CHAPTER 9 – TRANSPORTATION

BACKGROUND

The goal of a school district pupil transportation system is to provide safe, effective, and efficient transportation services to support the district's educational and programmatic goals. For a transportation organization to be highly effective and efficient, the primary functional areas of a typical transportation organization must be appropriately staffed and managed. Prime examples include overall departmental management and strategic planning, route planning and management, dispatch and stakeholder communications, driver recruitment and training, and fleet maintenance and management.

The Lamar Consolidated Independent School District (LCISD), located in Fort Bend County, Texas, encompasses 385 square miles and serves 15 different municipalities. The LCISD has a student population of approximately 30,829 students, with demographic reports indicating that area growth will increase to nearly 50,000 students by the year 2025. This equates to a 59 percent growth rate in just under 10 years. There are currently 26,899 students of the 30,829 enrolled that are eligible for transportation service, given current eligibility standards as established by LCISD's Board of Trustee policies. The primary criteria for determining ridership eligibility is the distance a student resides from their designated school. For LCISD, eligibility criteria states that all students who live more than one half mile from their home school are eligible for transportation service, no matter the grade level. Approximately 12,930 eligible students are transported daily on 277 route buses within LCISD's system. If current ridership trends continue, by the 2025-2026 school year, LCISD will transport nearly 20,558 students of 42,769 eligible riders.

CHAPTER HIGHLIGHTS

- Route planning and management processes are supported by the implementation and use of robust route planning software.
- As an interconnected component of the route planning software, the fleet maintenance management and information module has yet to be implemented. This implementation should be considered a priority to better support the scheduling of preventative maintenance activities and the tracking of repair histories.
- Partially as a result of the LCISD hiring a well experienced Director, the department has been reorganized which included the establishment of an Operation Manager's position. All day-to-day service delivery functions of the department are under the guidance of the Operations Manager allowing the Director to focus on the strategic planning needs of the department.
- The creation of a departmental procedures manual should be considered to better ensure that current and future staff are aware of the critical processes and procedures that support effective and efficient service delivery.
- The Fulshear Transportation Facility supports a more effective routing network and fleet maintenance repair processes as buses are able to be dispatched and maintained closer to the geographical area that they serve.

ORGANIZATIONAL STRUCTURE

LCISD is a self-managed, owned, and operated transportation system with a full staff at two bus terminal locations. One terminal is located in Rosenberg with the other terminal located approximately 14 miles in Fulshear. The Rosenberg location is centrally located within the district and services a large portion of the central, south, and east quadrants, while the Fulshear terminal services the north and west quadrants. In addition to daily home to school transportation service, the department also coordinates and provides transportation for extracurricular activities and athletic trips during the school year, and transportation for summer programs.

Transportations services are provided under the guidance of a single (1.0) full-time equivalent (FTE) director of Transportation. The reports include the assistant director, operations manager, Fulshear satellite terminal manager, the fleet manager, a safety and training coordinator, disciplinary coordinator, and a special education router and coordinator. Each location is also staffed with dispatch operators, bus operation specialists (BOS's or routers), mechanics, and bus drivers dedicated to their specific terminal location. While the director is involved to

some degree in all operational aspects of the department, departmental managers are responsible and accountable for the personnel and operational tasks and activities under their span of control.

In total, approximately 268 FTE are involved in the provision of transportation services. **Exhibit 9-1** illustrates the Transportation Department's 2016-2017 management level organizational structure. **Exhibits 9-2** and **9-3** illustrate the organizational structure by terminal location and for the fleet maintenance function.

Exhibit 9-1
LCISD Transportation Organization – Management
2016-2017

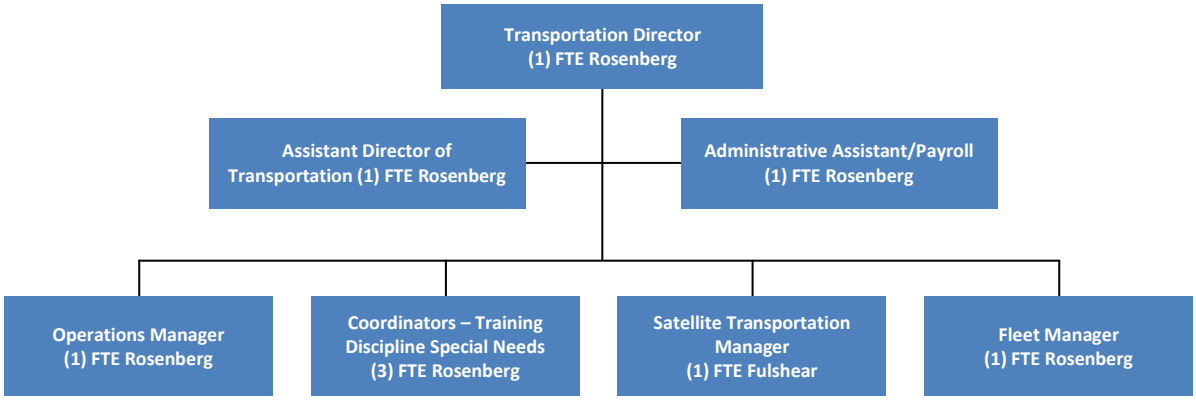


Exhibit 9-2
LCISD Transportation Organization – Bus Operations by Terminal Location
2016-2017

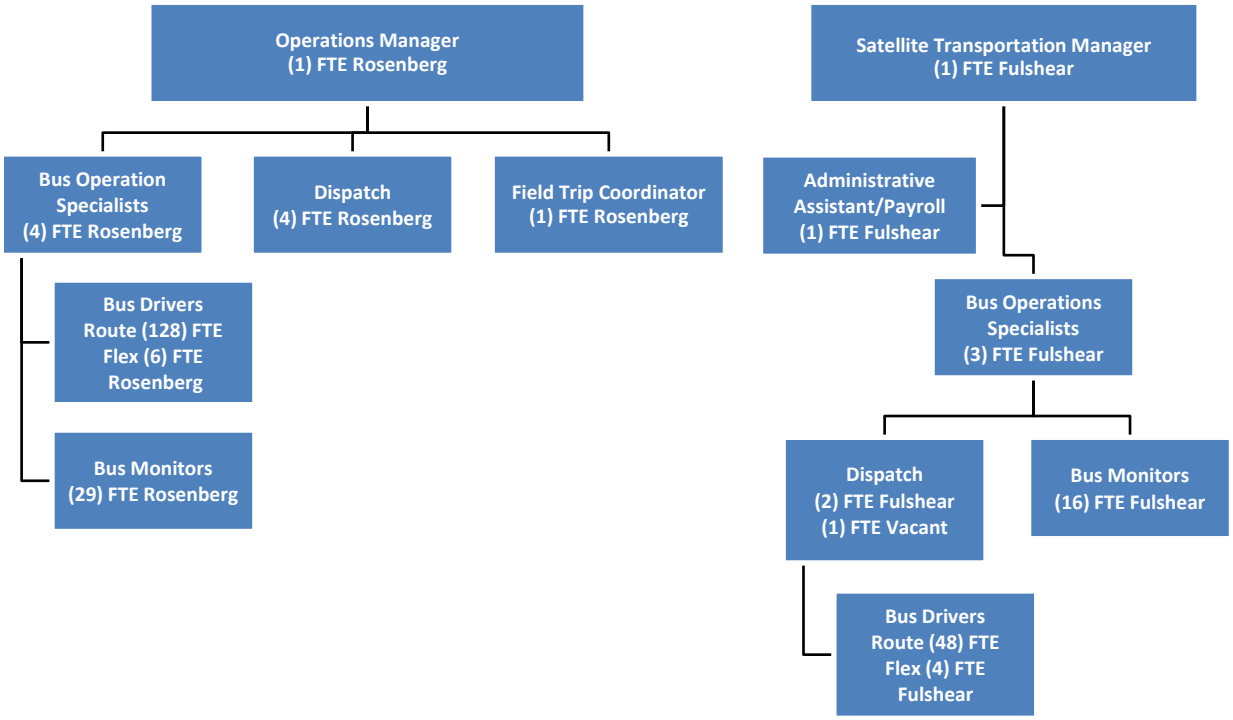
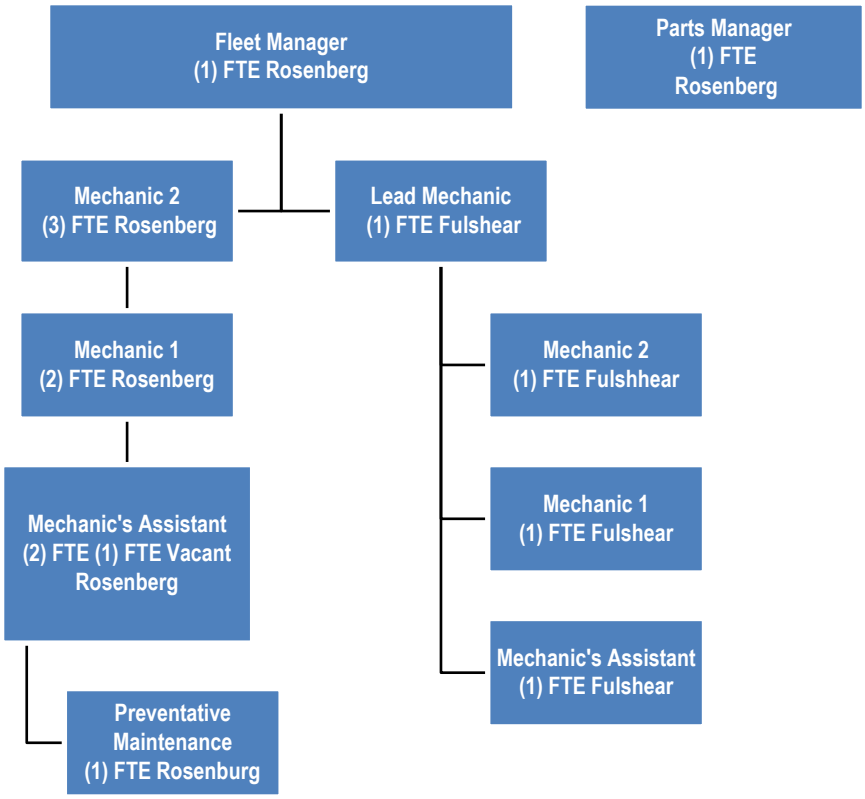


Exhibit 9-3
LCISD Transportation Organization – Fleet Maintenance
2016-2017



Source: Lamar Consolidated Independent School District, On-Site Interview Notes.

FUNDING ALLOCATION

The State of Texas requires school districts to file an Operations Summary Report and complete linear density studies to determine each year's transportation allocation based on the prior year's reported linear density and cost per mile. The cost per mile is calculated based on data submitted in the School Transportation Route Services Report and the Student Transportation Operations Report. Linear density of bus routes is determined based on the number of regular riders carried per mile of regular bus route during the school year. The amount that a district is reimbursed is based on the lower of the actual cost per mile or the maximum amount determined in one of the seven density groupings Texas Education Agency (TEA) has established. These liner density groups are illustrated in the following **Exhibit 9-4**.

Exhibit 9-4
Linear Density by Group versus Max Allotment per Mile

Linear Density Group	Maximum Allotment Per Mile
2.400 or above	$1.43
1.650–2.399	$1.25
1.150–1.649	$1.11
0.900–1.149	$0.97
0.650–0.899	$0.88
0.400–0.649	$0.79
Up to 0.399	$0.68

Source: Texas Education Agency, School Transportation Allotment Handbook, Effective School Year 2015-2016.

