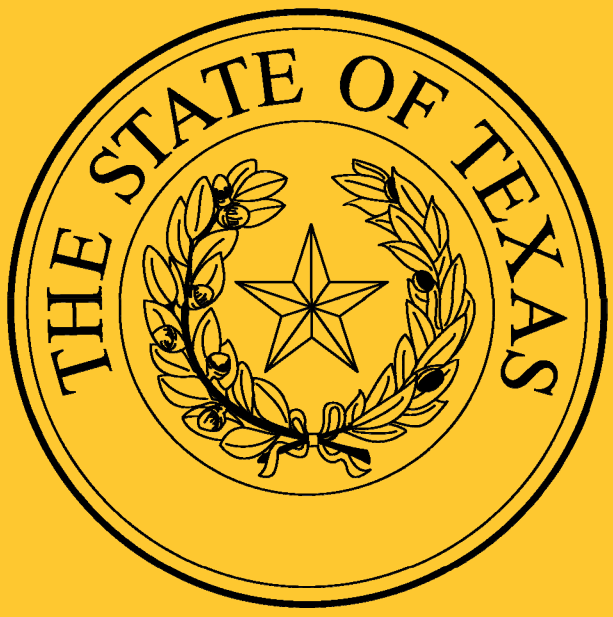

City View Independent School District

TRANSPORTATION REVIEW

Conducted by
Management Partnership Services, Inc.
for the
Legislative Budget Board

MARCH 2009

LEGISLATIVE BUDGET BOARD

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March 10,2009

Mr. Steve Harris
Superintendent
City View Independent School District

Dear Mr. Harris:

The attached report reviews the management and performance of the City View Independent School District's (CVISD) transportation operations.

The report's recommendations will help CVISD improve its overall performance as it provides transportation services to district students. The report also highlights model practices and programs being provided by CVISD's transportation program.

The Legislative Budget Board engaged Management Partnership Services, Inc. to conduct and produce this review, with LBB staff working in a contract oversight role.

The report is available on the LBB website at http://www.lbb.state.tx.us.

Respectfully submitted,

John O'Brien
Director
Legislative Budget Board

cc:

Michael Long
Glen Eickman
Shelly Bryson
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Andy Kocher
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EXECUTIVE SUMMARY

OVERALL ASSESSMENT

The City View Independent School District (CVISD) transports approximately 260 students, or 25 percent of the enrolled population, to two schools including one junior/senior high school and one elementary school. The district's fleet consists of 15 vehicles, 4 of which are active route buses operated and maintained by Durham Student Services (DSS). There is one special needs bus and eleven activity/special trip vehicles operated by the district which are driven by CVISD coaches, teachers and food service employees. The district reimburses parents for transporting other special needs students to area learning centers. CVISD operates on two distinct bell times (time tiers). The junior/senior high school starts at 7:30 AM and the elementary schools start at 8:00 AM.

Overall CVISD operates a cost effective transportation program and the services are provided with a high level of quality. Nevertheless, low levels of capacity utilization indicate an opportunity to reduce costs further while still maintaining high levels of service quality. In addition, the rationale and viability of maintaining a split responsibility between in-house and contracted operations is questionable.

The department is organized into two main divisions. The first, "Transportation Operations," is responsible for the day-to-day delivery of transportation services to the student population. The second, "Fleet Management," is responsible for the upkeep and maintenance of the bus fleet plus all other vehicles and motorized equipment owned by the district. This report is organized based on these two divisions.

MAJOR ACCOMPLISHMENT

- **CVISD's home-to-school transportation services are cost effective relative to national averages and are provided with a high level of service quality.**

MAJOR FINDINGS

- **The district does not maximize capacity utilization on individual bus runs.** Overall capacity utilization on individual bus runs is low. Average utilization on buses is just 47 percent of available seating capacity. In contrast, high levels of service are being provided, as measured primarily by short student ride times. In general, longer bus runs allow for more seats to be filled and lowers the number of buses required.
- **The district lacks sufficient records for district-owned and operated vehicles.** There is no documentation of pre-trip inspections for special trips, and there is no formal scheduled maintenance for district-owned and operated vehicles. Coupled with the lack of operational documentation and the service being provided by DSS, this circumstance raises questions regarding the rationale behind maintaining a split in-house and contracted responsibility for transportation service delivery.

MAJOR RECOMMENDATIONS

- **The district should analyze the benefits of increasing capacity utilization to reduce the number of route buses required.** Comprehensive planning and analysis will reveal whether operational efficiencies and cost reductions may be realized by lengthening student ride times in order to lower the number of route buses required.
- **CVISD should conduct a comprehensive analysis to determine whether the entire transportation operation should be contracted.** This analysis should consider contracting all student transportation services, including home-to-school service for regular and special needs students and all special trips. A cost and service analysis should be completed to determine potential cost increases or savings and what level of service delivery could be expected.

TRANSPORTATION OPERATIONS

ORGANIZATION AND STAFFING

The City View Independent School District (CVISD) provides home-to-school transportation to approximately 260 students, or 25 percent of the enrolled population of approximately 1,050. Regular services are provided using four district-owned buses that are operated and maintained by Durham Student Services (DSS), a private contract service provider. CVISD has a fleet of 11 additional buses and vans to transport special needs students and for use on field, extracurricular, and athletic trips.

The CVISD transportation operation is small in size and geographical service area. With four regular and one special needs transportation route, the available organizational infrastructure is minimal. The use of a contractor for service provision in this environment is appropriate, as the absence of staff makes it difficult to develop the skills and expertise necessary to ensure safe and effective service delivery. Within this context, the district service area is compact, facilitating cost-effective and good quality service delivery.

