# A study of the **Consolidation** of **Fleet Maintenance Facilities**

Office of General Services
Budget and Control Board

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The study team agreed from the outset that consolidation could be a means to achieve the end of more efficient and effective fleet maintenance, but was not an end in itself. During every phase of the study process, the guiding question was how can consolidation improve the cost effectiveness with which the fleet maintenance needs of particular State agencies working under particular sets of circumstances are met.

With the assistance of a Nationally known fleet management consultant, the study team developed a detailed questionnaire for all of the shops in the state that provided information on the condition and capacity of each facility. The team also developed and conducted detailed interviews at all of the Columbia area shops to gain an understanding of the mission and capabilities of each of the service delivery organizations. The study finds that:

- None of the existing facilities in Columbia are physically capable of taking over the maintenance of another fleet.

- The physical consolidation of many of the shops in Columbia will not produce more efficient and effective maintenance operations.

- The physical consolidation of selected shops incrementally can produce more efficient and effective maintenance operations.

- The physical consolidation of any of the maintenance operations in Columbia will require the construction and staffing of a large new maintenance facility.

- Consolidation does not have to be physical. There can be the consolidation of procedures for management and administration ( e.g. parts inventory and purchasing, labor rates and productivity/performance measures, management information systems ).

## Specific Recommendations

- A ***fleet replacement schedule*** should be established and funded annually. A newer fleet would reduce the cost of maintenance dramatically.

- The shops should operate on ***uniform standard operating procedures***.

- The shops should adopt and use the *South Carolina Equipment Management Information System* or provide annual reports of specified management information that can be entered into *SCEMIS*.

- The shops should use the *Statewide Automobile Repair Parts* Contract.

- The shops should use the *Commercial Repair Program*.

- All of the shops in the state should be certified by a more comprehensive MVM Certification program that includes productivity and performance measures.

- Mechanic and operator training should be increased.

- Operators should be held accountable for meeting the maintenance schedules established by the shops.

- Funding for tools, equipment and building improvements should be provided where necessary.

- Spread throughout the counties are DOE and SCDOT facilities. The study team believes that serious consideration should be given to the possibility of shared facilities, as SCDOT or SCDOE replace shops with new ones.

## INTRODUCTION

This document presents a preliminary plan for consolidating fleet maintenance activities in the State of South Carolina. This plan was developed by the Office of General Services (OGS) pursuant to the Budget and Control Board's statutory authority to ensure that State-owned and operated maintenance facilities provide fleet maintenance and repair services cost effectively. The plan was prepared by a project team consisting of OGS officials, employees of OGS's Motor Vehicle Management Section (MVM), and an independent fleet management consultant.

In developing this plan, the project team was guided by two basic precepts. One is that fleet maintenance is a *service* activity whose foremost goal is to meet the needs of fleet users. This principle stems from the simple fact that without fleet users there would be no fleet maintenance operations. The second precept is that strategies such as consolidation, which are aimed at lowering the costs of providing services, not only should never lose sight of their impact on service quality, but should, if anything, be prepared to sacrifice gains in cost efficiency in the interest of preserving an adequate degree of service effectiveness.

This is not to say that cost efficiency and effectiveness are mutually exclusive goals, one of which cannot be advanced except at the expense of the other. On the contrary, the economies of scale which consolidation makes possible often provide agencies with access to service-enhancing resources and tools -- modern maintenance facilities, management information systems, technical training and support, and so forth -- which they otherwise would not be able to afford, thereby providing a higher level of service *and* lower costs.

Nevertheless, cost efficiency and effectiveness are potentially conflicting goals which must be *balanced* against one another. The current decentralization of State fleet maintenance activities is largely the result of individual agencies having developed internal service delivery capabilities over a long period of time in order to meet their

particular fleet maintenance needs. Under these circumstances, it is reasonable to assume that independent fleet maintenance operations are highly attuned to the needs of their customers, and few people would argue that such sensitivity is a prerequisite of effective service delivery.

The consolidation of activities across agencies unavoidably attenuates lines of communication between service providers and service users. Not surprisingly, therefore, consolidation raises fears -- and the real possibility -- of reduced accountability, reduced control, and, hence, reduced responsiveness to service users' needs. Consequently, a plan whose primary goal is to produce service delivery cost savings must be especially careful to not lose sight of the ultimate primacy of service quality. That is, it must not lose its sense of balance. Otherwise, it runs the risk of instituting "improvements" in which fleet users are made to subordinate their needs to the goal of fleet maintenance efficiency when fleet maintenance programs were created and exist solely to accommodate fleet users.

The "philosophical" foundation, then, on which this plan rests is the belief that consolidation is not an end in itself, but a means to an end. Accordingly, the project team did not set out to recommend *how* State fleet maintenance activities should be consolidated. Rather, its objective was to determine *whether, and if so, how* such activities should be consolidated. This distinction is important because there is a significant difference between the theoretical benefits of consolidation and the existence of real consolidation opportunities in the State of South Carolina.

There is little doubt, for example, that the Department of Transportation and the Department of Education fleets could be maintained in shared facilities around the state, thereby cutting in half the number of facilities currently used by these departments. However, consolidating the maintenance operations of these two departments would entail building 50 or so new facilities or expanding an equivalent number of existing

facilities at enormous cost to the State. It is unlikely that the cost savings and service improvements which such consolidation would produce would warrant building 50 new garages, and even less likely that the State would be willing to spend tens of millions of dollars to replace 100 or so old shops with 50 new ones.

As this example illustrates, the only consolidation recommendations which make sense are those which will lead to real cost savings and/or real service improvements relative to *actual, current* service delivery approaches. The State is not starting with a clean slate on which it can design a network of maintenance facilities which optimize fleet maintenance efficiency and effectiveness. Therefore, it must content itself with an incremental approach to fleet maintenance consolidation which, while perhaps disappointing relative to the *theoretical* benefits of consolidated fleet maintenance, nevertheless offers some significant cost saving and service improvement opportunities.

## CONSOLIDATION CONCEPTS

The development of a consolidation plan obviously cannot be governed solely by ideas about how fleet maintenance consolidation should or should not affect the State's fleet users. Such ideas are no more than overriding *goals* which, to be meaningful, must be able to be translated into concrete strategies and actions. Recommending specific courses of action for the State to pursue hinges on understanding what kinds of actions constitute consolidation and understanding the potential costs and benefits of these actions.

## TYPES OF CONSOLIDATION

In the area of fleet maintenance, the type of consolidation which often first springs to mind is the *physical* integration of people, facilities and equipment, and vehicles from disparate locations into a single location. This is the most dramatic form of consolidation in that it typically involves considerable modification to established work routines not only as a result of the physical relocation of maintenance activities, but as a result of the organizational, managerial, and administrative changes which necessarily accompany such relocation. The prospect of such disruption is undoubtedly the primary cause of resistance to the idea of fleet maintenance consolidation.

However, the complete physical integration of maintenance operations at a single location is only one type of consolidation. As has already been suggested, it is the least likely type of consolidation to produce net cost savings in the short term if it entails the construction of new, shared maintenance facilities. Fortunately, there are several additional types of consolidation -- some of which already are being pursued by the State -- consisting of different degrees of integration of maintenance resources and activities.

One of these is the *partial physical, which is* organizational, managerial, and administrative integration of fleet maintenance activities. A second *is organizational, managerial, and administrative,* but not physical, integration of activities. A third involves *managerial and administrative* integration of certain maintenance *support*

activities, and a fourth type is the consolidated provision of *technical guidance* of maintenance activities. The following hypothetical scenarios illustrate the nature of each of these types of fleet maintenance consolidation.

**Complete Physical Consolidation.** The Department of Corrections takes over the maintenance and repair of the Department of Juvenile Justice fleet, providing services out of a maintenance facility on the Corrections campus on Broad River Road in Columbia. Juvenile Justice no longer has in-house, on-site fleet maintenance capabilities. Corrections may or may not choose to dedicate specific personnel, work bays, maintenance staging areas, and/or parts storage space in its facility to the maintenance and repair of its customer's fleet. It may or may not choose to perform some services on Juvenile Justice vehicles on the grounds of the latter's facility. Corrections either distributes the costs of providing these services to Juvenile Justice by means of a charge-back system or a cost allocation plan, or receives a direct appropriation to fund these costs.

**Partial Physical Consolidation.** The departments of Education and Transportation share a single maintenance facility. Each department has its own work bays, automotive technicians, and managerial staff, but both are served by a single parts procurement and supply program and share administrative staff, maintenance staging and vehicle storage areas, and fueling facilities. All shared support functions are managed by a support services manager employed by Motor Vehicle Management or some other appropriate division of the Budget and Control Board, and the costs of these services are distributed to each department by means of a charge-back system or cost allocation plan. Facility costs are borne by the Property Management Section of the Office of General Services and also are recovered by means of a charge-back system or cost allocation plan.

**Organizational, Managerial, and Administrative Consolidation.** The two automotive technicians employed by South Carolina Educational Television become

employees of Motor Vehicle Management, but continue to work at the ETV maintenance facility on George Rogers Boulevard in Columbia. Their primary mission is to maintain and repair the SCETV fleet. However, as MVM employees, these automotive technicians are supervised by, and accountable for their performance to, an MVM supervisor; may be assigned temporarily to other MVM shops on an as-needed basis; and are subject to all applicable MVM policies and procedures. Motor Vehicle Management is accountable, in turn, to SCETV for the quality and cost with which it meets its new customer's fleet maintenance needs. Motor Vehicle Management either distributes the costs of providing services to SCETV by means of a charge-back system or a cost allocation plan, or receives a direct appropriation to fund these costs.

**Managerial and Administrative Consolidation.** Motor Vehicle Management manages and administers the provision of maintenance support services such as the procurement of sublet repair services. The existing Commercial Vehicle Repair Program is an established, albeit under-utilized, example of the consolidated provision of such services. Under this program, any State fleet user can have MVM purchase sublet repair services on an ad hoc basis. The cost of providing this service is recovered through a mark up on the amounts charged by vendors for actual repair services.

**Consolidated Provision of Technical Guidance and Managerial Support.** Motor Vehicle Management promulgates guidelines and provides management tools for independent State fleet maintenance programs to use in providing maintenance and repair services. The maintenance facility certification program currently employed by MVM is somewhat akin to the provision of technical guidance in maintenance management, although it has more of a *regulatory* than an *assistance* orientation at present. The implementation of the MVM-developed South Carolina Equipment Management Information System (SCEMIS) in several State agencies, slated for 1995, is an example of the consolidated development and provision of maintenance management support tools.

As these examples illustrate, consolidation of fleet maintenance activities can take many forms, ranging from the actual provision of all fleet maintenance and repair services by one State agency to another, to the provision of technical guidance in, or management tools for, fleet maintenance to otherwise independent fleet operations. In several areas, the State already has begun the process of consolidating fleet maintenance endeavors. Developing a plan for furthering these efforts requires, in addition to an understanding of the various ways in which consolidation can be achieved, an appreciation of the potential consequences of consolidation efforts for individual agencies and for the State as a whole.

## POTENTIAL BENEFITS OF CONSOLIDATION

The recommendations presented in this plan were developed on the basis of assessments of the potential benefits and costs of consolidation to specific State fleet maintenance operations. In reviewing these recommendations, it is useful to understand how consolidation can potentially benefit and harm existing operations.

**Cost savings resulting from elimination of duplication of effort.** Perhaps the most widely anticipated benefit of consolidation is the realization of cost savings as a result of eliminating redundant fleet maintenance resources and activities. For example, the fact that the departments of Education and Transportation each operate a maintenance facility in virtually every county in the state suggests that there is duplication of fleet maintenance capabilities and activities, and that cost savings therefore could be achieved by consolidating the maintenance operations of these two departments.

Eliminating redundant automotive technicians (to the extent that there are any) is irrelevant here because staffing levels can always be streamlined without consolidating maintenance operations. The costs which potentially can be reduced through consolidation are those *indirect* costs associated with land acquisition, facility design and construction, acquisition of major capital (e.g., fueling and shop) equipment, and provision of maintenance management, technical training, and administrative support

services. The theory is that consolidation lowers the cost of providing maintenance and repair services by enabling these fixed costs to be spread over larger numbers of units of service produced -- labor hours worked, gallons of fuel dispensed, replacement parts acquired, etc. That is, consolidation improves the utilization of indirect maintenance resources.

It is important to recognize, however, that indirect maintenance costs are not always *avoidable* in the near term. Consequently, the potential for the consolidation of redundant maintenance programs to produce real cost savings tends to be exaggerated. For example, in the absence of maintenance facilities which are significantly under utilized (and therefore could accommodate large numbers of additional vehicles), the State would have to build a whole network of new DOE/DOT garages in order to avoid incurring the redundant fleet maintenance costs associated with having a Department of Education and a Department of Transportation garage in almost every county. Since most of these redundant costs are *sunk* costs which were incurred many years ago, eliminating them would not yield sufficient cash savings to justify the costs of new facility construction.

In reality, the only cost savings which would be realized in the short term as a result of such consolidation would be some relatively minor operating costs associated with combining parts procurement and supply, administrative support, facility management, and vehicle fueling activities. This does not mean that DOE and DOT maintenance operations should never be consolidated. It does mean, however, that this particular type of consolidation usually will produce meaningful cost savings only when the State is in a position to avoid *prospective*, as opposed to *sunk*, costs of redundant facilities.

This can occur under a number of circumstances. One is when the need to build a new DOE or DOT garage in a particular location arises. Another is when the property and structures occupied by a maintenance operation can be sold for sufficient money to

build a more cost-effective maintenance complex elsewhere. A third is when the property can be put to some other use by the State, thereby making funds which would otherwise be spent on land acquisition and construction available, again, to build a better fleet maintenance complex elsewhere.

Even in instances of consolidation which are much less extreme than the physical integration of maintenance operations, it must be recognized that redundant fleet maintenance costs cannot always be avoided. For instance, many of the smaller State fleet maintenance programs in the Columbia area are managed and administered by individuals whose positions would not be abolished if responsibility for the fleet maintenance activities they oversee were transferred to another agency. This is because fleet maintenance oversight represents only a portion of their responsibilities.

Except to the extent that time currently devoted to such oversight can be used productively for other purposes, the costs these agencies incur in overseeing fleet maintenance activities would not necessarily be eliminated through consolidation. That is, they are not avoidable costs. There may be good reasons to consolidate these small operations, but cost savings associated with reducing duplication of effort usually is not one of them.

Fortunately, not all opportunities to reduce duplication of effort entail the physical consolidation of maintenance operations or the reassignment of maintenance personnel from one agency to another. Motor Vehicle Management's development of the South Carolina Equipment Management Information System (SCEMIS) is a case in point.

Access to good fleet management information requires the use of a computerized management information system. If every State agency involved in fleet maintenance were expected to independently acquire or develop such a system, the cost to the State would be enormous. Thus, the acquisition and shared use of a single system by many agencies enables the State to avoid significant system development or acquisition and

support costs. In addition, the ability to spread the costs of developing an information system over a large number of agencies means that a high quality system can be made available at a relatively modest cost to each fleet maintenance program.

**Cost savings resulting from the capture of economies of scale.** Virtually all types of consolidation result in economies of scale by concentrating purchasing power to some degree. Fortunately, given the significant capital costs associated with physically consolidating maintenance operations, economies of scale can be achieved simply by consolidating the management and administration of maintenance-related purchases. This is precisely what the State is doing by means of Motor Vehicle Management's Commercial Vehicle Repair Program and the Statewide Automobile Repair Parts Contract.

Both of these initiatives save money by leveraging the ability of the State to buy goods and services in volume. They lower the direct costs of maintenance-related goods and services by fostering competition among vendors and by giving vendors the prospect of selling some reasonable volume of products to the State. In addition, these programs reduce duplication of effort to a significant degree by alleviating the need for individual maintenance operations to solicit bids, award contracts and/or issue purchase orders, process receiving orders, and pay vendors every time they need to buy a good or service.

**Cost savings resulting from improved management of fleet maintenance activities.** Small fleet maintenance operations generally find it difficult to invest in the development of sound maintenance management systems and controls. It is impractical to assign a professional, full-time fleet maintenance manager to a one- or two-person maintenance program, and individuals who are charged with fixing vehicles usually have neither the time nor the training to develop rigorous management procedures.

In some of the State's smaller fleet maintenance operations, in fact, there is virtually no *management* of maintenance activities. There is no comprehensive documentation of maintenance policies and procedures; no automotive technician

training program; no supervision or inspection of automotive technician work; no capture and analysis of data on maintenance activity and costs; and no evaluation of the cost effectiveness of maintenance efforts, in general, or of the adequacy of automotive technician performance, in particular. Under such circumstances, fleet maintenance activities are not particularly cost effective. In addition, the limited ability of these operations to *control* the quality of their maintenance and repair efforts undoubtedly increases the State's exposure to maintenance-related accidents.

The consolidation of smaller maintenance operations with larger ones has the potential to significantly improve the management of maintenance activities by providing the former with access to maintenance management capabilities which they otherwise would be unable to afford. Better maintenance management produces cost savings by improving the efficiency, effectiveness, and safety with which automotive technicians perform maintenance and repairs. Moreover, such improvements do not merely reduce fleet maintenance and repair costs. They reduce vehicle operating costs and, by prolonging vehicle life, vehicle capital costs as well. By improving vehicle reliability and safety, sound fleet maintenance also reduces the costs of delivering State services.

**Service improvements resulting from better management of maintenance activities.** As was noted earlier, one of the principal causes of resistance to fleet maintenance consolidation is the belief that the attenuation of lines of communication between fleet users and fleet maintenance providers impairs service effectiveness by making it more difficult for the former to convey their wishes and desires to the latter and to hold the latter accountable for their responsiveness to these demands.

It is entirely understandable for fleet users to want to exert direct control over the care and upkeep of their vehicles and equipment. Indeed, this desire usually is a sign of the seriousness with which an agency views its service delivery responsibilities and its appreciation of the importance of controlling the resources on which effective service delivery depends.

The provision of truly effective fleet maintenance services, however, does not turn solely on the ease or quality of communication between automotive technicians and vehicle users. Good communication is no substitute for good management and control. To the extent that it materially improves the management and control of maintenance activities, therefore, consolidation can actually improve the level of service provided to fleet users -- even while reducing the ability of customers and service providers to communicate directly with one another.

This is particularly true of those smaller maintenance operations, described above, which are largely unmanaged. In these operations, the perceived benefits of having fleet maintenance capabilities in-house often do not accord with reality. While fleet users decry the possibility of having to drive farther to obtain services from a consolidated maintenance operation, and fear the loss of priority necessitated by sharing automotive technicians with other agencies, the reality is that anticipated increases in vehicle downtime may well turn out to be decreases in the final analysis.

