Audit Commission

IMPROVING VEHICLE FLEET MANAGEMENT IN LOCAL GOVERNMENT

The Audit Commission for Local Authorities in England and Wales

VP 1
Improving Vehicle Fleet Management in Local Government

A Study by the Audit Commission

October 1984
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Foreword

The Audit Commission for Local Authorities in England and Wales (the Commission) appoints auditors to over 8,000 bodies. These auditors are required to satisfy themselves that Authorities are spending money in accordance with the law and also that they have made proper arrangements for securing economy, efficiency and effectiveness in their use of resources.

The Local Government Finance Act of 1982, which established the Commission, requires the Commission to undertake or promote comparative and other studies designed to enable it to make recommendations for improving economy, efficiency and effectiveness in the provision of Local Authority services (Section 26). It is also required to undertake studies designed to enable it to report on the impact of particular statutory provisions, or directions, or guidance given by Ministers on economy, efficiency and effectiveness in the provision of Local Authority services (Section 27). In addition, from time to time the Commission publishes the consolidated results of auditors' studies of particular local authority services or costs.

So far, since it took up its responsibilities in April 1983, the Commission has published reports on auditors' examinations of the management of council tenants' arrears, purchasing and refuse collection, in addition to statistical profiles of each principal Authority and a handbook on Economy, Efficiency and Effectiveness. The Commission has also published a report on The Impact on Local Authorities' Economy, Efficiency and Effectiveness of the Block Grant Distribution System.

This report on the management of vehicle fleets is the first to result from the special studies carried out under Section 26 of the Act. It will be followed by reports on studies now underway on non-teaching costs in secondary schools, social services and council house management and maintenance.

The Commission is an independent body. Its costs are met from the audit fees paid by Local Authorities. The Chairman of the Commission is John L. Read, FCA, Chairman of the LEP Group of companies. Its members are drawn from industry and commerce, the accountancy profession, local government and the trades unions. They are: Sir Lawrie Barratt, Sir Kenneth Bond, Peter Bowness, Keith Bridge, Ian Coutts, Ian Hay Davison, Geoffrey Drain, Dudley Fisher, Professor Christopher Foster, John Gunnell, Noel Hepworth, Peter Kimmance, David Lees, Ian McCallum and Roy Shaw. The Controller of Audit and the Commission's Chief Executive is John Banham, formerly a Director of McKinsey and Company, Inc.

October 1984
Local Authorities in England and Wales spend around £1 billion a year on transport, of which about £700 million is on their own fleets of vehicles and major plant excluding police vehicles. A typical county council might spend £3–4 million a year on transport, and operate 500 vehicles; many district councils operate 100 vehicles or more. Auditors will be concentrating attention on transport during their value for money work associated with the audit of the accounts for the present financial year.

The Commission's study has shown very wide variations in practice, even between authorities known to be better than average in terms of vehicle fleet management. Numbers of vehicles, maintenance costs and operating costs all vary by factors of two or more, even after differences in local conditions are taken into account.

The study suggests that annual savings of £130 million or more are possible if authorities adopt the following good transport practices, designed to reduce the number of vehicles and reduce maintenance costs per vehicle without compromising service or safety standards:

(i) Avoiding over caution in setting reserve vehicle levels. Reserve vehicle levels are often higher than they need be, even given current maintenance practices. This is especially evident in the refuse collection service, where reserves of 35% or more are common even though 25% should suffice in most cases. Requirements for reserve vehicles can be significantly reduced if maintenance is undertaken outside the normal working day. This can be a viable proposition in a main workshop or where there is a municipal bus fleet sharing the main fleet's workshop.

(ii) Pooling vehicles between departments. Education and social services in particular often fail to pool vehicles such as minibuses for which they have complementary uses. Many vehicle types - light and medium sized vans, for example - are used on several services and should be pooled between departments, if necessary distinguishing between clean tasks - for example, school meals delivery - and dirty tasks - for example, highway maintenance.

(iii) More use of spot hire as a means of reducing reserve vehicle requirements. It is more economic to cater for the average demand for vehicles in-house and to spot hire during periods of peak demand even when spot hiring rates are double or treble the authority's internal hire rate. Currently, spot hire rates are quite low because of the recession; and specialist vehicles are now more widely available for hire than five years ago.

Many authorities regard cutting back on spot hire as an economy; as a result, levels of spot hire in small authorities in particular are often now too low. Ideally spot hire should be centrally co-ordinated, with rates obtained by annual competitive tender.

(iv) Improved records of utilisation. Current records of utilisation are often unreliable and inconsistent. Better records, regularly reviewed, would
alert management to excess vehicles. Most vehicles should be achieving 1,500 hours use per year.

(v) Greater inter-authority co-operation, e.g. by inter-hiring spare refuse freighters and contracting out maintenance to neighbouring authorities (for example of vehicles garaged inconveniently far from the nearest in-house workshop).

(vi) Contract hire, where this is economic. Authorities should make regular comparison of their transport costs against the contract hire rates open to them. In-house provision should be cheaper overall in a well run authority; but contract hire is particularly competitive for light vehicles. With contract hire the authority enters into a contract with a company for the provision and maintenance of a vehicle or fleet of vehicles over a long period of time, typically three to five years. The contract will stipulate the total vehicle costs excluding fuel, subject only to an annual adjustment for inflation. The contract can also stipulate the provision of a replacement vehicle in the event of a breakdown lasting more than a certain period, except usually for specialised vehicles such as refuse freighters.