ADMINISTRATIVE STAFFING AND WORK DISTRIBUTION

DSS, a national student transportation contractor, provides transportation services to all eligible CVISD regular education students, thus displacing the majority of district transportation staffing requirements and associated management and administrative tasks associated with oversight of transportation operations. This structure is appropriate for this school district. In a somewhat unusual variation, however, the district owns the four route buses operated by DSS who leases these buses back from CVISD. The contractor maintains the buses and employs the drivers. They provide dispatch services, assign routes to drivers, cover driver absences, and conduct all required driver training and certification. An evaluation of DSS operations was not conducted as part of this review, except to the extent of assessing the safety, cost, and quality of service delivery received by the district.

The corporate resources available to DSS helps to ensure that a qualified and professional staff is available to deliver services. Drivers employed by DSS are required to complete the 20-hour state training course and other training as required by DSS. All services provided to CVISD are supervised from, and associated with, the DSS contract location in Wichita Falls. This location has a dedicated training room with materials covering such topics as bus safety, student management, and special education student needs. Drivers attend monthly training sessions and may complete training modules independently. This practice is appropriate and indicative of a high level of service being provided by DSS, which was confirmed in interviews conducted with district staff during the on-site portion of this review.

Other than the four regular route buses operated by DSS, all other transportation services are administered by the district's maintenance supervisor. This extends primarily to the single special needs bus and the remaining 10 buses that are used as spares and for all manner of special trips. The maintenance supervisor schedules such trips and assigns drivers based on availability. For example, a team coach might drive for an athletic trip or a cafeteria worker for a field trip. There is no established rotation; trips are filled on an as-needed basis and drivers are assigned on a first come, first served basis. There are no formal policies regarding special trip assignments, nor is there documentation of district staff's driving qualifications. District employees wishing to drive for special trips may obtain their Commercial Drivers License and complete the 20-hour state training course through the Regional Education Service Center IX (Region 9). This informal approach and operating practice raises concerns regarding the overall safety and effectiveness of this part of the program.

POLICIES AND PROCEDURES

CVISD has a limited set of documented transportation policies. While this situation is understandable considering the small size and scope of the operation, critical elements necessary to define appropriate parameters for the service are missing. CVISD policies do cover such topics as student transportation, district vehicles, and employee requirements and restrictions, but do not adequately define or constrain levels of service or the manner in which transportation services are to be provided. Examples of these shortcomings include the following:

Transportation eligibility – A critical policy states that students for whom the district does not receive funding shall nevertheless be granted permission to use district transportation. All students in the district may therefore be transported to and from school regardless of their proximity

to school. It is important to recognize that only 25 percent of all students actually avail themselves of the service, based on the data provided for this review. Although this analysis did not include a student survey to determine the reason for low transportation participation, this policy is not conducive to supporting the operation.

Hazardous area transportation – This review found that CVISD receives hazardous transportation funding from the state. However, the current administration was not aware of such funding when discussed during interviews, nor was it aware of the requirement for Board of Trustees' policies that formally establish hazardous areas, which is a requirement to receive such funding. Also, there was no evidence that such policies exist. The school district covers 15 square miles and is bordered by a highway to the north and active train tracks to the south. For the purposes of state funding, much of the district is considered to be a hazardous walking area. There are few students within a two-mile radius of their school that fall outside this definition. The district is therefore reimbursed for transporting nearly all students in the district, justifying the eligibility policy but reinforcing the concern regarding the difference between eligible and actual rider counts.

Service level parameters – There are no policies or procedures that establish parameters regarding the allowable maximum amount of time that regular or special needs students should be on a bus, or any other service level parameter such as allowable walk distances to bus stops or bus stop placement. The compact size of the district allows buses to complete routes quickly, and students are rarely on the bus longer than 30 minutes. However, defining these guidelines and service level parameters could further improve the district's transportation services.

Special needs transportation – There are no policies regarding special needs student transportation. There are typically multiple special needs students transported to learning centers outside CVISD. During school year 2006–07, other special needs students were transported by parents who were reimbursed by the district, but no documentation exists that defines the parameters for this service delivery approach.

One key exception to the shortcomings in the policy area is that of student discipline. In this case DSS has a discipline program for their buses that operates on a point system. Students are provided with a list of bus rules and the disciplinary action that will follow should they break those rules. When a student accumulates 10 points or more he or she is dismissed from the bus for 10 days. When a student accumulates 30 points, he or she is dismissed from the bus the rest of the school year. A designated DSS employee reviews all bus conduct reports. This employee handles parent complaints regarding discipline issues. This practice is not replicated by CVISD for students riding the bus on field trips, extracurricular trips, or for athletic events.

CONTRACTOR AGREEMENT

DSS transports all CVISD regular education students. The district owns the four route buses operated by DSS, and DSS leases those buses back from CVISD. The contract term is for one year and is reviewed and renewed annually. The contract service provider maintains the buses, employs the route drivers, and provides dispatch services including responding to all on-road requirements, driver absences, etc. The contractor secures and maintains valid permits and licenses as required by state law and Texas Education Agency guidelines and maintains insurance for the school buses and the drivers. Fuel is provided by DSS, and the cost of fuel is included in the base cost of transportation service. All services are provided as part of a daily rate per bus, which is an appropriate industry standard contract structure.