According to the 2015-2016 TEA Student Transportation Operation Summary of Finances, LCISD reported 277 total buses used to transport approximately 16,515 students and a total of 3,018,557 miles with 2,732,909 of those miles for home-to-school related route services. TEA allocated a total allotment of $2,505,855 in state funding versus total reported operating costs of $12,996,701. This represents an approximate 19 percent reimbursement rate.

COST EFFECTIVENESS

Typical measurements of effectiveness for student transportation systems include annual costs per transported student, the annual cost per active route bus, and the number of buses required for 100 students. The analysis of data and the review of important performance indicators are necessary to understand the financial and operational efficiency of LCISD's transportation operations including the impact of operational practices.

While industry standards and averages are helpful in providing insight into the Transportation Department's performance, they are not the sole basis upon which recommendations are made due to wide variations in how different transportation functions operate with respect to their departmental policies, customer service levels, and funding formulas. Yet, financial and operational metrics do provide insight and context while stimulating ideas and spotlighting opportunities for improvement.

Financial measurements are highly reflective of the balance between cost and service. For example, if LCISD were to change eligibility standards determining that students would not be eligible for service unless they lived two miles or more from their designated school, the likely cost impact would be positive due to a reduction in the number of required buses. However, while costs would decrease, the level of service would also decrease as students currently being provided transportation would now longer be considered eligible.

The following **Exhibit 9-5** on the following page illustrates key performance measures based on school year 2015-2016 operational report data in conjunction with information received relating to the 2016-2017 school year. **Exhibit 9-5** further highlights the variance in the results depending on the methodology used to determine the

number of transported students and also changes in the number of students' year-to-year can have on performance results. For example, the current annual cost per eligible student is $487, which is well below the $650-$840 industry or national average. When compared against the reported number of 12,390 actual riders, the annual cost per student increases to $1,005 per student, or $165 higher than the national average, however, based on 16,515 actual riders reported, costs again compare favorably with national averages at $785 per student. Costs calculated based on 2015-2016 operational costs of $12,996,700 and divided by 277 reported active route buses, the annual cost per bus is approximately $46,920 or $9,379 and well below the industry average of $56,298.

NUMBER OF BUSES PER 100 STUDENTS

Calculating the number of buses required to transport 100 students provides a prime indication of the overall effectiveness of the routing architecture. This metric helps to understand how well the system is using both the available seating capacity and how many times per day, on average, each bus is able to be utilized. As an example, for the LCISD, the buses per 100 Students metric was derived by dividing the number of active route buses of 277 by the number of students transported daily or 12,930 as of the last department actual rider count from February 2017 divided by 100.

LCISD's ratio is currently 2.1 while the industry average is closer to 1.1 to 1.3 buses per 100 students. However, if the number of total eligible students for the 2016-2017 year or 26,899 is used, then this ratio drops below the national average to 1.0 bus per 100 students. Last year the department operated with a 1.7 bus to 100 student ratios based on 16,515 riders.

These varying results are presented in this manner to help illustrate the challenge the department has in predicting riders and the impact on efficient operations. While 2.1 buses per 100 students is above the desired range, this result must be taken in consideration that the LCISD must have enough available seating to accommodate all eligible students in the event that elect to take advantage of available services.

Exhibit 9-5
LCISD – Key Performance Metrics 2016-2017

Measure – Cost performance based on School Year 2015-2016 Operational Costs of $12,996,701	Units	Results
Annual Cost per Student *(Eligible Riders)*	26,899	$483 per eligible rider
Annual Cost per Student *(Actual Riders)*	12,930	$1,005 per actual rider
Annual Cost per Student (*Reported Riders*)	16,515	$787 per reported rider
Annual Cost per Active Route Bus *(Active Route Buses)*	277	$46,919 per bus
Buses per 100 Students Transported *(277/ (12,930/100))*	12,930 Students and 277 Active Route Buses	2.1 number of buses per actual riders

Source: 2015-2016 Texas Education Agency – Foundation School Program, Transportation, State Funding, Division, Operations Report, LAMAR CISD (079901), Director Rider Count Email, and McConnell & Jones LLP's Review Team.

LCISD is tasked with having enough buses to offer a free service to all eligible students, but only forty eight percent of eligible students are actually riding. In regard to operations management and financial metrics, a 2.1 ratio of buses needed to service 100 students illustrates a higher number of buses than is actually required for day-to-day operations, but also illustrates the challenges the department faces in predicting future growth, having resources available to accommodate growth, and operating as efficiently as possible. During the 2015-2016 school year, 16, 515 students were reported riding. The department's last monthly ridership count reported 12,930 student riders. This difference underscores the difficulty LCISD has in preparing for growth and operating efficiently. Although the district reported growth of approximately 1,200 students, the 3,585 difference in students that elect to be transported, as opposed to student growth year over year, again illustrates the difficulty that the department has

in ensuring that it plans appropriately to both effectively utilize the bus fleet while maintaining seating capacity to serve its eligible riders.

PEER DISTRICT COMPARISON

Exhibit 9-6 compares key performance measures for LCISD and selected peer districts of comparable size and student population for 2015-2016. When compared to its peers, LCISD is $2,520 below its peer average of $44,400 total cost per bus annually at $46,919 per bus and is also below the average number of buses required per 100 students providing an indication that the LCISD is performing well when compared against national averages and against its peer districts.

Exhibit 9-6
LCISD and Peer Cost per Bus and Cost per Student
2015-2016 School Year

District	Total Costs	Total Buses	Total Student Riders	Cost Per Student Rider	Annual Cost per Bus	Buses per 100 Students Transported	Students per Bus
Katy ISD	$27,322,530	620	19,938	$1,370	$44,069	3.1	32
Klein ISD	$13,329,470	298	20,643	$646	$44,730	1.4	69
Peer Average	$20,326,000	459	20,291	$1,008	$44,400	2.3	51
LCISD	$12,996,701	277	16,515	$787	$46,919	1.7	60
Over/under Peer Average	($7,329,299)	(182)	(3,776)	($221)	$2,520	(0.6)	9

Source: Texas Education Agency 2015-2016 School Transportation Operation and School Transportation Route Services Reports; McConnell & Jones' Review Team calculations. (Katy Ops Report 1, Katy Route Ser 1, Klein Ops Report 1, Klein Route Ser 1)
Notes: 1. Bus count is based on total number of buses reported. 2. Student count includes Regular Program, Special Program, and Career and Technology Program Students actually riding from last monthly count.

BEST PRACTICES

Best practices are methods, techniques, or tools that have consistently shown positive results, and can be replicated by other organizations as a standard way of executing work-related activities and processes to create and sustain high performing organizations. When comparing best practices, similarity of entities or organizations is not as critical as it is with benchmarking. In fact, many best practices transcend organizational characteristics.

McConnell & Jones LLP and the review team identified 10 best practices against which to evaluate LCISD's transportation services. The following **Exhibit 9-7** provides a summary of these best practices. Best practices not currently in place at LCISD and the impact that implementation of these practices might have on operational performance are discussed within the body of the chapter. However, it should be noted that not all observations are related to a best practice.

Exhibit 9-7
Summary of Best Practices – Transportation

Best Practice Number	Description of Best Practice	Met	Not Met	Explanation
1.	The department uses an operations manager for maximum potential operational efficiency and effectiveness.	**X**		LCISD's operations manager ensures that services delivered are efficient and effective and manages all operational functions in an organization.
2.	The department uses highly skilled and experienced senior management including a director.	**X**		The director has 35 years of transportation experience and can develop, design, and implement a long term strategic plan for the department.
3.	Updated routing software is used and is fully implemented.	**X**		LCISD has implemented *Versatrans* routing software resulting in all routes being created and managed within the software program.
4.	A fully defined strategic comprehensive management or development plan has been developed to coordinate with anticipated growth rates.		**X**	Although demographic reports exist illustrating expected growth patterns, there is not yet a coordinated transportation plan to strategically manage future constraints upon the system. **See Observation 9-1**
5.	A procedures manual for each operational area of the department has been developed and is periodically updated.	**X**		Given the changes in leadership and to better prepare the department to meet growth demands, the creation of a departmental procedures manual is recommended. **See Observation 9-2**
6.	Maintenance management software is in use and fully implemented.		**X**	Current software is outdated and replacement software is not yet implemented. **See Observation 9-5.**

Best Practice Number	Description of Best Practice	Met	Not Met	Explanation
7.	The area of fleet management and maintenance is sufficiently staffed.		**X**	Two additional fleet maintenance mechanics are recommended. **See Observation 9-6.**
8.	Parts management is adequately staffed.		**X**	In conjunction with Observation 9-7, additional staff is recommended for the area of parts management. **See Observation 9-7.**
9.	A fully defined and fiscally-supported fleet replacement plan has been developed.		**X**	Approximately 12 percent or 35 vehicles are above expected age limit of 15 years. **See Observation 9-8.**
10.	Maintenance facilities are designed and sized to meet current needs.	**X**		While the facilities currently meet the needs of the LCISD, additional space or multiple shifts may be needed as the district continues to grow.

Source: McConnell & Jones LLP's Review Team.

ACCOMPLISHMENTS

ACCOMPLISHMENT 9-A

Communication process and procedures have been enhanced resulting in improved staff morale and improved communication with stakeholders.

Under the direct of a highly skilled and experienced transportation director, communication practices have been established that promotes trust and accountability within stakeholder relationships. External system stakeholders include: students, parents, school administrators, and community members. Examples of external communication oriented enhancements include:

- The Director visits school administers on a frequent basis to discuss transportation related activities, problems, concerns, or successes.
- Open lines of communication have been established including frequent attendance at meetings and phone/email conversations with LCISD Board and Cabinet members to discuss transportation strategy, problems, concerns, or successes.
- The Director is readily available for meetings, phone calls, or emails directly to or with parents to discuss transportation related questions, concerns, problems, or successes.

Internally, the Transportation Director has been able to elevate staff morale and cause a shift in department culture that has cultivated into a level of professionalism and urgency within all functional areas of the department. This has provided the department with opportunities to achieve efficiency gains via streamlined operations, clearly defined responsibilities and tasks, and the utilization of staff strengths.

Examples of these accomplishments include:

- Implementation of an open-door policy for all staff members to the management team improved channels of communication and fostered a greater level of cross-training throughout all functions of the department.
- Increasing the frequency of staff meetings with additional opportunities for staff members to voice concerns, questions, or success stories has elevated staff morale by giving the staff a channel to communicate openly and have their opinions heard, solutions discussed, and future strategies addressed.
- A hands-on approach to leadership and guidance has boosted confidence levels and job performance by cultivating a positive work environment by ensuring that staff member concerns and ideas are considered, proper training is being provided, and that staff members are respected.

ACCOMPLISHMENT 9-B

The addition of an operations management position to the Transportation Department has enabled the Transportation director to focus on strategic planning and stakeholder outreach.

The LCISD Transportation Department operating with a director, assistant director, and an operations manager allows for efficient management of each of the functional areas within the department. These key areas include day-to-day operations, route planning and management, fleet management, and strategic planning. This structure also helps to support accountability for task completion including implementation of new initiatives and conflict ownership and resolution.

ACCOMPLISHMENT 9-C

The addition of the Fulshear Bus Terminal has reduced deadhead travel time, enabled more efficient route paths, and reduced the parking and staff impacts on the Rosenberg Terminal.