(vii) Increased standardisation of vehicles. There are likely to be benefits from standardisation on one or two makes of vehicle. In deciding which vehicle type and make to acquire, regard should be paid not only to purchase price but also to whole-life costs including fuel and maintenance. Having selected the appropriate vehicle type and make, the best prices are achieved through:
- maximising the number of vehicles purchased at one time
- avoidance of over-elaborate specifications
- awareness of retroactive discounts.
This requires central co-ordination by a transport specialist, and may necessitate streamlining of current standing orders.

(viii) Planned replacement, based on regular vehicle-by-vehicle analysis of the trade off between maintenance and replacement costs. In the absence of such an approach, authorities tend to keep vehicles too long, probably because it can appear attractive to postpone replacement as a short term economy measure.

(ix) Sale by auction. This is administratively convenient and increasingly popular; other methods should require specific justification.

(x) Competitive driver productivity. To get best value, authorities should ensure that drivers undertake other work when there is insufficient driving work, e.g. by designating them as highways drivers/road men. They should also avoid assigning drivers exclusively to one vehicle or vehicle type and ensure adequate supervision of drivers' maintenance of vehicles.

(xi) Attention to potential fuel economies. Tighter control of issues and monitoring of consumption against mileage (e.g. with automatic dispensing equipment) is a worthwhile investment for most authorities. Many authorities are making increasing use of alternative fuels and electric vehicles.

(xii) Fewer scheduled workshop visits and less frequent servicing. Some authorities' vehicles make scheduled visits to workshops up to three times more frequently than those of others maintaining their vehicles in equally roadworthy condition. Some authorities incur unnecessary costs by servicing their vehicles at every scheduled visit to the workshop, irrespective of mileage since the last visit. Service intervals should conform to the manufacturers' specifications.

(xiii) Inspection by skilled fitters. Workshops which rely on the skilled fitter to detect vehicle defects maintain their fleets equally satisfactorily,
30% more economically and with faster vehicle turnaround than workshops which make separate inspection. A full-time workshop inspector/examiner is only likely to be justifiable in fleets of more than about 300 vehicles (where there is sufficient work examining vehicles with major problems or for potential disposal) or where there is a light MOT station.

(xiv) Few indirect staff in workshops. A receptionist to deal with booking-in vehicles and external liaison should not be necessary if fewer than 20 vehicles are entering the workshop each day. But if more than 20 vehicles enter per day, the foreman/chargehand will need assistance with reception duties. Other indirect staff should not be found outside the largest workshops; employment of semi-skilled fitters for lubrication and moving vehicles, or of full-time vehicle cleaners is not recommended.

(xv) Contracting out specialist maintenance work. Specialist work such as body and paint shops, unit overhauls and fitting additional equipment to vehicles should only be undertaken in-house where the full cost is identified and shown to be cheaper than contracting out. This is unlikely to be the case for a mixed fleet except where police, fire or bus fleets are maintained in the same workshop. The argument that specialist work occupies spare capacity is usually only valid in the very short term. Often the unidentified overhead costs of such work - under-utilised equipment and the need for more supervision than routine work - are the underlying cause of overall poor workshop performance. For a typical district council the cost penalty could be £100,000 per annum.

(xvi) Convenient location of premises. It is advantageous to locate maintenance facilities close to users' garaging depots. In a county, this implies a network of small workshops, perhaps with one central repair workshop.

(xvii) Effective bonus schemes. Traditional bonus schemes based on job by job assessment of work content are associated with high maintenance costs. By concentrating on the amount of work done (the input) they either encourage over-maintenance or require duplication of inspection work to control them. They are also costly to administer. A preferable type of scheme is one in which bonus reflects the number of vehicles supported per man and the success with which vehicles are kept in roadworthy condition. Such schemes are especially appropriate where implemented subsequent to a traditional scheme which has established a reasonable level of productivity. They require:
- a manning level agreement based on an assessment of total support man hours needed for the fleet
- measures of vehicle availability or task completion (e.g. number of services).

(xviii) Competitive workshop productivity. Manning levels should be calculated by an assessment of the total support man hours required for the fleet. To perform this calculation precisely it is necessary to apply a weighting to each category of vehicle, reflecting the typical extent of maintenance work. This report gives a set of weights for performing this calculation, but as an approximation the number of vehicles or items of heavy moveable plant per workshop personnel (including staff grades) should be more than 10 in a fleet with a high proportion of specialised heavy vehicles (e.g. many district councils) and about 15 to 20 in a fleet with a high proportion of light vehicles (e.g. some county councils). These figures exclude items of light plant such as mowers and fitters engaged on their maintenance; for the purposes of calculation
such items are assumed to be maintained in a separate shop. Labour utilisation may be poor due to ineffective working, undeclared lost time, excessive work content or time spent attending the transport user (for example travelling time, ferrying vehicles). It is important to record lost time and the reasons for it so that it can be controlled and justified.

(xix) Parts ordering and storage under workshops' control. This should minimise costs and stock levels because double handling of information is avoided and the workshops have the clearest understanding of the engineering aspects, such as patterns of component failures. Overmanning should be avoided by the use of open substores controlled by the foreman/chargehand. There should be low stock-holding, comprising mainly service spares, key spares for priority vehicles and those presenting supply problems.

This report covers each of these points in turn, describing good practice in detail and drawing attention to the evidence from the study that it is not yet universally applied at present. The final section describes the characteristics of a well managed transport operation, summarised in the exhibit overleaf. It will be evident that the Commission considers that the good practices outlined above will be difficult to achieve unless two conditions are met.

