibitive. It took over a decade to get the latest expansion site approved. Despite the imbalance in maintenance capacity at the various facilities, DOT has not had a problem inspecting and servicing buses on schedule. Nevertheless, no analysis has been completed to determine whether it is economically feasible to contract out for bus and/or vehicle maintenance on a large scale level. Given the real estate constraints facing the District, such analysis should be undertaken.

Transportation centers are secure

Three separate contracted security firms provide round-the-clock guards at most transportation facilities. At some sites, these guards are armed. Guards posted at entryways control automobile access to the facilities. However, once inside the gates, little direction and monitoring is provided by the guards. During the daytime, it is relatively easy to access maintenance areas and parked buses without interference from anyone. Nighttime security is significantly more controlled as there are significantly fewer people with nighttime access to the transportation facilities. The District's contracts with the security firms also allow the District to charge back to a vendor any loss or damage that occurs after hours while facilities are completely under that security firm's control.

The District has not considered the use of guard dogs because of the amount of evening and nighttime activity at many of the centers. Neither has the District considered the use of closed-circuit television cameras for security monitoring. It should be noted, however, that it is unlikely that the use of security cameras would reduce the need for contracted guards as there would be a continuing need to place a guard at the traffic entrance to all facilities. The primary benefit of security cameras would be during the day when it is relatively easy for outsiders to access maintenance areas and parked buses.

Each maintenance center has an on-site parts and supplies storage area that is reasonably secure. The parts areas are "off limits" to everyone except the centers' stores clerks. Signs are posted and the on-duty stores clerk is situated at the entrance to the parts room. However, when parts clerks are away from the entryways or engaged with someone, undetected access to storage areas is possible, though the shrinkage of parts and supplies has not been significant.¹⁴ Last year, gross adjustments to inventory stored at vehicle maintenance facilities amounted to only 0.16%.

All buses are returned to the transportation centers each night and remain locked inside the gates until the centers open for business the next morning. Drivers are not allowed to park buses at their homes.

The District has established effective systems and procedures to minimize problems associated with hazardous waste. There are systems and procedures in place to minimize problems associated with hazardous waste and staff is following these procedures. Safety apparatus, such as fire extinguishers, eye wash stations and first aid kits, are

¹³ Mechanics are provided with an annual tool allowance.

¹⁴ Management attributes the lack of shrinkage to two practices. First, the Inventory Control division of DOT has procedures in place to aggressively monitor and track inventory, including requiring multiple checks and signatures for all inventory transfers and conducting manual counts of all inventory items at least once per year. Second, management has a "zero tolerance" policy for any internal thefts and has "made examples" of some employees caught pilfering inventory.

available at all sites. Little is being done, however, to minimize the amount of hazardous waste created by Transportation operations.

A detailed analysis of the costs and benefits of installing new oil filtration systems on buses is needed

One activity the District touts—the installation of a new oil filtration system on buses—may not have met the expectations set for it. One anticipated benefit – a reduction in the amount of waste oil created – may have been realized but no analysis has been performed to confirm this fact. Moreover, the program may be more costly than originally anticipated because the cost/benefit analysis used to justify the program had a number of short-comings including those below.

- The District assumed an average of 3.5 oil changes per year when using a standard oil filtration system and changing oil every 6,000 miles. Yet, the actual average annual mileage on District buses is only about 15,300 necessitating only 2.5 oil changes per year. Furthermore, manufacturers of new bus engines recommend oil changes only every 12,000 miles.
- The District assumed maintenance on the new oil filtration system would require 15 minutes per year to change filters, add additional oil and prepare a sample kit for analysis as compared to the 30 minutes per event for oil changes under the standard system. Yet maintenance staff report that the amount of time required to service the new oil filtration system is actually longer than the standard oil change process because, under the new system, considerable time is required to check and repair the additional hoses the system requires.
- In its analysis the District did not account for the time required to initially install the new oil filtration system—up to four hours.
- The District’s analysis did not account for the initial cost of the new oil filtration system, which ranges between \$350 and \$450.
- The District assumed that only two quarts of oil – that which is consumed by a normally functioning diesel engine—would be required each year for buses equipped with the new oil filtration system. However, each time an oil leak is detected, the entire system must be drained of oil before the oil filtration system can be repaired. This requires the replacement of 20 quarts of oil for every repair. Anecdotally, some staff report an average as high as three repairs per bus per year in some shops with an average of 1.5 hours required for each repair.¹⁵

The District’s Office of Management and Compliance Audits recently completed an audit of the costs and benefits of the oil filtration system and recommended that the department end the program.

Recommendations

- *We recommend that the District reverse its decision to equip all school buses with the new oil filtration system.*

Action Plan 12-8 provides the steps needed to implement this recommendation.

Action Plan 12-8

Reverse the Decision to Equip All School Buses With the New Oil Filtration System

Strategy Reverse the decision to equip all school buses with the new oil filtration system.

¹⁵ The previously discussed limitations of the vehicle maintenance work order system prevents these assertions from being verified.