Equipped with 196 parking spaces for buses, additional staff parking, onsite fueling for buses and support vehicles, eight (8) bus maintenance bays, and ample internal working space, the Fulshear Terminal is an accomplishment for LCISD. With the growth of the district straining the capacity of the Rosenberg Bus Terminal including bus and staff parking and an adequate number of maintenance bays, the Fulshear Terminal has helped to reduce these impacts on the Rosenberg location and has aided the system in its ability to operate efficiently via geographic location.

ACCOMPLISHMENT 9-D

The process of collecting data for annual reporting to the Texas Education Agency (TEA) State Funding Division has been restructured to ensure data accuracy and timely reporting. This accomplishment is based on a collective department effort to ensure accurate reporting of operations to maximize state transportation reimbursements.

A key task that is assigned to the assistant director of transportation is the preparation and submittal of an annual School Transportation Route Services Report to ensure that LCISD receives the maximum allowable transportation allotment. The assistant director of Transportation was a former State of Texas employee whose sole responsibility was the review of the reports required to be submitted by local school districts. The individual and the process of collecting student transportation data has improved with a higher priority and greater focus being placed on accuracy than in previous years.

The implementation of new *Versatrans* routing software, trained routers using the software, an operations manager position ensuring proper procedural tasks regarding actual student ridership counts, bus drivers reporting accurate mileage and fuel use, and a new director that motivates staff to perform duties with a streamlined focus, has helped to ensure that the annual Texas Education Agency State Funding reports are completed as a best practice process.

ACCOMPLISHMENT 9-E

The department uses demographic reports that provide data to aide in routing efficiency.

A key and fundamental task of any high performing transportation operation is the annual planning of routes and runs (trips) to ensure that services are delivered in a manner that is both cost effective and service efficient. In addition to having and fully using new route planning and management software, having timely and accurate student data is a key element to support an effective route planning process. The department is using frequently issued demographic reports of the LCISD area that aides in discovering environmental changes such as growth in local subdivisions, home additions, road changes, traffic pattern updates, families moving to the area, and demographic studies in age and grade levels.

This data, as well as information provided by LCISD Information Technology department's recent installation of Geographic Information System (GIS) software, has allowed the department to become familiar with using provided knowledge to better predict the future of its operation. This capability adds the benefit of knowing growth trends in exact locations and how these trends will impact the department's future organizational structure, routing efficiency, and overall annual costs.

ACCOMPLISHMENT 9-F

LCISD's transportation function has taken advantage of technological enhancements that support departmental activities in several key areas.

The recent implementation of *Versatrans* routing software has supported a more effective route planning process and has resulted in additional efficiencies throughout the department. For example, the use of GPS technology on the route buses provides route planners with the ability to compare planned versus actual route paths to ensure that route and run paths are the most efficient.

Video technology greatly improves the ability to monitor student and driver behavior. Videos provided by the State of Texas support safety and training. However, *Fleetvision*, a tool that remains to be implemented, is discussed in **Recommendation 9-6**.

ACCOMPLISHMENT 9-G

The reduction of expenses surrounding McKinney Vento routes by performing most of the work internally has saved the department $55,000 annually.

A significant departmental goal was to reduce the cost of providing mandated transportation to homeless students. Previously, the department outsourced servicing these students to a local provider with costs averaging $80,000 per year. While exact data illustrating trends in demand regarding homeless student routing over the last few years is not readily available, for the 2016-2017 fiscal year, only 12 McKinney Vento routes were outsourced as the balance were able to be performed in house. Under the direction of current leadership, most of these students are served internally, which has saved the department nearly $55,000 in operational costs in just one year.

ACCOMPLISHMENT 9-H

The transportation department reduced driver shortages and improved the reliability and quality of human resources available to the department.

To address the problem of drive shortages, the department increased driver wages from $14.80 to $17.80 per hour. Moreover, the addition of semester attendance bonuses, other attendance incentives, and a fair rotational extra trip process, have all aided in bus driver retention. Additionally, the flex driver program allows drivers to gain extra hours of work for extra pay and also adds to departmental efficiency by having five (5) flex drivers that assist in various roles within the department from driver supervision, bus fueling, dispatch operations, driver training, disciplinary coordination (video review), and fleet maintenance. This also saves the department resources that would have been used in hiring additional staff to perform tasks that are now considered responsibilities of the flex bus drivers.

DETAILED OBSERVATIONS

Operations Management

OBSERVATION 9-1

The Transportation Department lacks a fully defined strategic planning process to better guide the current operation and to fully prepare for the expected population growth within the district.

The development and implementation of a comprehensive strategic or management plan (CMP) is a best practice and a common attribute of a high performing transportation organization. A CMP supports the successful delivery of transportation services by establishing and prioritizing goals and objectives, documenting required tasks and personnel assignments, establishing timelines, and developing operational procedures. Equally important, the establishment of a strategic plan that includes a process for evaluating the performance of a transportation operation helps to ensure that goals and objectives are achieved or modified as circumstances change.

Although strategies have already been identified and implemented to help support efficient and effective operations within each function of the Transportation Department, a more defined strategic plan that takes the districts expected growth into consideration is necessary.

Potential functional areas that will need to be addressed to ensure that the department is adequately organized and staffed include the following:

- Establishing a staffing plan that ensures that the department is staffed appropriately as additional drivers are required.
- Additional safety and training of staff to accommodate both the initial requirements for new drivers and bus attendants, mandated refresher courses, and operational support for accident investigations and remedial training.
- Routing and supervisory personnel to support the route planning process and ensure drivers have ample supervision and support.
- Additional dispatch personnel to ensure that avenues for both internal and external communications are maintained.

RECOMMENDATION 9-1

Develop a comprehensive management or strategic plan for the department to ensure that the department's goals and objectives are in alignment with overall district educational goals and priorities.

LCISD is challenged with an expected 59 percent growth rate over the next 10 years. Currently, the system is growing by 1,200 students and twenty to thirty added routes per year. However, it is not known whether this trend will stay static through the districtwide growth in relation to transportation, as declines in student actual ridership are occurring when compared to the number of students eligible for service. Approximate counts of all eligible riders will need to be determined with the assistance of Geographic Information System software and demographic reports, but it is still unknown the exact number of students who will ride even though they are eligible. Currently, only forty-eight percent of eligible riders are using the service at the last count in February 2017 and therefore frequently analyzing trends in ridership as part of a CMP should help to identify opportunities for efficiency gains.

Under the guidance of a more formalized strategic plan, the department will be prepared to address future organizational and operational challenges that district growth may create while not jeopardizing the improvements that have already been made. Equally important is that a documented and periodically updated strategic plan helps to communicate the staffing and budgetary support that the department will require in order to continue to operate effectively as the population in the community continues to grow.

For example, as fiscal resources are derived from both local and state sources of funding, a CMP will help to ensure that projected budgetary increases are presented in a timely manner to be included in each fund's budget planning cycle. The use of forecasting models and demographic reports would aid in planning methodology that should be included within the CMP. Fiscal or capital improvement needs may include technological upgrades; software, hardware, diagnostic equipment, the acquisition of additional buses, staffing, and new facilities.

Establishing timelines for the analysis of system performance is an important component of a successful strategic plan. These analyses are paramount in identifying how well the system is currently operating and where operational changes, staff increases or infrastructural improvements are or will be necessary. Examples of the analyses that should be considered include:

- Given the fact that only forty-eight of the eligible riders actually subscribe to transportation service; understanding why this is occurring should be considered a priority. As an example, if service concerns are the reason that more eligible students are not riding, as service level continue to improve under current initiatives, the number of students riding may increase impacting both current and future staffing and equipment needs.
- Monitoring student growth will help to support the hiring of additional staff at the appropriate time. While it is clear that with student growth additional drivers and buses will be required, it is less obvious that additional supporting staff will also be required. Examples include additional supervisors, training, and dispatch personnel.
- Fleet replacement and infrastructural analyses and plans will help to ensure that necessary fleet assets are procured as necessary and that future facilities needs such as work spaces for additional staff, fleet maintenance facilities, and parking needs are all considered as the district grows.

FISCAL IMPACT

This recommendation can be implemented with existing resources. Only incremental departmental costs would be associated with the creation of a CMP. This plan could be developed over a period of time using experienced staff members who are tasked with sections relating to their specific areas of expertise or responsibility. The costs of the demographic reports and the Geographic Information System software have already been absorbed by the district and the Transportation Department would benefit from access to already established information databases.

ANTICIPATING TOMORROW

As the district grows, a CMP will be necessary to ensure that the personnel and capital needs of the department are understood and fiscally supported to meet student transportation requirements. All transportation organizations, but especially organizations serving growing communities of the size of the LCISD, benefit from a well-defined, approved, and communicated strategic plan.

The strategic planning process serves to identify future needs such as additional personal, capital purchases, additional route buses and support vehicles, infrastructural improvements, work stations for administrative staff, and work bays for fleet maintenance technicians. Equally important, a strategic plan helps to ensure that desired levels of service are maintained within a predictable and sustainable funding stream as the school age population within the LCISD continues to increase.

Several elements that should be considered as a strategic plan is considered include:

- The compilation of data to be analyzed and made available to inform funding and programmatic decision-making.
- A provision for at least an annual review of the plan to ensure that it will meet pending changes in enrollment and educational programming.

- Communication of the department's plan to senior LCISD administrators is imperative to ensure that the department's goal and objective are fully in-alignment with the educational goals and objectives of the LCISD.

Policies, Procedures, and Guidelines

OBSERVATION 9-2

Departmental procedures or guidelines are not fully defined or documented within all functional areas of the department.

Although it was observed that a large number of departmental policies, procedures, and guidelines exist, and are being practiced daily, opportunities exist to improve the level of documentation of the guidelines within each of the functional areas of the department and to coalesce all transportation procedures and guidelines into a single departmental procedures manual. Transportation policies and procedures are necessary to define service level expectations and the responsibilities of both internal and external stakeholders. Examples of stakeholders of the system include supervisory personnel, route planners, drivers, bus monitors, parents, students, principals, and teachers.

For departmental employees, the department operates under the guidance of policies, procedures, and guidelines that support operations within each of the functional areas as each function within the department has their own set of guidelines in place for task completion. For example: the routing function utilizes paper forms delivered by bus drivers that transfer information regarding student behavior on the bus and any conflicts with routes. The Disciplinary Coordinator has procedures in place for the process of reviewing video for student behavior correction, and the investigation of bus driver complaints by stakeholders.

For external stakeholders, the LCISD website includes links to information providing general bus behavioral expectations including safety rules and regulations. Examples include:

- Safe bus loading and unloading procedures to ensure student safety;
- Student behavior expectations;
- Disciplinary action procedures, and;
- A procedural explanation of the Pre-K and Kindergarten Safety Card system for parent and designated guardian student pick-ups.

It was also observed that procedures for arrivals and departures are closely supervised and designed to operate as safely as possible.

In the absence of a set of comprehensive policies and procedures, transportation operations are not likely to meet industry, state, and local standards for safety and service. The creation and adoption of department regulated and safety related policies and procedures helps to ensure the safe transportation of students from the time they leave their homes to their arrival at their destination. Not only do well-defined, documented policies and procedures support transportation services that are both effective and efficient policies, procedures, and guidelines are necessary to ensure that all stakeholders understand their role and responsibilities for ensuring efficient, safe student transportation operations.

It is understood that the department has recently undergone significant changes within the leadership and organizational structure that has notably impacted how the department operates. Given these changes, it would be beneficial to review existing policies and procedures to ensure that they continue to remain current and relevant in support of a high performing organization.