First, transport responsibilities should be centralised. Operational decisions on allocation and deployment of vehicles are a user department function. However, it is advantageous to co-ordinate other transport responsibilities centrally, especially procurement, reserve vehicle numbers, spot-hire, maintenance arrangements, licensing and insurance. Co-ordination is most readily achieved by centralising managerial control under a transport manager. It is essential that competitive pressures are placed on a centralised transport organisation otherwise it may become bureaucratic and inefficient. Regular comparisons should be made with contract hire rates and outside maintenance costs. User departments should have the ultimate sanction of being able to go outside the authority for their vehicles or maintenance if they can demonstrate that it would be consistently cheaper.

Second, effective management information systems will be necessary to provide critical facts on vehicle costs and utilisation. Authorities with fleet sizes above about 100 vehicles should consider computerising their management information, and above about 250 vehicles the benefits of computerisation will be considerable.
## OVERVIEW OF A SUCCESSFUL TRANSPORT ORGANISATION

### VISION

Provide a central transport organisation that will provide service departments with vehicles 20% cheaper than if they obtained them on contract hire.

### STRATEGY

- Offer a “contract hire with maintenance” service to the users
- Use available scale to negotiate better purchasing discounts on new vehicles and spare parts. Spread overheads over the whole fleet
- Check internal hire rates against private firms. Users free to go outside if consistently cheaper to do so
- Pool all reserve vehicles (except police and fire)
- Maintain vehicles owned by police and fire (in counties)
- Seek arrangements with neighbouring authorities for maintenance of out-stationed vehicles and pooling reserve specialist vehicles
- Contract-out for vehicles and maintenance where more economic to do so (eg. for specialist maintenance work, vehicles with irregular demand)

### STRUCTURE

- Central control of all transport provision and maintenance
- Maintenance treated as separate cost centre within transport
- Use outside garages for maintenance where appropriate
- In counties, locate workshops close to the main users’ depots

### STYLE

- Run like a commercial hire firm. Non-bureaucratic approach
- Treat user departments as “customers”
- Liaise with neighbouring authorities
- Market services to neighbouring authorities and health authorities
- Council Committee agrees budget and main programme but avoids involvement in details

### SYSTEMS

- Computerised management information system
  - utilisation
  - fuel consumption
  - maintenance
- Individual vehicle costing on a whole life basis
- Market services to employers and health authorities
- Council Committee agrees budget and main programme but avoids involvement in details
- Regular checking of internal charges and costs against
  - contract hire
  - spot hire
  - private garages
- Workshop manning levels based on support man hours

### SKILLS/STAFFING

- Lean, professional staffing (2 or 3 central staff in a district, no more than 10 in a county). Assign the following responsibilities:
  - procurement and disposal of vehicles
  - customer liaison/sales manager
  - utilisation officer to co-ordinate spot hiring and secure utilisation of 1,500 hours/year
  - information officer
  - maintenance manager, with a target of £700 per weighted vehicle

- Transport manager “buys-in” central services (eg. financial and legal) from Treasurer etc.

* Usually, not full-time posts
1. Local Authority transport is big business. A typical county council owns and maintains about 500 vehicles and a similar number of items of major plant, costing the authority about £3 to £4 million per year. A typical district council runs a fleet of about 100 vehicles. On top of this, education authorities spend about £135 million annually on getting children to school, either by hired vehicles or stage carriage bus services. Police expenditure on transport is about £100 million per year. All local authorities recompense some of their staff for using their private cars for business purposes. In total, local authorities in England and Wales spend over £1,000 million a year on transport, including about £700 million on their own fleets of vehicles and major plant. Each shire district has about one vehicle maintenance workshop and a shire county about six, with each workshop employing anything from two to 40 skilled fitters plus management and supervisory staff. The cost of maintaining local authority fleets is about 40% of the total fleet cost, or some £280 million per year for authorities in England and Wales. Table 1 below shows how the costs of a typical county and district in operating its own transport are made up.

Table 1: Illustrative Vehicle Fleet Costs
1983-4

<table>
<thead>
<tr>
<th></th>
<th>Small County</th>
<th>Shire District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repairs and Maintenance</td>
<td>1.35</td>
<td>.30</td>
</tr>
<tr>
<td>Fuel and Oil</td>
<td>.45</td>
<td>.15</td>
</tr>
<tr>
<td>Overheads and Depot Charges</td>
<td>.25</td>
<td>.08</td>
</tr>
<tr>
<td>Licences and Insurance</td>
<td>.15</td>
<td>.05</td>
</tr>
<tr>
<td>Vehicle Replacement</td>
<td>1.10</td>
<td>.25</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>3.30</strong></td>
<td><strong>.83</strong></td>
</tr>
</tbody>
</table>

2. It is clear from auditors' reports on individual authorities that there are considerable variations in the expenditure and amount of attention given to vehicle management. Much of this expenditure is within the control of individual service departments, where it may represent only a small proportion of a department's budget. * Partly for this reason, transport has not, until recent years, always received the amount of attention it warrants. Yet transport is an area where worthwhile economies have been made by many authorities and where improvements in the efficiency and effectiveness of the main local authority services can be made by the correct deployment of vehicles to tasks.

3. With these factors in mind the Audit Commission has determined that transport should be one of the services on which auditors should concentrate during their audits of the accounts for 1984–5. This study has been undertaken to identify good practice in the management, maintenance and utilisation of

* For example, transport accounts for under 10% of non-teaching costs.
vehicle fleets*. The study was under the direction of one of the Commission's Project Managers, Stephen Evans. The work was divided into two separate projects. A review of vehicle operations and management was undertaken by Public Sector Management (PSM) and one of maintenance by Inbucon Management Consultants. Additional material was contributed by Deloitte Haskins & Sells Management Consultants. The study was directed at the fleets of vehicles used by the main service departments in local authorities; police and fire vehicles and stage carriage bus services were not given detailed consideration in the review of operations and management, but were included in the review of maintenance.