A small maintenance operation which has to farm out virtually every complex repair because it has neither the tools nor the training to properly troubleshoot problems is not really saving its agency vehicle downtime. The exclusive use of a single automotive technician is of little avail when that automotive technician has to spend time on the telephone soliciting bids for sublet repairs, shag parts, complete paperwork, or take time off due to illness or injury. The superior benefits, in short, of having one's own fleet maintenance operation can be illusory.

## POTENTIAL COSTS OF CONSOLIDATION

**Increased maintenance access and downtime costs.** To the extent that consolidation requires fleet users to change the location at which they obtain maintenance and repair services, it may increase maintenance access and downtime costs. These include direct personnel and vehicle operating costs associated with transporting vehicles to and from the maintenance facility, and indirect personnel costs associated with

performing (or being unable to perform) vehicle-dependent activities. They also can include indirect costs arising from the impairment of an agency's ability to respond to emergency situations, to maintain a particular level of operational readiness, or to perform other time-sensitive tasks.

While these costs may be significant, it is important to keep in mind that they also may be mitigated in whole or in part by reductions in overall maintenance-related downtime resulting from gains in automotive technician availability, efficiency, and effectiveness that are made possible by consolidation. It also may be possible to mitigate indirect -- that is, service delivery -- cost increases resulting from greater vehicle downtime by increasing the use of spare or back-up vehicles.

On the other hand, it must be recognized that the transportation of some vehicles and equipment to a distant maintenance facility simply is not practical. Some State agencies, such as the Department of Public Safety's Criminal Justice Academy, operate unlicensed vehicles which cannot readily be driven on public roads. Others operate large, relatively immobile agricultural or construction equipment which can only be transported long distances at considerable expense and disruption to agency operations. In these instances, increases in access and downtime costs associated with certain types of consolidation are essentially prohibitive.

**Increased administration and financial management costs.** To the extent that a fleet maintenance operation serves more than one State agency, some method is required to distribute its costs to each agency to which it provides services. Ostensibly, every maintenance facility certified by Motor Vehicle Management has a calculated automotive technician labor hour rate suitable for use in charging any State agency to which it provides maintenance and repair services. As a practical matter, however, most State agencies are ill equipped to routinely sell fleet maintenance services to another agency. Only MVM and the Department of Transportation Depot do so on a regular basis.

For most agencies, therefore, taking on additional customers as a result of consolidation would entail developing and implementing an array of new data capture and financial management procedures. At a minimum, these include procedures for developing information on all maintenance-related costs (including depreciation of facilities and equipment); for distributing these costs to customers based on the goods and services each consumes; and for managing the proceeds of these cost distributions so as to defray all operating costs and build reserves for the replacement of capital assets. To the extent that costs are distributed by means of a charge-back system (as opposed, for example, to a cost allocation plan), procedures also are needed to develop charge-back rates; calculate charges; prepare and distribute invoices; and manage accounts receivable.

These cost determination and recovery requirements mean that consolidation potentially can increase the cost of managing and administering fleet maintenance activities. Depending on the experience of a particular agency in this area, the financial management requirements associated with selling services to other agencies can be quite burdensome and could even require hiring additional personnel.

On the other hand, there is a significant potential benefit to selling fleet maintenance services which should not be overlooked. By fostering *recognition* by both providers and consumers of the costs of fleet maintenance and repair services, properly designed cost distribution processes create significant incentives to control costs. That is, an agency which is required to pay monthly invoices which itemize labor, parts, sublet repair, and other maintenance costs by vehicle is more likely to assess the appropriateness of these costs than is an agency whose fleet maintenance costs are embedded in a lump-sum, line-item appropriation to the internal division which fixes its vehicles.

Fleet user scrutiny of these costs likewise encourages fleet maintenance programs to be attentive to the value of the goods and services for which it would like to be

reimbursed. Consequently, gains in maintenance cost effectiveness resulting from such recognition may more than offset increases in management and administration costs associated with selling services.

**Reduced service quality resulting from loss of direct communication with, and control over, maintenance providers.** As has already been discussed, consolidation can disrupt direct communication between maintenance providers and fleet users, thereby impairing the quality of the services provided. To the extent that user needs and automotive technician actions must be conveyed through an intermediary such a service writer or maintenance superintendent, it is conceivable that valuable information will be lost in "translation" with some corresponding impact on service effectiveness.

However, the impairment of automotive technician accountability directly to a particular agency is probably the more significant concern here. This is not likely to be a problem with an agency like Motor Vehicle Management, whose mission clearly is to provide services to a wide array of State agencies. The potential for bias in the delivery of service would seem to be much greater when the service provider also is a major user of fleet maintenance services.

It may be unrealistic, for example, to expect Department of Transportation automotive technicians to be as responsive to a request or a concern put forth by a Department of Mental Health official as to one expressed by the local DOT district engineer. Consequently, true equality of service may be difficult to achieve in a consolidated maintenance operation. This is not to say, however, that the overall quality of services provided to a "secondary" customer is not superior to that which the customer could provide for itself.

**Disruption to non-fleet maintenance activities.** The consolidation of fleet maintenance operations may disrupt other activities within a particular agency to some degree. For example, it might necessitate admitting vehicles and State employees from

other agencies to a secure area (in which a fleet maintenance facility is located), thereby heightening security concerns and costs and increasing an agency's exposure to certain risks.

A more common situation is one in which fleet maintenance activities in a particular agency are integrated with other, non-fleet maintenance functions such as the upkeep of buildings and grounds. In these situations, eliminating the in-house provision of fleet maintenance may make it prohibitively expensive to continue providing for other maintenance needs with in-house personnel, thereby forcing the agency to look elsewhere for such support. Alternatively, requiring a maintenance program to take on additional fleet maintenance responsibilities might impair its ability meet its other, non-fleet-related obligations.

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In summary, consolidation can affect fleet users, and State agencies in general, in a myriad of ways. The benefits which some people ascribe to consolidation are not always readily attainable. On the other hand, those who vigorously oppose the loss of direct control over fleet maintenance activities often gloss over the very significant limitations of -- and even risks posed by -- marginal, under-managed fleet maintenance programs. Clearly, then, the question this plan seeks to address is not one of whether consolidation is good or bad. Rather, it is one of how (if at all) consolidation can improve the cost effectiveness with which the fleet maintenance needs of particular State agencies working under particular sets of circumstances are met. This question can be addressed properly only by developing an understanding of these circumstances.

## PLANNING METHODOLOGY

The development of this plan required assembling information on virtually all of the State's fleet maintenance operations. A handful of community college garages were excluded from the review at the outset because they are used primarily for vocational training and therefore are not viable candidates for consolidation with other State fleet maintenance operations.

The intent of the information gathering process was to determine, in essence, the *viability* and *uniqueness* of each maintenance operation. One premise here is that an operation that already is a highly cost-effective provider of fleet maintenance services probably cannot benefit much from consolidation. Another is that an operation which is characterized by unique service delivery requirements or other unusual circumstances may be hurt by consolidation. Alternatively, an operation which is a poor provider of services may benefit a great deal from consolidation, and a poor operation about which nothing is unique may be the most suitable for complete integration with a more capable fleet maintenance provider.

A conscious decision was made at the outset to focus on consolidation opportunities in the Columbia and Richland County area. One reason for this focus is that there is a very large number of seemingly redundant fleet maintenance facilities in this relative small area. Another is that gauging the viability and uniqueness of an operation for the purpose of developing a plan which may profoundly change the way in which many people do their jobs is not a task which can be accomplished on the telephone and through the mail.

The project team felt that first-hand inspection of maintenance facilities and observation of maintenance activities and personal interviews with fleet maintenance officials and other agency representatives was vital for developing a fair and realistic assessment of the "consolidatability" of each operation. Since it was impossible, in the time frame available to develop the plan, and to visit every maintenance facility in the

state, it was necessary to restrict the complete investigation of consolidation opportunities to the capital area.

However, certain information *was* collected on every maintenance operation in the State in order to ascertain whether there is significant excess fleet maintenance capacity outside of the Columbia area which would suggest the existence of additional consolidation opportunities. Information on various physical attributes of each facility, on the organization and staffing of each operation, on the size and composition of the fleet currently serviced at the facility, and on any unusual circumstances which might mitigate against consolidation with other fleet maintenance providers was obtained by means of a mail survey. A copy of the survey form is appended to this plan.

Whereas the mail survey focused, in large part, on obtaining information about the capacity and condition of each maintenance facility, the site visits in the Columbia area focused on developing an understanding of the mission and capabilities of the service delivery organizations -- the fleet maintenance *programs* -- housed in these facilities. Much of the investigation centered on the adequacy of maintenance management policies and procedures in terms of both their formulation and their application. In order to provide for a complete and consistent approach to the conduct of these on- site assessments, a lengthy interview guide was prepared. A copy of this questionnaire is appended to the plan. Eighteen site visits were conducted during the month of October.

In addition to developing information on individual maintenance operations, it was also necessary, of course, to examine consolidation feasibility from an agency-wide and State-wide perspective. This involved meeting with various agency representatives to identify potential general obstacles to consolidation. For example, the fact that both DOT and DOE have fleet maintenance facilities, in some cases quite near each other, in most counties does not automatically mean that the maintenance activities of these departments can be consolidated. It was necessary to determine whether the departments

are willing to share facilities, and to identify any specific conditions which would have to be met or obstacles which would have to be overcome to consolidate operations.

Finally, the development of this plan entailed reviewing the current role of the Motor Vehicle Management Section and ascertaining MVM's willingness and ability to assume additional fleet maintenance-related responsibilities. Some of the types of consolidation described earlier involve the technical guidance and/or coordination of fleet maintenance activities, rather than their day-to-day management or performance. As the State's only central provider of fleet management, fleet maintenance, and related technical support services, MVM is the logical agency in which to repose such responsibilities. In addition, MVM operates a maintenance facility in the heart of an area with numerous State maintenance facilities.

Thus, it was necessary to assess whether this agency's statutory authority and responsibility and its operational and managerial capabilities would enable it to expand its efforts in the provision and/or the oversight of fleet maintenance services. This was done through interviews of MVM and Office of General Services officials, and review of MVM management and operating procedures.

## THE ROLE OF MOTOR VEHICLE MANAGEMENT

## OPPORTUNITIES TO IMPROVE FLEET MAINTENANCE STATE WIDE

The review of maintenance operations in the Columbia area revealed that there are some significant deficiencies in the management of State fleet maintenance activities. Some of these deficiencies can best be addressed through the consolidation of maintenance operations. Others can be overcome through less direct intervention, such as the promulgation of maintenance management guidelines and the provision of assistance in the development, use, and dissemination of management information.

One of the most notable deficiencies in the maintenance operations reviewed is a lack of management information and, as a result, a poor understanding of, and weak control over, the cost effectiveness of maintenance and repair efforts. Another is unevenness in the quality and completeness of maintenance policies and procedures. A third deficiency is continued resistance to using the Commercial Vehicle Repair Program.

Some maintenance operations have shown considerable initiative in developing or acquiring computerized fleet management information systems. However, not all of the systems currently in use are capable of producing good management information. For example, some are incapable of capturing information by type of activity (e.g., using repair codes), while others do not capture actual time devoted by automotive technicians to specific work orders.

These two types of information alone are essential for supporting a whole array of maintenance-related analyses, including component failure analysis, evaluation of automotive technician efficiency and productivity, evaluation of in-house versus vendor provision of specialty repair services, repair versus replacement analyses; and determination of service delivery costs. In addition, it is very difficult to sell services to another agency in the absence of accurate, dependable maintenance cost information on which service charges can be based.

Some of the systems currently in use do not produce any standard management reports, and most lack basic features found in virtually all off-the-shelf fleet management systems today, including exception reporting; preventive maintenance scheduling; warranty flagging; and determination of parts inventory stocking levels and reorder points. Moreover, these are limitations of some of the fleet management systems that actually are in use. More than half the maintenance operations in the Columbia area do not have a management information system.

The significance of these deficiencies lies in the fact that it is impossible for a maintenance manager to be all places at all times and, therefore, to assess the adequacy of a maintenance program's performance solely on the basis of first-hand observation. A good computerized fleet management information system *augments* first-hand observation by capturing detailed data and producing detailed information on maintenance activity. The insights such information provides enable fleet managers to understand strengths and weaknesses in, and hence to control the performance of, their programs in a way which simply is not possible when data are gathered largely by eye and by ear.

Before there were inexpensive, readily available computerized information systems, it was acceptable for fleet managers to rely largely on their experience, their subjective judgement, and "traditional" approaches to doing things in making day-to-day decisions. However, the ability to develop detailed management and performance information afforded by today's computers has created far higher expectations of accountability among fleet users and upper management than existed in the past.

In the absence of accurate, comprehensive, and detailed management information, many of the State's fleet maintenance operations will remain largely uninformed about the performance of the fleets they serve or about their own performance as designated fleet caretakers. In the absence of empirical information, judgements will continue to be formed, conclusions will continue to be reached, and decisions and plans will continue to

be made largely on the basis of speculation, perception, and intuition. This situation will make it extraordinarily difficult for the State to accurately assess -- let alone *ensure* -- the cost effectiveness of fleet maintenance activities.

A second problem area noted in the course of the maintenance operation reviews was unevenness in the quality of maintenance policies and procedures. Detailed written procedures, training of employees in the use thereof, and methods of enforcing adherence thereto are the generally accepted means of providing for the conduct of fleet maintenance activities in an efficient, effective, safe, and environmentally responsible manner. While all maintenance operations certified by Motor Vehicle Management have documented polices and procedures of some sort, the existence of such documentation cannot necessarily be taken as proof of a sound, proactive approach to fleet maintenance.

Existing documentation varies substantially in quality and completeness from agency to agency. For example, some operations employ multi-echelon preventive maintenance programs tailored to the various kinds of vehicles they service, and sophisticated scheduling and schedule adherence monitoring techniques. Others employ single-echelon PM programs -- really no more than oil change and lubrication schedules -- which make no attempt to distinguish among different types of vehicles and equipment; units which can vary dramatically in design, utilization levels, operating environments and, hence, preventive maintenance requirements.

In addition, many maintenance operations lack documented procedures in such areas as pre-trip inspection; defect reporting; work scheduling; responding to road calls; identification of components and repairs covered by warranty and processing of warranty claims; monitoring of open work orders; subcontracting of repairs to outside vendors; quality assurance inspection of completed maintenance and repair work; data capture, entry, and verification; customer feedback and follow up; and facility and personal safety and regulatory compliance. In the absence of systematic approaches to work activities

such as these, it is difficult to ensure that State fleet maintenance needs are met in a consistently safe, efficient, effective, and environmentally responsible manner.

A third opportunity for improvement noted during the assessment of Columbia-area maintenance operations relates to the use of Motor Vehicle Management's Commercial Vehicle Repair Program (CVRP). Several agencies continue to purchase sublet repair services directly from vendors on an ad hoc basis, bypassing the CVRP. This not only duplicates the efforts of MVM, which has established contract prices for a vast array of maintenance and repair services with more than 350 vendors, but probably results in higher costs to the State for sublet repairs.

As noted earlier, the CVRP utilizes competition among vendors and the State's ability to purchase services in volume to secure very low prices for sublet repairs. It is highly unlikely, that these prices can be matched by individual agencies soliciting telephone bids on a periodic basis. Moreover, MVM has the ability to add to the CVRP any vendor which a particular agency demonstrates can provide services at a lower cost. Consequently, there is no reason for individual maintenance operations to continue procuring these services on their own.

**MODIFICATIONS TO MOTOR VEHICLE MANAGEMENT'S ROLE**

In order to address these deficiencies, it is recommended that certain modifications be made to the role of the Motor Vehicle Management Section. The Section has, by far, the most sophisticated maintenance management systems and controls of any fleet maintenance operation reviewed. Its ability to apply its technical expertise in fleet maintenance to the improvement of maintenance management processes around the State obviates the need for agencies to individually grapple with the deficiencies noted above.

In addition to minimizing duplication of effort and capturing some economies of scale, having MVM spearhead improvements in certain areas is more likely to produce satisfactory results. After all, many of the deficiencies noted above stem from the fact

that every State agency involved in fleet maintenance cannot afford to employ its own maintenance management experts. It goes without saying, that such leadership also is consistent with MVM's role as the only provider of fleet management and maintenance services to multiple State agencies and as the designated regulator of most State fleet maintenance facilities. The specific ways in which MVM should improve fleet maintenance management in the State are the following.

**Promote the implementation of fleet management information systems.** As has been mentioned, Motor Vehicle Management has developed a new fleet management information system called SCEMIS. This appears to be a very capable system and probably is superior to most of the fleet management systems currently in use in the State. SCEMIS has not been used outside of MVM, so it is impossible to say whether it will work well in the many different maintenance settings found in the State. Nevertheless, it seems to have the potential to vastly improve the availability of maintenance management information.

Motor Vehicle Management intends to implement SCEMIS in five agencies in 1995. Several other maintenance programs have expressed interest in the System, but apparently have not committed to acquiring it. It is *not* recommended that all State fleet maintenance programs be required to use SCEMIS. However, if the implementations made in 1995 prove successful, other agencies which do not have adequate information systems should be encouraged to acquire SCEMIS, and *required* to implement an acceptable fleet management information system that can provide designated management information to SCEMIS.

Many good fleet management information systems can be purchased off the shelf for prices ranging from a few thousand to several hundred thousand dollars. Small maintenance operations may find it more cost-effective to purchase an inexpensive, PC-based system than to implement SCEMIS. It also is likely that some packaged systems provide more "functionality" than does SCEMIS. Consequently, alternative approaches

to improving the availability of fleet management information should not be ruled out. It is recommended, however, that Motor Vehicle Management establish a minimum set of standards or specifications for a fleet system and that agencies who choose not to implement SCEMIS be required to acquire and implement a system which meets these standards.

**Develop performance monitoring guidelines and reporting procedures.** In recognition of the fact that the acquisition of an information system, and even the input of data on a regular basis to such a system does not automatically translate into the *use* of management information, it also is recommended that Motor Vehicle Management develop a set of guidelines to be used by all State agencies in monitoring and reporting maintenance performance.

Performance monitoring involves the systematic calculation and evaluation of quantitative measures of performance aimed at assessing the overall adequacy of performance and uncovering specific opportunities for improvement. Attributes of fleet maintenance performance which typically are examined through such a process include efficiency, effectiveness, productivity, cost, service, and preventive maintenance schedule adherence. Illustrative examples of measures which can be used to evaluate these particular attributes of performance include:

- Efficiency: average annual labor hours devoted to the maintenance and repair of each vehicle or piece of equipment of a particular type;
- Effectiveness: average miles (or engine hours) between breakdowns;
- Productivity: average annual hours (actual *not* flat rate time) charged to work orders per automotive technician;
- Cost: maintenance and repair cost per mile (or hour);
- Service: average percentage of vehicles available for use per day;
- Schedule Adherence: percentage of vehicles receiving PM service within 105 percent of prescribed mileage, engine hours, or time interval.