CVISD pays a daily rate that corresponds to the total number of hours a route bus runs. **Figure 1** provides an example of how billings are determined. The first column is the route number and the second column is the number of school days in the month of April 2008. The third column is the base daily cost for DSS to operate a school bus for CVISD. This rate is based on a maximum of four operating hours per day. The average hours per day reflect the average amount of time a route bus is actually running during the billing period. For example, route 48 did not exceed the base number of four hours per day on average, and the extended cost for the month is equal to the daily rate multiplied by the number of service days. Route 47, however, runs an average of 4.75 hours per day. Its total cost equals the base plus an hourly increment of $15.17 per hour for 16.5 hours (0.75 x 22 days). This method is a typical industry approach and is appropriate to the needs of the district as it results in a high level of overall cost-effectiveness.

DSS provides service to CVISD through its Wichita Falls terminal location. As such, the CVISD contract is an adjunct to the larger contract DSS maintains with the Wichita Falls Independent School District. It is primarily this arrangement that facilitates a cost-effective and quality level of service for the district. As a stand-alone operation, four route buses

FIGURE 1
CONTRACTOR BILLING APRIL, 2008

ROUTE	NUMBER OF DAYS	BASE COST	AVERAGE HOURS	TOTAL HOURS	AVERAGE DAILY RATE	OVER HOURS COST	TOTAL COST FOR ROUTE
47	22	$141.41	4.75	104.50	$152.79	$250.36	$3,361.38
48	22	$141.41	4.00	88.00	$141.41	-	$3,111.02
49	22	$141.41	4.00	88.00	$141.41	-	$3,111.02
50	22	$141.41	4.90	107.75	$155.03	$299.61	$3,410.63

SOURCES: CVISD Business Office; Management Partnership Services, Inc. analysis, 2008.

would be insufficient to attract a national vendor such as DSS and would leave the district with the option of running these buses or seeking out some other type of cooperative arrangement. Given the existence of the Wichita Falls terminal, however, CVISD is in an excellent position to benefit. The level of cost-effectiveness and service quality being received therefore raises some questions regarding the rationale behind continuing to own and operate any in-house transportation services as the district does.

BUS ROUTING AND SCHEDULING

SERVICE DESCRIPTION

CVISD comprises two school campuses located less than one-half mile from each other. City View Junior/Senior High School houses grades 7 through 12, and City View Elementary School houses pre-kindergarten through 6th grade. The enrolled student population is approximately 1,050 in a compact geographic area of 15 square miles. **Figure 2** displays the bell time schedule for school year 2007–08.

FIGURE 2
BELL TIMES, SCHOOL YEAR 2007–08

SCHOOL	AM BELL TIME	PM BELL TIME
City View Junior/Senior High School	7:30	3:00
City View Elementary School	8:00	3:30

SOURCE: CVISD Transportation Department.

The compact urban/suburban area of the district facilitates short bus runs and the pairing of dedicated runs to each campus into a two-tier route structure. Thus, there are a total of seven regular education bus runs serving CVISD school buildings in the morning. Three of the four regular route buses transport students to City View Junior/Senior High School on the first tier, and all four route buses are used to transport students to City View Elementary School on the second tier.

Figure 3 shows morning bus deployment. The horizontal axis represents five minute time increments and the vertical axis represents the number of buses in use. Each bar therefore represents the number of buses in use at a particular time. By definition, a bus is determined to be in use only when students are on the bus. Deadhead time, or the time from the bus garage to the first stop and/or time from drop off at a school to the first stop of the next run, is not displayed here. For example, one bus is in use at 6:50 AM picking up the first students in the morning, and later at 7:20 AM. The maximum number of active buses at any one time is four.

In addition to the four route buses operated by DSS for transportation to and from school, CVISD operates shuttles between the district's secondary and elementary campuses in the afternoon. These shuttles are used primarily for 6th grade students participating in band activities at the junior/senior high school.

ROUTING PROCESSES

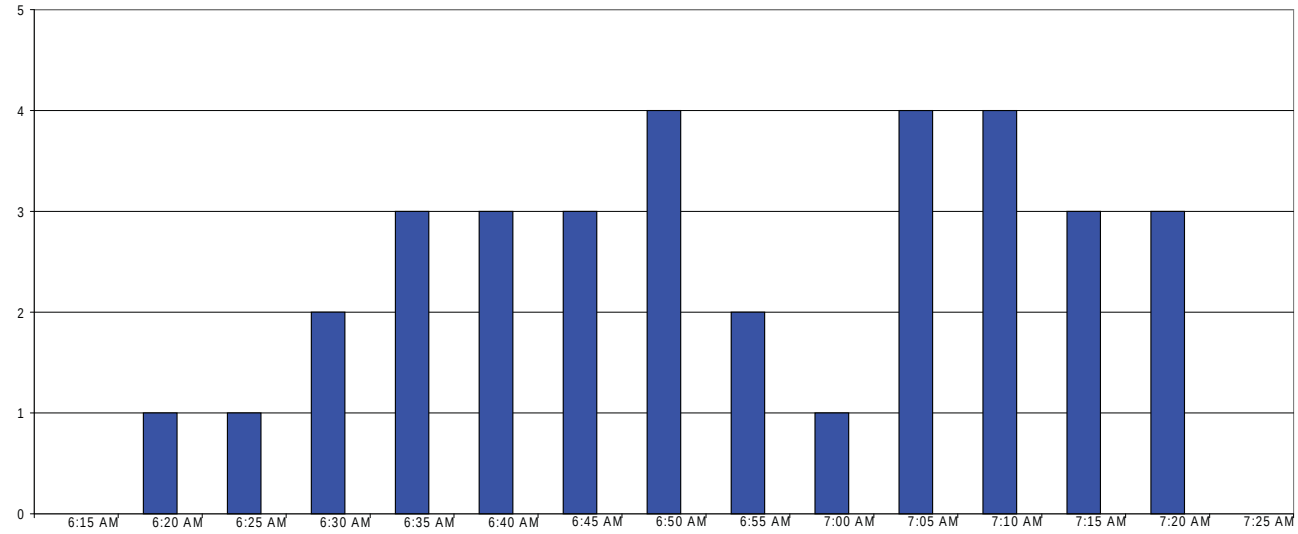
DSS uses route planning software to develop bus routes for CVISD. Established routes are plotted on an electronic map that drivers use during the first few weeks of school. Drivers record who is riding the bus, where they live, and at which stops they are picked up or dropped off. The contractor assigns seats, and a student count is conducted once per week.