4. This report draws on information obtained from over 70 different authorities. The fieldwork for the study commenced in November 1983 and was substantially completed by March 1984. Visits were made to more than 25 authorities shown in Appendix A. Ten were studied in considerable depth, with the consultants committing between four and eight man weeks of work in each authority. Discussions were held with senior officers from more than 20 other authorities, representatives of professional associations and senior personnel of 15 firms running fleets in the private sector. Data on costs and practices were obtained from a further 45 authorities by auditors. The local authority associations have been consulted both before and during the study. Appendix A lists the authorities and organisations that have been involved in the work.

5. The study reveals a large variation in costs and practices. Some of the variation resulted from different but valid ways of doing the same job and from different circumstances (e.g. terrain and inherited problems related to depot and workshop location) outside the control of authorities. However in the authorities investigated in depth - and all were selected as potential examples of good practice - we found scope for savings ranging up to 25% of the total transport budget. After making allowance for factors outside their control, some authorities stand out as markedly more efficient than others. Variations in efficiency of the order of 2:1 were encountered, particularly with regard to cost of transport and the number of vehicles used to do the same job (defined, for example, as the number of road gullies emptied per year).

6. Although it is difficult to generalise from a sample, albeit a large one, universal application of the good practice outlined in this report would result in savings of £130 million a year or more with no necessary reduction in standards of service.

These savings result from taking steps to:

(i) **Reduce the number of vehicles** operated by the authority without compromising service standards. Chapter One describes how in many authorities the size of the fleet can be reduced by 20% and more.

(ii) **Minimise maintenance costs per vehicle** without reducing availability or safety levels. Chapter Two shows how better management of maintenance in an authority can also often reduce maintenance costs by 20% and result in better vehicle availability.

(iii) **Improve management effectiveness.** In many authorities the present organisation structure and management systems may not permit authorities to take the steps needed to reduce the vehicle fleet or improve maintenance performance. Chapter Three, therefore, outlines the management arrangements likely to be needed if an authority is to secure the full improvement potential in its transport operations.

Exhibit 1 summarises the main initiatives that can be taken to reduce transport costs and relates these to the structure of this report.

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* In this report the term vehicle should be read as including major moveable plant, but excluding items of plant such as mowers and compressors.
SUMMARY OF POSSIBLE INITIATIVES TO REDUCE TRANSPORT COSTS

Objective: reduce transport costs of owned vehicles

- Establish optimum fleet size [Chapter One]
- Review replacement policy
  Objective: Establish the correct balance between maintenance costs and replacement costs
- Review fuel control
  Objective: to reduce pilfering and identify rogue vehicles
- Review purchasing procedure for new vehicles
  Objective: obtain vehicles at lowest overall cost to authority
- Review maintenance
  Objective: to reduce maintenance costs and vehicle-off-road days [Chapter Two]
- Introduce computerised management information system,
  Objective: monitor costs and performance of individual vehicles [Chapter Three]

- Pool general purpose vehicles
- Spot hire to meet peak demand
- Increase inter-authority hiring of specialist vehicles
- Reduce vehicle reserves
- Determine economic lives for each vehicle group
- Sale by auction
- Use fuel monitoring equipment to monitor consumption of individual vehicles
- Colour fuel
- Purchase in batches
- Avoid over-detailed specifications
- Establish manning levels in relation to "support manhours"
- Extend scheduled service intervals
- Review inspection procedure
- Introduce vehicle availability bonus scheme
- Contract-out specialist work and maintenance of out-stationed vehicles
- Consider out-of-hours maintenance
We would like to acknowledge the major contribution made by the authorities studied and thank them for their time and effort in gathering and checking information. Without exception, we were given every assistance. In return we hope that our review will have assisted them in improving their efficiency still further. The Local Authority Associations have made many helpful comments, as have the trades unions and professional bodies consulted during the study. But responsibility for the conclusions set out in this report rests with the Commission.
1 Reducing Fleet Operating Costs

7. The Commission study has revealed startling differences in fleet operating practices among the authorities surveyed, even among the in-depth sample authorities selected because their transport operations were generally regarded as well managed. For example:
(a) The numbers of vehicles used for defined tasks vary by factors of 2:1 and often more, even when different local circumstances are taken into account. Table 2 illustrates the differences for some specialist vehicles and tasks.

Table 2: Vehicles Operated by Sample Authorities

<table>
<thead>
<tr>
<th></th>
<th>Lowest</th>
<th>Average</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Services: per 100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>client trips per day</td>
<td>2.19</td>
<td>2.89</td>
<td>3.94</td>
</tr>
<tr>
<td>Parks: per labourer</td>
<td>.14</td>
<td>.23</td>
<td>.30</td>
</tr>
<tr>
<td>Building Maintenance:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>per tradesman</td>
<td>.08</td>
<td>.24</td>
<td>.70</td>
</tr>
<tr>
<td>Street Lighting Maintenance:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>per 1,000 columns</td>
<td>.17</td>
<td>.48</td>
<td>1.70</td>
</tr>
<tr>
<td>General Highways Work:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>per employee</td>
<td>.14</td>
<td>.37</td>
<td>.83</td>
</tr>
<tr>
<td>Mechanical Sweeping:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>per 1,000 channel miles swept p.a.</td>
<td>.13</td>
<td>.43</td>
<td>1.11</td>
</tr>
<tr>
<td>Manual Sweeping:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>per orderly</td>
<td>.15</td>
<td>.31</td>
<td>.70</td>
</tr>
<tr>
<td>Refuse Collection:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>per round</td>
<td>1.13</td>
<td>1.36</td>
<td>1.62</td>
</tr>
<tr>
<td>Gully Emptying:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>per 100,000 gullies flushed</td>
<td>3.3</td>
<td>8.2</td>
<td>13.3</td>
</tr>
</tbody>
</table>