Exhibit 9-8 illustrates opportunities for improvement within current policies, procedures, and guidelines:

Exhibit 9-8
LCISD Policies – Opportunities for Improvement

	Discussion	Policy, Procedure, or Guideline	Discussed in Section or Recommendation	Potential Board Approval Required
1.	Stricter guidelines surrounding driver absences that directly correlate with LCISD regulations regarding attendance, but allows the department to better discipline employees and operate efficiently with a full and dedicated staff.	Department Policy & Guideline	Operations Management	Yes
2.	The creation of a formal route planning procedures manual would help ensure consistency in service delivery and would streamline the planning processes.	Departmental Procedures	Routing Efficiency	No
3.	Attempts to streamline procedures related to fleet management and maintenance would allow for critical areas of concern to be addressed. For example: How can the department create better procedures for inventory use? Do the guidelines for preventative maintenance meet both industry and the manufacturer's recommendations?	Departmental Procedures	Fleet Management	No
4.	Stricter guidelines surrounding student discipline may reduce the volume of issues within the disciplinary function of the department. Clearly defining expectations for all parties; students, drivers, aides, and administrators may highlight opportunities to streamline the process and ensure adherence to the designated guidelines.	Departmental & LCISD Stakeholder Guidelines	Operations Management	Yes

Source: LCISD Staff interviews, McConnell & Jones LLP's Review Team.

A procedure manual or operational guide for each functional area of the operation would be considered a best practice. A guide that clearly illustrates job responsibilities, steps for task completion, guidelines and expectations for performance, and strives to answer frequently asked questions, can be used to support leadership in all forms.

RECOMMENDATION 9-2

Develop a comprehensive departmental procedures manual that coleuses all processes and procedures from each of the functional areas.

A full review of policies, procedures, and guidelines that are used in daily operations within the department should be conducted. This review will help to highlight where LCISD policies correlate with internal guidelines and identify gaps, if any, where no policy exists, procedures that are no longer support efficient or effective service, or guidelines that should be modified to comply with current parameters and leadership styles. As this process nears completion, the creation of manuals will become vital in ensuring proper execution of daily tasks for overall system efficiency as well as use for training opportunities to ensure new employees are able to assimilate into the organization quickly.

FISCAL IMPACT

While this task should be able to be implemented within existing resources, it should be recognized that sufficient staff time will be needed to support its completion. Creating a manual or operational guide for each functional area of the department would have little to minimal fiscal impact on the department. The only costs associated with creating a procedures manual would be a minor cost for the printing and distribution of paper copies.

ANTICIPATING TOMORROW

As the district grows, a departmental procedures manual will be especially important to ensure that new departmental employees are able to assimilate into the organization quickly and that all stakeholders are knowledgeable of their responsibilities. While a departmental procedures manual will be of future benefit, it should be considered a necessity to support the current goals of providing services that are effective and efficient.

Routing Efficiency

OBSERVATION 9-3

The ancillary duties of the route planners prevent the focus on their core function of route planning, and identifying and implementing routing efficiencies.

Route planning and management is the responsibility of seven (7) Route Planners, or formally titled Bus Operation Specialists (BOS), one (1) Field Trip Coordinator, and one (1) Special Education Coordinator (router) that creates routes for both the Rosenberg and Fulshear terminals. Each BOS is responsible for a geographic area within the district, or a color "track." Elementary school tracks are A and B tracks, and Secondary schools are B and E. The three (3) full-time BOSs located at the Fulshear location are also responsible for Special Education and Pre-Kindergarten routes. The Field Trip Coordinator is responsible for all athletic, charter, field trip activity, and communication with coaches and administrators but does not act in a supervisory role at this time.

While processes surrounding route creation via the colored track system appears efficient, the added responsibility of providing driver supervision hinders the routes planner's ability to focus on core competencies. As an example, it was observed during on-site interviews that it is common for a router to abandon route planning tasks to instantaneously remedy driver conflicts. Additionally, occasional driver absences will also require the planners to serve as substitute bus drivers. The result of this is a bottleneck of critical tasks occurs and delays completion of the route planning task. The more time and resources a route planner can devote to the daily management of existing routes, and/or analysis into finding opportunities for improvement is a necessity for a high-performing transportation organization.

It was observed that each terminal is responsible for nearly half of the total system routes, which equals 161 routes respectively. 104 of these routes are special education, with each terminal servicing approximately 52 of these routes, while the balance of routes are designed to serve general education, charter programs, mid-day activities, or a mix of other required school sponsored activity trips. Additionally, eleven of the system routes service McKinney Vento regulated students.

On average and based on industry standards, one routing specialist is typically responsible for approximately 88 route buses per FTE. Based purely on the current number of 322 routes, the ratio of planners to routes is approximately 40 routes per each of (8) FTE route planners. While this is well within the expected ratio of planners to buses, the issue is that as currently structured, the routing specialists can neither focus on creating routing efficiencies nor provide the level of driver supervision that is necessary for a large transportation organization. Typically, a ratio of one (1) supervisor per 150 route drivers can be expected.

For a transportation system to be highly efficient, route planners in particular must be able develop a high degree of expertise with the routing software and be afforded the necessary time that is required to develop an effective routing network. While this is true of any transportation organization, it is especially true of a relatively large operation such as the LCISD that that transports 12,930 students daily on 322 routes.

Effective planning also supports budget integrity and the cost control. For example, in an effective and efficient transportation systems, school bell times are strategically aligned within time and distance constraints to support a high level of seating capacity usage of each bus and to use the bus as many times as possible throughout the day.

RECOMMENDATION 9-3.1

Dedicate six of the current route planning staff solely to the function of route planning and management.

Although route planners are tasked with cross functional duties from time to time, their primary responsibility should be route planning and management. To increase the focus on the route planning function, six (6) of the current route planners should dedicated solely to the route planning. The management function and driver supervisory responsibilities should be assigned as the primary responsibility of the remaining two (2) FTE. This would result in a ratio of two (2) supervisors for up to 150 drivers each and 54 routes per planner or well within the expected ratio and allowing capacity to accommodate the expected growth.

FISCAL IMPACT

This recommendation can be implemented with existing resources.

ANTICIPATING TOMORROW

As the district continues to grow, additional dispatch or communications staff will be required. In addition to having the correct number of planning and management staff, a main challenge faced by all student transportation organizations and especially those serving large and growing districts is having enough staff to ensure that avenues of communication are available and that staff are responsible. Understanding that within any transportation department there is limited time and funding resources for personnel to ensure that communication goals are met, application software that aids in customer service related tasks and objectives should be considered.

RECOMMENDATION 9-3.2

Acquire technology to support the communication needs of the district.

The industry has observed that bus location and reporting systems help to reduce customer-service related calls that are typical within large systems. This technology offers parents and school administrators the ability to live track buses and routes and get real-time information onto personal smartphones reducing the direct communication responsibility of staff.

Several services or providers are available that provide real-time service related information to stakeholders incorporating:

- All bus activity (time of pickups, time of drop offs, time arrived and departed at an area stop, daily movement of each bus, and speed activity throughout each route.)
- Route reports (analytical reports that show the department which stops still have students getting on and off the bus each day, as well as which stops have not had student riders in a determined period, and the ability to illustrate the current reality of planned routes versus actual.)
- GPS driven data that provides area parents and school administrators the ease of this application (downloaded to personal smartphones) providing them with push notifications that include live GPS (Automatic Vehicle Locating or AVL) tracked bus locations and estimated time of arrival in both morning and afternoon time periods.

FISCAL IMPACT

A rough estimate for this type of service ranges between $81.00 to $96.00 per year per bus or an approximate range of $24,700 to $29,300 per year for the entire fleet of 305 buses. While this amount is not inconsequential, it is lower than the estimated wage and benefit costs of additional dispatch personnel. As the following **Exhibit 9-9** helps to illustrate, based on the currently hourly rate of $20.16 or an annual salary of $41,933 plus additional benefit costs of $7,548, the total estimated annual employment costs of dispatch personnel is approximately $49,481 compared to the estimated $24,700 per year for a vehicle location reporting system or forty eight percent higher.

Exhibit 9-9
Five-Year Cost Comparison
AVL Costs to Estimated Personnel Costs

Position & Cost Analysis	Number of Hours per Year	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022	Five-Year Total
Dispatch Operator Position – Annual Salary	2,080	$41,933	$41,933	$41,933	$41,933	$41,933	$209,664
Flat Benefit Rate of 18 Percent		$7,548	$7,548	$7,548	$7,548	$7,548	$37,740
Total Salary and Benefit Cost		$49,481	$49,481	$49,481	$49,481	$49,481	$247,404
AVL * Low Estimate		$24,705	$24,705	$24,705	$24,705	$24,705	$123,525
Difference		**$24,776**	**$24,776**	**$24,776**	**$24,776**	**$24,776**	**$123,879**

Source: 2016-2017 LCISD Human Resources Compensation Plan and 2016-2017 Medical Plan Benefit Information and McConnell & Jones LLP's Review Team, LCISD Future Expenses.

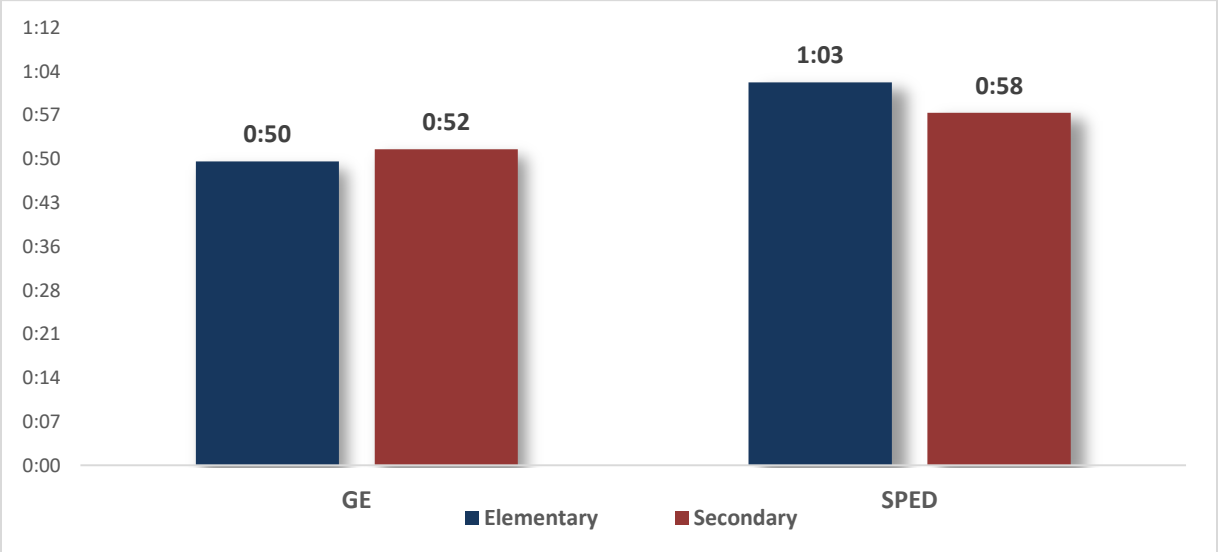
OBSERVATION 9-4

The current bell schedule is impacting the overall efficient use of the bus fleet.

Services are provided on a two-tier structure that serves Elementary schools (K-5) first with a 7:30 morning start and Secondary schools (grades 6 to 12) with an 8:15 morning starting time. The tiers (or bus runs) are separated by a 45-minute window or 45 minutes of "work time" between tiers. Due to this time constraint and the additional constraint of the distance that some buses must travel, the average number of runs that a bus is able to perform is 3.2 runs per bus per day instead of two (2) runs in the both the morning and afternoon or four (4) runs per day.