There is no formal annual planning cycle whereby the bus routes are redesigned to accommodate changes. Rather, the system is reactive to changes in capacity use and requirements over the course of the school year, and existing bus routes have remained largely unchanged for a number of years.

SYSTEM PERFORMANCE ASSESSMENT

Safe, cost-effective, and quality transportation services are being provided to CVISD students. The overall annual cost per transported student is $605, below the current national average of approximately $700. Service levels are considered

FIGURE 3
MORNING BUS DEPLOYMENT, SCHOOL YEAR 2007–08



SOURCES: CVISD Transportation Department; Management Partnership Services, Inc. analysis, 2008.

to be high, as ride times are short and strong safety programs at DSS contribute to service quality.

SERVICE QUALITY

Service levels may be measured in a number of ways, such as walking distances to bus stops, allowable walk distances to schools, bus on time arrival rates, accident rates, allowable seat loading factors, and many others. The review team calculated key indicators as the data allowed but was also able to gain a more qualitative understanding of service quality through interviews and on-site observation. Overall, the data and on-site observations are indicative of high levels of service quality.

The average maximum ride time for students was calculated using the actual total bus run times. For any given bus run, the time between the first stop where students board the bus and the last stop where students disembark represents the maximum possible student ride time. The averages were calculated across all morning and afternoon runs. The average maximum ride time across all bus runs was calculated to be 23 minutes in the morning and 18 minutes in the afternoon. Run length data was unavailable to compute the average run length in miles. **Figure 4** displays the average run time in the morning and afternoon.

Figure 5 shows the distribution of ride times in the morning (all grade levels have been combined for this illustration). The horizontal axis represents run time, and the vertical axis represents number of bus runs. The solid line from the top to the bottom of the graph area indicates the average time across all runs in the morning, or 23 minutes.

FIGURE 4
AVERAGE RUN TIMES, SCHOOL YEAR 2007–08

SCHOOL	AVERAGE AM RUN TIME	AVERAGE PM RUN TIME
City View Junior/Senior High School	20 minutes	15 minutes
City View Elementary School	25 minutes	20 minutes
TOTAL	**23 minutes**	**18 minutes**

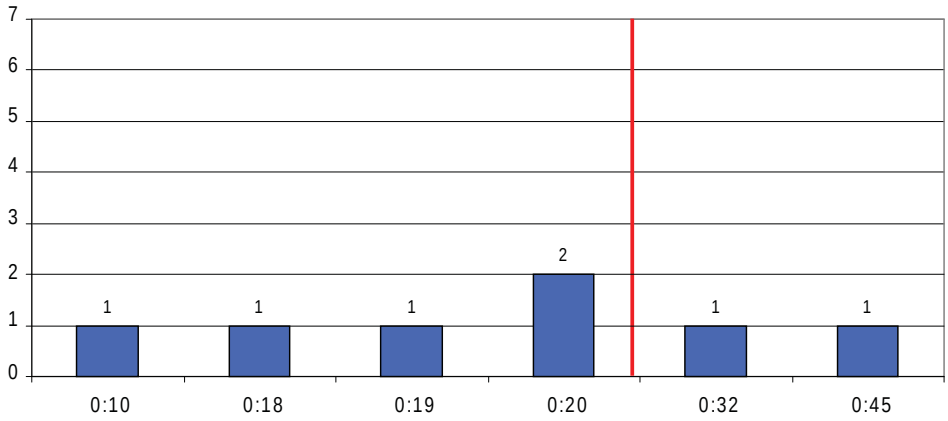
SOURCES: CVISD Transportation Department; Management Partnership Services, Inc. analysis, 2008.

Figure 6 shows the distribution of ride times in the afternoon (all grade levels have been combined for this illustration). The solid line in the middle of the graph area indicates the average ride time in the afternoon of 18 minutes.

These illustrations indicate that ride times for most students are short. This accomplishment provides a high level of service delivery for students but is perhaps indicative of an opportunity to trade slightly longer, but acceptable, ride times for an increase in overall capacity utilization. This task would be accomplished through consolidation of short runs (those that appear to the left of the solid line) with a goal of reducing the number of buses in service, thus reducing costs.

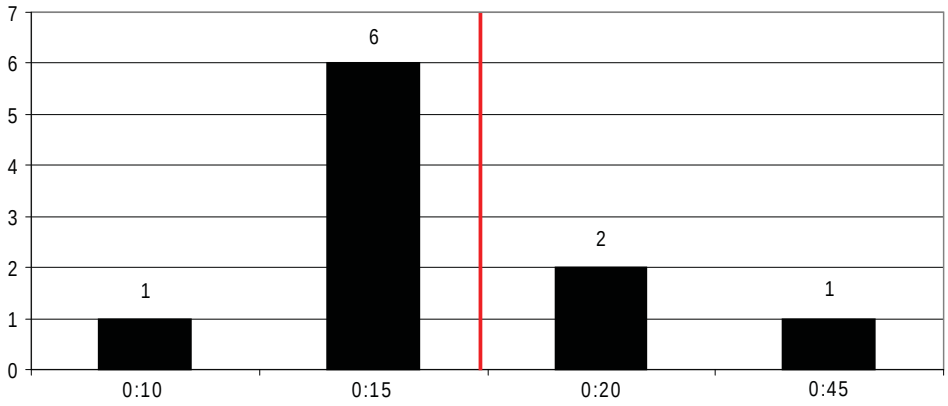
There was no data available to calculate other quantitative measures of service quality. However, on-site observations indicate quality service delivery with buses arriving and

FIGURE 5
MORNING RIDE TIME DISTRIBUTION, SCHOOL YEAR 2007–08



SOURCES: CVISD Transportation Department; Management Partnership Services, Inc. analysis, 2008.