(b) Vehicle utilisation varies significantly for the same type of vehicle. For example, some authorities are far short of achieving the utilisation levels (1,250 hours a year) necessary to justify ownership of light vehicles while others comfortably exceed the target levels of 1,700 hours.
(c) Vehicle reserve levels in services like refuse collection vary from under 20% to over 50%. Since the standing cost of each specialist vehicle is about £9,000 a year and a typical district needs 10 or so vehicles, the excess cost of a higher than necessary reserve could easily exceed £30,000 a year. Even if the reserve vehicles are beyond normal replacement age, the excess costs of licence, insurance and keeping the vehicle roadworthy will be about £3,000 per vehicle per annum.

8. This chapter describes the following steps that authorities should be taking - if they have not already done so - to reduce the costs of operating their transport fleet:
(i) Determine the size of the fleet needed to provide necessary local services.
(ii) Review purchasing procedures, to obtain vehicles at lowest overall cost to the authority.
(iii) Review existing policies for replacing and disposing of vehicles.
Tighten control over fuel to reduce the risk of pilfering and to identify rogue vehicles.

9. The most effective way of reducing local authority transport costs is to reduce the size of vehicle fleets. Local authorities can reduce the number of vehicles they hold in four ways:

(i) reducing the level of vehicle reserves. In general, local authorities are too cautious, providing too many reserve vehicles to cover vehicle breakdowns and fluctuations in workload.

(ii) pooling of general-purpose vehicles (e.g. light vans) between service departments; and hiring of specialised vehicles (e.g. refuse collection) between neighbouring authorities.

(iii) more efficient maintenance practices and scheduling, including maintenance undertaken outside the normal working day.

(iv) increased hiring to meet peaks in workload. For vehicles used on unscheduled and fluctuating tasks such as highways and building maintenance and parks, authorities should own sufficient vehicles for the average daily requirements and spot hire from local firms to cover peak requirements.

10. A reduction in fleet size is not directly translatable into cost savings. Although vehicle standing costs will be lower, a reduction in fleet size may lead to higher hiring costs and a transfer of running costs to retained vehicles. Nevertheless, savings in fleet operating costs of between 5% and 10% would appear to be achievable nationally solely through a reduction in reserve vehicle levels. Exhibit 2 summarises the main initiatives local authorities should take to reduce fleet size, which are discussed in turn below.

11. Reserve or spare vehicles are needed to cover variations in workload and availability of vehicles. Reserve vehicle levels in local authorities are often excessive. For example, many refuse collection authorities have spare vehicle ratios of about 50% or more when most authorities should be able to operate with less than 25%. Moreover, poolable vehicles, such as general purpose light vans, often have overall average utilisation rates of less than 1300 hours per annum when a realistic target should be 1700 hours.

12. The level of reserve vehicles needed for each task depends on two factors: whether or not the task is predictable, i.e. whether the amount of work to be done is known in advance; and whether or not the task is scheduled, i.e. whether it is essential that the work be carried out at some predetermined time. Table 3 below summarises good practice. Even for a task requiring high reserves such as refuse collection, reserves should not exceed 25% and can often be somewhat lower.

<table>
<thead>
<tr>
<th>Predictable Demand</th>
<th>Unscheduled Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled Service</td>
<td>E.g. refuse collection, education, day centre transport, school meals, meals on wheels</td>
</tr>
<tr>
<td></td>
<td>E.g. street lighting, road sweeping, gully emptying</td>
</tr>
<tr>
<td>Unpredictable Demand</td>
<td>High for specialist vehicles, low for general purpose</td>
</tr>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>E.g. Winter maintenance of highways</td>
</tr>
<tr>
<td></td>
<td>E.g. general highway maintenance, building maintenance, parks</td>
</tr>
<tr>
<td></td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Own sufficient for average daily requirement, spot hire to meet peaks in workload</td>
</tr>
</tbody>
</table>
Objective: to establish fleet size at optimum level

Pool general purpose vehicles between departments

Distinguish between "clean" and "dirty" vehicles

Spot-hire to meet peaks in workload

Establish arrangements with neighbouring authorities for hiring specialist vehicles as a contingency

Extend service intervals

Reduce vehicle-off-the-road days

Improve turn-round of vehicles in workshops

Examine levels of reserve vehicles in relation to current practice. Are reserve levels unnecessarily high?

Consider out-of-hours maintenance

Monitor utilisation of all vehicles. Dispose of those not achieving minimum utilisation levels. Review those not achieving target

Light vehicles
1250 hours pa min.
1700 hours pa target

Heavy vehicles
900 hours pa min.
1500 hours pa target

Specialist vehicles
600 hours pa min.
1500 hours pa target

Illustrative figures
13. The study has shown many examples of imagination by local authorities and contractors to reduce the level of vehicle reserves. For example:

- Some authorities, e.g. districts in Lancashire, adopt a mutual aid scheme for winter maintenance. Particularly in snow conditions, when problems may not be evenly spread, there are arrangements to transfer vehicles between districts.
- Interchangeability of refuse freighters between domestic, trade and special collection rounds can result in a small fleet because of the need to hold fewer reserve vehicles. Preston has accomplished this with its compaction vehicles; bin lifts can be removed easily from freighters normally used on trade rounds and vehicles used on rural rounds can be transferred to urban rounds.
- Dartford does not have any reserve vehicles as such for highway maintenance. When a vehicle is required for servicing, the gang that would have used the vehicle doubles up with other gangs, or a separate vehicle is hired.
- A private contractor which was recently awarded a contract to collect refuse in a district council, operates only one reserve refuse freighter for seven full time rounds. The fleet size was reduced by 30% and six-wheeler freighters are being introduced. The waste disposal division of the same firm holds regional pools of spare skip vehicles that enable the number of reserves to be kept to a minimum.
- West Yorkshire operate a Plant and Vehicle Control System. Each week a computer run compares the additional vehicle requirements and surplus vehicle holdings of each of the eight highways divisions and two waste disposal divisions. It arranges transfers and, if necessary, issues hire authorisations. In 1982/3 the system arranged some 66,000 hours of vehicle transfers representing over 3% of all transport used and equivalent to hourly charges of £154,000.