Action Needed	Step 1: Immediately cancel any existing orders for new oil filtration systems. Step 2: Return for credit any unused systems that the supplier will take back. Step 3: End the practice of installing the filter systems on any additional buses.
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	March, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

12 The District's maintenance staffing and training is generally adequate, but some improvements could be made.

The District's approach to assessing maintenance staffing levels would benefit from additional refinements

The District applies a 20:1 ratio of buses to mechanics and a 40:1 ratio for all other vehicles. Current staffing levels conform to these standards which were adapted from standards developed by Charles Long of Common Sense Management, a consulting firm that focuses on school bus fleet maintenance systems. While this system appropriately weights the importance of school buses over other types of vehicles, it does not adequately account for differences among the various types of non-bus vehicles the DOT services. For example, the required maintenance skills and time allotted to repairing a large delivery truck or a dump truck differs greatly from the skills and time necessary to service cars and passenger vans. A recent internal audit noted that based on DOT's current operating procedures and estimates for vehicle inspections, inspection repairs and preventive maintenance, there appears to be an under-utilization of mechanics at five of the nine maintenance centers. While this observation is based on estimated time, not actual work orders, the District would clearly benefit by refining its allocation formula by analyzing its own actual experience servicing various types of vehicles based on work orders.

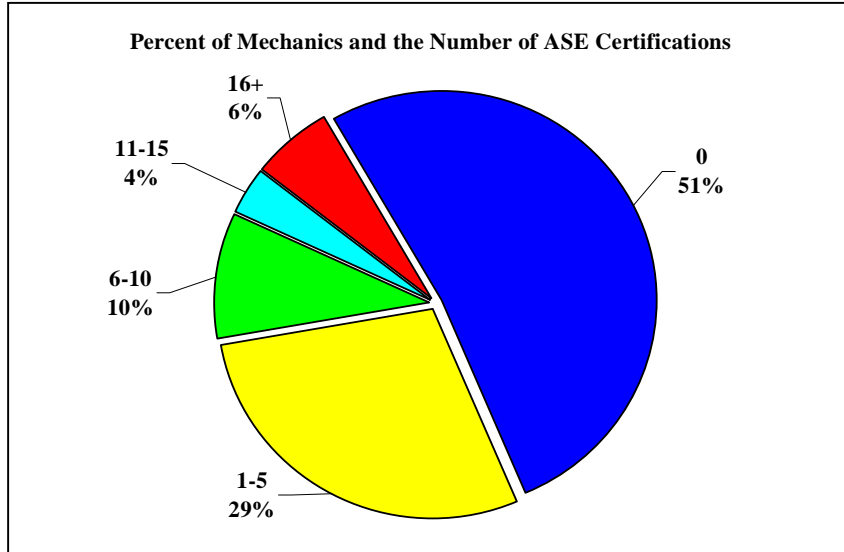
Moreover, while the District's current staffing formula provides managers with a reasonable measuring stick for allocating mechanics, there is no corresponding ratio in place for determining the proper ratio of managers to staff. Some maintenance managers report putting in long hours of overtime—for which they are not paid—to stay current with their workload. Meanwhile, foremen and lead mechanics, who do earn overtime pay, often take home more in pay than their managers. This staffing discrepancy therefore creates a disincentive for foremen to become maintenance managers.

The District provides incentives for mechanics to become ASE certified in multiple areas

The National Institute for Automotive Service Excellence (ASE) certifies mechanics in automotive specialties. Although certifications must be obtained on a mechanic's own time, the district provides very lucrative financial incentives for mechanics to become certified. For example, an individual mechanic can earn up to \$4.20 per hour above his or her base hourly salary if he or she is certified in up to 14 ASE specialties. This is the most lucrative incentive of its kind in the State. Almost half of the district's mechanics receive incentives under this program. As Exhibit 12-17 shows, of the 133 vehicle mechanics employed by the department, almost half have been certified in one or more specialties and 6% have been certified in 16 or more.

Exhibit 12-17

Almost Half of the Districts Mechanics Receive Incentives Under the ASE Certification Program



Source: Miami-Dade County Public Schools, Department of Transportation.

Having so many ASE certified mechanics is a great benefit to the District. Not only does the ASE certification help to ensure the quality of vehicle maintenance work performed but also when mechanics are certified in more than one area the District can make flexible use of their skills.

In-service training provided by the DOT mostly relates to policy changes and safety regulations, not to vehicle maintenance techniques. This training is provided on an as-needed basis, not at regular intervals. Similarly, initial training of maintenance workers when hired focuses on general District policies and procedures, not on maintenance practices.

Recommendations

- We recommend that the District tailor its mechanic staffing allocation formula to reflect actual District experience.
- We recommend that the District develop a staffing formula that can be used to target the number of managers needed to support vehicle maintenance operations.

Action Plan 12-9 provides the steps needed to implement this recommendation.