FIGURE 6
AFTERNOON RIDE TIME DISTRIBUTION, SCHOOL YEAR 2007–08



SOURCES: CVISD Transportation Department; Management Partnership Services, Inc. analysis, 2008.

departing from schools in a timely manner and a high level of safety as reflected in the absence of accidents in the past year. The level of service being provided in CVISD is excellent.

COST-EFFECTIVENESS

The review team used a variety of quantitative measures to evaluate system cost performance, including the annual cost to own and operate each route bus, the annual cost per transported student, the number of buses used per 100 students (asset utilization), and average capacity utilization on each bus run. These measures are used as indicators and to highlight the factors underlying the level of performance achieved. There is a significant amount of variability to be expected between comparable districts, each of which might be providing high-quality and cost-effective services. These metrics are not therefore definitive. Looked at in combination, however, and gauged against broad industry ranges, these measures provide an excellent overall assessment of system performance and underlying causes.

Cost per bus and cost per student are the most significant measures of operational efficiency. The goal of any transportation operation should be to provide transportation to its students within a given level of service quality for the least possible cost. These two indicators are the most relevant measures of how this goal is being achieved. CVISD's annual cost per bus is $31,832, and the annual cost for transporting a student is $605. Current national averages are approximately $700 per student and $50,000 per bus. Once again, these indicators are affected

by several factors including geography, the size of the operation, and various operational policies but are indicative of a cost-effective operation. **Figure 7** shows key measures of cost-effectiveness for school year 2006–07: annual cost per student, annual cost per bus, and daily cost per bus.

FIGURE 7
KEY MEASURES OF COST-EFFECTIVENESS, SCHOOL YEAR 2006–07

Annual Cost per Student	$605
Annual Cost per Bus	$31,832
Daily Cost per Bus	$176.85

SOURCES: CVISD Transportation Department; Management Partnership Services, Inc. analysis, 2008.

Cost-effective transportation demands that management balance two conflicting goals: filling the available seats on each bus run (capacity utilization) and reusing the bus as many times as possible over the course of the day (asset utilization). These objectives conflict because in order for assets to be reused multiple times, run lengths must be short. For runs to be short, there is insufficient time available to fill the seats with riders.

The number of buses per 100 students is analyzed to determine how well buses (assets) are being used over the course of a service day. Fewer buses used to transport any single group of students will lower the total number of buses required and reduce overall cost. CVISD uses 1.90 buses to transport 100 students, demonstrating an appropriate use of assets in a two-tier system.

Capacity utilization is analyzed as a measure of how well capacity is being used on each individual bus run or how many available seats are being filled. Costs on a per-student basis decrease as more seats are filled. CVISD's overall average capacity utilization is 46 percent, based on the rated capacity of the bus. Industry guidelines are 60 percent to 70 percent of rated capacity, indicating an opportunity to improve overall cost performance even further. However, as previously discussed, capturing these efficiencies would require compromises to service delivery. Asset utilization and capacity utilization results are summarized in **Figure 8**.

FIGURE 8
ASSET AND CAPACITY UTILIZATION, SCHOOL YEAR 2006–07

Buses per 100 Students Transported	1.90
Overall Capacity Utilization	46%

SOURCES: CVISD Transportation Department; Management Partnership Services, Inc. analysis, 2008.

RECOMMENDATIONS

- **Recommendation 1: Create and document clear and definitive policies regarding transportation eligibility and hazardous areas.** The district, in cooperation with the Board of Trustees, should develop and document policies defining and establishing hazardous areas. The district should also review and update the eligibility criteria policy. The district may find that there are areas within a two mile radius of schools that are safe walking zones. It may be appropriate to deny transportation to students residing in such areas.

  CVISD administrative staff and the Board of Trustees should identify and document hazardous conditions such as, but not limited to, railroad tracks and interstate highways within the district. If hazardous conditions lie within two radius miles of schools, it is appropriate to classify such areas as hazardous and not suitable for walk zones. Students who reside within hazardous areas must be identified and classified as eligible riders; all other students must be classified as ineligible riders. The costs associated with this recommendation are minimal and include the administrative time and attention necessary to develop and document the policy statements. It is unlikely that this recommendation will lead to any cost savings but will result in a clearly defined and appropriate set of eligibility policies that form the backbone of a transportation operation. It is assumed that the district will need to use additional staff hours or outside services to complete these polices; therefore, a one-time $5,000 cost is estimated for this recommendation.

- **Recommendation 2: Analyze the benefits of increasing capacity utilization to reduce the number of route buses required.** The district should, in coordination with DSS, conduct a comprehensive route assessment and redesign in preparation for school year 2009–10. The district should identify actual riders and assign them to buses using route planning software available through DSS. CVISD and DSS should plan routes based on a goal of 60 to 70 percent planned capacity utilization. Ample time will be necessary to design, test, and revise these routes in advance of placing them in service. A key goal of the route planning should be for the district to analyze the impact of increasing capacity utilization to reduce

the number of route buses required, understanding that a reduction of one regular bus route can lead to about $31,832 in recurring annual cost savings. After investing a one-time $5,000 cost for the analysis in school year 2009–10, the district could realize a net five-year savings of about $127,328.