Several additional measures can be used to evaluate performance in each of these areas.

Performance monitoring guidelines developed by MVM should specify the attributes to be measured, the quantitative measures to be used, the calculations required to develop maintenance program-specific performance statistics for each measure, data sources, and evaluation procedures. Evaluation guidelines should specify both the frequency with which statistics should be calculated (e.g., monthly) and the manner in which they should be interpreted (e.g., comparison to standards, comparison to peers, trend analysis, etc.).

In addition to having each maintenance operation regularly calculate performance statistics for its own use, it is recommended that agencies be required to forward a performance report summarizing these statistics to Motor Vehicle Management on a monthly or quarterly basis.

**Develop maintenance management guidelines and expand Maintenance Facility Certification Program.** Although Motor Vehicle Management's Maintenance Facility Certification Program provides detailed guidance on some aspects of fleet maintenance, it does not provide a comprehensive set of maintenance management guidelines. For example, the Certification handbook includes a detailed checklist for inspecting maintenance facilities for compliance with occupational safety and health regulations, but says nothing about maintenance management activities such as work scheduling, automotive technician supervision and performance evaluation, quality assurance, determination of the appropriateness of in-house versus vendor provision of specialty repairs, or performance monitoring.

Given the need to improve maintenance management in most if not all of the State's maintenance operations, it is recommended that Motor Vehicle Management take the lead in developing a comprehensive set of maintenance management guidelines, and that it expand its certification process to encompass an assessment of each maintenance operation's adherence to these guidelines.

In developing guidelines, MVM should either work with a task force of representatives from key fleet user agencies who bring experience with a particular type of fleet to the table -- such as Transportation, Education, and Forestry -- or should interview representatives of these agencies so as to ensure the applicability of the guidelines to all State fleet maintenance operations. Draft guidelines should be circulated to all agencies involved in fleet maintenance for review and comment, and revised as necessary.

The facility certification process should be expanded to ensure that an assessment of each maintenance operation's compliance *in spirit and not simply in form* with all applicable maintenance guidelines is conducted. Although the current handbook discusses the importance of, and outlines specific requirements for, record keeping, the project team's review of maintenance operations found that the actual use of management information to support decision making and performance evaluation is relatively limited. This suggests that the certification process may focus too much attention on confirming the presence of prescribed maintenance management *ingredients*, and not enough attention on assessing the efficacy of maintenance management *efforts*.

It is recommended, therefore, that MVM carefully review the field investigation component of its certification process to determine whether such an imbalance exists. To the extent that it does, MVM should define and implement additional inspection and investigation steps which will ensure that the review process gauges true compliance with established guidelines.

**Extend the maintenance facility certification process to all State agencies.** The review of fleet maintenance operations suggested that all State agencies, including the Department of Education, would benefit from independent review and certification. It is recommended, therefore, that Motor Vehicle Management's authority be expanded to provide for certification of all fleet maintenance operations in the State.

**Consider requiring all State agencies to purchase sublet repair services through the Commercial Vehicle Repair Program.** Except to the extent that an agency can demonstrate that it can routinely purchase vendor repair services more cheaply on its own than by going through the Commercial Vehicle Repair Program, all State agencies should be required to use the CVRP for all such purchases.

**Modify Motor Vehicle Management's charge-back rates and its instructions to other agencies for calculating such rates.** Many of the foregoing recommendations imply the creation of additional responsibilities for the Motor Vehicle Management Section. These responsibilities will necessitate the hiring of some additional personnel (in addition to those positions which would be transferred from certain Columbia-area maintenance operations) which, in turn, will increase the Section's operating costs and necessitate the development of new charge-back rates.

In general, any agency in the State which sells fleet maintenance services to another agency either on a routine or a periodic basis should recover the costs of providing these services by means of:

> A fully burdened rate per automotive technician labor hour which is based on all annual direct and indirect agency costs attributable to fleet maintenance, divided by the projected number of automotive technician labor hours which actually will be charged to work orders; and
>
> A mark-up on each part and sublet repair service provided, based on the annual direct and indirect costs associated with buying, managing, and issuing parts and buying sublet repair services, divided, respectively, by the number or dollar value of parts and sublet repairs sold (i.e., charged to work orders).

Needless to say, additional types of rates are needed to recover the costs of other types of services such as vehicle fueling; vehicle acquisition, replacement, and disposal; and short-term (e.g., motor pool) vehicle rental.

# Consolidation of the Columbia Area Maintenance Facilities

# Introduction

This section of the report is intended to present the findings and recommendations of a study of Consolidating the Columbia area maintenance facilities. Given the parameters of the study, it was necessary to assume from the beginning:

- that every vehicle and piece of equipment in the state's inventory was necessary to efficiently and effectively operate the programs that they support.

- consolidating the maintenance facilities in the state was considered a ***means*** toward the ***end*** of more efficient and effective maintenance operations.

- the consolidation of one or more maintenance shops requires a facility large enough to accommodate the fleet and the personnel to properly maintain them

- there is a geographical proximity beyond which it becomes less efficient and effective to consolidate maintenance operations

During every phase of the study process, the guiding question was whether consolidation would make a particular facility more effective and efficient.

- Were there avoidable cost that consolidation could capture?

- Were there management benefits to be gained by consolidation?

- Would the delivery of service be improved through consolidation

- Would the facility operations be more efficient if they were consolidated?

- Would the physical conditions be better in a consolidated operation?

- Were there any special institutional opportunities or problems to consolidation?

- Were there compelling reasons for a facility to operate independently?

As the study progressed it became clear that:

- There are a number of ways to consolidate without changing physical location.

- A planned physical consolidation can provide savings and increased efficiency and effectiveness in the future.

- The study confirms that without a well maintained fleet an agency's programs and services cannot be provided, Troopers don't patrol; children don't get to school and back safely; food is not served to hospital patients or inmates; roads and highways don't get maintained; forest fires don't get contained or put out; county airport runways don't get maintained; prisoners don't get transported safely; the big stories don't get televised, and so on.

- A shop that is not efficient and effective can make it difficult for a program to fullfill its mission.

- There are a number of things that can be done to improve the efficiency and effectiveness of the fleet maintenance operations in South Carolina.

# Profiles of the Columbia Area Maintenance Facilities

# *Outskirts* of Columbia

## ( 276 units )

**Aeronautics Commission Maintenance Facility**

**Clemson Research Center Maintenance Facility**

**SCDOE Hopkins Bus Maintenance Facility**

# Fleet Maintenance Facility Profile

**Agency name:** Department of Commerce, ***Aeronautics Commission***

**Location:** ***Outskirts*** of Columbia

**Accessibility:** The accessibility is poor because of the remote location at the airport, and because there are security issues.

**Facility size and condition:** Twenty five year old facility with two bays and one lift. The shop is in generally good condition and it is clean and organized. The tools are adequate and well maintained.

**Adequacy of support areas:** The adequacy of the shop support areas is fair to good.

**Significant features:** The maintenance shop staff work on airport lighting statewide, the hangar doors, and the security system. The shop provides the maintenance for all of the small and medium grounds equipment. They also do some electrical and plumbing work along with wall and door repairs. The shop is integrated into the operations of the Aeronautics Commission.

**Fleet size and composition:** There are seventy three (73) units of vehicles and equipment. Nine (9) are passenger cars. There are five Mack Trucks with three-gang mowers attached for grass cutting the county airports. There are a number of tractors, trucks and trailers. The airplane tugs and starting generators are maintained here as well.

**Cost Of Fleet:** The shop charged $12,490 in parts, and $8,340 in labor for 1993-94 total of $20,830. The commercial repair costs were $9,727.

**Transportability of fleet:** Poor because much of the equipment is unlicensed, and can't be driven on the road.

**Staffing:** There are two (2) automotive technicians working in this shop.

**Maintenance management Policy and procedures:** Good work order and record keeping procedures. Good preventive maintenance procedures. The preventive maintenance program received a borderline rating in the last Certification Review, because some operators did not get the vehicles into the shop on schedule.

**Services provided:** Maintenance, repair, and preventive maintenance.

**Management information system:** An in-house system, that provides reports on costs per mile and histories of each unit.

**Parts/purchasing procedures:** $6,700 inventory. Good inventory control procedures. The shop has two blanket purchase orders with local parts stores designated by state contract.

**Ability to sell services to others:** Poor, because this shop does not have rates, generate bills, collect payments or manage funds. The shop is not big enough and there are not enough automotive technicians to take on additional business.

**Obstacles to Consolidation:** The remote location of the shop, the difficulty of transporting unlicensed vehicles, and the uniqueness of the equipment for airplanes.

**Summary:** The Aeronautics maintenance facility is twenty five (25) years old, and has two bays. The facility was in good condition, and was clean and organized. Seventy three (73) vehicles and pieces of equipment are maintained in the facility by two automotive technicians. An in-house PC based management information system is being used to track work orders, parts, preventive maintenance, work history and mileage data. The tools, equipment and support areas are adequate and well maintained.

Consolidating this facility in another location would not avoid any costs. It would probably increase the cost of maintaining this fleet, and would reduce customer service and convenience. The operation would be enhanced if it were to use the *South Carolina Equipment Management Information System*, the *Statewide Automobile Repair Parts Contract* and the *Commercial Vendor Repair Program*. It would also benefit from a more thorough Certification program by MVM.

# Fleet Maintenance Facility Profile

**Agency name:** Clemson University, ***Sandhill Research and Education Center***

**Location:** *Outskirts* of Columbia, on Clemson Rd.

**Accessibility:** Poor because of remote location on a working farm.

**Facility size and condition:** Twenty year old facility with two large bays and one lift. The shop was in excellent condition, clean and orderly.

**Adequacy of support areas:** Good for this type of agricultural operation.

**Significant features:** The Clemson Sandhill Center is a major experimental/educational agricultural operation. The shop's Supervisor/Foreman is a "jack of all trades", he operates the harvesting equipment, does dam repairs and other miscellaneous farm chores. He also fixes the machinery when it breaks down in the field during harvest periods. The shop provides the maintenance for all of the small and medium grounds equipment. The woodworking shop is run out of this facility, and the Supervisor/Foreman is also the woodworker. This shop is integrated into the daily operations of the Research and Education Center.

**Fleet size and composition:** There are 95 vehicle and equipment units at this Clemson Research and Education Center, and only sixteen have license plates. This is a major farming operation with tractors and combines, trucks, a backhoe, and a bulldozer. The fleet is in fair condition.

**Cost Of Fleet:** The shop charged $7,436 in parts, and $5,456 in labor for 1993-94 total of $12,892. The commercial repair costs were $1,528.

**Transportability of fleet:** Poor, since the majority of the fleet is unlicensed farm machinery.

**Staffing:** One Supervisor/Foreman, with occasional help from the equipment operators.

**Maintenance management Policy and procedures:** Good work order and record keeping procedures. This facility received a satisfactory rating on the 1994 Certification Review.

**Services provided:** Inspection, preventive maintenance, routine maintenance, repair, welding and other equipment repair.

**Management information system:** None

**Parts/purchasing procedures:** Does not stock parts because of the variety of equipment, uses the *Statewide Automotive Repair Parts Contract* for purchasing, or the Clemson Motor maintenance stores.

**Ability to sell services to others:** Poor, since the location is remote. The shop is not set up to easily, generate bills, collect payments or manage funds, and there are no stocked parts. There is not the staff or the facility to take on extra business.

**Obstacles to Consolidation:** The location is remote being fifteen to twenty miles outside of Columbia. This is a farming operation that counts on its farming machinery to work when it is needed, and be fixed in the field right away. Trailing this equipment around Columbia would be cost and time prohibitive.

**Summary:** This is a twenty year old facility with two large bays and one lift, located twenty miles outside of Columbia. The shop is clean, organized and in good condition. This shop is integrated into the farming operation at this Clemson Reasearch and Education Center, providing far more than just vehicle and equipment maintenance and repair. The automotive technician is supervised by the Director of the Research and Education Center. This automotive technician, with occasional help from a Trades Helper, provides preventive maintenance, routine maintenance and repair for all 95 units in the Research center fleet. The fleet is primarily farm machinery and accessories, with only sixteen vehicles licensed for the road. The maintenance policy and procedures are good, and they are adhered to. Even though they are not computerized, the work orders, unit histories and other records are well kept. The tools and equipment are adequate and well maintained. The support areas are good for a farm-type operation.

Consolidating this facility in another location would not avoid any costs, in fact it would increase the time and expense of maintaining the Clemson Sandhills vehicles and equipment. This operation should be left on its own. When the Center purchases cars or small trucks with the computerized technology, rather than investing in the expensive computer diagnostic equipment for the shop, these vehicles should go out to the *Commercial Repair Program.* The South Carolina Equipment Management Information System, and the Statewide Automobile Repair Parts Contract would benefit the shop, as would a more comprehensive Certification program.

# Fleet Maintenance Facility Profile

**Agency name**: *Department of Education (DOE)*, Lower Richland School Bus Maintenance Shop

**Location:** Outskirts of Columbia, Hopkins, South Carolina

**Accessibility:** This shop is fifteen miles outside of Columbia on US 378 going Southeast.

**Facility size and condition:** This is an 18 year old facility with six bays and one lift, on 12 acres of land. The shop was in fair condition.

**Adequacy of support areas:** Good.

**Significant features:** Acres of field to park all 130 buses at the same time. The daily fueling and preventive maintenance is done in the field. The automotive technicians are committed to keeping "their" buses and children safe. The buses are constantly and rigorously inspected.

**Fleet size and composition:** 130 buses, and ten service vehicles. The fleet is in fair condition, but it is aging. Some buses are being kept running from cannibalizing broken ones.

**Transportability of fleet:** The buses are transportable.

**Staffing:** One Foreman, Five Automotive technicians, three Fueling Technicians, and a Parts Specialist keep this fleet of 130 school buses going.

**Maintenance management Policy and procedures:** The shop maintains work order and record keeping procedures.

**Services provided:** Preventive maintenance, routine maintenance, and repair. There are also daily inspections and preventive maintenance performed on the buses.

**Management information system:** There is an in-house computerized Management Information System that produces mileage reports, tracks service tickets, parts ordered. The system is just being developed.

**Parts/purchasing procedures:** There was an inventory valued at $38,000. The parts are purchased off of the DOE Parts Contract, with limited over the counter purchases.

**Ability to sell services to others:** Fair to poor, because the shop does not have rates, generates bills, collect payments.

**Obstacles to Consolidation:** The distance to Hopkins from Columbia. The shop does not have the facility or the staff to take on additional vehicles.

**Summary:** This shop is an eighteen year old facility with six bays and one lift. The shop was in fair condition, and well organized. The DOE is the only agency in government that does not provide their automotive technicians with hand tools. The "shop's" tools and equipment were adequate and well maintained.. The bus shop mission is to provide 130 school buses to safely transport school children to and from school every day. The shops are more than just a garage, they are a home base for their school bus operators. They are in radio contact with the service vehicles while they are being driven. In the case of a break down, one of the fifteen replacement buses is dispatched immediately so that the driver can transport the children and the bus can be repaired.

There is no reason to consolidate this shop. This shop does not have the resources to expand its fleet responsibilities, and there is no nearby shop that can accommodate their fleet. When all of the buses are at the home base it requires a number of acres just to park them. In the Columbia area only the two DOE shops have the acreage required to park all of the buses.

There are other ways to consolidate this operation, without physically moving it. All of the DOE shops should become "certified shops" by MVM. The Management Information system that they are now developing could go on line with the *South Carolina Equipment Management Information System.* The parts purchasing for the DOE could be part of the *Statewide Automobile Repair Parts Contract.* This is a good operation that could be better through consolidation of procedures, management information, and performance standards.

# *Northeast* Columbia

## ( 1,639 units )

SCDOT Richland Maintenance Facility

SCDOE Richland School Bus Maintenance Facility

Disability and Special Needs Midlands Center Maintenance Facility

DHEC State Park Maintenance Facility

Mental Health Crafts Farrow Maintenance Facility

# Fleet Maintenance Facility Profile

**Agency name:** *SCDOT* Richland County Maintenance Facility

**Location:** *Northeast* Columbia, on Fairfield Road.

**Accessibility:** Good.

**Facility size and condition:** This is a seven year old facility with 9 bays and 4 lifts. This is a fairly new facility so it is in good condition. The shop appeared cluttered and disorganized. The tools and equipment are adequate.

**Adequacy of support areas:** Fair.

**Significant features:** This is primarily a heavy equipment shop. There is lots of parking space for the heavy equipment. The shop provides the maintenance for 250 pieces of small and medium equipment. The staff in this shop get involved in bridge welding, making sign boards for road barriers, and some fabrication work to help the road crews.

**Fleet size and composition:** There are 455 units in the fleet. There are only 5 passenger cars, 70 small and medium sized trucks, 40 large trucks, 250 pieces of small and medium maintenance equipment, 75 large wheeled vehicles, 3 tracked vehicles and 12 trailers. The fleet is in good condition.

**Cost Of Fleet:** The shop charged $287,574 in parts, and $134,831 in labor for 1993-94 total of $422,405. The commercial repair costs were $32,765.

**Transportability of fleet:** Fair.

**Staffing:** There are seventeen positions in this shop. 1 Manager, 1 Foreman, 2 Parts/Supply Specialists, 5 Trades Helpers, 7 Automotive technicians, and 1 Support Worker. There are 9 people turning a wrench 100% of the time.

**Maintenance management Policy and procedures:** This shop has work order and record keeping procedures. There is a clearly stated policy that the efficiency and effectiveness of the maintenance shops is less important than the efficiency and effectiveness of the work crews that they support. The last three years the shop has received borderline ratings on their preventive maintenance program, because the equipment is not always brought in on schedule.

**Services provided:** Preventive maintenance, routine maintenance, repair, simple repairs in the field.

**Management information system**: There is an in-house management information system called (SWIP) Shop Work in Progress. Swip has an accounting orientation, and tracks records and maintenance histories, detection of recurring problems. It does not provide shop staff with management information that they can use to improve their efficiency and effectiveness. The SCDOT is developing this system so that it will provide the shops with useful management information. SCDOT should work with MVM and SCEMIS so that the data is uniform and consistant.

**Parts/purchasing procedures:** The parts inventory is worth $116,000. Every two weeks the shop stocks up on parts from the SCDOT Depot. Other parts are bought on an ad hoc basis through the use of Order Invoice Acknowledgments.

**Ability to sell services to others:** Poor because there is no rate for the shop, and no billing or collection procedures, though these things could be worked out. The shop does not have the capacity to take on more work, it stays one to two weeks behind in work orders now.

**Obstacles to Consolidation:** The remote location and the size of the fleet.

**Summary:** This is a pretty big operation, with nine bays and four lifts. It is the Super service station and repair shop for the SCDOT heavy equipment in Richland County. The shop appears overwhelmed by the volume of work , especially during seasonal work periods. They are often two weeks behind on work orders.