Action Plan 12-9

Modify the Mechanic’s Staffing Allocation Formula to Better Reflect Actual District Experience

Strategy	Tailor the mechanics staffing allocation formula to better reflect actual District experience.
Action Needed	Step 1: Review 12 months’ worth of work orders to determine the time spent maintaining and repairing various categories of vehicle types.

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	Step 2: For non-bus vehicles, determine the average amount of time spent by mechanics on each vehicle type.
	Step 3: Establish corresponding formulae for each vehicle type based on average repair times.
	Step 4: Compare projected mechanic needs by vehicle type to the current 40 to 1 ratio to determine if the current staffing formula should be changed.
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	December, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Develop a Staffing Formula That Can Be Used to Determine The Number of Vehicle Maintenance Managers Needed

Strategy	Develop a staffing formula that the District can use to determine the proper number of managers in its vehicle maintenance operations.
Action Needed	Step 1: Collect peer and industry information on management practices in other school district vehicle maintenance operations. Step 2: Compare industry and peer information with the District's current organizational structure. Step 3: Gather information on how managers currently spend their time and the types of factors that increase their workload. Step 4: Develop a management to staff ratio based on collected information and apply it to current operations to determine if there is an imbalance.
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	December, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

13 The District maintains an inventory of parts, supplies, and equipment, but needs to improve its tracking systems and its procurement practices.

The District does a very good job of tracking, transferring, and monitoring its inventories of parts, supplies and equipment

The DOT does a very good job of tracking, transferring and monitoring its inventories of parts, supplies and equipment. Three signatures – from the parts person who pulls the item(s), from the parts supervisor who verifies what has been pulled, and from the foreperson who receives the item(s) – are required for all inventory transfers. Transaction activity reports are also run daily and checked against paperwork received from the various centers to catch any anomalies or keystroke errors. Restocking of items is automated and based on minimum and maximum parts levels set by managers and entered into the computer system.

The inventory control division completes “cycle counts” on all items at least once each year during which each item is manually counted and counts are compared to information in the computer system. In addition to the scheduled cycle counts, stock amounts for each item are manually recounted each time an order is pulled during the daily course of business. These stock counts are also compared to the computer system each day as part of the transaction activity reporting process. In addition, tires and higher cost items (all items over \$300) are counted weekly, and these counts are compared to information on the computer system as well. As an added control, an inventory control manager randomly spot checks various inventory items as a quality control measure on the daily counts. Vendors are charged back for errors found after the fact.

As a result of this constant monitoring activity, the District has lost only a miniscule amount of its total inventory. For example, last year's total adjustments, both positive and negative, amounted to less than \$6,000 out of a total inventory of approximately \$3.8 million over the course of the year or 0.16% of total inventory.

The District makes effective use of its Visa purchase program to control the size of its parts and supplies inventories

Although the District has stable, predictable maintenance schedules, it doesn't employ "just in time" delivery of parts and supplies because there is too much variation in the specific parts and supplies required at each scheduled servicing. Rather, to control the size of its parts and supplies inventories the District has established automated reorder points for items stocked in the warehouse and has expanded its use of the Visa purchase. The Visa program allows the maintenance unit to obtain items not on a pre-approved bid list and to obtain these items much more quickly than through the normal purchase order process. While a number of approvals are still required for Visa purchases, the process takes anywhere from a couple of hours to one day while the purchase order process can take weeks.

This Visa purchase program could be improved by decentralizing the approval process for Visa purchases. Authorizing maintenance managers to approve purchase requests at their sites would reduce delays in obtaining needed parts and supplies. This in turn might reduce the need for and use of spare buses. Spare buses are currently used to replace vehicles that are out of service being maintained or repaired. Another shortcoming related to the Visa program is that Visa purchases are not recorded in the computer work order system. As a result, any life-cycle analysis involving Visa purchases would currently require reviewing hard copies of Visa receipts, which are kept with other vehicle records.

In addition, the District might achieve parts inventory efficiencies by exploring the use of parts and supplies vendors as the District's "warehouse." By having the nine vehicle maintenance centers order parts directly from large-scale vendors, the District might be able to eliminate its need for warehouses and the operating expenses associated with them.

The District has generally established effective practices for purchasing parts and supplies, though improvements could be made

The District has established competitive procurement and qualification processes and these are being followed for the purchase of vehicle maintenance related parts, services and supplies. Even vendors used through the Visa purchase program must be pre-qualified.

Moreover, while the District does not participate in pool purchase arrangements with other local jurisdictions, as the largest local public purchaser of goods and services in the State, it is able to negotiate advantageous purchasing arrangements with vendors.

One potential area where the District might not be obtaining the best purchase price is with the purchase of motor oil. A recent internal audit found that all motor oil purchased by the District since 1997 was purchased from a single vendor under an arrangement that had not been competitively bid. As with other maintenance parts and supplies areas, the District should select its oil vendor(s) through a competitive process.