Local authorities can reduce the number of reserve vehicles in three ways: more vehicle pooling, more efficient maintenance scheduling and more hiring-in of vehicles for occasional use.

14. The economies to be obtained by vehicle pooling are one of the major justifications for setting up a central transport organisation in a local authority. Many vehicle types are general purpose, used by several departments in an authority. For example, light and medium sized vans are used on many services: building and highway maintenance, parks, courier services, school meals, meals on wheels, etc. On average nearly 40% of the fleet falls into this category. If these vehicles are the responsibility of the user department, each department provides spare vehicles to cover the downtime* and fluctuations in their workload.

However, if no such artificial demarcation exists, then only one group of spare vehicles is needed. Although in practice certain vehicles are permanently assigned to user departments, the general rule should be that there are no departmental vehicles. Any local authority vehicle should be available for any task it can perform - for example, using the same vans and drivers for courier services in the mornings and afternoons and the delivery of school meals at lunch times.

15. In pooling vehicles it may be necessary to distinguish between "clean" (e.g. school meals) and "dirty" (e.g. highway maintenance) tasks, since using vehicles for both types of task may not be feasible.

* Time when the vehicle is broken down or under repair, typically 5% to 10% of normal working hours for these types of vehicle.
16. Neighbouring authorities should establish inter-hiring arrangements for specialised vehicles such as refuse freighters and mechanical sweepers. Most local authorities could reduce their refuse fleet by at least one vehicle if they were able to call on a neighbouring authority on the relatively few occasions (10 or so days a year) when a higher than usual proportion of their fleet is in the workshop.

17. Arrangements should not be elaborate. It is necessary only to exchange telephone numbers and to agree on an inter-authority hire rate.

18. There is particular scope for pooling of minibuses in the case of education and social services. Savings in terms of reduced fleet size are possible by smoothing out peaks and troughs in the demand for transport, introducing mixed destination trips or double tripping to the same establishment and, where appropriate, mixing client groups in the same vehicle. Some of the considerations involved are touched on below.

19. Transport for hot school meals is needed when food is cooked in one place and eaten in another. The kitchens could be purpose-built central kitchens or attached to the larger schools. The need to keep the meal hot will restrict the number of destinations of each round to no more than four or five. Moving hot food this way dates from the time when transport costs were cheaper than the costs of equipping and running kitchens. This is usually no longer the case and the economics of running the service in this way need closer analysis. Food could be prepared at the dining centres using ingredients supplied centrally and new "fast food" processing techniques. Such food is then served from a "cafeteria" type menu. Alternatively, food can be prepared centrally, frozen until needed, delivered to the dining centre and reheated using microwave technology.

20. In any event, school meals delivery takes place for a short time each day and only on school days. Therefore, it is not economic to provide vehicles and drivers solely for that purpose, because the utilisation of the vehicles will be only a little above 360 hours per annum. One obvious complementary use is a courier service delivering stationery and equipment to schools or computer printouts from a central computer. School minibuses can also be used to deliver meals although they are not ideal for the job.

21. Education authorities have a duty to provide school transport for all pupils aged eight or more living more than three miles from school, and for all other school children living more than two miles from school. The authority must also provide transport to special schools for mentally and physically handicapped children. In addition transport is needed for some activities during the school day. For non-disabled children, stage carriage services where they exist are probably the cheapest way to provide school transport. Where no stage carriage service exists, authorities often enter into contracts with private bus operators. In some cases, particularly in rural authorities, taxis are used. The recent White Paper on Buses (Cmnd 9300) may cause many authorities to look afresh at their contracts for home to school transport. Some authorities own their own vehicles, including minibuses, although this is unlikely to be economical if it is done on a significant scale.

22. Meals on wheels may be provided by an authority or contracted out to a voluntary organisation such as the WRVS. In some authorities, volunteers drive local authority vehicles. Where voluntary organisations are willing to take on this function, it should normally be more economic but the authority must ensure that the reliability of the service is guaranteed. Where the service is carried out in-house, transport requirements need to be co-ordinated so that vehicles carry out a variety of tasks and are not employed exclusively for meals on wheels. In many cases vehicle and driver productivity can be improved by slightly lengthening the period over which meals are delivered, and by increasing the size of small rounds.
23. Social service clients need considerable support. Recent years have seen a move from residential centres to day centres for the elderly and handicapped. This has led to an increasing demand for transport for clients to and from day centres. Day centres are often supplemented by luncheon clubs and evening activities. In addition, social service departments are often responsible for transporting handicapped clients to and from adult training centres.

24. There are many examples of good practice, not confined to education and social services, in pooling transport:

- Enfield uses school buses to deliver school meals and another authority uses them to deliver meals on wheels during the middle of the day.
- Many bus operators designate their school bus routes as stage carriage services, thus attracting additional school children living less than three miles from school.
- In Maidstone, transport provision is centralised under a transport manager and there are a number of vehicles which swap departments during the course of a day.
- Leeds use social services minibuses extensively in the evening and weekends for various activities for the elderly and disabled.
- Hillingdon maintains a fleet of minibuses for all social services and special schools transport. The management of this fleet is the responsibility of a team consisting of a scheduling officer appointed by the works department and an officer from each of the education and social services departments. Transport is integrated to the extent of social service and education department clients sharing the same trip.