This shop's fleet is simply too large to be consolidated in another location, and this shop is not in a position to take on another fleet. Consolidating a particular type of heavy vehicle and equipment maintenance specialty in this shop in the future could be considered. This shop would benefit from an improved management information system, a productivity and performance rating system, more staff, and more training for the automotive technicians and the equipment operators. This shop should be tied into the *South Carolina Equipment Management Information System.* The shop should also use the *Commercial Repair Program*, and the *Statewide Automobile Repair Parts Contract.* This shop would benefit from a more comprehensive and thorough MVM Certification Program, that included automotive technician productivity and performance measures.

# Fleet Maintenance Facility Profile

**Agency name:** ***SCDOE*** Richland School Bus Maintenance Facility

**Location:** North Columbia on Wilson Blvd (US 21).

**Accessibility:** Good.

**Facility size and condition:** This is a thirty year old facility with 5 large bays and no lifts, on six acres of land that ajoins another six acres for the central rebuild facility. The shop and the yard could be more orderly and clean. The shop tools were adequate and in good condition. The SCDOE is the only agency that requires its automotive technicians to have their own tools.

**Adequacy of support areas:** Fair to poor

**Significant features:** The site has acres of field parking so that all of the buses can be parked at the same time. The automotive technicians are committed to keeping "their" buses and children safe. The buses are constantly and rigorously inspected. The daily fueling and preventive maintenance is done in the field daily.

**Fleet size and composition:** 142 buses, and 6 service trucks. The daily fueling and preventive maintenance is done in the field.

**Transportability of fleet:** The buses are transportable.

**Staffing:** There are 11 staff operating this facility. One Manager, one Foreman, one Parts/Supply Specialist, 2 Fueling Technicians (fueling, lubrication, and tires), and six automotive technicians.

**Maintenance management Policy and procedures:** There are work order and record keeping procedures.

**Services provided:** Preventive Maintenance, routine maintenance, and repair. There is also daily inspections and preventive maintenance performed.

**Management information system:** There is an in-house computerized management information system that produces mileage reports, tracks service tickets, and parts ordered. The information is primarily budget related.

**Parts/purchasing procedures:** There was an inventory values at $21,000. The shop uses a records card system for inventory. The parts are purchased off of the SCDOE parts contract, with limited over the counter purchases.

**Ability to sell services to others:** Not good. They do not have established rates, billing or collecting procedures. They also do not have the capacity to serve more than their own fleet.

**Obstacles to Consolidation:** The size of the fleet, and the space needed for parking.

**Summary:** This facility is in need of some renovations and a good cleaning. The DOE is the only agency that requires its automotive technicians to have their own tools. The "shop" tools are adequate and well maintained. The maintenance work that they are doing on the buses is good. The bus shop mission is to provide 153 school buses to safely transport school children to and from school every day. The bus shops are more than just a garage, they are a home base for their school bus operators. They are in radio contact with the service vehicles while they are being driven. In the case of a break down, one of the eleven replacement buses is dispatched immediately so that the driver can transport the children and the bus can be repaired.

There is no reason to consolidate this shop. This shop does not have the resources to expand its fleet responsibilities, and there is no nearby shop that can accommodate their fleet. When all of the buses are at the home base it requires a number of acres just to park them. In the Columbia area only the two DOE shops have the acreage required to park all of the buses.

There are other ways to "consolidate" this operation, without physically moving it. All of the DOE shops should become "certified shops" by MVM. The Management Information system that they are now developing could go on line with the *South Carolina Equipment Management Information System.* The parts purchasing for the DOE could be part of the *Statewide Automobile Repair Parts Contract.* This is a good operation that could be better through a good cleaning and the consolidation of procedures, management information, and productivity and performance measures.

# Fleet Maintenance Facility Profile

**Agency name:** ***Disability and Special Needs,*** Midlands Center Maintenance Shop.

**Location:** Northeast of Columbia, on Farrow Rd., the Midlands Campus.

**Accessibility:** Good.

**Facility size and condition:** This is a twenty year old facility with one bay and one lift. The shop was clean and organized, it had to be to get everything packed into the small shop bay. This shop needs at least one more bay to serve its fleet.

**Adequacy of support areas:** Poor. This is a very small one bay shop with minimum support area.

**Significant features:** This shop services the 7 building generators, and automotive technicians must be proficient with wheelchair lifts. The shop provides the maintenance for all of the small and medium grounds equipment. The shop is integrated into the campus operation.

**Fleet size and composition:** The fleet has 139 units. There are 18 passenger cars, 43 vans and cargo trucks, 6 school buses, six vans with wheelchair lifts, 66 grounds keeping units, and 7 building generators.

**Cost Of Fleet:** The shop charged $13,818 in parts, and $18,281 in labor for 1993-94 total of $32,099. The commercial repair costs were $9,142.

**Transportability of fleet:** Good.

**Staffing:** There are two automotive technicians in this shop, and they are supervised by the Director of Supply and Purchasing.

**Maintenance management Policy and procedures:** Good work order and record keeping procedures. This facility received a satisfactory rating on the 1994 Certification Review.

**Services provided:** Preventive maintenance, routine maintenance, and repair to the vehicles and their wheelchair lifts.

**Management information system:** An in-house computer Management Information System that maintains the information placed on work orders and a work order register.

**Parts/purchasing procedures:** The shop stocks parts worth $705. Good inventory and parts purchasing procedures. Stock record cards are used. The *Statewide Automobile Repair Parts Contract* is used.

**Ability to sell services to others:** Poor. There is no rate for the shop, no billing procedures or collection procedures. This shop does not have the capacity to take on more vehicles.

**Obstacles to Consolidation:** None.

**Summary:** This is a small twenty year old facility with one bay and one lift. The facility was in good condition, well organized and clean. Tools and equipment were well maintained, and tightly packed in around the shop. The facility is not large enough, and should have one or two more bays for their 139 unit fleet. The shop and the automotive technicians are an integral part of the Midlands Center Campus operation. The shop is more than just a maintenance garage. This shop runs a pretty good operation, even though it is too small a facility.

Consolidating this facility into another location would not save costs, and would eliminate all of the advantages of a campus garage. It would be enhanced with the supervision, technical support, and resources of a professional fleet management organization. The organizational, managerial, and administrative consolidation of the DDSN facility could be accomplished by making the shop a satellite shop of MVM. This would provide all of the advantages of belonging to a large organization and being an in-house shop. This recommendation does not reflect badly on the two excellent professional automotive technicians in the shop. The study team believes that these technicians would benefit from being supervised by a fleet maintenance professional who had the ability to determine productivity and performance, as well as provide advice and technical support.

# Fleet Maintenance Facility Profile

**Agency name:** ***Department of Health and Environmental Control,*** State Park Maintenance Facility.

**Location:** *Northeast* of Columbia, on the State Park Campus.

**Accessibility:** Good, but there are some security issues with seized evidence, undercover vehicles and impounded vehicles.

**Facility size and condition:** This is an eighteen year old facility with four bays and three lifts. It is in good condition, clean and orderly. It has good equipment that is well maintained.

**Adequacy of support areas:** Excellent. Their support areas received the highest ranking for adequacy of support areas in the Columbia shops.

**Significant features:** There is a machine shop, metal working, welding, glass replacement, and hydraulics repair. The shop provides the maintenance for all of the small and medium grounds equipment. The shop is used to test out environmental equipment ( oil filter crushers, new air conditioning recycling machines). Security is an issue because occasionally the Bureau of Drug Control and the Bureau of Solid Waste park vehicles containing confiscated evidence inside the facility on a temporary basis. The facility is enclosed and equipped with a security system for the parking lot and building which are monitored twenty four hours a day, seven days a week. This shop is integrated into the operations of the State Park Complex.

**Fleet size and composition:** There are 614 units in the fleet. There are 277 passenger cars, 39 patrol cars, 205 trucks up to one ton, 8 trucks from one to three tons, 1 school bus with a wheelchair lift, 50 pieces of grounds equipment, and 30 trailers.

**Cost Of Fleet:** The shop charged $36,538 in parts, and $45,416 in labor for 1993-94 total of $81,954. The commercial repair costs were $85,383.

**Transportability of fleet:** Good with accommodation of the security concerns.

**Staffing:** There is a Supervisor and 3 automotive technicians.

**Maintenance management Policy and procedures:** Good work order and record keeping procedures. This facility received an overall satisfactory rating on the 1994 Certification Review.

**Services provided:** Preventive maintenance, routine maintenance, and repair.

**Management information system:** There is not now a computerized Management Information System
but they intend to purchase one and go on line to the *South Carolina Equipment Management Information System.*

**Parts/purchasing procedures:** There is $13,796 worth of parts. There is good inventory control, and they use the *Statewide Automobile Parts Contract.*

**Ability to sell services to others:** Good.

**Obstacles to Consolidation:** There are security issues that would have to be resolved.

**Summary:** This shop is a professional operation. It is a clean, well organized facility, with all the modern tools and equipment. The shop is also used by DHEC to test certain state of the art equipment. The support areas were excellent, every single facility attribute received the highest rating. The maintenance policies and procedures are good. The parts inventory and purchasing procedures are good, and they buy off of the *Statewide Automobile Repair Parts Contract.*. The shop is involved in law enforcement security, and the storage of undercover vehicles, confiscated vehicles and evidence.

Consolidating the DHEC maintenance facility into another location would not avoid costs, and it might increase the costs of maintaining the DHEC fleet. It is a well operated shop, and any increases in efficiency and effectiveness will come from the use of *South Carolina Equipment Management Information System*, the *Vendor Repair Program*, the Statewide Automobile Repair Parts Contract and a more comprehensive Shop Certification Program by MVM, that includes productivity and perfromance measures..

This shop has the capacity to add a few cars. There are 27 Department of Corrections Vehicles stationed at the State Park Complex. DHEC should take over the fleet maintenance responsibility for these Corrections cars.

# Fleet Maintenance Facility Profile

**Agency name:** ***Department of Mental Health,*** Crafts Farrow Maintenance Shop

**Location:** *Northeast* of Columbia, on Crafts Farrow Rd. Campus

**Accessibility:** Good

**Facility size and condition:** This is a thirty seven year old facility with four bays and one lift.

**Adequacy of support areas:** Good.

**Significant features:** The automotive technicians in the shop are responsible for maintaining and repairing the ten large building generators, and acquiring and disposing of the Mental Health fleet. The shop provides the maintenance for all of the small and medium grounds equipment. This shop is an integral part of the campus community.

**Fleet size and composition:** There are 278 units in the fleet. There are 102 passenger cars, 6 patrol cars, 75 trucks up to one tone, 6 truck up to three tons, 2 school buses, 3 vans with wheelchair lifts, and 84 pieces of building and grounds equipment.

**Cost Of Fleet:** The shop charged $50,153 in parts, and $73,319 in labor for 1993-94 total of $123,472. The commercial repair costs were $37,378.

**Transportability of fleet:** Good.

**Staffing:** There are 3.5 FTE automotive technicians in this facility.

**Maintenance management Policy and procedures:** Good work order and record keeping procedures. This shop received one of the few Outstanding ratings from the 1994 Certification review.

**Services provided:** Preventive maintenance, routine maintenance, and repair.

**Management information system:** An in-house system maintains the work order records, tracks the work performed on the vehicles and equipment, and provides preventive maintenance scheduling.

**Parts/purchasing procedures:** The parts inventory is valued at $15,768. Parts are purchased through the *Statewide Automobile Repair Parts Contract* at MVM.

**Ability to sell services to others:** Good, they do so now on a limited basis.

**Obstacles to Consolidation:** None.

**Summary:** This was a professional operation. Although the facility was old, it was in good condition. The shop was clean and orderly. The tools and equipment were good and well maintained. The shop is a "super service" station for a 278 unit fleet. The Crafts Farrow Hospital Complex is a self contained

community of aged mentally impaired people. The Maintenance shop is a part of the Support Services necessary to keep this community functioning. Whether its the Food Vans, the police security patrols, or the patient passenger vans, the community relies on the transportation system to function. The shop also provides maintenance for the ten hospital generators, and all of the small and medium grounds equipment.

Consolidating this facility into another location would not avoid costs, and might increase them. It would decrease customer convenience and service. This shop is an integral part of the campus operation, which a shop located elsewhere could not be. The management information system is a good one. If the shop does not go on-line with the *South Carolina Equipment Management Information System,* it needs to be able to provide it annual reports. The shop should continue using the *Commercial Repair Program*, and the *Statewide Automobile Repair Parts Contract.* This is an efficient and effective operation that would benefit from a more comprehensive and thorough MVM Certification Program, that included productivity and performance measures.

# Broad River Road

## ( 1,706 units )

SLED Maintenance Facility

Criminal Justice Academy Maintenance Facility

Forestry Central Repair Maintenance Facility

Juvenile Justice Maintenance Facility

Corrections Maintenance Facility

# Fleet Maintenance Facility Profile

**Agency name:** ***South Carolina Law Enforcement Division (SLED).***

**Location:** Broad River Rd, Columbia

**Accessibility:** Good access.

**Facility size and condition:** Fifteen year old facility with two bays, and two lifts. Facility was in poor to fair condition and needs new diagnostics equipment.

**Adequacy of support areas:** Poor to fair.

**Significant features:** The shop provides the maintenance for all of the small and medium grounds equipment.

**Fleet size and composition:** Four hundred twenty (420) light duty police type. Many of these are domiciled outside of Columbia and therefore get there maintenance from private vendors.

**Cost Of Fleet:** The shop charged $68,129 in parts, and $35,363 in labor for 1993-94 total of $103,492. The commercial repair costs were $274,219.

**Transportability of fleet:** Good.

**Staffing:** Two automotive technicians and an inmate helper, supervised by the Business Manager.

**Maintenance management Policy and procedures:** Work order and record keeping procedures are being used.

**Services provided:** Maintenance, repair, and preventive maintenance.

**Management information system:** An in-house accounting and parts inventory system.

**Parts/purchasing procedures:** Cardx/stock record cards. Stock on hand is worth $5,300.

**Ability to sell services to others:** Poor because this shop does not have rates, generate bills, collect payments or manage funds. They do not have the staff or the facility to take on extra business.

**Obstacles to Consolidation:** None.

**Summary:** The State Law Enforcement Division (SLED) maintenance facility is fifteen years old, and has two bays. Two automotive technicians and an in-mate helper maintain the SLED fleet of 427 light duty police type passenger cars, with the assistance of the *MVM maintenance facility* and the *Commercial Repair Program.* The shop charged $103,000 in parts and labor last year, and spent $274,000 for vendor work. An in-house PC based Management Information System is used for accounting and parts inventory. The tools are adequate but new diagnostics equipment and technical training are needed.

There are no obstacles to consolidating this shop, in fact it would benefit SLED to do so. If a Maintenance facility is built on Broad River Rd., it should be built to accommodate the SLED fleet. In the meantime, it would be enhanced with the supervision, technical support, and resources of a professional fleet management organization. The organizational, managerial, and administrative consolidation of SLED's facility could be accomplished by making this shop a satellite shop of MVM. This would provide all of the advantages of belonging to a large organization and being an in-house shop.

# Fleet Maintenance Facility Profile

**Agency name:** Department of Public Safety, ***Criminal Justice Academy.***

**Location:** Broad River Rd., Columbia.

**Accessibility:** Fair to poor access because facility is located deep within the Law Enforcement Complex next to the driving range.

**Facility size and condition:** This is a six year old building with four bays and two lifts. The shop was clean, orderly and well laid out.

**Adequacy of support areas:** Good support areas.

**Significant features:** The Fleet consists of unlicensed vehicles only, used on the complex and on the Law Enforcement driver training course. The shop is next to the driving track which provides the cars access to the shop and the automotive technicians access to the driving range. These cars are run through high speed heavy use by Law Enforcement driver training, and can run through a set of brake pads in a week. These cars must be constantly inspected on the track, and taken out of the line up and repaired when necessary. The safety of the Law Enforcement Officers during the morning and afternoon driving classes depends on how well their older model fleet of automobiles has been maintained. The shop provides the maintenance for all of the small and medium grounds equipment. This shop is integrated into the daily operations of the Criminal Justice Academy.

**Fleet size and composition:** The fleet is made up of 60 police sedans, 4 tractors, 1 backhoe, 7 pickup trucks, 10 weedeaters, and 7 lawn mowers.

**Transportability of fleet:** Poor transportability because all of the vehicles are unlicensed.

**Staffing:** There is one Automotive technician/Foreman, and two inmate helpers to provide maintenance for the 89 unit fleet.

**Maintenance management Policy and procedures:** Maintains work order and record keeping procedures. Rigorous inspection procedures for the vehicles used on the driving range.

**Services provided:** Pre-trip inspection, preventive maintenance, routine maintenance, and repair.

**Management information system:** A shop board that indicates preventive maintenance schedules for each vehicle. The shop has just acquired computers, and intends to use the *South Carolina Equipment Management Information System.*

**Parts/purchasing procedures:** The inventory is worth about $7,000. Purchases parts as needed.

**Ability to sell services to others:** Poor because this shop does not have rates, generate bills, collect payments or manage funds. The shop does not have the staff or the facility to take on extra work.

**Obstacles to Consolidation:** The isolated location of the shop, and the difficulty of transporting unlicensed vehicles.

**Summary:** This is a six year old facility with four bays and two lifts located deep within the Law Enforcement Complex. The shop was clean, organized, and in good condition. The tools and equipment were adequate and in good condition. The shop operations are integrated within the Driver Training classes, providing far more services than the average garage. The automotive technician and two inmate helpers are supervised by the Facilities management Section of the Office of Public Safety. The 89 unit fleet is made up of 60 police sedans, 7 pickup trucks, 4 tractors, a backhoe and other grounds maintenance equipment. The police sedans are used twice a day in the Law Enforcement high speed/defensive driving certification and re-certification course. These automobiles are older models to begin with, and then they get driven very hard every day. The safety of the Officers depends on the quality of the maintenance and the thoroughness of the pre-trip inspections The maintenance policy and procedures are good, and adhered to closely. The pre-trip inspections are rigorous and thorough. Even though they are not computerized, the shop keeps records and unit histories. The shop has recently received computers, and intends to be one of the first shops on line with the *South Carolina Equipment Management Information System (SCEMIS)*. The tools and equipment are adequate and well maintained. The support areas are good, and access to the training track is excellent.

Consolidating this shop in another location would not save any costs, in fact it would increase the time and expense of maintaining the Criminal Justice Academy fleet. It would also give rise to concern about the safety of the vehicles. The Officers know the automotive technicians are there inspecting and fixing the cars for them, which raises their confidence in the safety of the cars. This operation should be left on its own. It can become a more efficient and effective operation by using *SCEMIS*, the *Commercial Vendor Repair Program*, and the *Statewide Automotive Repair Parts Contract*. The shop would also benefit from certification by the Motor Vehicle Management Shop Certification Program, that included productivity and performance measures.