The District is vigilant about getting reimbursed for warranted items that require repair, but need to improve its tracking system

Warranty information on vehicles and major systems, such as drive trains and lifts, are entered into the computer system when a vehicle is purchased or when a major system is replaced. The DOT aggressively uses this information to ensure it is reimbursed for warranted items that require repair. In fact, when the DOT handles a warranty repair internally, it often generates a "profit" because the rate at which manufacturers reimburse the District for labor (i.e., \$45 per hour) is often higher than the DOT's actual labor rate.

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It should be emphasized however; that because the computer system does not automatically flag when a repair may be under warranty the DOT must rely on the vigilance of its supervisors, managers, and staff to ensure warranty repairs are reimbursed. At present, it is incumbent upon the foreperson, the lead person and the mechanic to ascertain whether an item being repaired is under warranty. For major items this is an easier task because warranty dates are entered in the system for each vehicle, but this system is only effective for warranty terms less of less than 13 months as the District's computer system only stores data for that long. For smaller items such as starters and fuel pumps, the District must rely entirely on the memory of maintenance staff to determine whether an item is under warranty. Despite the best efforts of these staff, there is no assurance that items under warranty are not repaired or replaced at District expense.

Recommendations

- *We recommend that maintenance managers be authorized to control the use of Visa purchases at each maintenance center to reduce delays in obtaining parts and supplies needed for repairs.*
- *We recommend that parts and service purchases made through the Visa program be entered into the work orders system so that accurate life-cycle analysis can be completed.*
- *We recommend that the District select its motor oil vendor(s) through a competitive process to ensure the best price is received.*
- *We recommend that the District consider contracting with large-scale vendors instead of operating its parts and supplies warehouse.*
- *We recommend that the District replace its computerized work order system with one that allows for the life-cycle tracking of warranty information and automatically flags warranted items when they are due to be serviced*

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

Action Plan 12-10

Authorize Maintenance Managers to Control the Use of Visa Purchases At Each Maintenance center

Strategy	Allow maintenance managers to control the use of Visa purchases at each maintenance center to reduce delays in obtaining parts and supplies needed for repairs.
Action Needed	<p>Step 1: Amend the standard operating procedures for Visa purchases to allow maintenance managers final purchase approval within established limits.</p> <p>Step 2: Train maintenance managers to use the required monthly reconciliation process for Visa purchases.</p> <p>Step 3: Implement the new procedures at all maintenance centers simultaneously.</p>
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	December, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Ensure That Visa Purchases Are Entered Into the Work Order System

Strategy	Enter parts and service purchases made through the Visa program into the work orders system so that accurate life-cycle analysis can be completed
Action Needed	<p>Step 1: Revise standard operating procedures for Visa purchases to require the Lead Mechanic or Foreperson to input parts and services purchased with Visa cards into the work order system when the transaction is completed.</p> <p>Step 2: Implement the new procedures at all maintenance centers simultaneously.</p>

Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	December, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Select Motor Oil Vendor(s) Through a Competitive Process

Strategy	Establish a competitive process for the purchase of motor oil to ensure the best price is received
Action Needed	<p>Step 1: Establish specifications for motor oil purchases.</p> <p>Step 2: Issue an RFP for motor oil suppliers.</p> <p>Step 3: Identify potential vendors and inform them of the opportunity to bid.</p> <p>Step 4: Establish and apply proposal criteria that heavily weights lowest price.</p>
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	June, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Consider Outsourcing Warehouse Activities

Strategy	Consider contracting with large-scale vendors instead of operating its parts and supplies warehouse.
Action Needed	<p>Step 1: Determine the annual operating costs for the District's vehicle maintenance warehouse activities.</p> <p>Step 2: Complete a market analysis on local competition in the parts and supplies industry to determine if adequate scale exists in the local market.</p> <p>Step 3: If so, seek out competitive bids for the supply of parts and supplies to the maintenance centers.</p>
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	December, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Replace the Computerized Work Order System With One That Allow for the Life-Cycle Tracking of Warranty Information

Strategy	Replace the computerized work order system with one that allows for the life-cycle tracking of warranty information and automatically flags warranted items when they are due to be serviced.
Action Needed	<p>Step 1: See Action Plan 12-6, Recommendation 1.</p> <p>Step 2: Ensure that any new system has the capability of tracking and flagging warranty information.</p>
Who Is Responsible	District Director of Vehicle Maintenance
Time Frame	December, 2002
Fiscal Impact	The costs of implementing this recommendation are presented in Action Plan 12-6.

Management Oversight and Accountability ---

14 **The technological and computer support for student transportation functions is evolving, but has significant shortcomings and substantial future efforts are required.**

Student transportation computer systems

While the District currently maintains its Computerized Automated Transportation System (CATS), this system is not Windows-based, is not web-enabled, and does not provide graphical user interfaces. The system requires extensive manual effort to maintain and has limited utility for the routing and scheduling of school buses. The student transportation staff relies heavily on manual records and other paper documents to do their jobs.