Improved Scheduling

25. Maintenance is discussed in detail in the next chapter. Here we consider the influence of maintenance scheduling. In most local authorities, routine maintenance and unscheduled repairs to vehicles are carried out during the normal working day. As a result, user departments need to hold reserve vehicles to cater for a proportion of their fleet being in the workshop at any one time. This proportion varies from 5% for cars to more than 20% for some specialised vehicles.

26. Local authorities have traditionally been less willing than the private sector to consider manning workshops outside normal hours. Except with very small workshops it is worth considering the costs and benefits of providing maintenance facilities outside the vehicle fleet's normal working day. One county provides a night shift on four nights per week. Several special arrangements have to be made to man this night shift, and there can be problems with supervision. However, the extra costs (e.g. shift bonus) are justified by the reductions in the number of reserve vehicles held. In addition, by offering a night shift, the county has been able to attract a significant volume of work from outside bodies. The district council with one of the lowest levels of reserve vehicles also operated a bus undertaking and could therefore justify an evening shift in its workshops. Vehicles could be repaired outside normal working hours.

27. In South Tyneside one of the vehicle examiners from the workshop is based at the authority fuel pumps to carry out vehicle safety checks. Each vehicle is checked monthly without needing to be called into the workshop for a special visit. In similar vein, a school bus operator shifts as much maintenance of vehicles as possible into school holidays. Their fleet size is equal to the maximum vehicle requirement during the school day. Breakdowns and other emergencies are catered for by sub-contracting to other operators in the area.
28. Careful attention to the scheduling of vehicle trips can also result in better value for money through higher vehicle productivity. For example:

- South Tyneside day centre ambulances do two trips, one for clients furthest away from the centre and one for clients living nearer the centre. Thus double tripping is achieved, but the span of time over which clients arrive at the centre is kept to a minimum.
- One authority has recently reviewed school buses and achieved a 10% saving in vehicles needed by more efficient scheduling. The same authority has recently reviewed the school meals service and combined it with a courier service to schools.
- Norfolk uses the PTA minibus attached to special schools with the caretaker as driver to take children to and from school.
- Leeds delivers refrigerators to old people. The refrigerators are kept stocked with frozen food as a substitute for meals on wheels. This helps to spread the work for the meals on wheels vans.
- Staggering the opening hours of schools can allow a greater number of trips per vehicle. In Lincolnshire the starting times of primary schools now range from 8.30–9.30 am and the finishing times from 3.00–4.00 pm.
- In Nottinghamshire, a passenger transport co-ordinator carries out ad hoc surveys of home to school transport. The results are used to exert pressure on local bus companies to modify routes of stage carriage services provided it is at no extra cost.

29. In general, it is most economic to cater for the average demand for vehicles in-house and to spot hire during periods of peak demand, even when spot hiring rates are double or treble the authority's internal hire rate. However, this principle is only beginning to be recognised after a period when spot hiring levels moved from very high levels some five years ago. Currently spot-hire rates are relatively attractive. Although some local authority transport managers claim that it is not possible to hire specialist vehicles such as refuse freighters, this is rarely so, and would in any case constitute a circular argument - no demand creates no supply. Many smaller authorities do not find it economic to own light plant; it is cheaper for them to hire even when high utilisation can be achieved.

30. Obviously, managers must take account of the relative costs of hiring versus owning vehicles before deciding how many to hire on a split basis. Table 4 below illustrates how optimum vehicle ownership varies with average daily requirement for a fleet with a maximum daily requirement of 50 vehicles. At hire rates double in-house rates the optimum number of owned vehicles corresponds to the average daily requirement.

<table>
<thead>
<tr>
<th>Cost Ratio, Ownership: Hire</th>
<th>Average Daily Requirement</th>
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<tbody>
<tr>
<td></td>
<td>30</td>
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<tr>
<td>1: 1.1</td>
<td>26</td>
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<tr>
<td>1: 1.5</td>
<td>29</td>
</tr>
<tr>
<td>1: 2</td>
<td>30</td>
</tr>
<tr>
<td>1: 2.5</td>
<td>31</td>
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</tbody>
</table>

31. Contract hire can also be attractive, particularly to users who require predictability in their fleet costs. Exhibit 3 overleaf shows that at present rates, contract hire could be attractive for many authorities especially for smaller vehicles. However, many of the advantages of contract hire can be provided by a central transport organisation within an authority and other advantages could be obtained if authorities exchanged data on their fleets.
Exhibit 3

For many sample authorities, contract hire rates may be attractive

ANNUAL COSTS VS CONTRACT HIRE

% authorities where in-house costs are higher

Source: Quoted contract hire rates
Analysis of sample authorities' costs
32. Contract hire is quite different from spot hire, in which an authority hires a vehicle or item of plant for only a short period of one to several days or some weeks or months. Contract hire is an alternative to long-term ownership of the vehicle; the authority enters into a contract with a company for the provision and maintenance of a vehicle or fleet of vehicles over a longer period of time, typically three to five years. The contract will stipulate the total vehicle cost excluding fuel, subject only to an annual adjustment for inflation (typically fixed at three-quarters of the change in the retail price index). The contract can also stipulate the provision of a replacement vehicle in the event of a breakdown lasting more than a certain period except usually for specialised vehicles such as refuse freighters.