# Fleet Maintenance Facility Profile

**Agency name:** The South Carolina ***Forestry Commission***, Central Repair Shop.

**Location:** Broad River Rd., Columbia.

**Accessibility:** Good.

**Facility size and condition:** This is a 34 year old building with four bays and no lifts.

**Adequacy of support areas:** Good.

**Significant features:** The Forestry operation is not primarily a fleet service garage, but a fabrication, modification, and processing shop for forest fire fighting vehicles and equipment statewide. The shop provides maintenance for small and medium grounds equipment. The shop also provides field repairs for the Forestry Commission statewide.

**Fleet size and composition:** There are three station wagons, 14 utility vehicles , and four large trucks licensed to be on the road. There are ten small and medium pieces of maintenance equipment, nine tractors, and two bulldozers. The fleet is old, with 75% of the trucks and tractors being in excess of fifteen years old.

**Cost Of Fleet:** The shop charged $13,862 in parts, and $16,359 in labor for 1993-94 total of $30,221. The commercial repair costs were $278.

**Transportability of fleet:** The twenty one (21) licensed vehicles could be easily transported, however the rest of the fleet would be difficult to transport.

**Staffing:** There are five positions at this shop, but only ½ an FTE turns wrenches.

**Maintenance management Policy and procedures:** Good record keeping procedures, and preventive maintenance procedures. The facility received a satisfactory rating on the 1994 Certification Review.

**Services provided:** Preventive maintenance, routine maintenance, repair engine re-building, painting, processing new and old equipment, modification of equipment, and fabrication of equipment.

**Management information system:** No computerized management information system, but intend to add one and go on line with the *South Carolina Equipment Maintenance Information System.*

**Parts/purchasing procedures:** The shop does not stock parts. Parts are purchased from the *Statewide Automotive Repair Parts Contract* and through the Forestry warehouse.

**Ability to sell services to others:** Poor, because this shop has no rates, does not generate bills, collect bills, or manage funds. This shop is not a normal fleet maintenance facility, and is not prepared to take on additional fleet maintenance responsibilities.

**Obstacles to Consolidation:** Considerable modifications to the facility would have to be made to make it function as a normal maintenance garage. Staff would have to be expanded and trained and the necessary administrative procedures for a charging system would have to be implemented. The 21 licensed vehicles could be transported and worked on in another shop, but nobody is in a position to accommodate this shop's primary function.

**Summary:** This is a 34 year old facility with five bays and no lifts. There are a number of other large buildings on the complex, and a considerable amount of equipment readied for auction on the grounds. The mission of this garage is to modify, fabricate and process existing and new motorized equipment for the forest fire protection program. This includes the construction of truck beds, draw bar modifications, installation of special fire fighting equipment, fabricating brush guards, "V" blades, cages, and water protection systems for the bulldozers. This shop acts as the center for receiving heavy equipment and vehicles on loan from the Federal Excess Equipment program administered by the US Forest Service. These loaned vehicles and equipment are prepared at this center for use by the Forestry Commission statewide, those not used by the Commission are sent to county Fire Departments statewide. Five technicians are employed at this facility, with ½ an FTE actually turning wrenches on the 21 licensed vehicles. The fleet is made up of 46 units domiciled at the center. There are three station wagons, fourteen utility vehicles, and four large trucks licensed to be on the road, plus two bulldozers, nine tractors, and ten small to medium pieces of fire fighting equipment. The shop provides all the normal garage maintenance functions, plus engine re-building, and painting to a statewide fleet of fire fighting equipment. The maintenance policies and procedures are good, and strictly followed by the automotive technicians and the operators, since a firefighters life may depend on his equipment. They do not have a computerized management information system, but they keep good records and unit histories. They intend to purchase a computer and try the *South Carolina Equipment Management Information System (SCEMIS)*. The tools and equipment are adequate and well maintained. There is no diagnostic equipment for the modern vehicles, which has not been a problem because of the age of forestry's fleet. The support areas are pretty good for this type of operation.

Consolidating the Forestry Central Repair Shop into another location is not possible since the vast majority of the work is not automotive maintenance. As Forestry adds new vehicles with computer technology, rather than invest in expensive diagnostic equipment and training, they should use the *Vendor Repair Program,* the MVM Shop, or another shop on Broad River. They should be consolidating their passenger vehicles into another shop that has the knowledge, experience, diagnostics, and parts to maintain them. With the exception of the 20 passenger vehicles, this Forestry operation should be left alone. It would improve their operations if they were on *SCEMIS* , used the *Vendor Repair Program*, and the *Statewide Automobile Repair Parts Contract.* MVM should continue to certify the Forestry shop and provide fleet management and maintenance resources even though it is not a maintenance garage in the normal sense.

# Fleet Maintenance Facility Profile

**Agency name:** ***Juvenile Justice*** Department

**Location:** Broad River Rd., Columbia

**Accessibility:** Good.

**Facility size and condition:** This is a twenty five year old facility with 2 bays and one lift. The facility was in good condition, orderly and clean.

**Adequacy of support areas:** Fair.

**Significant features:** The shop has an alignment machine.

**Fleet size and composition:** There are 126 units in this fleet. There are 54 trucks and vans up to one ton, 7 trucks one to three tons, and 6 school buses. Due to age the fleet is in generally poor condition.

**Cost Of Fleet:** The shop charged $29,296 in parts, and $28,922 in labor for 1993-94 total of $58,218. The commercial repair costs were $33,375.

**Transportability of fleet:** Good.

**Staffing:** There is one automotive technician in the shop, and due to a vacancy he has been supervised by an Administrative Specialist for the last year.

**Maintenance management Policy and procedures:** They have work order and record keeping procedures. This facility received an unsatisfactory in the work order and record keeping areas, and in preventive maintenance on the 1994 Certification Review. A recent follow up review led to a satisfactory rating.

**Services provided:** Preventive maintenance, routine maintenance, and repair.

**Management information system:** They have an in-house system now, but intend to go on line with the *South Carolina Equipment Management Information System.*

**Parts/purchasing procedures:** The parts inventory is valued at $4,057. They use the records card system for inventory. They purchase parts through the *Statewide Automobile Repair Parts Contract,* the SCDOT Depot and twenty five blanket Purchase Orders.

**Ability to sell services to others:** Poor. The one automotive technician cannot take on any more responsibility, as a result there are no rates established, and no billing and collecting procedures.

**Obstacles to Consolidation:** None.

**Summary:** This has been a pretty good facility for Juvenile Justice. The same automotive technician has taken care of the Youth Services/Juvenile Justice fleet for six years. The fleet has grown and aged beyond the capacity of a one man garage. The automotive technician and the shop are not prepared for the maintenance of the newer technology vehicles. As new vehicles are purchased, they should be sent out through the commercial Repair Program. This fleet would be better served in a larger more modern garage on Broad River, if one existed. In the meantime, it would be enhanced with the supervision, technical support, and resources of a professional fleet management organization. The organizational, managerial, and administrative consolidation of Juvenile Justice's facility could be accomplished by making this shop a satellite shop of MVM. This would provide all of the advantages of belonging to a large organization and being an in-house shop.

# Fleet Maintenance Facility Profile

**Agency name:** ***Department of Corrections***

**Location:** Broad River Rd., Columbia

**Accessibility:** Fair, there is a security gate checkpoint that must be cleared to gain access to the campus.

**Facility size and condition:** There are two garages on the Corrections campus. Together they have five bays and three lifts. One is an old Quonset Hut, and one is an old masonry building. Both are in poor condition, and too small for the fleet. Corrections has legislative permission and funding to consolidate these two shops into one new thirteen bay facility.

**Adequacy of support areas:** Poor to fair, in a tie for the lowest rating of "adequacy of the shops' attributes". This would be changed by the construction of the new facility.

**Significant features:** The shop works on hydraulics, and has a machine shop. The shop provides the maintenance for all of the small and medium grounds equipment. The shop also has inmate labor working with the automotive technicians. There are the obvious security issues for a large prison complex.

**Fleet size and composition:** There are 1,062 units in the Corrections Fleet. There are 226 passenger cars, 361 passenger vans, 206 small trucks, 71 large trucks, 52 buses, 65 pieces of small and medium maintenance equipment, 20 large wheeled vehicles, 8 tracked vehicles and 41 trailers. Not all of this fleet will be serviced out of the new shop.

**Cost Of Fleet:** The shops charged $555,800 in parts, and $74,287 in labor for 1993-94 total of $630,087, and the commercial repair costs were $215,973.

**Transportability of fleet:** Poor to fair because of security issues, and the size of the fleet.

**Staffing:** There are nine automotive technicians in the two shops, and four of them are inmates. The Director of Transportation and Communications is the supervisor of the shops. He has recently taken over fleet maintenance and has a good understanding of the problems and the solutions. He received his job on Friday, and was in the MVM Office Monday with a plan to create a single efficient and effective facility. The Department of Corrections must be willing to authorize and fund the necessary staff to operate this new facility.

**Maintenance management Policy and procedures:** They keep work order and other records. The shop has received borderline satisfactory on the last two Certification Reviews. The MVM professionals will be working with the new Transportation Director of Corrections in establishing good maintenance management policy and procedures for the new facility.

**Services provided:** Preventive maintenance, routine maintenance and repair.

**Management information system:** There is an in-house computer system that tracks parts, work orders, gasoline usage, mileage, trip logs. The new shop will be going on line with the *South Carolina Equipment Management Information System.*

**Parts/purchasing procedures:** The parts inventory is worth $8,897. The shop has inventory control, and the purchasing procedures are in accord with the department's policies and procedures. The new shop will purchase parts exclusively from the *Statewide Automobile Repair Parts Contract.* When the new shop needs work done by a private vendor it will use the *Commercial Repair Program.*

**Ability to sell services to others:** Good. The new shop is being built so that it can be expanded, and the grounds will be large enough for expanding fleet parking. If expanded and staffed, this shop could become the central consolidated Broad River Rd. maintenance facility. It could take on the Juvenile Justice fleet, the SLED fleet, and Forestry's twenty passenger vehicles.

**Obstacles to Consolidation:** None, if security issues are resolved.

**Summary:** The old shops at the department of Corrections are hard to judge because they are so old and inadequate. The previous management had a poor record. The new manager is an eager and experienced one that seeks professional fleet management advice from MVM. The new maintenance facility should be built to consolidate the two Corrections shops. The proper funding and staff support, along with MVM's hands on help setting up the new shop can produce an efficient and effective maintenance facility. It could then be expanded to become the *Central Consolidated Broad River Road Maintenance Facility.* It should use the *South Carolina Equipment Management Information System*, the *Commercial Repair Program*, and the *Statewide Automobile Repair Parts Contract.* It would also benefit from a more comprehensive MVM Certification Program that included productivity and performance measures.

# *Downtown* Columbia

## ( 11,493 units )

USC Maintenance Facility

Mental Health State Hospital Maintenance Facility

Educational Television Maintenance Facility

Motor Vehicle Management Maintenance Facility

Department of Transportation Maintenance Facility

# Fleet Maintenance Facility Profile

**Agency name:** University of South Carolina (USC)

**Location:** *Downtown* Columbia on Pendleton Street.

**Accessibility:** Good.

**Facility size and condition:** This is a 19 year old facility with three bays and two lifts. The shop was in good condition and pretty well organized.

**Adequacy of support areas:** Fair, there is insufficient office space.

**Significant features:** This shop does all of the disposal of old vehicles, and the make ready work for new vehicles. The shop does some component re-building. The Shuttle Cock buses and drivers are operated out of this facility. The automotive technicians are frequently called on to drive the buses for special activity events, which can take them out of the shop for days.

**Fleet size and composition:** There are 390 units in the USC fleet. There are 57 passenger cars, 13 patrol cars, 77 small and medium sized trucks, 7 large trucks, 14 school buses, 3 large wheeled vehicles, 55 Trades vans, 9 Cushmans and 4 trailers.

**Cost Of Fleet:** The shop charged $119,027 in parts, and $110,091 in labor for 1993-94 total of $229,118. The commercial repair costs were $33,083.

**Transportability of fleet:** Good.

**Staffing:** There are five automotive technicians in this shop.

**Maintenance management Policy and procedures:** Good work order and record keeping procedures, and good preventive maintenance procedures. This facility received a satisfactory rating on the 1994 Certification Review.

**Services provided:** Preventive maintenance, routine maintenance, and repair. Also some component re-building. The automotive technicians are bus drivers for special activities. The USC motor pool is leased to departments out of this facility.

**Management information system:** There is an in-house management information system that tracks the maintenance and repair history, mileage, and utilization rates. The system is for data storage rather than for generating management information for the shop. The USC does plan to go on line with the *South Carolina Equipment Management Information system* in January of 1995.

**Parts/purchasing procedures:** There are no stocked parts in the shop. The parts are kept in the USC Warehouse and Store, which is right next door to the garage. They also use blanket purchase orders with several of the parts supply stores, and buy some off of the state contract.

**Ability to sell services to others:** Fair. The rates, billing and collecting procedures can be established, but there is not the physical capacity or staff to take on another fleet.

**Obstacles to Consolidation:** None.

**Summary:** This 19 year old facility with three bays and two lifts is a pretty good operation. It is more than a maintenance garage. It is a unique operation because the automotive technicians spend up to 50% of their time driving the special activity buses for the University. The vehicles are leased by Academic departments from this maintenance facility. This shop does not have the capacity to absorb more fleet responsibility. There is no shop in Columbia that could take on this fleet of almost 400 units.

There are a number of things that can be done to improve the efficiency and effectiveness of this shop. The management information system needs to be improved. The USC intends to go on the *South Carolina Equipment Management Information System* in January 1995, which should resolve the weaknesses in their current system. The shop needs to use the *Statewide Automobile Repair Parts Contract*, and the *Commercial Repair Program*. A more comprehensive MVM Shop Certification program that included productivity and performance measures would help this shop.

# Fleet Maintenance Facility Profile

**Agency name:** *Department of Mental Health*, State Hospital Maintenance Facility

**Location:** *Downtown* Columbia on the State Hospital Campus.

**Accessibility:** Good.

**Facility size and condition:** This is a 47 year old facility with 4 bays and 2 lifts. This building is very old, and the shop is in need of cleaning and some renovations. The tools are adequate and well maintained.
This facility is part of a campus environment.

**Adequacy of support areas:** fair, the parking lot and outside storage areas are not paved, and the administrative space is less than adequate.

**Significant features:** The shop is responsible for maintaining the 20 building generators around the campus. The shop provides the maintenance for all of the small and medium grounds equipment. There are 13 drivers that work out of this shop. The building is shared by the Physical Plant and Warehouse programs.

**Fleet size and composition:** There are 349 units in the fleet. There are 117 passenger cars, 6 patrol cars, 108 small trucks, 9 medium to large sized trucks, 2 school buses, 79 small and medium pieces of maintenance equipment, 3 large wheeled vehicles, 2 trailers and the 20 generators. The fleet is generally old, with high mileage.

**Cost Of Fleet:** The shop charged $63,657 in parts, and $100,943 in labor for 1993-94 total of $164,600. The commercial repair costs were $61,008.

**Transportability of fleet:** Good.

**Staffing:** There are 5 Automotive technicians and a Foreman in the shop, with 4.5 FTE's turning wrenches 100% of the time. The shop is supervised by a Fleet Management Professional.

**Maintenance management Policy and procedures:** Good work order and record keeping procedures. This shop received a satisfactory rating on the 1994 Certification Review.

**Services provided:** Preventive maintenance, routine maintenance, and repair.

**Management information system** There is an in-house management information system that maintains the work order records, tracks the work performed on the vehicles and equipment, and provides preventive maintenance scheduling.

**Parts/purchasing procedures:** The parts inventory is worth $30,855. Stocked parts and supplies are purchased from the SCDOT warehouse and some commercial vendors. They are maintained and issued by the DMH Control Warehouse. Parts not stocked by the warehouse are purchased from local vendors.

**Ability to sell services to others:** Good, but the shop does not have the physical or staff capacity to take on more vehicles.

**Obstacles to Consolidation:** The campus setting.

**Summary:** This is an old facility, but a well run operation. The State Hospital Campus is a self-contained community of mentally ill patients. The maintenance shop is part of the Support Services necessary to keep this community functioning. Whether its the Food Vans, the police security patrols, or the patient passenger vans, the community relies on the transportation system to function. The shop also provides maintenance for the twenty hospital generators, and locksmith services for patient security.

Consolidating this facility into another location would not avoid costs, but it would decrease customer convenience and service. This shop is an integral part of the campus operation, which a shop located elsewhere could not be. The management information system is a good one. If the shop does not go on-line with the *South Carolina Equipment Management Information System,* it needs to be able to provide it annual reports. The shop should continue using the *Commercial Repair Program*, and the *Statewide Automobile Repair Parts Contract.* This is an efficient and effective operation that would benefit from a more comprehensive and thorough MVM Certification Program, that included productivity and performance measures.

# Fleet Maintenance Facility Profile

**Agency name:** South Carolina ***Educational Television***

**Location:** George Rogers Blvd., *downtown* Columbia

**Accessibility:** Good access, some security issues.

**Facility size and condition:** Twenty year old building that has been recently renovated, with three (3) bays and two (2) lifts. The shop is in excellent condition and extremely clean.

**Adequacy of support areas:** Good

**Significant features:** The station wagons, vans and trucks are filled with electronic equipment that is worth up to one half million dollars. The shop is exceptionally clean and orderly. The shop provides the maintenance for all of the small and medium grounds equipment. The ETV satellite dishes are kept next to the shop for security reasons. This shop also maintains three large Mobile TV Control Centers.

**Fleet size and composition:** There are eighty four (84) units in the vehicle and equipment fleet.

**Cost Of Fleet:** The shop charged $13,817 in parts, and $18,280 in labor for 1993-94 total of $32,097. The commercial repair costs were $9,141.

**Transportability of fleet:** Poor because most of the vehicles are packed with expensive electronics and television equipment that would have to be removed and stored before sending the vehicle to an outside garage.

**Staffing:** There are two positions that turn wrenches for a .8 FTE.

**Maintenance management Policy and procedures:** Good record keeping and Preventive Maintenance procedures. This facility received a satisfactory rating on the 1994 Certification Review.

**Services provided:** Preventive maintenance, routine maintenance, and repair.

**Management information system:** Will be one of the first agencies to go on-line with the South Carolina Equipment Maintenance Inventory System ( SCEMIS ).

**Parts/purchasing procedures:** Uses a stock record card system, and has good procedures. Stock on hand is valued at $1,960.

**Ability to sell services to others:** They are poor, because this shop does not have rates, generate bills, collect payments or manage funds. There is not enough staff or facility to take on extra business.

**Obstacles to Consolidation:**. Most of the vehicles in the ETV fleet carry a quarter of a million dollars worth of sensitive technical equipment. ETV provides a campus type security with video

monitoring, alarm systems, lighting, and security guards. This security includes the fleet when it is being repaired or serviced in the garage/parking area or in the motor pool lock-up.