The DOT is currently testing a replacement system, MAPNET NT, in one of its seven Transportation centers; however the staff interviewed by Berkshire Advisors indicated that the new system was very complex to use. With the new system, there has been discussion as to how geo-coding will be controlled and which organization will be responsible. Currently, DOT does not control or have input access to the geo-codes it needs to perfect its routing and scheduling functions, as these data elements are controlled by the Office of Information Technology (OIT).

Transportation support computer systems

For administrative applications the DOT has developed its own "File Maker Pro" system to supplement the District's mainframe applications. This system does not have electronic interface with the District's mainframe applications and, as a result, there is a substantial amount of data re-entry from one system to another as well as time spent verifying transactions between the systems.

Budget monitoring is performed with both weekly and monthly reports as well as with information available on-line. The DOT staff closely monitor their accounts and ensure their records are in agreement with the mainframe financial systems.

While the DOT has recently created a centralized database on its local system to break down expenditures by the various DOT work locations in order to monitor the cost of supplies and equipment, many systems remain fragmented. In the vehicle maintenance area, for example, payroll information was observed by Berkshire Advisors to be recorded four times, reflecting the lack of integration among systems and illustrating the inefficiencies inherent in the current situation.

DOT staff recognizes the inefficiencies of the current circumstances and are continually seeking ways to improve and coordinate systems. These efforts include regular discussions with the central OIT and continual assessment of technology needs, priorities, and strategies.

Recommendations ---

- *We recommend that the DOT and OIT electronically integrate existing systems to eliminate redundancies thereby improving accuracy and operational efficiency.*

- We recommend that the DOT move forward with the development and implementation of a new routing and scheduling system in conjunction with the centralization of routing functions and that the responsibility for geo-coding reside with the user department.

Action Plan 12-11 provides the steps needed to implement these recommendations

Action Plan 12--11

Integrate Existing Systems	
Strategy	Electronically integrate existing systems to eliminate redundancies thereby improving accuracy and operational efficiency.
Action Needed	Step 1: In coordination with OIT, prioritize the integration of existing systems. Step 2: Build computerized links to integrate systems.
Who Is Responsible	Administrative Director, Department of Transportation and the Director of the Office of Information Technology.
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources

Computerized Routing And Scheduling System	
Strategy	The District should move rapidly to complete the installation of an effective computerized routing and scheduling system.
Action Needed	See Action Plan 12-1.
Who Is Responsible	Administrative Director, Department of Transportation
Time Frame	July, 2002
Fiscal Impact	Resources for this project are currently in the District’s budget.

15 The District has no accountability system in student transportation and no tracking or reporting of performance.

The District has not established clear goals or measurable objectives for its student transportation operations, nor has the District established operational benchmarks by which to compare its operation to that of peer districts.¹⁶

On the pupil transportation side of the organization, seven semi-autonomous transportation centers operate without measurable objectives. There is little in the way of performance data available and that information that does exist is rarely summarized or analyzed to support decision making.

On the vehicle maintenance side of the organization, Berkshire Advisors found more reporting of performance data, such as information on bus breakdowns. Information available for each of the garages, however, was rarely summarized to obtain a District-wide perspective or used to determine the comparative performance of the various garages.

The District’s DOT does not regularly collect, track, analyze, or report on basic performance indicators such as “on-time” arrivals of school buses, cost per mile or accident rates. While much of this type of information is available in detail form at the operational levels of the organization, it is not compiled and summarized for management

¹⁶ In its preliminary assessment, the Florida Sterling Council Examiners report that DOT has some goals, but there is not an action plan in place to achieve them. Overall, DOT does not use performance measurement indicators to manage business. While raw data may be available, there is generally a lack of analysis that converts this data into information used to review performance, identify priorities, and manage or improve performance.

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purposes. Therefore, the District management lacks the daily, weekly, monthly, and annual reports needed to monitor performance.

The District does not use any form of customer satisfaction survey to determine service areas that need improvement. Complaint forms are available but are not used on a consistent basis and are not compiled or summarized to serve as a management tool. As a recent initiative, however, the Director of the DOT has established a “measurement” committee to develop a survey instrument to measure customer satisfaction.

Recommendations

- *We recommend that the DOT move to adopt an accountability system with performance indicators from which measurable objectives can be developed and report the results these efforts to the superintendent, school board and public.*
- *We recommend that the DOT establish clear and measurable goals and that it benchmark its performance within in the DOT and to peer districts and report the results these efforts to the superintendent, school board and public.*
- *We recommend that the DOT institute customer service measurement instruments and utilize this information to make organizational improvements and report the results these efforts to the superintendent, school board and public.*