FLEET MANAGEMENT

ORGANIZATION AND STAFFING

The district owns a fleet of 14 buses and one passenger van to provide transportation services. Daily service to regular education students is provided on four district owned buses that are operated under a contract with DSS. The district operates one special education bus for home-to-school services. The remainder of the buses are used for shuttles between the district's secondary and elementary campuses and for activity and sports trips.

CVISD does not own or operate a repair facility and does not have any employees dedicated to fleet maintenance. The four route buses operated under contract are maintained by the contractor. Other than minor service (bulb changes, wiper blades etc.), all preventative maintenance and repair services for the remaining 11 vehicles is outsourced to a local service provider. These tasks include all preventive service such as oil and filter changes, and major regular repairs such as brake inspections/repairs, suspension and steering repairs, alignments, and major engine, transmission, and body work. There is no staff or infrastructure devoted to this function by the district.

WORK DISTRIBUTION AND SHOP OPERATIONS

DSS provides all maintenance on the four home-to-school route buses under the service agreement with the district. The maintenance on these four buses is consistent with each manufacturer's prescribed multi-level preventive maintenance (PM) program. DSS uses the Ron Turley Associates (RTA) fleet maintenance software for the tracking of both preventative and reactive maintenance. The cost of all maintenance is included in the blanket cost of providing home-to-school service and is not billed or itemized separately.

District operated buses are maintained by a local service garage. While district drivers are responsible for a pre-trip inspection, no form is provided to document that each driver does inspect the vehicle prior to providing service. Any noted repairs are verbally reported to the supervisor for follow-up with the maintenance service provider. No formal PM procedure was presented for review on district-operated buses.

The lack of documentation or formal processes limited the review team's ability to analyze this function and, more importantly, restricts the district's ability to properly manage this function. The district does not track repair histories on the buses or evaluate the performance of the repair facility. As a result, the safety and reliability of this portion of the fleet and the rationale behind continuing to own and operate these vehicles is questionable.

MAINTENANCE PERFORMANCE ASSESSMENT

The key measures of cost-effectiveness for a fleet maintenance and repair operation include total cost per vehicle equivalent unit (VEU), parts costs per VEU, mechanic staffing ratios, age of the fleet, spare bus ratios, and mechanic productivity. A VEU provides a standard comparison basis for dissimilar vehicle types by converting resource requirements to the equivalent of one standard sedan. Thus, a typical Class C school bus consumes 3.5 times the resources of a sedan in both labor and parts and receives a VEU of 3.5. Of these measures, only the cost per VEU and the average age could be calculated.

Neither fleet maintenance cost performance nor service performance can be calculated for the four route buses maintained by DSS, as the contract provides for all maintenance on the four home-to-school route and is not accurately itemized separately to facilitate an accurate analysis.

Based on an analysis of the data provided, performance measures indicate that expenditures for the remaining 11 vehicles are below expected industry guidelines. Current expenditures were calculated at $289 per VEU. This figure is far below the industry guideline of $1,200 to $1,600 per VEU, making the validity of the underlying data disputable. Parts and supplies costs were not calculated as parts costs are included (and not tracked separately) on each invoice. Based on this analysis, it is suspected that the information provided may not have included all costs related to the maintenance of district-operated vehicles. If all costs are included, the information presents a cause for concern both in terms of how maintenance is tracked and whether appropriate levels of maintenance are actually being performed on district vehicles. **Figure 9** shows the key measures of fleet cost effectiveness for school year 2006–07 that could be calculated based on available data.

FIGURE 9
KEY MEASURES OF FLEET COST-EFFECTIVENESS, SCHOOL YEAR 2006–07

Maintenance and Repair Cost per VEU	$289
Parts Issues per VEU	Data not available
Average Vehicle Age	12 years

SOURCES: CVISD Transportation Department; Management Partnership Services, Inc. analysis, 2008.

The district's PM program is basic and includes oil and filter changes at 5,000 miles including a basic condition inspection and chassis lubrication. All buses receive an annual inspection in August prior to the start of the school year. Reactive maintenance is all outsourced (other than minor on-site replacement of wipers and bulbs). No repair documentation was presented for evaluation.

MAINTENANCE FACILITIES AND FUEL MANAGEMENT

The DSS facility is a modern, multi-bay facility with full service capabilities, a locked parts storage area, and on-site fueling. All district buses are fueled and parked at this location. Additional evaluation of this facility was outside the scope of this review. The district-operated buses and the buses operated by DSS are all fueled at the DSS site. The district pays for fuel as part of the service agreement with DSS. This practice is appropriate given the district's lack of available infrastructure and continues the concern regarding the validity of the district's current split approach to contracted and in-house transportation services.

At the time of the on-site review, the district had not made any significant changes to operations as a result of the fluctuations in fuel prices in school year 2007–08. It is expected that fuel costs will continue to be monitored, and changes to service provision requirements are possible.

FLEET REPLACEMENT PLANNING

The district lacks a formal fleet replacement policy and lacks a dedicated annual funding allotment for vehicle replacement. District administration stated that the goal is to replace one bus every year. Currently, there are 15 vehicles in the fleet with an average age of 12 years. Seven buses (47 percent of the fleet) are 15 years or older. **Figure 10** illustrates the historical purchasing pattern for buses since 1984 by displaying the number of buses in the fleet by model year.