**Summary:** The ETV maintenance facility is a twenty year old structure, that was completely renovated and equipped last year. The facility has three bays and two lifts. Two automotive technicians support the fleet and are supervised by the Director of the Division of Facilities Management. The facility was in excellent condition, orderly, and "clean as a whistle", with adequate tools and equipment. The ETV fleet consists of 23 full size station wagons, 40 vans/trucks/mobile units that are used to transport television equipment. There is a total of 84 vehicle and equipment units. The two automotive technicians provide daily inspection, preventive maintenance, routine maintenance, and repair. They also provide a very high level of customer service and convenience to a staff that relies on a dependable fleet to do their jobs. The ETV maintenance facility is a good one. ETV does not have a computerized management information system, but it has been selected to be one of the first of five state agencies that will go on line to the *South Carolina Equipment Maintenance Inventory System* operated by the Motor Vehicle Management Section of The Office of General Services.

Consolidating this facility in another location would not avoid costs, and would significantly reduce customer service and support. It would be enhanced with the supervision, technical support, and resources of a professional fleet management organization. The organizational, managerial, and administrative consolidation of ETV's facility could be accomplished by making this shop a satellite shop of MVM. This would provide all of the advantages of belonging to a large organization and being an in-house shop.

# Fleet Maintenance Facility Profile

**Agency name:** Office of General services, ***Motor Vehicle Management (MVM).***

**Location:** *Downtown* Columbia on Senate Street.

**Accessibility:** Good, but a narrow alley entrance.

**Facility size and condition:** This is a fourty year old facility with nine bays and three lifts. The shop was clean, orderly, and in good condition.

**Adequacy of support areas:** Good support areas.

**Significant features:**. It is responsible for the maintenance of the lease fleet and the motor pool fleet. This shop is the only one in Columbia that provides service to any state vehicle that drives in the door or calls for service.

**Fleet size and composition:** Over 1400 separate license plated vehicles were serviced at this facility last year. Of this amount some 400 were part of the MVM motor pool, the rest from agencies on a statewide basis.

**Cost Of Fleet:** The shop charged $126,652 in parts, and $144,280 in labor for 1993-94 total of $270,932. The commercial repair costs were $344,856.

**Transportability of fleet:** Good.

**Staffing:** There are five automotive technicians and a foreman.

**Maintenance management Policy and procedures:** Good work order and record keeping procedures. Good preventive maintenance procedures and follow up. This facility received a satisfactory Review on the 1994 Certification Review.

**Services provided:** Preventive maintenance, routine maintenance, and repair.

**Management information system:** An in-house computer system is used to account for parts, and generate reports for management. This will be the first shop on the *South Carolina Equipment Management Information System.*

**Parts/purchasing procedures:** The parts inventory is worth $8,500. The computer Management Information System accounts for all parts, and the *Statewide Automotive Repair Parts Contract* is used for parts purchasing.

**Ability to sell services to others:** Excellent, the shop sets rates, generates bills, collects payments and manages funds. It is questionable whether this facility could take on more work because of the configuration of the bays.

**Obstacles to Consolidation:** None.

**Summary:** This is a fourty year old facility with nine bays and three lifts located one block from the Capitol Complex. The shop was clean, organized and in good condition. The tools and equipment are adequate and in good condition. The shop is the showcase for Motor Vehicle Management to demonstrate their fleet maintenance abilities. It was clearly the best, most professionally operated state shop in the Columbia area. It is a business enterprise that is subsidizing the regulatory functions of MVM. The automotive technicians and a very competent and experienced foreman are supervised by fleet maintenance and management professionals. The MVM shop is unique because it sells services to customers from all state agencies. There is an MVM motor pool of 64 vehicles that are domiciled and maintained at the shop. Last year 1400 separate licensed plated vehicles were serviced at this facility, based on the number of work orders per vehicle, it is estimated that the shop is responsible for 966 units. The maintenance policies and procedures were excellent, and the shop was noted for its thorough follow-up procedures for preventive maintenance. This shop is run like a business, with the quality of the work and the customer service determining the amount of work, which has grown every year. The support areas are good for the present number of vehicles supported. The shop shares the building that houses the Motor Vehicle Management offices.

Consolidating this garage into another location is not practicable because there isn't a shop that has the capacity to receive this fleet, or one as well operated as MVM's. It would make sense for the MVM shop to take on more of the state's fleet maintenance, but this will require additional automotive technicians. At some point in the future, MVM will need a larger shop. At this time serious consideration should be given to the possibility of building MVM a large facility on Bull St. so it could be near its largest client base. The value of the downtown vista land that the garage sits on now might just pay the cost of building a large facility on Bull Street land already owned by the State.

# Fleet Maintenance Facility Profile

**Agency name:** ***Department of Transportation,*** Depot

**Location:** Downtown Columbia, Shop Rd..

**Accessibility:** Good.

**Facility size and condition:** This is a 40 year old facility, with 43 bays and 16 lifts. It is in good condition, is orderly and clean. It has good tools that are well maintained.

**Adequacy of support areas:** It has good support areas.

**Significant features:** This shop like the MVM shop sells its services to customers from all agencies. It is a large professional operation. It has 1) machine shop, 2) metal working shop, 3) radio shop, 4) paint and body shop, 5) glass/upholstery shop, 6) hydraulics shop, 7) alignment shop, 8) engine/transmission re-build shop, 9) Differentials shop, 10) Lubrication center 11) tire service area 12) area to install "dump bodies". All of the new equipment for the SCDOT is processed and made ready by this shop. All of the disposal of SCDOT equipment is processed by this shop.

**Fleet size and composition:**. This shop is responsible for the 111 Highway Patrol cars, that belonged to SCDOT before restructuring but now belong to the Office of Public Safety. This shop worked on 10,000 units last year. There were 1,834 passenger cars, 829 small trucks, 1,346 medium sized trucks, 404 large trucks, 3,400 pieces of small and medium equipment, 1,634 large wheeled vehicles, 103 tracked vehicles and 354 trailers. The SCDOT fleet is in the best shape of all of the fleets in the Columbia area, generally being turned in at 100,000 miles

**Cost Of Fleet:** The shop charged $971,296 in parts, and $964,881 in labor for 1993-94 total of $1,936,177. The commercial repair costs were $142,000.

**Transportability of fleet:** Good.

**Staffing:** There are 59.5 positions in this shop. There are 43 automotive technicians, 4 parts/supply specialists, 5 Trades Supervisors, and 4 clerical/administrative positions, and 3 managment positions.

**Maintenance management Policy and procedures:** Good work order and record keeping procedures. Preventive maintenance schedules are computerized and users are notified when service is due. This facility received a satisfactory Review on the 1994 Certification Review.

**Services provided:** The only shop in the Columbia area to offer all the major services. The shop also provides some fabrication work for the Transport Police scale racks.

**Management information system:** There is an in-house management information system called (SWIP) Shop Work In Progress. Some of the MVM (SCEMIS) is based on the SWIP system. This system tracks data very well, but does not provide information that the management of the shop can use to become more efficient and effective. The SCDOT is developing this system so that it will provide the

shops with useful management information. SCDOT should work with MVM and SCEMIS so that the data is uniform and consistant.

**Parts/purchasing procedures:** The shop's parts inventory is worth $181,100. The inventory and purchasing procedures are fair. The parts that can be are bought off of the State term contract.

**Ability to sell services to others:** Excellent, they do so now. They serve customers from SLED, USC, DMV, Public Safety, and all other agencies.

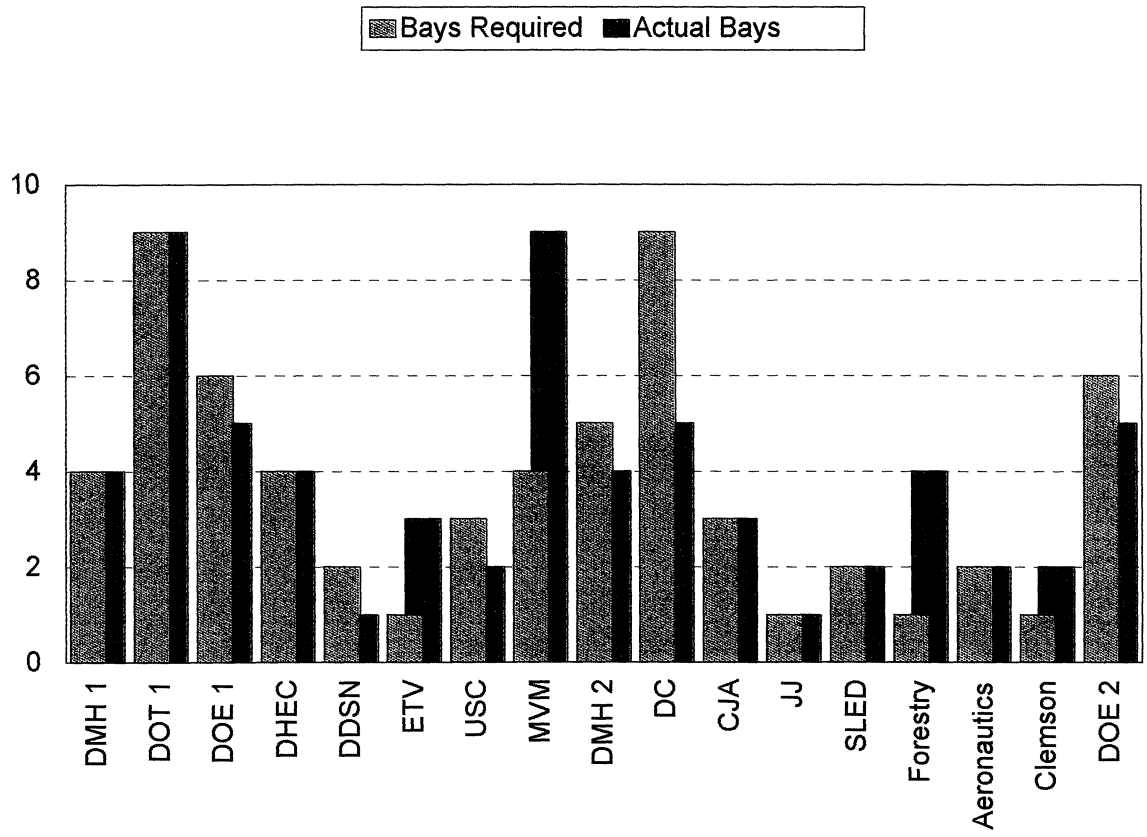
**Obstacles to Consolidation:** None.

**Summary:** This is a 40 year old facility with 51,000 square feet in space. There are sixty staff for this shop. It is the largest operation in the state. This shop provides the most comprehensive services in the state. It is a big, impressive operation, that is well run. It would not be possible to consolidate this shop into another operation because of its size. The shop has the potential to take on a little more work.

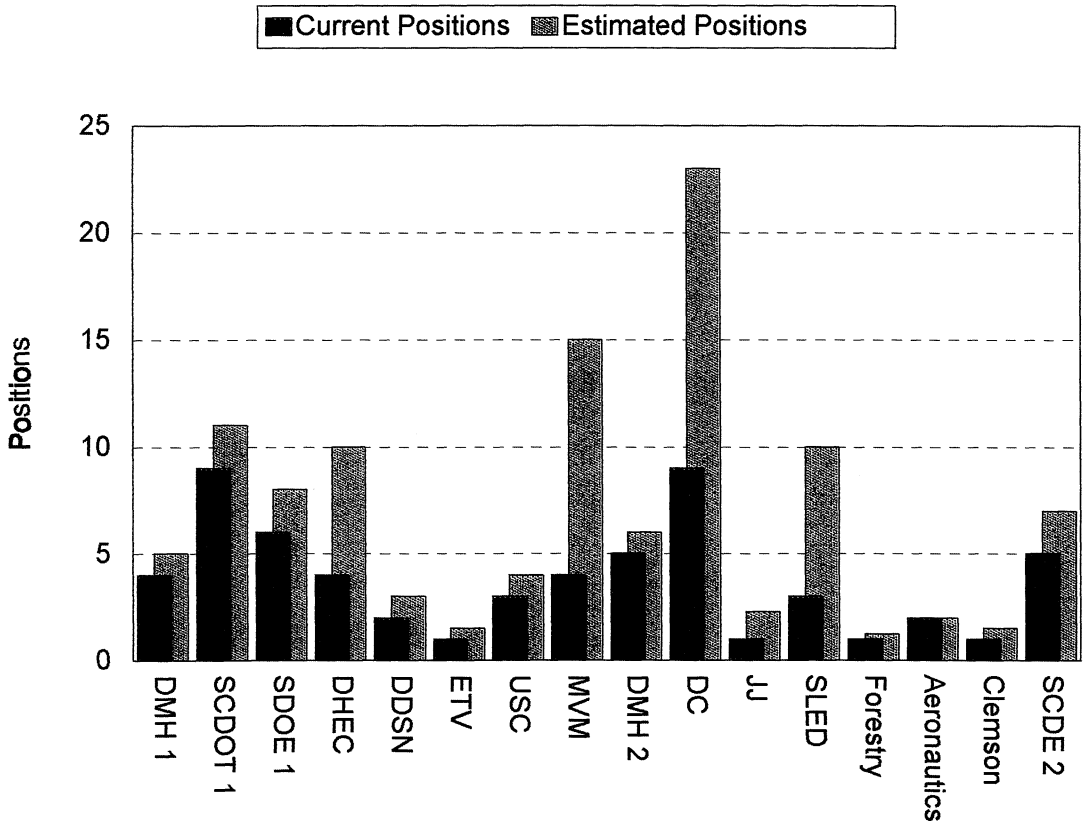
This shop would benefit from the *South Carolina Equipment Management Information System.* The shop would benefit from the updating of their Standard Operating Procedures which were written in 1972. The shop needs to develop procedures for the scheduling of work, service writing, work order completion and work assignments. This shop would be improved by a more comprehensive and thorough MVM Certification program that included automotive technician productivity and performance measures.

# Findings and Recommendations

The data indicates, and the on-site visits confirmed, that the facilities in Richland County are barely large enough for the fleets they are responsible for now. Using a 1 to 1 ratio for the number of *automotive technicians to bays*, only three shops have more bays than automotive technicians { Forestry's bays are used for the fabrication work they do; ETV's bay is used to park, secure and maintain the Mobile Television Command Center a converted motor home; MVM's are used for physical access to the shop through the one opening to the outside; Clemson's two bays are actually one long bay which is needed for the heavy equipment }. There is not excess physical space in any of the shops in Columbia. MVM and the Depot could absorb a *little* more work, but they would need to have more automotive technicians. The following graph illustrates the bays to automotive technicians ratio. ( Note, that the graphs does not include the SCDOT Depot because they are not responsible for a specific fleet, but work on all cars that drive into the shop.)



A Staffing study was prepared, using the Air Force Equivalents Method and refining the weighted values by type based on South Carolina shop records and the services provided in each of the shops. This is not intended to prescribe the exact number of automotive technicians needed at each shop, but rather to confirm the Audit Council and Compliance Review Committee finding that the shops are not overstaffed. The following graph illustrates the estimated number of automotive technicians needed to maintain each of the fleets compared to the actual number of automotive technicians. Not a single shop has as many automotive technicians as the Equivalency Method estimates they should have. The size of the State's fleet needs to be studied carefully and adjusted according to the findings, but the fact is that a fleet is a necessary support service. Anything less than *major* reductions to the state's fleet will only serve to bring the automotive technician to fleet ratio into better balance. ( Note, that the graph does not include the SCDOT Depot because they are not responsible for a specific fleet, but work on all cars that drive into the shop.)



- The study concludes that there are no shops in the Columbia area that have the physical capacity or staffing to absorb another fleet, therefore physically consolidating the existing maintenance facilities is not possible.
- To consolidate shops in the Columbia area the state will have to build, equip, and staff large, modern maintenance facilities in strategic geographical locations. The Columbia shops and their 102 bays are loosely located in four general areas, ***Downtown, Broad River, Outskirts, and Northeast.*** Any plans to consolidate shops in the future must take this geographical distribution into account.

- The Broad River Road area is the most likely one for future maintenance shop consolidation. All of the shops are within ½ mile of one another. Juvenile Justice, SLED, and the 20 or so passenger vehicles at Forestry would all be better served out of a larger modern facility on Broad River Road. The Department of Corrections has approval and financing from the Legislature to build a new nine bay maintenance facility. The decision to consolidate two old and inadequate facilities into a single modern one makes good sense. The facility is being built in a manner that will allow it to be expanded into as many as twenty five bays, on a piece of property that will provide plenty of room for parking. In the future this facility can be expanded to absorb Juvenile Justice, SLED, and Forestry's units.

- At some point in time the MVM maintenance facility will need to be expanded. It sits on part of the valuable Congaree Vista property in an old building that is not well suited for a maintenance garage. When it is time to move MVM and sell this property, the state should use state land on Bull Street and build a larger modern maintenance facility that can be expanded.. The MVM shop would be closer to its client base ( DSS, DHEC, DMH, DDSN ), and could begin to take over more of the state's fleet maintenance.

- DHEC should service the 27 vehicles that belong to the Department of Corrections and are domiciled on the state park campus.

- Some of the smaller one and two man shops would benefit from becoming a part of MVM. Consideration should be given to making some of the smaller operations in Columbia MVM satellite shops. Those that should be considered first are Juvenile Justice, ETV, Disabilities and Special Needs, and SLED. These operations would benefit from having a fleet maintenance professional as a supervisor, and a professional fleet management organization to support them. This type of consolidation will increase the quality of the work and the efficiency and effectiveness of each shop operation, without losing any of the customer convenience and benefit of the in-house shop.

## Consolidation considerations:

The study finds that there are few costs in these shop operations that could be avoided by consolidation into a larger facility. The Administration for the small shops takes up a small percentage of the time of someone in the Business or Finance Office. If a small shop were eliminated there would be no savings in administrative positions. Closing the shop would free up a percentage of an administrator's time for other work, a benefit for their agency. The administration requirements go with the fleet, the destination garage will need to provide administration. There is a possible savings from the parts/supply and management positions in a consolidated facility, but its volume would require a number of them. These facilities have no Debt Service that could be avoided, and a new facility would acquire considerable debt service, unless it was built with cash. In most cases they are in a building that is part of a campus or complex, and closing it down would not free up building space for sale or lease.

A consolidated shop that was selling its services would have to do as well or better ( than the old shop ) in taking care of an agency's fleet, which is likely to mean having more automotive technicians than the agency does now. Consolidation of shops may not always avoid or reduce costs, it might even increase them.