Action Plan 12-12 provides the steps needed to implement these recommendations

Action Plan 12-12

Accountability system with goals and measurable performance indicators	
Strategy	Adopt an accountability system with performance indicators and measurable goals. Benchmark performance within the DOT and to peer districts and report the results these efforts to the School Board and public.
Action Needed	<p>Step 1: The administrative director of the DOT should assume the responsibility for the development and implementation of an accountability system.</p> <p>Step 2: Select performance indicators that are measurable and in general use in the industry. These might include such indicators as cost per mile, on-time arrivals, accidents per million miles, bus occupancy rates, breakdown rates, average ride times, and other measures of effectiveness and efficiency.</p> <p>Step 3: Establish uniform system of data collection for selected performance indicators.</p> <p>Step 4: Establish and disseminate to managers and staff measurable goals and objectives based on selected performance indicators.</p> <p>Step 5: Benchmark performance indicators both within the organization (e.g., among Transportation centers) and with peer school districts.</p> <p>Step 6: Evaluate these statistics and document reasons for variances.</p> <p>Step 7: Report performance related to goals and benchmarks to the superintendent, board of education and the public on an annual basis</p> <p>Step 8: Develop improvement plans, as needed, to assist managers and other employees in meeting individual and department goals in the future.</p>
Who Is Responsible	Administrative Director, Department of Transportation
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Measure Customer Service	
Strategy	Institute customer service measurement instruments and utilize this information to make organizational improvements.
Action Needed	<p>Step 1: Assign the established “measurement” committee of the DOT the responsibility to develop a survey instrument to measure customer satisfaction.</p> <p>Step 2: Widely disseminate the survey instrument.</p> <p>Step 3: Collect and analyze data from the survey.</p> <p>Step 4: Use information obtained from survey to improve customer service and customer communications.</p> <p>Step 5: Report customer satisfaction survey results to the Superintendent, Board of education, and the public on an annual basis.</p>
Who Is Responsible	Administrative Director, Department of Transportation.
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources

16 The DOT coordinates longer-term planning and budgeting for student transportation within the context of District planning efforts, but needs to provide more cost reduction options to the superintendent and school board.

Budget planning

Staff of the DOT conducts a meticulous review of all budget categories, including an analysis of prior budget variances, as part of the budget development process. Interviews with DOT managers and a review of budget documentation indicate that the impact decisions will have on student transportation costs are considered as part of the District’s decision making and long-term school planning process.

Program growth projections are coordinated with appropriate instructional offices in projecting transportation needs for the coming year. These programs include the various magnet programs, ESE, opportunity scholarships, and others.

On the other hand, the potential for budget reductions is not systematically considered as part of the budget process and the cost implication of current and alternative transportation policies are not presented to the board. Although there is some evidence that efforts are made to reduce the number of “space-available” courtesy riders in the District’s search for possible budgets reductions.

Operational planning

DOT staff consults with school and community planners to identify the pupil transportation implications of community growth, future schools, school renovations, and attendance boundary changes. Staff at the Transportation centers meet with local community and law enforcement officials in determining the most appropriate loading/unloading zones and school bus routing issues.

Recommendations

- *We recommend that the DOT present and review the cost implications of current policies in the areas of ESE transportation, Magnet student transportation, bell schedules, and potential cost saving alternatives at the superintendent and board level of the District.*

Action Plan 12-13 provides the steps needed to implement these recommendations

Action Plan 12-13

Board Review of Current Transportation Policies	
Strategy	Review the cost implications of current policies in the areas of ESE transportation, Magnet Student transportation, bell schedules, and potential cost saving alternatives at the Superintendent and Board level of the District.
Action Needed	Step 1: Develop comprehensive review of the cost implication of current transportation policies for ESE, Magnet, and bell schedules along with cost saving alternatives. Step 2: Present to the superintendent and the governing board the cost implications of current policies and alternatives for consideration.
Who Is Responsible	Administrative Director, Department of Transportation
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

17 The District monitors the fiscal condition of student transportation functions by regularly analyzing expenditures and reviewing them against the budget, but needs to improve its tracking systems.

A healthy attitude of “trust, but verify” seems to prevail at the various levels of the DOT organization as it relates to District maintained budget and accounting records. Accounts and transactions are monitored carefully to ensure their accuracy. Expenditures are controlled to budget allocations and budget adjustments, when needed, are performed in accordance with the policies established by the chief financial officer.

Berkshire Advisors noted that bus driver overtime cannot effectively be monitored and controlled because it is not distributed to work locations or charged to individual “jobs”. These overtime charges are not distributed to appropriate cost centers and programs, but are accumulated in department-wide accounts. Furthermore, potentially offsetting revenue sources, such as the charges for activity trips that may have generated the bus driver overtime, are not made available to DOT management.

While the DOT garages use a “job cost” system to track labor and material to vehicle maintenance records, the computer system in use (COMPASS) limits the historical record of charges and activity to 13 months, thereby compromising the ability of staff to monitor, analyze, and manage the vehicle maintenance function.

Recommendations

- *We recommend that bus driver overtime accounts be allocated to a level where they can be effectively controlled and that offsetting revenue data be provided to DOT managers on a regular basis to assist them in monitoring these accounts.*

- We recommend that the DOT replace or modify the current job cost system, COMPASS, so that it can be integrated with other related systems, such as the payroll system, and so that DOT garages will not be limited in tracking the history of expenses charged to the various vehicles in the fleet.