As the figure illustrates, the district has not been meeting the goal of purchasing one to two buses per year. The average age of the fleet is further indication that this goal is not being achieved. As the fleet ages, it becomes less reliable and more costly to maintain. Irregular replacement patterns can cause numerous problems such as the district needing to replace a large portion of the fleet at the same time. This type of situation in turn can present an insurmountable capital funding problem for the district. The replacement of buses is often treated as an optional expenditure, and that replacement of assets gets deferred during difficult budget years. The reality, however, is that this practice only serves to delay and exacerbate the funding issue. The district's fleet is dangerously old, and a concerted effort to renew the fleet should be a priority.

No specific tactics have been considered to comply with the recent seat belt legislation due to the lack of funding provided to date. It is expected that once funding is provided, specific considerations to the requirements will be given.

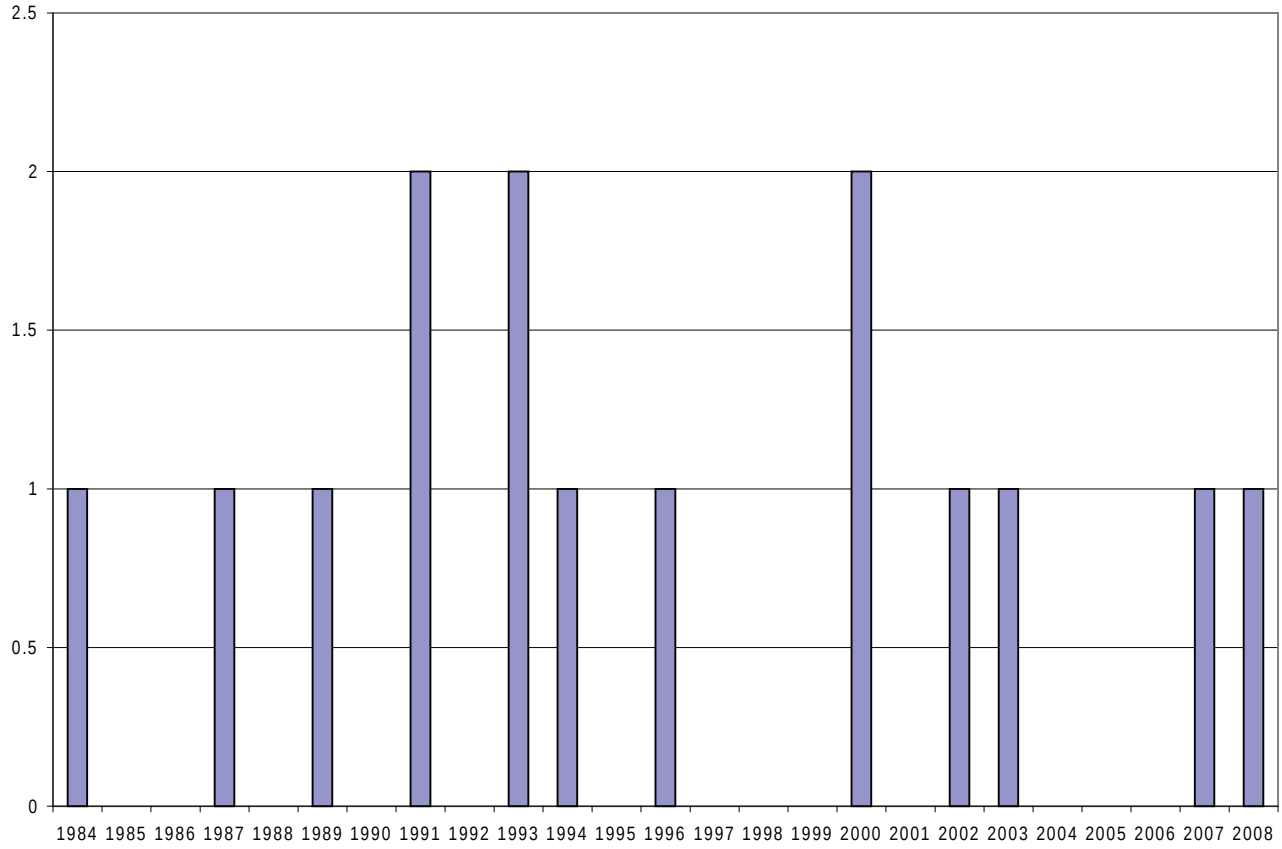
RECOMMENDATIONS

- **Recommendation 3: Conduct a comprehensive analysis to determine whether the entire transportation operation should be contracted.** CVISD should conduct an investigation into the potential of outsourcing the entire student transportation services including home-to-school for regular and special needs students and all special trips. A cost and service analysis should be completed to determine potential cost increases or savings, and what level of service delivery could be expected. When comparing the cost of outsourcing the entire transportation operation to the current system, it is important that the district consider personnel costs not currently captured in the transportation budget. An example is costs paid to coaches for driving buses during athletic trips.

  In conjunction with a cost and service analysis, CVISD should conduct an investigation into the potential of also outsourcing all of the fleet's maintenance. Receiving service from one vendor would help to ensure consistency in maintenance for the entire fleet and would reduce the amount of time needed for oversight by district staff.

  CVISD should undertake a methodical, coordinated effort to conduct such an investigation. This process should be inclusive and open, incorporating outreach to all stakeholder groups. In addition, it should allow sufficient time to ensure that all relevant analyses are completed and the impact of proposed changes adequately considered. The costs associated with this recommendation are limited to staff time and, potentially, outside assistance. The savings or other

FIGURE 10
AGE DISTRIBUTION OF THE BUS FLEET, AS OF JUNE 2008



SOURCE: CVISD Transportation Department; Management Partnership Services, Inc. analysis, 2008.

benefits to be derived from pursuing the results can only be determined by the analysis. It is estimated that this analysis will require additional staff time or outside assistance of transportation experts at a one-time cost of $5,000.