Most of the Columbia area shops are on self-contained campuses, and are integrated into the daily operations of the campus life. A campus maintenance garage is unique because it becomes a part of a

community. They are more than just a fleet maintenance garage. If a fleet was taken to another location, the services the shop is providing its campus would be lost. The very important issue of access costs, customer service and convenience must be recognized. A shop right there on campus has a number of benefits over a garage off-campus. It is convenient and quick to leave a car for maintenance and walk over to your office or meeting. It is inconvenient and time consuming to get someone to help you take your vehicle to a local shop and return with you later, or just wait until your car is ready. The vehicle operators have more frequent conversations with their "own" automotive technicians about their vehicles, because they are part of the same agency and they see each other more often. Staff in the shops have an understanding of the importance of the vehicles to the programs and services, and the priority of their maintenance or repair. Time and travel costs for transporting vehicles off campus is avoided. The campus shop motivates its staff to take the best care of the fleet that they can. The responsibility for your agency's fleet builds commitment and pride, it becomes your fleet and your operators, and you care a great deal about them. This is not going to happen in a large shop that services many agencies.

Vehicles and equipment, like facilities and other support services, have been less of a funding priority over the years than the programs that they support. However without proper funding they cannot efficiently and effectively sustain their programs. During the course of this study it became clear that increased funding would lead to more efficient and effective maintenance operations. Some of the facilities need renovations; tools and equipment need to be updated and improved; management information systems need to be developed; and automotive technicians need better and more frequent training. Most of all the fleet needs to be on a life cycle replacement schedule. Much of the fleet is old, which means that it is more expensive and time consuming to maintain. A fleet replacement schedule will reduce the cost of vehicle maintenance more than anything else that can be done.

## Improving the Columbia Area Maintenance Facilities

Physical consolidation in the future in selective cases, management consolidation now in all cases. It was clear from this study that the maintenance facilities in Columbia could be more efficient and effective than they are. There are a number of managerial ways to consolidate the Columbia area maintenance facilities that will improve their efficiency and effectiveness, but not change their locations.

It is important to point out that the shops are staffed by motivated, dedicated, hard working professionals who care a lot about their work. The study team was impressed by the high level of professional expertise, and concluded that the state has good automotive technicians. The weaknesses in the shops are the result of poor management information systems, a lack of training and financial support, and a lack of performance measures. It also became clear that vehicle operator cooperation, especially in preventive maintenance scheduling, needs to be improved.

MVM has done an excellent job in establishing guidelines for standard operating procedures, ( e.g. work order records, preventive maintenance procedures, parts inventory records and purchasing procedures ). The study team believes that there needs to be *uniformity* in the standard operating procedures of all shops, including management information systems, and automotive technician productivity and performance measures. MVM should work with the agency's to formulate uniform statewide standard operating procedures and performance measures that will become the minimum requirements for shop accreditation. All of the shops should use SCEMIS, or be able to produce annual reports that could be entered into it. All of the shops should use the MVM Statewide Automotive Repair Parts Contract. All of the shops should use the MVM Commercial Repair Program. All of the State's shops should be Accredited/Certified by MVM to operate.

MVM is a professional fleet management organization, staffed by experienced and knowledgeable experts. All of the state shops would benefit from having a closer relationship with MVM. The shops that are not physically consolidated will have the advantages of belonging to a large professional organization, and being located on their campus. This

can be done through enhancements to the current Certification process, and an expansion of what it reviews.

## Maintenance Facilities Throughout the State

The same conclusions and recommendations made for the Columbia area maintenance facilities apply to the maintenance facilities throughout the state.

- The shops should adopt and use the *South Carolina Equipment Management Information System,* or provide annual reports from their own management information system that includes specific data that can be entered into *SCEMIS.*

- The shops should use the *Statewide Automobile Repair Parts* Contract, unless they can document the fact that they are able to purchase parts more cheaply in another manner.

- The shops should use the *Commercial Repair Program.*

- All of the shops should be certified by a more comprehensive MVM Certification program that includes productivity and performance measures.

- Mechanic and operator training should be increased.

- Operators should be held accountable for meeting the maintenance schedules established by the shops.

- Funding for tools, equipment and building improvements should be provided where necessary.

- A fleet replacement schedule should be established and funded annually.

Spread throughout the counties are DOE and SCDOT facilities. The study team believes that serious consideration should be given to the

possibility of shared facilities, as SCDOT or SCDOE replace shops with new ones. The method for sharing can be worked out between SCDOT and SCDOE, but should include at least sharing of parts and administration.

The study team determined the value of the land and buildings of the SCDOT and SCDOE with the hope that the proceeds from the sale of these assets would finance the building of new shared facilities. Unfortunately this determination made it clear that the value of the existing property and facilities would not come close to financing new ones. The consolidation of SCDOT and SCDOE into shared facilities will have to be done incrementally as existing facilities need to be replaced, unless significant funding is provided by the Legislature for the construction of new shared facilities.

# APPENDIX

## 1) Staffing Study

A) Average Annual Technician Labor Hours
B) Non-Rebuild Shops
C) Unperformed Task Time to be Deleted
D) Services Performed at Each Shop
E) Fleet Inventory and Maintenance Facility Data

## 2) Mail Questionnaire

## 3) Interview/visit Checklist

## 4) SCDOE and SCDOT Land Values

# Staffing Study

This study started with the Air Force Equivelents method used by the Audit Council and the Compliance Review Committee. Time was taken off for re-building or overhauling engines, transmissions, transfer cases, and differentials, as most state shops don't have the capability to properly rebuild major components. Time was included for those cases where the engine, transmission, etc. is swapped out.

Time was also reduced by the tasks not performed at each individual shop.

# Non-Rebuild Shops

| Code | Type of vehicle or equipment | Recommended | |
|---|---|---|---|
| | | Hours | Equivelent |
| A | Passenger cars | 19 | 1 |
| B | Patrol Cars | 33 | 1.75 |
| C | Trucks up to one ton | 29 | 1.5 |
| D | Trucks one to three tons | 42 | 2.2 |
| E | Trucks over three tons | 57 | 3 |
| F | School Buses | 57 | 3 |
| G | School Buses with wheelchair lifts | 67 | 3.5 |
| H | Passenger Vans with wheelchair lifts | 38 | 2 |
| I-1 | Small Maintenance Equipment ( e.g. lawn mowers, chain saws, pumps) | 14 | .75 |
| I-2 | Medium Maintenance Equipment (e.g. bushhog, trencher, riding tractor) | 44 | 2.3 |
| I-3 | Large Wheeled Maintenance Equipment (eg. cranes, graders, backhoe) | 72 | 3.8 |
| I-4 | Large Tracked Maintenance Equipment (eg. bulldozer, cranes) | 91 | 4.8 |
| J | Trailers | 10 | .5 |

# Unperformed Task Time to be Deleted

| Task | Time Under One Ton | Time Over One Ton | Task | Time Under One Ton | Time Over One Ton |
|---|---|---|---|---|---|
| Repair (flat) Tires | .5 | 2 | Major Radiator Repair/Rebuild | .2 | .5 |
| Replace Tires | .5 | 2 | Brake Rotors Resurface | .4 | .5 |
| Wheel Alignment | .8 | .8 | Brake Drums Resurface | .3 | .8 |
| Renew Mufflers, Tailpipes, or Converts | .5 | .5 | Rebuild Alternator | .5 | .5 |
| Windshield or Glass Replacement | .5 | .4 | Rebuild Starter | 6 | 6 |
| Air Conditioning<br>Repair or Replace components | 1.5 | 1.5 | Repair or Replacement of :<br>Emission control components, fuel injectors sensors and computerized controls. | .5 | .2 |
| Timing Belt or Chain Renew | 1 | 1.5 | Refurbish Seats or Upholstery | .5 | .2 |
| Clutch Plate, Disk or Bearing Renew | 1.3 | 2.5 | Hydraulic Cylinders Reseal | 0 | 1 |

# Services Performed at Each Shop

| Service | Clemson | | Aeronautics | | Corrections | | DDSN | | DHEC | | Juvenile Justice | | SCDOT Depot | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton |
| Repair Flat Tires | no | no | yes | no | yes | no | yes | no | yes | yes | yes | no | yes | yes |
| Replace Tires | no | no | yes | no | yes | no | no | no | yes | no | yes | yes | yes | yes |
| Wheel Allign | no | no | no | no | no | no | no | no | no | no | no | no | yes | yes |
| Muffler | no | no | yes | yes | no | yes | no | no | yes | yes | yes | yes | yes | yes |
| Glass | no | no | no | no | no | no | no | no | no | no | no | yes | yes | yes |
| Air Condition | no | no | yes | yes | yes | no | yes | yes | yes | yes | no | no | yes | yes |
| Timing | yes | yes | | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| Clutch | yes | yes | yes | no | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| Radiator | no | no | no | no | no | no | no | no | no | no | no | no | no | no |
| Rotors | no | no | no | no | yes | no | yes | no | yes | yes | no | no | yes | yes |
| Drums | no | no | no | no | yes | no | yes | no | yes | yes | no | no | yes | yes |
| Alternator | no | no | yes | yes | no | no | no | no | no | no | no | no | yes | yes |
| Starter | no | no | no | no | no | no | no | no | no | no | no | no | yes | yes |
| Emission | yes | yes | yes | yes | no | no | yes | yes | yes | yes | yes | yes | yes | yes |
| Seats | no | no | no | no | no | no | no | no | no | no | no | no | no | no |
| Hydraulics | yes | no | no | no | yes | yes | no | no | no | no | no | no | yes | yes |

# Services Performed at Each Shop

| Service | SCDOT Rich. | | ETV | | Forestry | | Mental Health M. | | Mental Health F. | | MVM | | SLED | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicle | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton |
| Repair Flat Tires | yes | yes | yes | no | no | no | yes | yes | yes | yes | yes | no | yes | no |
| Replace Tires | yes | yes | yes | no | yes | yes | yes | yes | yes | yes | yes | no | yes | no |
| Wheel Allign | no | no | no | no | no | no | no | no | no | no | no | no | no | no |
| Muffler | yes | yes | yes | yes | yes | yes | no | no | no | no | no | no | no | no |
| Glass | no | no | no | yes | no | no | no | no | no | no | no | no | no | no |
| Air Condition | no | no | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| Timing | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| Clutch | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | no | no | no | no |
| Radiator | no | no | no | no | no | no | no | no | no | no | no | no | no | no |
| Rotors | no | no | no | no | no | no | no | no | no | no | yes | yes | yes | yes |
| Drums | no | no | no | no | no | no | no | no | no | no | yes | yes | yes | yes |
| Alternator | no | no | no | yes | no | no | no | no | no | no | no | no | no | no |
| Starter | no | no | no | yes | no | no | no | no | no | no | no | no | no | no |
| Emission | yes | yes | yes | yes | no | no | yes | yes | yes | yes | yes | yes | yes | yes |
| Seats | no | no | no | no | no | no | no | no | no | no | no | no | no | no |
| Hydraulics | no | no | no | no | no | no | no | no | no | no | no | no | no | no |

| Service | USC | | SCDOE Richland | | SCDOE Hopkins | | Criminal Justice | |
|---|---|---|---|---|---|---|---|---|
| Vehicle | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton | <1 ton | >1 ton |
| Repair Flat Tires | yes | yes | yes | yes | yes | yes | yes | yes |
| Replace Tires | yes | yes | yes | yes | yes | yes | yes | yes |
| Wheel Allign | no | no | no | yes | no | yes | yes | yes |
| Muffler | yes | yes | yes | yes | yes | yes | yes | yes |
| Glass | no | no | yes | yes | yes | yes | no | no |
| Air Condition | yes | yes | no | no | no | no | yes | yes |
| Timing | yes | yes | yes | yes | yes | yes | yes | yes |
| Clutch | yes | yes | yes | yes | yes | yes | yes | yes |
| Radiator | no | no | no | no | no | no | no | no |
| Rotors | yes | yes | yes | yes | no | no | yes | yes |
| Drums | yes | yes | yes | yes | no | no | yes | yes |
| Alternator | yes | yes | yes | yes | yes | yes | no | no |
| Starter | yes | yes | yes | yes | yes | yes | no | no |
| Emission | yes | yes | yes | no | yes | no | yes | yes |
| Seats | no | yes | no | yes | no | yes | no | no |
| Hydraulics | no | no | no | no | no | no | yes | yes |

## Vehicles and Equipment Serviced at this Facility

| 1) Types: | Number | General Condition (circle one) | | | Proximity to Shop (circle one) | | | | Maintenance Location (provide percent) | | | Engine Type (Provide percent) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Passenger Cars | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| Patrol Cars | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| Trucks up to 1 ton | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| Trucks 1 to 3 tons | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| Trucks over 3 tons | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| School busses | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| School busses with wheelchair lifts | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| Passenger van with wheelchair lift | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| Small maintenance equipment (lawnmowers, chain saws, pumps, etc.) | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| Medium maintenance equipment (bush hog, trencher, riding mower, etc.) | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| Large wheeled maintenance equipment (crane, backhoe, gradeall, etc.) | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| Large tracked maintenance equipment (bulldozer, crane) | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |
| Trailers | _____ | Good | Fair | Poor | On site | < 1 mile | 1-5 miles | >5 miles | Shop____% | Field____% | Vendors____% | Gasoline_____% | Diesel_____% |

**2)** Are there any unusual or specialized maintenance and repair requirements associated with servicing the units identified above. (Circle all those that apply)

1) mechanics must have a CDL

2) mechanics must be certified to conduct State Safety Inspection

3) mechanics must be on-call 24 hours a day

4 Other (please describe below)

_____

**3)** Are there any special security requirements for the units serviced at this facility? If yes what are they?

_____

## Facility Staffing

**4)** Indicate staffing (i.e. **funded** positions) by type:

| | **Number** | **Number of FTE employees devoted 100% to wrench turning Activities** |
|---|---|---|
| Managerial/Technical | _____ | |
| Clerical/Administrative | _____ | |
| Trades Supervisor/Foreman | _____ | _____ |
| Parts/Supply personnel | _____ | |
| Trades Helper | _____ | _____ |
| Mechanics | _____ | _____ |
| Other Support workers (e.g. Drivers, Custodial, Service station attendant) | _____ | _____ |
| Other (describe)_____ | _____ | _____ |
| Total | _____ | _____ |

## Facility Information

**5)** Estimated age of the facility? _____

**6)** Type of construction (circle one)

1) masonry 2) wood 3) steel/aluminum 4) concrete

**7)** Shopyard/parking surface (circle one)

1) asphalt 2) concrete 3) gravel 4)dirt 5) grass

**8)** Can the maintenance yard and shop floor accommodate heavy tracked maintenance equipment?

1) Yes 2) No

**9)** Does this facility have identifiable work bays (circle one)

1) Yes 2) No

If yes, how many bays of the following sizes?

| Small | Medium | Large |
|---|---|---|
| _____ (< 25' long) | _____(< 45' long) | _____> 45' long) |

**10)** Indicate the number and capacity of lifts in the facility by size:

| **Number** | **Capacity** (Pounds) | **Type** (circle all that apply) |
|---|---|---|
| _____ | _____ | 1) In ground 2) Floor mounted 3) Dual post 4) Single post |
| _____ | _____ | 1) In ground 2) Floor mounted 3) Dual post 4) Single post |
| _____ | _____ | 1) In ground 2) Floor mounted 3) Dual post 4) Single post |
| _____ | _____ | 1) In ground 2) Floor mounted 3) Dual post 4) Single post |
| _____ | _____ | 1) In ground 2) Floor mounted 3) Dual post 4) Single post |

**11)** Number of grease pits at this facility?_____

**12)** Is access to the facility limited in any way (e.g. excessive traffic, bridge load limit, narrow street)

Describe:_____

**13)** On the left side of the table below, rate the adequacy of each attribute of your facility using the following scale:
O = Not available 1 = Poor 2 = Fair 3 = Good

On the right side of the table, rate the importance of each attribute using the following scale:
1 = Not important, 2= Somewhat important 3= Very important

| ADEQUACY | | IMPORTANCE |
|---|---|---|
| 0 1 2 3 | Administrative office space | 1 2 3 |
| 0 1 2 3 | Conference/meeting room | 1 2 3 |
| 0 1 2 3 | Lunchroom | 1 2 3 |
| 0 1 2 3 | Lavatories/locker room | 1 2 3 |
| 0 1 2 3 | Paint and body shop | 1 2 3 |
| 0 1 2 3 | Number of work bays | 1 2 3 |
| 0 1 2 3 | Size of work bays | 1 2 3 |
| 0 1 2 3 | Parts storage area | 1 2 3 |
| 0 1 2 3 | Tools/equipment storage area | 1 2 3 |
| 0 1 2 3 | Vehicle/equipment storage area | 1 2 3 |
| 0 1 2 3 | Employee parking capacity | 1 2 3 |

| ADEQUACY | | IMPORTANCE |
|---|---|---|
| 0 1 2 3 | Maintenance storage area | 1 2 3 |
| 0 1 2 3 | Air conditioning (shop) | 1 2 3 |
| 0 1 2 3 | Heating | 1 2 3 |
| 0 1 2 3 | Headroom in work bays (to accommodate vehicle lifts) | 1 2 3 |
| 0 1 2 3 | Roof | 1 2 3 |
| 0 1 2 3 | Building security | 1 2 3 |
| 0 1 2 3 | Parking/maintenance yard security | 1 2 3 |
| 0 1 2 3 | Lighting | 1 2 3 |
| 0 1 2 3 | Customer waiting area | 1 2 3 |
| 0 1 2 3 | Compliance with OSHA regulations | 1 2 3 |
| 0 1 2 3 | Compliance with EPA regulations | 1 2 3 |
| 0 1 2 3 | Compliance with ADA regulations | 1 2 3 |

**14)** Does this facility have any dedicated "specialty" shops? (circle all that apply)

1) Machine
2) Metal working
3) Radio
4) Paint Body
5) Glass/Upholstery
6) Hydraulic
7) Alignment
8) I. Other (Describe below)

---

**15)** Does this facility have a paint spray booth which meets OSHA requirements? (Circle one)

1) Yes 2) No

**16)** Does this facility have dedicated quick fix/lube service bays? (circle one)

1) Yes 2) No

**17)** Number of tow trucks/wreckers/car carriers based at this facility?_____

**18)** Number of field service trucks (e.g. lube and tire repair trucks) based at this facility?_____

**19)** What services are performed in the field by mechanics assigned to this facility? (Circle all that apply)

1) Emergency response/towing
2) Tire repair
3) Preventive maintenance
4) Other routine repair

**20)** Are there fueling facilities at this site? (Circle one)

1) Yes 2) No

**21)** If there are fueling facilities at this facility, complete the following:

| | GAS | DIESEL |
|---|---|---|
| 1) Number of Pumps | _____ | _____ |
| 2) Number of storage tanks | _____ | _____ |
| 3) Total tank capacity (in Gallons) | _____ | _____ |

**22)** Number of fuel tank trucks based at this facility?_____

**23)** Is this maintenance facility building shared with any other activity or section? (Circle One)

1) Yes 2) No

If yes describe_____

**24)** Is the facility readily accessible to any State employee (i.e. not in a restricted area requiring assistance or accompaniment to gain access)?