Action Plan 12-14 provides the steps needed to implement these recommendations.

Action Plan 12-14

Allocation Of Overtime	
Strategy	Bus driver overtime accounts should be allocated to a level where they can be effectively controlled and offsetting revenue data should be provided to DOT managers on a regular basis to assist them in monitoring these accounts.
	Step 1: Assign the responsibility for the implementation of bus driver overtime allocation to the Executive Director of DOT.
	Step 2: Determine appropriate allocations to centers and other offices based on prior experience and expected needs.
	Step 3: Train center managers in the use of budget monitoring tools.
	Step 4: Provide managers data on offsetting revenue to assist them in managing the overtime accounts.
Action Needed	Step 5: Generate periodic reports on overtime usage and offsetting revenues for the Administrative Director’s review.
	Step 6: Hold managers accountable to control overtime expenditures within budgeted allocations.
Who Is Responsible	Administrative Director, Department of Transportation and the Chief Financial Officer.
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources.

Replace Current Job Cost Computer System	
Strategy	Replace or modify the current job cost system, COMPASS, so that it can be integrated with other related systems, such as the payroll system, and so that DOT garages will not be limited in tracking the history of expenses charged to the various vehicles in the fleet.
Action Needed	See Action Plan 12-6.
Who Is Responsible	Administrative Director, Department of Transportation
Time Frame	July, 2002
Fiscal Impact	Resources for this project are currently in the District’s budget.

18

The District provides accurate counts of the number of students transported on the periodic FEFP survey.

The periodic Florida Education Finance Program (FEFP) survey is a very important activity of the DOT in that it is the basis for transportation reimbursement from the State. The DOT provides instructions and training to bus drivers and support staffs on the student count process and required forms. The DOT coordinates this effort with other school district functions that may be impacted by the count process.

Student rosters, including names and identification numbers, are prepared by bus drivers and compared to computerized rosters maintained on the CATS system by routing personnel. Routing staff edit rosters for spelling and numerical errors and investigate other potential errors. While there is little evidence that these counts are

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verified in the field, the District has received positive audits of its FEFP survey process from both the state's Auditor General and the Department of Education.

Results of the survey are summarized and reported to the State. The DOT uses the FEFP survey results to evaluate trends and identify transportation issues.

19

The District has not adequately analyzed the potential for expanded contracting of student transportation and vehicle maintenance.

Bus operations

The District contracts for a small percentage (approximately 4%) of its regular bus routes and also provides schools with a listing of approved bus contractors for activity trips. The District also contracts for the transportation of certain ESE students with unique and special needs. Private buses used on District routes or authorized for activity trips are regularly inspected by the DOT. These contractors must meet insurance and other requirements established by the District to ensure their viability.

The District monitors the performance of contract providers through field observations, accident investigations, and an annual review of all contracted bus driver credentials. The District has aggressively suspended contractors that fail to perform adequately. DOT has not, however, regularly or systematically compared the costs of contracting student bus services with in-house services. This lack of analysis reflects the District's view of contracted bus routes as a public service—as a way to support local small businesses—rather than as a potential way to improve efficiencies.

In a district as geographically large as Miami-Dade, with 1,472 daily bus routes, one would expect a greater proportion of its routes to be served by outside vendors. At the very least, a thorough examination of the costs and benefits of contracting should be conducted. Such a study should not only include an accurate computation of the costs of the in-house transportation services but also include a thorough market analysis to determine the availability and commitment to outside firms with the capital and expertise needed to provide a significant portion of the District's bus services. It would be appropriate for the District to develop a Request for Qualifications (RFQ) to determine the market of viable contract bus providers followed by a bid process for bus routes. Costs obtained from bids should be compared to the cost of in-house services on an on-going basis.

Vehicle maintenance

Certain specialized automotive maintenance tasks such as paint and bodywork, radiator rebuilding, and transmission repair have been successfully contracted to private sector vendors. According to DOT managers, approximately \$1 million in outside repair work was purchased by DOT. Other maintenance activities are often informally reviewed by DOT staff to determine if they are good candidates for outsourcing. Prior to obtaining authorization to contract out vehicle maintenance tasks, a formal analysis of potential cost saving is conducted by DOT staff. District staff conduct an inspection of any vehicle maintenance work performed by a private vendor to ensure quality control. These inspections are completed prior to authorization for payments for services rendered.

A recent report by the District's Office of Management and Compliance Audits found several weaknesses in internal controls over the purchase of outside repairs including problems with cost estimating, add-on vendor charges, and vendor evaluations.

Other contracted services

The DOT also contracts for security guard services at its Transportation centers and garage locations.

Recommendations

- We recommend that the DOT develop key cost information and prepare a cost comparison of contracted vs. in-house bus operations to use as a basis for decision making regarding the expansion or contraction of contracted bus services. This analysis should include a Request for Qualifications (RFQ) to determine the market of viable contract bus providers followed by a bid process for bus routes to establish the costs of contracting.