- **Recommendation 4: Develop preventive maintenance standards and schedules for district-operated buses to ensure that fleet maintenance supports the safe and fuel-efficient operation of the bus fleet.** Assuming a decision is reached to retain ownership and operation of the district's fleet, then common office productivity software could be used without requiring any additional costs to dramatically improve the record keeping and maintenance processes for the fleet. A pre-trip form should be used to record needed repairs which could also serve as a work order request. All information including report date, services performed, timeliness of service, and cost should be recorded in a database for easy retrieval and analysis. A regular reporting of service performed on each vehicle serviced by DSS should also be requested as the information should be readily available from the existing fleet maintenance information system.

The objective of a PM program is to minimize equipment failure by monitoring the condition of the equipment and correcting defects before they result in bus failure, route delays, or additional costs. An effective and well-designed PM program minimizes unscheduled repairs by identifying most maintenance and repair activities during scheduled inspections. An effective PM program pays dividends not only in improved equipment safety and reliability, but also financially by extending the life of equipment, minimizing the high cost of breakdowns.

A multi-level (three-tiered) PM program based on progressively more comprehensive maintenance cycles will provide the foundation for the program. The recommended service cycles are as follows:

- "A" Level: Perform a basic check and lubrication every 2 months or 3,000 miles;
- "B" Level: Perform a basic check and lubrication plus and oil change every 4 months or 6,000 miles; and
- "C" Level: Annual (summer) complete unit service including "A" and "B" level services.

The PM programs should incorporate detailed checklists that conform to the vehicle and engine original equipment manufacturer (OEM) prescribed maintenance procedures and service cycles. These activities should be integrated with generic maintenance procedures that are common to school bus operations, for example, lubrication of stop arm pivots, lubrication of service door mechanism, inspection of body mounting gussets, etc.

This process is consistent with the best standards used in the industry for PM programs and has contributed to the high level of mechanical reliability within fleets where it is implemented. A beginning resource to develop a comprehensive PM program is available at: http://www.schoolbusfleet.com.

Since CVISD has limited staff resources, it is assumed that the district will need to access outside sources to plan a PM program. The one-time cost for this service is estimated at $10,000. However, if the district decides to outsource the transportation and fleet services as recommended in this report, the PM plan may be something required in the contract of the vendor to prepare, thus either negating or reducing this estimated cost for preparing the PM plan.

- **Recommendation 5: Develop a formal fleet replacement plan and dedicated funding source.** Assuming continued in-house ownership of the fleet, the district should develop a formal fleet replacement plan to ensure the replacement of each unit on a pre-determined schedule and with a pre-determined funding mechanism. A formal fleet replacement plan should encompass specific policies regarding the planned replacement cycles for school buses, projections regarding the timing for replacement of each specific bus in the fleet, and a formal funding mechanism to ensure that appropriate funding will be available to purchase replacement equipment in accordance with the plan. The recommendation is therefore to develop a formalized, documented approach to fleet replacement planning. The actual cost implications of the resulting replacement plan can only be determined after the plan is developed and formalized.

  The process for developing a fleet replacement plan begins with establishing replacement criteria. The criteria can include any combination of age, accumulated mileage, or vehicle maintenance expenses among other options. Once specific criteria are established, each bus in the fleet must be compared to the criteria to establish a projected replacement date. Following the determination of a replacement date, the projected cost of the asset can be determined based on current cost plus some inflation factor and expected equipment requirements. **Figure 11** is a simple example using a three bus fleet and age as the replacement criteria. In addition, provisions are made for expected cost increases due to changes in engine requirements.

  Once projected replacement costs have been determined, it is possible to evaluate alternatives to cash financing of replacement purchases. These alternatives include leasing, establishment of a sinking or reserve fund, or some combination of these options. To initially develop this plan with outside professional assistance is estimated to be a one-time cost of $5,000.

FIGURE 11
EXAMPLE OF A BUS REPLACEMENT PLAN

UNIT ID	CURRENT AGE	REPLACEMENT CRITERIA	EXPECTED REPLACEMENT YEAR	CURRENT COST	INFLATION FACTOR	EQUIPMENT REQUIREMENTS	PROJECTED COSTS
Bus 1	14	15 years	2010	$75,000	–	$0	$75,000
Bus 2	13	15 years	2011	$75,000	5%	$5,000	$83,750
Bus 3	12	15 years	2012	$75,000	5%	$5,000	$87,688

SOURCE: Management Partnership Services, Inc. analysis, 2008.

FISCAL IMPACT

RECOMMENDATIONS	2009–10	2010–11	2011–12	2012–13	2013–14	5–YEAR (COSTS) OR SAVINGS	ONE-TIME (COSTS) OR SAVINGS
1. Create and document clear and definitive policies regarding transportation eligibility and hazardous areas.	$0	$0	$0	$0	$0	$0	($5,000)
2. Analyze the benefits of increasing capacity utilization to reduce the number of route buses required.	$0	$31,832	$31,832	$31,832	$31,832	$127,328	($5,000)
3. Conduct a comprehensive analysis to determine whether the entire transportation operation should be contracted.	$0	$0	$0	$0	$0	$0	($5,000)
4. Develop preventive maintenance standards and schedules for district-operated buses to ensure that fleet maintenance supports the safe and fuel- efficient operation of the bus fleet.	$0	$0	$0	$0	$0	$0	($10,000)
5. Develop a formal fleet replacement plan and dedicated funding source.	$0	$0	$0	$0	$0	$0	($5,000)
TOTAL	**$0**	**$31,832**	**$31,832**	**$31,832**	**$31,832**	**$127,328**	**($30,000)**