These constraints are best illustrated in the following **Exhibit 9-10**. As **Exhibit 9-10** illustrates, general education ride times are at 50 and 52 minutes on average for elementary and secondary students, respectively and just over or at one hour for students with special needs. As there is only 45 minutes of available work time, a bus with an extra-long run maybe would not be able to perform two (2) runs and still have students to their school site in a timely manner.

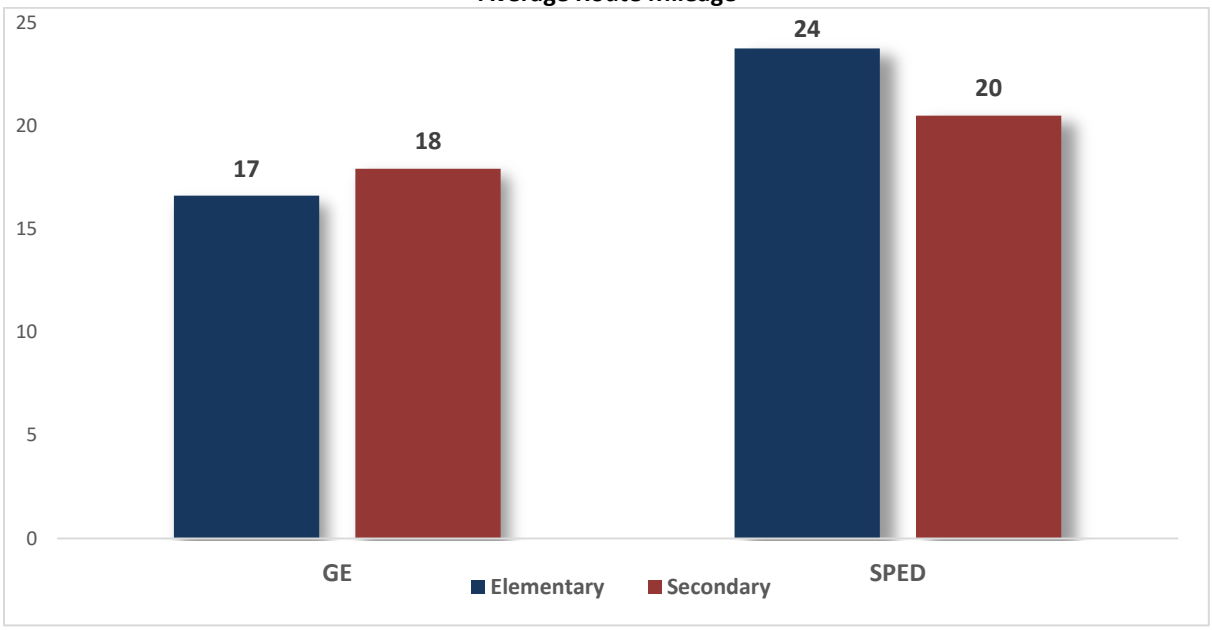
Exhibit 9-10
Average Route Time



Source: LCISD Staff interviews and data, McConnell & Jones LLP's Review Team calculations.

Due to LCISD's geographical size, these results were not entirely unexpected. As **Exhibit 9-11** illustrates, average route mileage by elementary and secondary routes for regular education students are approximately 17 and 18 miles, respectively while average route miles for students with special needs are just under 24 miles for elementary students and 20 miles for secondary students.

Exhibit 9-11
Average Route Mileage



Source: LCISD Staff interviews and data, McConnell & Jones LLP's Review Team calculations.

As can be expected, the greater number of runs per day that each bus can perform is indicative of a more effective routing network. While the safety of the students is at all times the first and prime objective of a high performing transportation organization, the methodologies utilized to control or reduce costs include using a bus as many times per day as can be scheduled and further utilizing the available seating capacity on each bus run to the highest degree possible.

To accomplish this, it is usually necessary to either increase the work time between each of the tiers or operate buses on more time tiers per day. The difficulty in increasing the work time between tiers is that may require either an earlier start or a later dismissal than can be accommodated by staff and parents. Using the current start times as an example, to increase the available work time between tiers to 60 minutes, it would require either the elementary schools to start at 7:15 AM or the secondary schools to start at 8:30 or a combination of a time change for both.

Adding additional time tiers can be a way to increase the utilization of the buses which can have a positive impact on costs. This factor is best illustrated by the calculation of the number of buses required to transport 100 students. Industry guidelines suggest that a successful operation requires approximately 1.1 to 1.3 buses to transport 100 students. Based on the analysis of data from the *Versatrans* routing software, the department currently operates with a ratio of 2.1 buses per 100 students. A simple way to illustrate this concept is that if a group of 100 students attend a program with the same start time, two (2) buses would be required to ensure that they arrive on time. If the start times were able to be strategically set and 50 students could be transported using a single bus to programs with staggered start times, the number of buses per 100 students would be 1.0.

LCISD is experiencing area growth and by 2025, the student population is expected to grow to nearly 50,000 students. Currently, there are approximately 30,829 students enrolled with approximately 12,930 students being

transported on 277 route buses or forty three percent of total LCISD students. By 2025, it is projected that the district may have as many as 50,000 students. To extrapolate the potential number of students that would require transportation (net of any changes in bell times, other efficiencies being implemented, or other trend analysis), the number of students transported would be approximately 21,749 or approximately 8,800 new students (a growth of fifty-nine percent). As a result of this increase, the current fleet of 277 buses would be increased by 59 percent to a fleet of 441 buses or an increase of 164 buses.

Although it will be difficult to predict ridership trends and direct eligibility, the LCISD will be need to prepared for student growth which will have a direct impact on the number of buses and driver's necessary to provide transportation services.

RECOMMENDATION 9-4

Perform a comprehensive bell time analysis to understand the potential cost and service impacts of a three (3) tier system.

The department would benefit from a bell-time analysis and assessment to better understand the true potential of a realignment of bell times. Multiple tiered systems are considered a best practice as they allow systems to utilize the bus fleet to a high degree of utilization reducing the overall number of buses in the fleet. As significant growth occurs to the point of maximizing all seats across the bus fleet, this would be an opportune time to evaluate the bell time structure to understand the impact of a three (3) tier system may have on the number of buses and service.

FISCAL IMPACT

A bell time analysis can be a complicated and daunting task for transportation operation. Given the fairly recent transition to *Versatrans*, it is likely that outside resources would be necessary to support a comprehensive bell time analysis. While it is not possible to project an actual cost for contracted support at this time, the LCISD should consider budgeting approximately $25,000 for a comprehensive study. The actual costs will be predicated on the expertise that the planning staff has been able to achieve, the required timelines, and the number of scenarios that will need to be developed.

ANTICIPATING TOMORROW

As LCISD continues to grow, strategic alignment of bell times will become more imperative to improve the overall effectiveness and efficiency of the district's transportation system. If the growth that LCISD experiences does in fact start to maximize system capacity, performing a bell time study on the system would help the district understand the potential of a strategic (possibly more efficient) alignment of bell times. A bell time study would be beneficial to the district to directly correlate options with actual ridership trends, time spent under new leadership, and options for future route smoothing. A comprehensive analysis of bell times will also be imperative in the event that new facilities are added to accommodate expected growth.

Fleet Maintenance and Management

OBSERVATION 9-5

LCISD has not fully implemented *Fleetvision* maintenance management software.

Fundamental attributes of any high performing transportation organization include an effective and efficient fleet repair and maintenance operation and a planned and supported fleet replacement program. Absent well maintained, reliable, and readily available buses, service delivery will be negatively impacted even though the routing network is planned in an effective and efficient manner. Additionally, the maximum and average age of a school bus fleet can also have a direct impact on the ability of a transportation system to provide safe, consistent, and on-time service.

Fleet maintenance for the LCISD is managed and monitored using a combination of manual process and software. Drivers are required to perform a mandatory pre-trip inspection prior to the start of each bus run. The primary purpose of this inspection is to ensure that on a least a daily basis, any vehicle defect is noted and especially defects that would compromise the safe operation of the vehicle. Once a defect is discovered and noted or in the event of a mechanical failure, the defect or vehicle issue is entered on a "Trouble Report," which is then disseminated to one of the fleet maintenance repair staff for resolution.

The Trouble Report is used to describe the mechanical issue or failure, the repairs performed, the mechanic performing the work, the number of labor hours, and the parts used. For the Rosenberg facility, once repairs have been completed, the information is entered into a basic work order tracking system known as Diamond Connect that was originally supported by International Truck. Record keeping at the Fulshear facility is a full manual process requiring the manual entry of the description of the work performed, labor hours, and parts consumed on a paper form. A file is maintained for each vehicle for retrieval of maintenance history by vehicle.

While this system can be useful for the tracking and scheduling of fleet maintenance activities, as currently implemented, it is still very much reliant on manual processes. As discussed above, drivers or mechanics are responsible for filling out the trouble report, which then requires additional entries by the mechanics once the repair is completed. Once completed, the process then requires either the fleet manager, lead mechanic, or parts specialists to enter the data into the Diamond Connect system.

Although this process and the use of the Diamond Connect does provide some level of "management" to the fleet maintenance area, the system is limited in the way that data can be extracted to better support the analysis of fleet maintenance activities and for reporting. Senior district and transportation administrators have recognized the issues with the current system and have made an investment in a new system that will have ongoing support as a component of recently implemented routing software.

The use of fleet maintenance and management software is used to support critical resource planning processes within vehicle dependent functions such as student transportation. The effective use of software allows for an assessment of life cycle costs, the appropriateness of technician staffing levels, the effectiveness of parts management practices, and fuel use and management are all supported by a robust fleet maintenance management application. The ability to conduct these assessments when service requirements are volatile in high growth environments will continue to be important to the ongoing success of the operation.

RECOMMENDATION 9-5

Accelerate implementation of the *Fleetvision* fleet management software.

LCISD has recently transitioned to the use of *Versatrans* routing software for the planning and management of its routing network. Along with this transition, the department also acquired *Versatrans' Fleetvision* fleet management module to better support its fleet maintenance function. Having a more robust fleet maintenance information system is a necessity; however, the district has not fully implemented the system.

The benefits that *Fleetvision* offers include the following:

- Tracking and scheduling of preventative maintenance activities to ensure adherence to manufacturer recommendations and state, federal, and industry standards for the maintenance of school buses are met or exceeded;
- More automated notification of when services are required either by time or mileage;
- Improved monitoring of warranty support to ensure that the LCISD is compensated for covered parts or repairs;
- Automated inventory tracking to ensure that necessary parts are available as needed while limiting the stocking of unnecessary parts;

- Extractable and comprehensive "cradle to grave" information on each vehicle, engine and drivetrain type, and model year to better inform replacement decisions; and
- Improved tracking of employee productivity to understand staffing and training needs.

To ensure successful implementation of the system, LCISD should hold discussions internally with staff and externally with representatives from Tyler Technologies *(creator of Versatrans software)*, to better understand the tasks necessary to ensure that the system is fully implemented to meet the objectives of the LCISD. Examples of discussion topics include the following:

- Review the capabilities of the software, the operational and reporting needs of the department, and once determined, commit to its implementation.
- Establish a reasonable deadline for the full implementation of the system along with the assignment of responsibilities to departmental and LCISD staff.
- Understand the infrastructure needs to effectively implement the systems including the suggested ratio of computer work stations to the number of mechanics and managers.
- Review training requirements for fleet maintenance managers, parts specialists, mechanics, and drivers to ensure that process and procedures to fully capitalize on the abilities of the systems are documented and understood.