Action Plan 12-15 provides the steps needed to implement these recommendations

Action Plan 12-15

Compare Cost of District Vs. Private School Bus Operations

Strategy	Develop key cost information and prepare a cost comparison of contracted vs. in-house bus operations to use as a basis for decision-making regarding the expansion or contraction of contracted bus services.
Action Needed	<p>Step 1: Assign the responsibility for the development of comparative cost information to the Executive Director of DOT.</p> <p>Step 2: Develop a comprehensive analysis of the cost of District in-house bus operations.</p> <p>Step 3: Conduct a Request for Qualifications (RFQ) to determine the market of viable contract bus providers followed by a bid process for bus routes.</p> <p>Step 4: Conduct a comparison of the cost of in-house bus operations to contracting for these services.</p> <p>Step 5: Use the comparative analysis as a basis for expansion or contraction of the number of bus routes contracted out.</p>
Who Is Responsible	Administrative Director, Department of Transportation.
Time Frame	July, 2002
Fiscal Impact	This recommendation can be implemented within existing resources

20 The District has taken some steps to minimize administrative layers, but more needs to be done.

Berkshire Advisors noted certain areas where excessive management layers were present in the organization and that the District took action in February 2002 to reduce these layers. While the large number of management layers noted in Miami-Dade is similar to other comparable large school systems, the District took the opportunity to reduce cost and improve communications by “flattening” its organization. One such area was the reporting relationship of the director of Transportation who reported through an associate superintendent to the deputy superintendent of School Operations. The Director of DOT now reports directly to the new chief business officer position.

Another such area was the existence of two Executive Directors within the Transportation Department. The February 2002 reorganization reduced the number of Executive Directors within the DOT to one.

A recent report on the vehicle maintenance section of the DOT by the District’s Office of Management and Compliance Audits concluded, however, that “...there appear to be excessive layers of administrative and support staff, as well as underutilization of vehicle mechanics.”

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The decentralization of certain transportation functions to the seven Transportation centers results in redundancy, inefficiencies, and the lack of uniformity and coordination. These functions include the routing and scheduling of buses, bus dispatching and radio operators, and the maintenance of driver personnel records.

- **Routing and Scheduling** See section 1 of this chapter for Recommendations and Action Plans relating to the centralization of the routing and scheduling functions.
- **Bus Dispatch and Radio Operations** The DOT currently employs 36 Radio Dispatch Operators at approximately \$27,500 annually, for a total cost of this function of almost \$1 million per year excluding employee benefits. Employee benefits add about another 20% to these costs, bringing the total cost, including employee benefits to about \$1.2 million per year. Based on the relationship of Radio Dispatch Operators to buses in other large school districts, a reduction of at least 30% could be achieved without any degradation of service.
- **Personnel Record Keeping** Personnel records should be centrally maintained to ensure that District and DOT policies are adhered to in a uniform and consistent manner. This is particularly important for bus driver personnel files containing information on the status of driver's licenses, training attendance, and drug test results.

There is no evidence that DOT staff review and present to the superintendent and school board options to further flatten the organizational structure of the DOT, nor does the staff compare itself with peer school districts or other benchmark organizations.

Recommendations

- *We recommend that at a minimum, the routing, dispatching, and personnel record keeping functions be consolidated and centralized within the DOT to improve operational efficiency, reduce cost, and ensure the uniform application of District and DOT policies and procedure. The DOT should also present options to the superintendent and school board to further flatten the DOT organizational structure to reduce redundancy and inefficiency.*

Action Plan 12-16 provides the steps needed to implement these recommendations.

Action Plan 12-16

Centralize Selected Functions	
Strategy	At a minimum, the routing, dispatching, and personnel record keeping functions should be consolidated and centralized within the DOT to improve operational efficiency, reduce costs and ensure uniformity. The DOT should also present options to the superintendent and school board to further flatten the DOT organizational structure.
Action Needed	<p>Step 1: See Action Plan 12-1 relating to the centralization of school bus routing and scheduling functions.</p> <p>Step 2: Assign the responsibility for District-wide radio dispatch operations to the DOT's Executive Director. Assign the responsibility for centralization of personnel record keeping to the Coordinator of Operations and Training.</p> <p>Step 3: Analyze and modify, as appropriate, radio dispatch protocols and procedures.</p> <p>Step 4: Physically bring together bus dispatching resources and train staff on uniform standards and procedures.</p> <p>Step 5: Evaluate and report on the effectiveness of centralized bus dispatch operations and the centralization of personnel record keeping.</p> <p>Step 6: Present other options to the superintendent and school board to further flatten the DOT organizational structure.</p>
Who Is Responsible	Administrative Director, Department of Transportation.
Time Frame	July, 2002
Fiscal Impact	This recommendation will result in cost saving in the area of radio dispatch operations. There are currently 36 radio dispatch operators located at the transportation centers that cost approximately \$1.2 million per year. These costs can be reduced by at least 30% or about \$350,000 per year and \$1.75 million over five years through the centralization of these services.