1) Yes 2) No

**25)** Is the shop used for vocational training in automotive maintenance?

1) Yes 2) No

**26)** What are the normal hours of operation for this facility (e.g. Monday through Friday, 8:00 a.m. to 5:00 p.m.)

Days_____ Hours_____

**27)** How many hours were charged to work orders by mechanics assigned to this maintenance facility for FY 93-94

Number of hours_____

**28)** Does this facility provide maintenance and repair services to vehicles/equipment from other state agencies?

(Circle one) 1) Frequently 2) Sometimes 3) Seldom 4) Never

**29)** What is the value of parts inventory on hand? $_____

# FLEET MAINTENANCE OPERATION REVIEW CHECKLIST

Agency name _____

Facility name _____

Facility location _____

Manager's name/title _____

Phone number _____

Site visit date _____

**For items marked with an asterisk (*), determine whether documentation exists and obtain copies where practicable.**

□ Approximate age of automotive maintenance operation

□ Approximate age of automotive maintenance facility

**Service Delivery**

□ Customers (agencies) served

□ Approximate fleet size and composition

□ General fleet age and condition

□ Hours of operation

- ☐ Types of automotive maintenance and repair services provided in the shop

- ☐ Types of automotive maintenance and repair services provided in the field

- ☐ Other types of (non-automotive) maintenance and repair services provided

- ☐ Types of automotive maintenance and repair services sublet to vendors

- ☐ Types of fleet management and administration services provided (if applicable)

- ☐ Types of fuel provided (if applicable)

- ☐ Rationale for establishment/continuance of a separate fleet maintenance operation at this location (e.g., uniqueness, accessibility, security, integration with other m & r activities etc.)

- ☐ Mission (service versus control orientation)*

- ☐ Degree of interest shown and support provided by "upper management"

**Maintenance Resources**

- ☐ Organization structure and staffing*

- ☐ Adequacy of staffing

- ☐ Shop orderliness, cleanliness, condition, and overall appearance

- ☐ Yard orderliness, cleanliness, condition, and overall appearance

- ☐ Adequacy of shop equipment and tools

- ☐ Adequacy of support areas (offices, lavatories, lunch/break room, parts room, etc.)

- ☐ Notable defects

- ☐ Apparent compliance with OSHA, EPA, and other applicable regulations

**Finances**

- ☐ Funding source

- ☐ Current (FY 1995) budget amounts*

  - personnel $_____
  - parts $_____
  - contractual services $_____
  - fuel (if applicable) $_____
  - other $_____
  - fleet replacement (if known) $_____
  - other capital $_____

- ☐ Funding adequacy

- ☐ Charge-back rate structure (if applicable)*

- ☐ Cost allocation and rate-setting methodology (if applicable)*

- ☐ Billing and collection procedures (if applicable)*

- ☐ Ability to sell services to other agencies (i.e., to develop rates, generate bills, collect payments, manage funds)

**Maintenance and Repair Management**

- ☐ Preventive maintenance program organization, content, and derivation*

- ☐ PM scheduling and user notification procedures*

- ☐ PM schedule adherence

- ☐ Pre-trip inspection procedures*

- ☐ Incidence and nature of vehicle neglect/abuse

- ☐ Work prioritization and scheduling procedures (user lead time, appointments)*

- ☐ Service writing procedures (defect reporting, other communication with operator, warranty flagging, completion time estimate)*

- ☐ Work order completion procedures (repair codes and times, cause of repair codes, downtime tracking, user notification)*

- ☐ Work assignment procedures*

- ☐ Mechanic supervision procedures*

- ☐ Roadcall procedures*

- ☐ Quality assurance procedures*

- ☐ Customer feedback procedures*

- ☐ Customer relations

- ☐ Sublet repair procedures (pre-qualification of vendors, bid solicitation, expenditure authorization, vehicle delivery/pickup, vehicle inspection and invoice verification, information capture)*

- ☐ Mechanic certification and training programs and training budget*

- ☐ Mechanic turnover

- ☐ Mechanic tool allowance

- ☐ Tool security procedures*

- ☐ Record keeping procedures*

- ☐ Management information systems availability and use

- ☐ Adequacy of data processing support (if applicable)

- ☐ Data entry and verification procedures (if applicable)*

- ☐ Performance monitoring procedures (performance measures used, standard MIS reports used)*

- ☐ Performance reporting procedures*

- ☐ Parts purchasing procedures (specifications for contract parts, blanket purchase orders, ad hoc purchase orders, parts delivery/pickup procedures)*

- ☐ Parts management and control procedures (determination of stock items, determination of stocking levels, maintenance of perpetual inventory, inventory reports used, physical inventory procedures and adjustments to perpetual inventory, stockroom access/security)*

- ☐ Value of stock on hand

- ☐ Inventory turns per year

**Obstacles to Consolidation of this Operation with Others**

**Obstacles to Cosolidation of Other Operations with this One**

# SCDOT AND SCDOE LAND VALUES

| COUNTY | AGENCY | LOCATION | TMS # | SIZE | LAND VALUE ESTIMATE |
|---|---|---|---|---|---|
| ABBEVILLE | S.C. DEPT. OF ED. | HWY. 28, ABBEVILLE | 37-3W-90R | 6 AC | 60,000 |
| | S. C. DEPT. OF TRANS | MCGOWN AVE. ABBEVILLE | 4-B-13 | 5.5 | 25,000 |
| AIKEN | S.C. DEPT. OF ED. | 1574 HWY 1 N, AIKEN | 153-01-013 | 7.44 AC | 112,000 |
| | S.C. DEPT. OF TRANS | RT. 78., AIKEN | 155-01-059 | 1.4 | 31,500 |
| ALLENDALE | S.C. DEPT. OF ED. | NO BUS MAINTENANCE SHOP | | | |
| | S.C. DEPT. OF TRANS | GUM ST. , ALLENDALE | 105-04-04-015 | 3.98 | 28,500 |
| ANDERSON | S.C. DEPT. OF ED. | MIDWAY RD., ANDERSON | 147-12-01-022 | 9.3 AC | 55,800 |
| | S.C. DEPT. OF TRANS | GADSDEN ST., ANDERSON | 124-22-02-002 | 5.4 AC | 32,400 |
| BAMBERG | S.C. DEPT. OF ED. | NO BUS MAINTENANCE SHOP | | | |
| | S.C. DEPT. OF TRANS | S. MAIN ST., BAMBERG | 87-04-03-19 | 4.997 AC | 60,000 |
| BARNWELL | S.C. DEPT. OF ED. | COUNTRY CLUB RD., BLACKSVILLE | 123-05-00-001 | 6 AC | 12,000 |
| | S.C. DEPT. OF TRANS | FULLER ST., BARNWELL | 73-10-01-026 | 6.1 AC | 30,500 |
| BEAUFORT | S.C. DEPT. OF ED. | 196 BROAD RIVER RD. | R100-028-000-014.0000 | 9.5 | 71,000 |
| | S.C. DEPT. OF TRANS | (old vacant) 2021 BOUNDRY ST. | R120-001-000-0010 | 3.527 | 425,000 |
| | S.C. DEPT. OF TRANS | (new) 29 MUNC DR. | R100-028-000-0150-0000 | 20 AC | 100,000 |
| BERKELEY | S.C. DEPT. OF ED. | 644 WHITESVILLE RD., MONKES CORNER | 141-00-02-033 | 10 AC | 75,000 |
| | S.C. DEPT. OF TRANS | 438 N. HWY. 52, MONKES CORNER | 143-01-02-009 | 6.43 | 450,000 |
| CALHOUN | S.C. DEPT. OF ED. | MILLIGAN ST., ST. MATHEWS | 117-13-00-002 | 4 AC | 20,000 |
| | S.C. DEPT. OF TRANS | CORNER RD. & ROAD 35, ST. MATHEWS | 118-11-03-001 | 6.363 | 25,500 |
| CHARLESTON | S.C. DEPT. OF ED. | AZALEA & ROUNK ST., CHARLESTON | 411-14-00-001 | 4 AC | 120,000 |
| | S.C. DEPT. OF TRANS | WAPPOO RD., CHARLESTON | 351-16-00-026 | 3.8 | 380,000 |
| CHEROKEE | S.C. DEPT. OF ED. | UNION HWY., GAFFNEY | 102-00-00-014 | 7.5 AC | 8800 |
| | S.C. DEPT. OF TRANS | US RT. 29, GAFFNEY | 082-00-00-005 | 15 AC | 35,400 |
| CHESTER | S.C. DEPT. OF ED. | WILSON ST., EXT. CHESTER | 80-2-2-5 | 6 AC | 150,000 |
| | S.C. DEPT. OF TRANS | ASHFORD ST., CHESTER | 201-7-8-1 | 4 AC | 72,000 |
| CHESTERFIELD | S.C. DEPT. OF ED. | S.C. HWY. 265 CHESTERFIELD | 151-000-000-0066 | 6 AC | 10,800 |
| | S.C . DEPT. OF TRANS. | EAST BLVD., CHESTERFILED | 190-006-001-001 | 6.72 | 26,900 |
| CLARENDON | S.C. DEPT. OF ED. | SUMTER ST., MANNING | 169-16-05-001 | 5.78 | 11,600 |
| | S.C. DEPT. OF TRANS | US HWY. 521 | 187-07-00-019 | 5.88 | 27,200 |
| COLLETON | S.C. DEPT. OF ED. | ROBERTSON BLVD., WATERBORO | 16400-00-090 | 10 AC | 40,000 |
| | S.C. DEPT. OF TRANS | RT. 63, WATERBORO | 17800-00-143 | 13.8 | 69,000 |
| DARLINGTON | S.C. DEPT. OF ED. | S-16-589, DARLINGTON | 126-00-03-021 | 10 AC | 25,000 |
| | S.C. DEPT. OF TRANS | RT. 401, DARLINGTON | 165-05-02-007 | 4 AC | 600,000 |

# SCDOT AND SCDOE LAND VALUES

| | | | | | |
|---|---|---|---|---|---|
| DILLON | S.C. DEPT. OF ED. | NO BUS MAINTENANCE SHOP | | | |
| | S.C. DEPT. OF TRANS | E. MAIN ST., DILLON | 59-16-6-33 | 2.55 | 72,000 |
| DORCHESTER | S.C. DEPT. OF ED. | HWY. 167 ST. GEORGE | 046-00-00-020 | 6 AC | 18,000 |
| | S.C. DEPT. OF TRANS | RT. 76 ST. GEORGE | 05800-00-00-117 | 0.65 | 39,000 |
| EDGEFIELD | S.C. DEPT. OF ED. | ROLAND AVE., JOHNSTON | 179-00-00-016 | 6.05 | 9100 |
| | S.C. DEPT. OF TRANS. | US RT. 25 N., EDGEFIELD | 136-00-01-021 | 25.9 | 74,500 |
| FAIRFIELD | S.C. DEPT. OF ED. | 321 BYPASS | 167-00-01-009 | 5.98 | 150,000 |
| | S.C. DEPT. OF TRANS | RD. S -20-61 | 151-01-00-009 | 5.99 | 60,000 |
| FLORENCE | S.C. DEPT. OF ED. | NATIONAL CENTURY RD., FLORENCE | 00-178-01-031 | 63 AC | 200,000 |
| | S.C. DEPT. OF TRANS | HWY 76/301, FLORENCE | 90-156-02-017 | 18.74 | 300,000 |
| GEORGETOWN | S.C. DEPT. OF ED. | WASHINGTON ST. | 05-00007-006.00.00 | 5 AC | 25,000 |
| | S.C. DEPT. OF TRANS | MERRIMAN RD. | 05-00003-005.00.00 | 6.021 | 30,100 |
| GREENVILLE | S.C. DEPT. OF ED. | HALTON ROAD | 0260.00-01-015.01 | 6 AC | 379,000 |
| | S.C. DEPT. OF TRANS | HALTON ROAD | 0260.00-01-015.02 | 3.5 AC | 221,100 |
| | S.C. DEPT. OF TRANS | SALUDA DAM RD. | B014.00-02-004.00 | 15.2 | 45,600 |
| GREENWOOD | S.C. DEPT. OF ED. | 412 WINGARD RD. | 119-00-04-001 | 9.6 | 23,100 |
| | S.C. DEPT. OF TRANS | ALEXANDER AVE. | 100-06-02-004 | 17.6 | 704,000 |
| | | | | | |
| HAMPTON | | | | | |
| | | | | | |
| | | | | | |
| HORRY | S.C. DEPT. OF ED. | HWY 701 N. | 110-00-05-002 | 9.4 | 15,000 |
| | S.C. DEPT. OF TRANS | 4TH AVENUE | 137-05-18-002 | 4 | 72,000 |
| JASPER | S.C. DEPT. OF ED. | NO MAINTENANCE FACILITY | | | |
| | S.C. DEPT. OF TRANS | WOODLAWN ST. | 063-25-05-018 | 3.1 AC | 65,500 |
| KERSHAW | S.C. DEPT. OF ED. | KING & FAIR ST., CAMDEN | C-285017-0057 | 5.3 AC | 70,000 |
| | S.C. DEPT. OF TRANS | FAIR ST., CAMDEN | C-285-17-00-057 | 6 AC | 60,000 |
| LANCASTER | S.C. DEPT. OF ED. | HWY 521 N., LANCASTER | 110-19 | 7.7 AC | 13,600 |
| | S.C. DEPT. OF TRANS | 1694 PAGE LAND HWY, LANCASTER | 68-L-F-3 | 8.33 AC | 23,000 |
| LAURENS | S.C. DEPT. OF ED. | FAIRGROUNG RD., LAURENS | 906-20-01-075 | 7.26 AC | 36,300 |
| | S.C. DEPT. OF TRANS | TODD AVE., LAURENS | 906-07-02-017 | 7.35 AC | 36,750 |
| LEE | S.C. DEPT. OF ED. | E. CHURCH ST., BISHOPVILLE | 030-11-00-182 | 5.31 | 53,100 |
| | S.C. DEPT. OF TRANS | E. CHURCH ST., RT.341 E., BISHOPVILLE | 030-11-00-105 | 3.61 | 25,200 |
| LEXINGTON | S.C. DEPT. OF ED. | BARR RD., LEXINGTON | 05300-02-0306 | 10.36 AC | 62,000 |
| | S.C. DEPT. OF TRANS | 124 PARK RD., LEXINGTON | 4323091091 | 7.92 AC | 90,000 |
| MCCORMICK | S.C. DEPT. OF ED. | NO BUS MAINTENANCE SHOP | | | |
| | S.C. DEPT. 0F TRANS | RD. # 3358, MCCORMICK | 138-00-00-018 | 10.627 | 26,000 |

# SCDOT AND SCDOE LAND VALUES

| | | | | | |
|---|---|---|---|---|---|
| MARION | S.C. DEPT. OF ED. | HWY # 501, MARION | 2-60 | 10.75 | 32,250 |
| | S.C. DEPT. OF TRANS | 911 GOLDBOLD ST., MARION | 514-11-2 | 5.2 | 104,000 |
| MARLBORO | S.C. DEPT. OF ED. | TROOP ST., BENNETTSVILLE | 39-00-02-28 | 6 AC | 45,000 |
| | S.C. DEPT. OF TRANS | HWY # 38 & TROOP ST., BENNETTSVILLE | 39-14-01-01 | 8 AC | 60,000 |
| NEWBERRY | S.C. DEPT. OF ED. | AIRPORT RD., NEWBERRY | 284-1-3 | 6.36 AC | 22,300 |
| | S.C. DEPT. OF TRANS | RD. # 44 NEWBERRY | 397-8 | 9.9 AC | 35,000 |
| OCONEE | S.C. DEPT. OF ED. | 208 BOOKER DR., WALHALLA | 191-00-01-013 | 8.56 C | 34,200 |
| | S.C. DEPT. OF TRANS | 54TH ST., SENECA | 520-39-01-003 | 3.44 AC | 18,880 |
| ORANGEBURG | S.C. DEPT. OF ED. | US 301, ORANGEBURG | 0151-00-00-049 | 6 AC | 24,000 |
| | S.C. DEPT. OF TRANS | US HWY 178, ORANGEBURG | 0191-01-01-001 | 7.5 AC | 375,000 |
| | S.C. DEPT. OF TRANS | US HWY 176 HOLLY HILL | 0322-00-00-012 | 5 AC | 6,000 |
| PICKENS | S.C. DEPT. OF ED. | IRELAND RD., PICKENS | G11-07-0190 | 5.85 | 22,000 |
| | S.C. DEPT. OF TRANS | BREYEALE RD., PICKENS | G13-00-068B | 12.15 | 40,000 |
| RICHLAND | S.C. DEPT. OF ED. | 8016 WILSON BLVD., COLUMBIA | 14403-03-01 | 15.4 AC | 693,000 |
| | S.C. DEPT. OF TRANS | SHOP RD., COLUMBIA | 11214-03-01 | 46.2 | 1,848,000 |
| | S.C. DEPT. OF TRANS | MARSTELLAR ST., COLUMBIA | 09213-04-007 | 3.14 AC | 204,831 |
| SALUDA | S.C. DEPT. OF ED. | NO BUS MAINTENANCE SHOP | | | |
| | S.C. DEPT. OF TRANS | RDS. 140 & 61, SALUDA | 079-24-01-002 | 9.68 | 116,200 |
| SPARTANBURG | S.C. DEPT.OF ED. | | 6-11-00-125 | 7.4 AC | 96,200 |
| | S.C. DEPT. OF TRANS | RT. I-85, SPARTANBURG | 6-12-135 | 11.75 | 282,000 |
| SUMTER | S.C. DEPT. OF ED. | COMMERCE ST., SUMTER | 249-0703-12 | 10 AC | 12,000 |
| | S.C. DEPT. OF TRANS | MODNEYHAN RD., SUMTER | 251-00-0003-09 | 4.4 | 32,500 |
| UNION | S.C. DEPT. OF ED. | US HWY 176 N., UNION | 55-0-0-85 | 10 AC | 10,000 |
| | S.C. DEPT. OF TRANS | MAY ST. , UNION | 73-3-9-15 | 5.5 AC | 20,000 |
| WILLIAMSBURG | S.C. DEPT. OF ED. | RD. 527, KINGSTREE | 118-56-18 | 5.2 AC | 26,000 |
| | S.C. DEPT. OF TRANS | | 18-51-6 | 15.1 | 67,950 |
| YORK | S.C. DEPT. OF ED. | HWY 324, ROCK HILL | 397-19 | 8 AC | 16,000 |
| | S.C. DEPT. OF TRANS | CAMDEN AVE., ROCK HILL | 596-3-2-1 | 2.37 | 14,200 |
| | | | | | 10,447,361 |