FISCAL IMPACT

Since the investment in the software has already been made, the primary impact will be on staff time and additional computers for fleet maintenance staff. Based on interviews with staff, the mechanics at the Rosenberg facility have access to a single computer. Considering a nominal number of computers for both the management of the system and to enhance the diagnostic capabilities of the staff, approximately 10 computers would be needed to ensure that each of the fleet maintenance staff have ready access to the *Fleetvision* system. The estimated cost is approximately $1,000 each for a total of $10,000 as illustrated below in **Exhibit 9-12**:

Exhibit 9-12
LCISD – Fleet Maintenance Technology Cost

Investment Description	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022	Five-Year Total
Purchase computers for fleet maintenance staff at a ratio of one (1) computer per two (2) FTE	$10,000	$0	$0	$0	$0	$10,000
Sub-Total/Total	**$10,000**	**$0**	**$0**	**$0**	**$0**	**$10,000**

Source: LCISD Staff interviews and data, McConnell & Jones LLP's Review Team calculations.

ANTICIPATING TOMORROW

As the district grows, full implementation of the *Fleetvision* software will be necessary to better support the system as it is currently operated and to scale up as the system grows. Achieving full implementation before another period of growth is experienced will provide departmental and senior district administrators with cost of repair data on which bus replacement and procurement decisions can be based. For example, while it is recommended that a fleet replacement program be based on significant factors including age and mileage, having a complete repair and cost of repair history for each vehicle or by model and make of vehicles can also be useful and beneficial for formulating replacement decisions.

OBSERVATION 9-6

The LCISD fleet maintenance area is understaffed and below the expected ratio of the number of fleet maintenance staff to the number of vehicles maintained.

For any transportation organization to be fully effective and efficient, it must be appropriately staffed in comparison to the number of vehicles maintained. An appropriate level of staff is necessary to ensure that the required number of daily route, spare vehicles, and extra trip or activity buses are readily available. In addition to the maintenance of the LCISD's 305 buses, the department is also responsible for the repair and maintenance of approximately 77 white fleet or auxiliary services and transportation department support vehicles. Preventative and reactive fleet maintenance is performed by a staff of 11 full time equivalent (FTE) staff supported by a one (1) FTE fleet manager, one (1) lead mechanic, and one (1) FTE parts specialist.

Absent a sufficient number of properly trained staff, conformance to preventive maintenance schedules can be jeopardized, which can lead to preventable vehicle breakdowns. While vehicle failures of any type can impact service quality, having an insufficient number of fleet maintenance staff can lead to higher costs due to having to outsource services to private sector vendors.

To understand whether a fleet maintenance operation is staffed appropriately in comparison to the number of vehicles maintained, the review team performed a Vehicle Equivalency Unit (VEU) analysis. This analysis considers both the quantity and type of the vehicles maintained including not only the fleet of school buses but also the white fleet vehicles maintained by Transportation Department staff. Both public and private sector fleet organizations use some form of a VEU analyses for not only comparing cost performance but also for estimating the personnel, financial, and physical resources needed to service their fleet. This technique weighs the number of vehicles and equipment in a fleet operation in proportion to their relative maintenance and repair requirements.

The following describes the key assumptions used in this analysis:

- All vehicles in the combined fleet were assigned a VEU using a baseline of 1.0 VEU for a standard passenger vehicle. As the size and complexity of a vehicle increases so does the assigned VEU. For example, a typical school bus ranges in a VEU of 3.0 to 4.0 depending on the size of the vehicle and additional installed equipment i.e. wheelchair lifts and air conditioning. For the purpose of this analysis, all school buses were assigned a VEU of 4.0 while the white fleet was based on 1.5 VEU for the majority of the vehicles with a 2.0 VEU assigned to police vehicles.
- The number of available work hours was based on a standard work week of 40 hours or 2,080 hours per year. The actual productive hours consider reductions in available work time including paid time off for vacations, sick leave, holidays, meetings, and other "non-productive" time resulting in an estimated 1,700 hours productive hours per year per FTE.

An established guideline suggests a VEU range of 100 to 125 VEU per fleet maintenance FTE. Factoring out non-productive time, the approximate number of VEU's is 149 per FTE or well above the expected range. These results are illustrated in the following **Exhibit 9-13**.

Exhibit 9-13
Fleet Maintenance Staff to VEU Analysis

Guideline: 100 to 125 VEU per FTE	Current Number of Staff	Estimated VEU	VEU per FTE
Current Number of Staff - No Adjustment for Time Off *(Excluding Management and Parts FTE)*	11	1336.5	122
FTE Adjusted for Time Off	9	1336.5	149

Source: LCISD Staff interviews and data, McConnell & Jones LLP Review Team calculations.

RECOMMENDATION 9-6

Hire two additional FTE fleet maintenance mechanics.

To ensure compliance with established preventive maintenance schedules and to the support both the preventive and reactive maintenance requirements of the fleet, the LCISD should consider hiring at least two additional FTE fleet maintenance mechanics. As **Exhibit 9-13** helps to illustrate, the hiring an additional two mechanics would reduce the ratio of FTE to VEU workload within the fleet management operation resulting in a ratio in closer alignment to industry standards of 100-125 VEU per fleet maintenance FTE.

As a first step, the LCISD should consider the adoption of a staffing standard based on industry standards as discussed above. Not only would the adoption of this standard ensure that the function is adequately staffed to meet the needs of current size of the district, but would ensure that an appropriate number of additional mechanics is considered as the district continues to grow. Once the recommendation is accepted and funding is approved, the currently established LCISD protocols for recruitment and hiring would be followed.

FISCAL IMPACT

To understand the potential fiscal impact of this recommendation, a review of the LCISD 2016-17 Compensation Plan for Manual Trades was performed. According to the compensation plan, the minimum hourly wage ranges from $14.41 for a Mechanic I to $17.89 for a Mechanic II. To understand the maximum potential fiscal impact of adding two additional FTE mechanics, the rate of $17.89 was utilized. Based on a 2,080-hour work year, the total salary cost for the first year would be approximately $74,422. Additional employment costs to support the retirement fund, health care costs, and Medicare were also calculated based on a flat rate of 18 percent of the salary costs. The following **Exhibit 9-14** illustrates the potential cost impact for the next five fiscal years for the two required Mechanic II positions that are currently needed to assist with department and function workload.

Exhibit 9-14
Additional Employment Costs – Two FTE Mechanics to Meet Current Need

Classification	Number of Positions	Number of Hours per Year	Hourly Rate	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022	Five-Year Total
Mechanic II	2	2,080	17.89	$74,422	$74,422	$74,422	$74,422	$74,422	$372,110
Flat Benefit Rate of 18 percent	0.18			$13,396	$13,396	$13,396	$13,396	$13,396	$66,980
Sub-Total/ Total				**$87,818**	**$87,818**	**$87,818**	**$87,818**	**$87,818**	**$439,090**

Source: LCISD Staff interviews and data, McConnell & Jones LLP's Review Team calculations.

ANTICIPATING TOMORROW

As the district continues to grow, it is imperative that staffing levels within the department be monitored to ensure that key ratios are maintained and that new or anticipated positions are fiscally supported. Using the preceding analysis for example, as new buses *(and support white vehicles)* are added to the fleet, additional mechanics will be required to maintain a reasonable ratio of mechanics to the number of vehicles maintained. For example, for every 25 buses, based on 4.0 VEU per bus and one FTE per 100 VEUs added to the fleet, one additional FTE fleet maintenance mechanic would be required.

The LCISD has approximately 30,829 students enrolled with approximately 12,930 students being transported on 277 route buses or forty three percent of total LCISD students. By 2025, it is projected that the district may have as many as 50,000 students. To extrapolate the potential number of students that would require transportation (net of any changes in bell times, other efficiencies being implemented, or other trend analysis), the number of

students transported would be approximately 21,749 or approximately 8,800 new students (a growth of fifty-nine percent). As a result of this increase, the current fleet of 277 buses would be increased by 59 percent to a fleet of 441 buses or an increase of 164 buses. Using the ratio of 25 buses per mechanic as a baseline, an additional 6.5 mechanics would be required.

The following **Exhibit 9-15** illustrates the potential fiscal impacts of adding additional fleet maintenance mechanic staff to the department. This table is meant to illustrate potential maximum growth and its impact upon the system in a worst-case scenario over the next ten years. If maximum growth (fifty nine percent) occurs, and no additional efficiencies are worked into the system, the LCISD may require as many as 164 additional route buses to transport the additional 8,800 students.

Using the same methodology illustrated in **Exhibit 9-14** to determine the cost impact of 6.5 additional FTE, it should be expected that for every 50 buses that is added to the fleet, two additional FTE mechanics would be required at a current cost of $87,800. These calculations are illustrated in the following **Exhibit 9-15**.

Exhibit 9-15
Anticipating Tomorrow – Fleet Maintenance Mechanics

Classification	Number of Positions	Number of Hours per Year	Hourly Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Five-Year Total
Mechanic II	6.5	2,080	17.89	$241,873	$241,873	$241,873	$241,873	$241,873	$1,209,365
Flat Benefit Rate of 18 percent				$43,537	$43,537	$43,537	$43,537	$43,537	$217,685
Sub-Total/ Total				**$285,410**	**$285,410**	**$285,410**	**$285,410**	**$285,410**	**$1,427,050**

Source: LCISD Staff interviews and data, McConnell & Jones LLP's Review Team calculations.

OBSERVATION 9-7

The LCISD parts procurement and management function is under staffed.

For the Rosenberg Garage, fleet maintenance and repair is supported by one parts manager who, under the direction of and in conjunction with the fleet manager is responsible for the procurement and stocking of parts and supplies for fleet maintenance. The management of parts and supplies for the Fulshear Garage is an ancillary responsibility of the lead mechanic.

Parts and supplies are stored within a lockable parts storage room which meets the best practices of the industry. To facilitate the tracking of parts that are stocked, the department uses a labeling system that corresponds to the part number in the Diamond Connect system and the part's bin number to facilitate supplying the mechanics with parts as required to perform maintenance activities and for tracking by work order.

For the 2015-2016 school year, the value of parts inventoried for fleet maintenance was approximately $269,600. Based on the combined school bus and axillary service fleet of 305 buses and 77 "white fleet" or support service vehicles, the total VEU is approximately 1,337 or just under $202 per VEU ($269,600/1,337 = $201.72).

This equated to approximately $807 for school buses (4.0 VEU per bus x $201.72 = $807) and just under $404 for white fleet vehicles (2.0 VEU x $201.72 = $403.44). These metrics compared to a typical industry range for school buses of $464 to $920 indicate that the area of parts procurement and inventory are appropriate for the current size of the fleet.

While the current parts processes appear to be appropriate and is staffed within the expected ratio of 8 to 10 FTE fleet maintenance technicians to 1 parts specialists, the department is at the highest end of the range and would be considered understaffed as the district continues to grow. Additionally, there is not a dedicated parts specialist

at the Fulshear facility requiring at least a portion of the lead mechanic's time for the management of parts at that facility.

RECOMMENDATION 9-7

Prioritize the recruitment and hiring of at least one mechanic who is also experienced in parts management to support the Fulshear facility.

For the near-term, the district should prioritize the recruitment and hiring of at least one mechanic who is also experienced in parts management to support the Fulshear facility. As the district continues to grow and additional mechanics become necessary, the LCISD should be prepared for the cost of a least a proportional FTE for the management of parts and supplies.

FISCAL IMPACT

For the short term, this recommendation can be implemented within the costs projected for Recommendation 9-6.

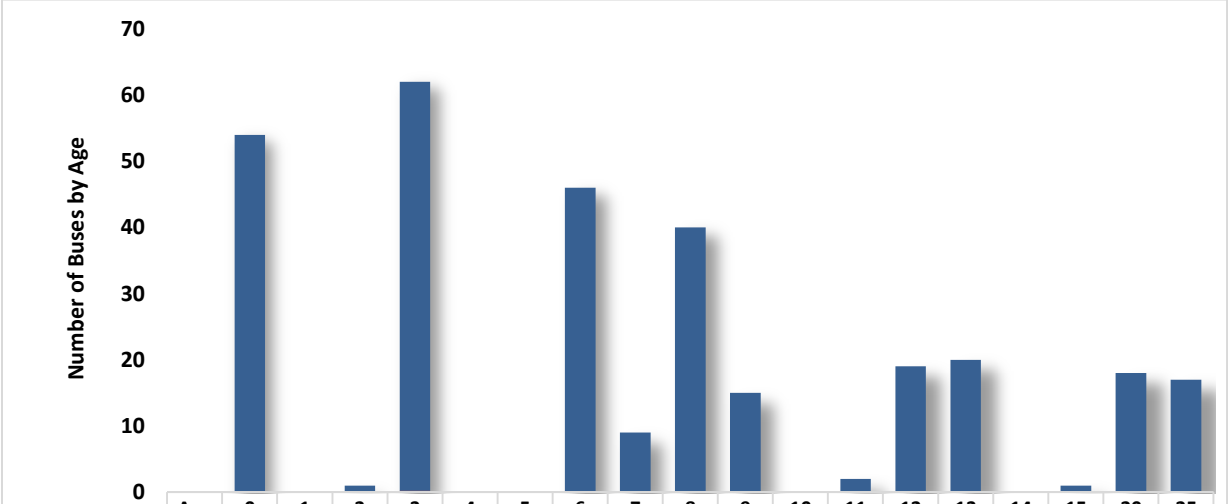
OBSERVATION 9-8

A fully defined and fiscally-supported fleet replacement plan has not been developed.

The Transportation Department operates a bus fleet of 305 *(277 active route buses and 28 spares)* vehicles with model years ranging from 1993 to 2017. While the current administration has established a targeted replacement age or maximum bus age of 15 years, 35 vehicles or 12 percent of the current fleet is age 16 years or older with the oldest vehicles being model year 1993 or 24 years of age.

While no maximum mileage standard has been established, the analysis of vehicle data finds that approximately 98 percent of the fleet is under 250,000 miles with seven buses or two percent with accumulated mileage above 250,000 miles. **Exhibits 9-16** and **9-17** illustrate the age and mileage of the current fleet.

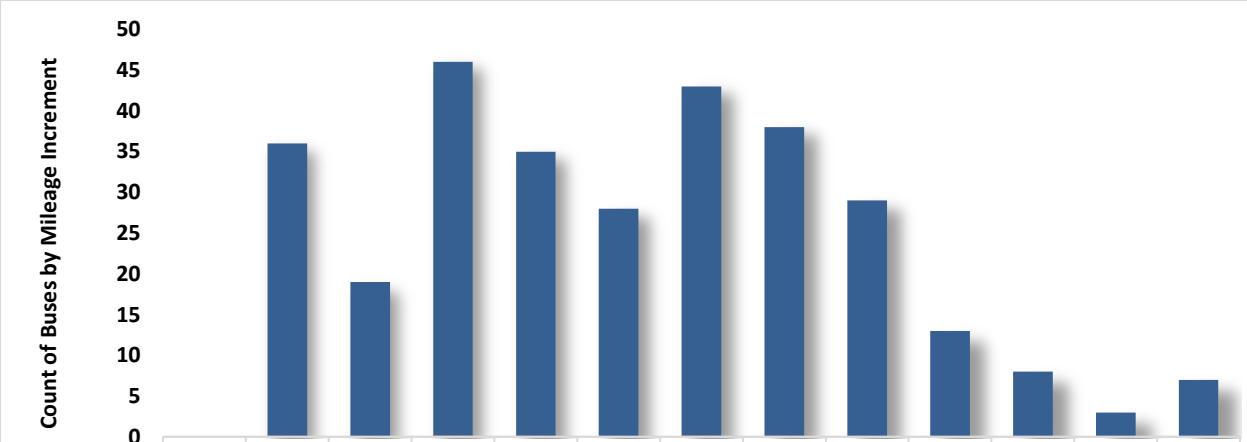
Exhibit 9-16
Number of Buses by Age – LCISD Yellow Bus Fleet in 2015-2016 School Year



Age	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	25
# of Buses	54	0	1	62	0	0	46	9	40	15	0	2	19	20	0	1	18	17
Percentage	18%	0%	0%	20%	0%	0%	15%	3%	13%	5%	0%	1%	6%	7%	0%	0%	6%	6%

Source: LCISD Staff interviews and data, McConnell & Jones LLP's Review Team calculations.

Exhibit 9-17
Number of Buses by Mileage Increment – LCISD Yellow Bus Fleet



Miles	5k	10k	50k	75k	100k	125k	150k	175k	200k	225k	249k	300k
# of Buses	36	19	46	35	28	43	38	29	13	8	3	7
Percentage	12%	6%	15%	11%	9%	14%	12%	10%	4%	3%	1%	2%

Source: LCISD Staff interviews and data, McConnell & Jones LLP's Review Team calculations.

As **Exhibit 9-16** helps to illustrate, not only are a full 12 percent of the buses 15 years of age or older, the number of buses that have been purchased on a yearly basis varies widely ranging from zero buses for several years in a row to as many as 62 model year 2014 buses. A significant variability of buses purchased in any one fiscal year results in the block obsolescence or a disparate number of buses requiring replacement in any one fiscal year.

Although as currently implemented, the fleet maintenance software does not readily support the full analysis of fleet maintenance costs based on age or mileage and limits the ability to perform a qualitative analysis, it is an accepted reality within the fleet maintenance industry that the cost of maintenance typically increases as buses age and mileage increases.

Although there are no national mandates that determine the age or mileage limits for school bus vehicles, in a 2002 position paper published by the National Association of State Directors of Pupil Transportation Services, a 12- to 15-year guideline for large buses with a maximum mileage of 250,000 miles and an 8- to 10-year guideline for smaller buses has been suggested.

As **Exhibit 9-17** helps to illustrate, 98 percent of the buses are under 250,000 miles. The 2002 position paper further states that "While higher annual mileage accumulation may be used as a criterion to shorten lifetimes of individual buses, lower than average annual mileage accumulation is not necessarily a criterion to use buses for an extended number of years".

RECOMMENDATION 9-8

Develop a defined fleet replacement plan supported by an approved BOE Policy.

In 2010, The Texas Comptroller of Public Accounts published a best practice guide for vehicle replacement planning. The suggested analytical and budgetary processes that should be followed in the development of a replacement plan are illustrated in **Exhibit 9-18**:

Exhibit 9-18
Fleet Replacement Planning Example

Source: Comptroller of Public Accounts, May 2010.

The development of a fleet replacement plan should begin with the determination of a reasonable or desirable maximum age and mileage standard for school buses. Next and ideally based on repair and maintenance history of the fleet, a determination should be made of an optimal fleet size including route buses, spares, and any additional buses required to meet the day-to-day and seasonal demand for extracurricular trips. Once these parameters are documented and approved, the standards should be documented as an LCISD policy and approved by the board. This approval process helps to ensure that both current and future staff understand the requirements for fleet replacement that must be followed and maintained. Additional key steps include:

- The second and equally important component of a successful fleet replacement program is the identification of a dedicated funding source. This step helps to ensure that buses are replaced as scheduled within the established standard as defined above.
- LCISD managers including the chief financial officer, the administrator for operations, and the director of Transportation should be established as the responsible staff members for the implementation of the replacement process.
- The director of Transportation and delegated staff should be charged with the responsibility for the development of vehicles specifications and the oversight of the procurement process.

FISCAL IMPACT

The following **Exhibit 9-19** helps to illustrate an example based on an established replacement fund of $2,000,000 per year and an approach that is designed to equalize the number of buses purchased in any one fiscal year. Not only does an equalized approach support current budget sustainability, purchasing a planned and consistent number of buses per year, benefits the budgeting process in future fiscal years as buses come due for replacement. The increase in purchase price from year-to-year is reflective of the cost per bus increasing at a rate of 1.5 percent per year for each year of the plan.

Additionally, **Exhibit 9-19** is based on linear growth of fifty nine percent (*worst case scenario*) and is absent unknown potential advancements to system efficiencies. Reductions or additions to this table may stem from LCISD adding or subtracting facilities, routing analysis for areas to combine or diminish routes, or knowledge that comes with actual ridership trends.

The replacements in each year were based on a maximum desired age of 15 years and mileage or 250,000. In order to equalize the replacement plan to balance the number of buses purchased year to year, vehicles were scheduled for replacement earlier if it had higher mileage or delayed for replacement by a year or two if its mileage was low. Once *Fleetvision* is fully implemented, repair history costs should also be considered as a primary factor for replacement decisions.

As **Exhibit 9-19** also illustrates, the number of buses requiring replacement begins to decrease in 2025 resulting in a reduction in the annual replacement amount. At this point in time and as LCISD continues to grow, the plan will need to be re-evaluated and adjusted to ensure that the replacement schedule is maintained and accurate for the amount of actual growth experienced.

Exhibit 9-19
Example of Equalized Replacement Plan

Year	Replacement Budget	Number of Buses	Expenditures per Year	Fund Balance
2017	$ 2,000,000	18	$ 1,721,351	$ 278,649
2018	$ 2,000,000	18	$ 1,748,567	$ 530,082
2019	$ 2,000,000	20	$ 1,970,421	$ 559,661
2020	$ 2,000,000	19	$ 1,899,978	$ 659,682
2021	$ 2,000,000	17	$ 1,732,778	$ 926,905
2022	$ 2,000,000	13	$ 1,348,165	$ 1,578,739
2023	$ 2,000,000	20	$ 2,100,354	$ 1,478,385
2024	$ 2,000,000	20	$ 2,127,281	$ 1,351,104
2025	$ 2,000,000	9	$ 969,545	$ 2,381,559
Totals	**$ 18,000,000**	**154**	**$ 15,618,441**	**$ 2,381,559**

Source: LCISD Staff interviews and data, McConnell & Jones LLP's Review Team calculations.

ANTICIPATING TOMORROW

As LCISD grows, a well-defined and supported fleet replacement plan is a necessary element of any high performing transportation organization. Having an established and supported financing approach will become imperative to meet the potential growth within the district.

Repeating the statements from **Recommendation 9-6**, expected growth within the district may be by as much as 59 percent by the year 2025 from the 2016-2017 school year and require as many as 164 new buses. In the event that the increase in buses could be equalized over the next eight years, it would still require, in addition to the previously discussed replacements, the purchase of 20 to 21 additional buses per year at a baseline cost of $97,065 per bus. Using this baseline and again escalated by 1.5 percent per year, the total cost of the additional fleet could be as much as $16,400,000. This estimate is illustrated in the following **Exhibit 9-20:**

Exhibit 9-20
Cost of Additional Fleet Assets to Accommodate Growth

Year	Replacement Budget	Number of Buses	Expenditures per Year	Fund Balance
2017				
2018	$ 2,050,000	20	$ 1,941,301	$ 108,699
2019	$ 2,050,000	20	$ 1,970,421	$ 188,278
2020	$ 2,050,000	20	$ 1,999,977	$ 238,300
2021	$ 2,050,000	20	$ 2,029,977	$ 258,323
2022	$ 2,050,000	21	$ 2,060,427	$ 247,897
2023	$ 2,050,000	21	$ 2,091,333	$ 206,564
2024	$ 2,050,000	21	$ 2,122,703	$ 133,861
2025	$ 2,050,000	21	$ 2,154,544	$ 29,317
Totals	**$ 16,400,000**	**164**	**$ 16,370,683**	**$ 29,317**

Source: LCISD Staff interviews and data, McConnell & Jones LLP's Review Team calculations.

Exhibit 9-19 helps to provide a worst-case scenario to support the planning process for the replacement of new buses. Senior LCISD administrators should begin the necessary conversations on how best to fund the additional buses that will be needed for both replacement and for growth, which may include cash purchases using either general fund allocations or through bond proceeds. In addition, methodologies such as straight financing, commercial leasing, and municipal leasing are all avenues that could be considered.

OBSERVATION 9-9

The current size of the repair facilities is adequate, but as the district continues to grow additional repair capacity will be necessary.

In addition to having a level of staffing that is appropriate in ratio to the number of vehicles maintained, it is important that the fleet maintenance facilities are designed and sized in ratio to the number of mechanics on staff. There are 10 FTE fleet maintenance mechanics (including the lead mechanic) who are responsible for the maintenance of the combined fleet of 305 buses and 77 miscellaneous white fleet vehicles. Both reactive and preventative maintenance is performed at both the Rosenberg and Fulshear facilities while only the Fulshear facility is equipped to perform state inspections.

Between the two facilities, there are a total of 20 work bays that support the various repair activities that are necessary to maintain the fleet. **Exhibit 9-21** illustrates how the facilities are equipped and where there may be a need for additional work space as LCISD continues to grow.

Exhibit 9-21
Facility Description – Number of Work Bays

Facility	Wash Bay or Area	Quick-Lane	Tire and Compressor Storage	Oil-Change Pit	Tire Work Areas	Mechanic's Work-bays	Total Work-Bays by Facility
Rosenberg	1	2	1	1	2	6	12
Fulshear	1	0	1	1	0	6	8
Totals	**2**	**2**	**2**	**2**	**2**	**12**	**20**

Source: LCISD Staff interviews and data, McConnell & Jones LLP's Review Team calculations.

A common industry guideline is to provide 1.5 work bays per FTE mechanic. The fractional work space per FTE allows each mechanic to be able to simultaneously perform both "quick" and longer-term repairs. Longer term repairs are those that are either due to the complexity of the work or waiting for parts that cannot be completed within a work day. As **Exhibit 9-20** illustrates the function benefits from having additional space or works bays that are dedicated to key repair functions including tire and wheel work areas, quick repairs, and preventative maintenance and oil changes over and above dedicated work bays per mechanic. Having dedicated spaces for "quick fixes" such as a tire replacement supports a more effective system as work spaces for both more time-consuming or complicated repairs and quick fixes are available at the same time. Absent these dedicated spaces, mechanics may have to move one vehicle to work on another which can have a negative impact on productivity.

RECOMMENDATION 9-9

Review the need for additional work space for mechanics as part of the facility planning processes.

Combined, the Rosenberg and Fulshear facilities provide the necessary space for the current number of mechanics to be able to effectively perform fleet maintenance and repair activities. That being said, as additional mechanics are considered to reduce the ratio of staff to vehicles maintained or as the district continues to grow, additional space may be required. For the near term and based on Recommendation 9-6 which suggests the hiring of two additional mechanics, the placement of the two mechanics at the Fulshear facility should be considered. The rationale for this placement includes:

1. As discussed in **Observation 9-6**, one of the additional mechanics would also be responsible for the management of parts function.
2. The facility as currently constructed is sized appropriately to accommodate a total of four FTE and would provide the suggested ratio of 1.5 bays per FTE.
3. Based on interviews with staff, approximately 100 buses are currently dispatched from the facility. This would result in a responsibility of 25 buses or a ratio of 121 VEUs per mechanic (adjusted for unproductive time) or well within the desired ratio of mechanics to VEU.

This recommendation can be implemented in conjunction with **Recommendation 9-6** and with no additional fiscal impact.

ANTICIPATING TOMORROW

As the district continues to grow and additional buses become necessary, the impact on the fleet maintenance repair facilities will need to be considered. As discussed in **Observation 9-9** between the two repair facilities, there are a total of 20 work bays for the repair and maintenance of the school bus and support services fleet. Based on industry standards, a 1.5 work bay to each mechanic is suggested support a high level of productivity from each of the fleet maintenance mechanic. Using a responsibility ratio of 25 buses per mechanic, for every 25 buses that are added, approximately 1.5 additional work bays may be necessary. While this need might be reduced by staggering the shifts of the mechanics, the transportation centers will remain impacted by the need for additional space for drivers, bus monitors, and school bus parking.

As discussed in **Recommendation 9-6** as many as 164 new buses may be required that would require 6.5 FTE additional mechanics or 10 additional work bays. For the construction cost for the recent addition to the Fulshear facility, the Operations Department provided an estimate of $414 per square foot for the addition of three (3) work bays and the wash facility. Although the cost would likely be less for the addition of simple work bays due to the higher cost for the specialized construction of the wash bay and for the wash bay equipment, planning for additional work bays should be considered a priority. While this need might be reduced to some degree by staggering the shifts of the mechanics, the transportation centers will remain impacted by the need for additional space for drivers, bus monitors, and school bus parking.

OBSERVATION 9-10

The LCISD should reevaluate its preventative maintenance program.

While a preventative maintenance program has been established the current schedule is not fully compliant with industry standards. Planned enhancements will help to ensure compliance to manufacturer or industry standards and potentially reduce reactive maintenance through an increase in the number of times that buses are proactively inspected on an annual basis.

Preventive maintenance is critical to any fleet maintenance organization and especially for the area of student transportation. The objectives of an effective preventative maintenance program (PM) includes:

- Early stage recognition of equipment or system wear enabling the repair or replacement of the part before more costly repairs are required.
- Reduction of mechanical failure resulting in service delays or disruptions.
- Less disruption for drivers and students by ensuring that route buses remain in service.
- Compliance with manufactures' prescribed maintenance schedules and warranty requirements.

A typical PM program is designed around a multi-echeloned or tiered structure consisting of "A", "B", and "C" service levels. Typically, A level services include a basic general inspection of the vehicle and oil and fluid changes. B level services may include the same basic level of services plus additional services such as transmission fluid and filter changes. C level services include basic service plus a comprehensive inspection of all the vehicles systems or a "bumper to bumper" inspection.

The current LCISD preventive maintenance schedule consists primarily of an "A" inspection based on the following mileage or hours standards and a yearly "C" inspection on a yearly basis that is normally performed in the summer.

Established mileage and time intervals are illustrated in **Exhibit 9-22**:

Exhibit 9-22
Preventative Maintenance Schedule

Bus Type	Lube, Oil, and Filter	"Bumper to Bumper" Inspections
Conventional (Regular Education)	Every 6 months, or 550 engine hours, or 7,500 miles	Annual
Special Needs	Every 6 months, or 350 engine hours, or 7,500 miles	Annual

Source: LCISD Staff interviews and data.

While a PM schedule and process has been established, a six-month schedule is well below more common intervals typical for the maintenance of school buses. Many states including Virginia, North Carolina, and Michigan have established maintenance schedules and manuals to help guide local school districts in the development and

monitoring of their PM program. Using the State of Virginia's Manual for example, the description of their PM begins with the following:

- Establishing that the driver's daily pre-trip inspection is the first step in preventive maintenance to ensure that mechanical defects are identified and reported at the earliest stage to help reduce more costly repairs and potential failure while the bus is in service.
- All school buses are to be inspected once every 45 days or every 5,000 miles.
- Original Equipment Manufacturer (OEM) inspection and maintenance recommendations are also considered to ensure safety and warranty requirements are met.

Another excellent example is a recommendation from The Michigan Department of Education's Pupil Transportation's Advisory Committee. Based on the work of the Committee, the following best practices were developed and recommended to ensure a high level of school bus maintenance:

- Knowledgeable and highly trained repair staff.
- An appropriate number of mechanics in ratio to the number of vehicles maintained.
- Highly trained and knowledgeable mechanics.
- Regular safety inspections on a 36-day interval based on a defined PM program that includes a lube, oil, and filter service interval that is consistent with the manufacturer recommendations.
- Daily driver inspections.

RECOMMENDATION 9-10

Reevaluate the preventative maintenance program.

Senior LCISD and transportation department administrators have recognized the need for an enhanced PM program and have established a goal of an "A" inspection on a 90-day interval. Also, recognized is that the implementation of *Fleetvision* will critical to support the tracking of all fleet maintenance activities including the scheduling and monitoring of PM services. It is again recommended that the implementation of *Fleetvision* become a priority for the department. An advantage of the software is that not only can maintenance schedules be monitored based on route mileage, manufacturer recommendations specific to each current and future vehicle model can be included in each vehicle record to ensure compliance.

FISCAL IMPACT

This recommendation can be implemented with existing resources. The primary impact will be on staff time as the *Fleetvision* system is fully implemented.

FISCAL IMPACT SUMMARY

RECOMMENDATION		2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	TOTAL 5-YEAR (COSTS) OR SAVINGS	ONE TIME (COSTS) OR SAVINGS
CHAPTER 9: TRANSPORTATION								
9-1	Develop a comprehensive management or strategic plan for the department to ensure that the department's goals and objectives are in alignment with overall district educational goals and priorities.	$0	$0	$0	$0	$0	$0	$0
9-2	Develop a comprehensive departmental procedures manual that coleuses all processes and procedures from each of the functional areas.	$0	$0	$0	$0	$0	$0	$0
9-3.1	Dedicate six of the current route planning staff solely to the function of route planning and management.	$0	$0	$0	$0	$0	$0	$0
9-3.2	Acquire technology to support the communication needs of the district.	($24,776)	($24,776)	($24,776)	($24,776)	($24,776)	($123,879)	
9-4	Perform a comprehensive bell time analysis to understand the potential cost and service impacts of a three (3) tier system.	$0	$0	$0	$0	$0	$0	$0

RECOMMENDATION		2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	TOTAL 5-YEAR (COSTS) OR SAVINGS	ONE TIME (COSTS) OR SAVINGS
9-5	Accelerate implementation of the *Fleetvision* fleet management software.	($10,000)	$0	$0	$0	$0	($10,000)	($10,000)
9-6	Hire two additional FTE fleet maintenance mechanics.	($87,818)	($87,818)	($87,818)	($87,818)	($87,818)	($439,092)	$0
9-7	Prioritize the recruitment and hiring of at least one mechanic who is also experienced in parts management to support the Fulshear facility.	$0	$0	$0	$0	$0	$0	$0
9-8	Develop a defined fleet replacement plan supported by an approved BOE Policy.	($2,000,000)	($2,000,000)	($2,000,000)	($2,000,000)	($2,000,000)	($10,000,000)	$0
9-9	Review the need for additional work space for mechanics as part of the facility planning processes.	$0	$0	$0	$0	$0	$0	$0
9-10	Reevaluate the preventative maintenance program.	$0	$0	$0	$0	$0	$0	$0
TOTAL CHAPTER 9		**($2,122,594)**	**($2,112,594)**	**($2,112,594)**	**($2,112,594)**	**($2,112,594)**	**($10,572,971)**	**($10,000)**