33. Contract hire can thus remove the uncertainty associated with two major costs: the total maintenance costs of the vehicles and their depreciation. This surety of costs has been one of the attractions of contract hire in the private sector, where it is considerably more popular than among local authorities. In effect, the contract hire firm acts as an insurance company, distributing the risks of running a fleet among a large number of users. Indeed, many contract hire firms are structured much like the insurance companies; instead of mortality tables they have large databases on the whole-life costs of different makes and types of vehicle, down to the level of detail of, e.g. the incidence of gear box failures on Ford Sierras.

Authorities should consider contract hire in circumstances when transport provision within the authority generally or for particular vehicle types is demonstrably inefficient, and adopting contract hire or a fleet management company* is significantly more economical. In addition, contract hire is worth considering when predictability of costs is a more important criterion than economy, i.e. when the authority or department is not prepared to take the risk of incurring high maintenance costs or low vehicle resale values. Such situations might arise with major construction projects lasting several years.

34. Only one of the authorities examined in depth in this study would potentially benefit from putting all their fleet on contract hire. However, for certain vehicle types, notably cars and light vans, most authorities’ costs were close to contract hire rates and several were higher. This conclusion comes from a comparison of each authority’s costs by vehicle type with a set of contract hire costs quoted by a national company (chosen as representing the middle of the range of costs quoted by various contract hire firms). Contract hire rates obtainable by individual authorities may well be up to 15% less than those used in the comparison; to this extent hiring may be more attractive than the exhibit suggests.

35. Good practice authorities regularly review their fleet costs against competitive quotes obtained from contract hire companies - ensuring that all elements of cost have been correctly allocated. Exhibit 4 overleaf illustrates the results of such a review for some of the authorities in the study. The chart shows the percentage difference between actual and contract prices for the best quarter and worst quarter of authorities - the best on the left, the worst on the right. Thus, for cars and light vans, the best authorities operate 22% cheaper than the contract hire rate; the worst 52% more expensive. The dotted line indicates that contract hire rates obtainable by authorities negotiating for large fleets may well be less than those used in the comparison.

36. Contracting out is worth considering where local authority tasks require vehicles for only a small portion of the day. Most local authorities recognise this in the case of school buses. There is, however, wider scope for contracting out. It can be more economical, for example, to give a grant to the WRVS for

* The fleet management company will take on almost all aspects of fleet provision, maintenance and management on behalf of the authority.
Exhibit 4

OWNERSHIP VS CONTRACT HIRE - 1983
Actual costs vs contract hire price for batches of vehicles — % difference for 'best' and 'worst' quarter of authorities

Source: Audit Commission analysis of annual operating costs (excluding fuel), company quotations
delivering meals on wheels than to provide them with vehicles which will only be used for two hours a day. A problem with contracting out can occur when specialist vehicles are required, for example, wheelchair minibuses. However, some local authorities have found that even these services can be contracted out economically, provided they are prepared to award longer term contracts (e.g. three years).

37. The study revealed many examples of good practice using hire to control fleet size:

- One authority's Highways and Transportation Department obtains annual tenders for spot hire rates and prepares a list in price order taking account of delivery charges. Spot hire rates are compared with an in-house rate assuming usage of 1,640 hours per year. If the Transport Section is unable to compete for a particular type of vehicle, that vehicle type is gradually disposed of. This has occurred with road rollers for example.

- South Tyneside obtains hire rates for vans, specialist lorries and plant on an annual tender basis; and Arun uses the county's annual tender list.

- Lincolnshire's central transport organisation provides a service to all user departments in arranging spot hiring. This may involve the transfer of a vehicle from another division or department or the use of a small number of pool vehicles held by the central transport organisation. The county also operates an in-house fleet of minibuses and coaches that allows them to compete with private contractors in tendering for school bus routes. An in-house facility helps encourage price competition and virtually eliminates the risk of price rings between local contractors.

- West Yorkshire operates a system that gives hire authorisations to user departments only after it has been determined that the same type of vehicle is not available elsewhere in the county and that similar vehicles are not suited to the job in hand. This ensures a co-ordinated approach to spot-hiring and that each division does not act independently.

- Nottinghamshire monitors spot-hiring in its Planning and Transportation Department by producing an exception report that lists all vehicles and plant that have been on hire for more than four weeks, and compares the hire cost with the equivalent cost of a county council vehicle. By tendering for special school or social services transport on a three or four-year basis (i.e. making a longer term commitment), the county has been able to hire minibuses and ambulances with a tail lift - even though many authorities claim such vehicles are difficult to hire on any basis.

Obtaining Vehicles at Lower Cost

38. Typically, local authorities replace between 15% and 20% of their fleet each year, representing a total outlay of over £200 million. As major purchasers of vehicles, they should be able to use their buying power to negotiate large discounts. As a target the average discount on a sample of vehicle types should be at least 18%. However, this is often not achieved for three main reasons.

39. First, the specification and procurement of vehicles in an authority may be unco-ordinated in that each department looks after its own needs. As a result most purchase orders are for a single vehicle despite the evidence that vehicles purchased in batches attract greater discounts. Also, when specification is the responsibility of user departments, there is a danger that non-standard items - unsuited to their operational task, overspecified or costly to maintain - will be purchased.
40. Second, the procurement procedures are usually controlled by standing orders which are not always conducive to obtaining a good "deal". For example, two authorities studied had standing orders that required different procedures to be adopted for different values of tender. The greater the value of the tender, the more widely the net must be thrown for inviting tenders. This provides a disincentive to purchase vehicles in batches - where discounts might be higher - because of the complex and time-consuming administrative procedure. Another problem can be that the standing orders specify that all vehicle purchases are handled by a supplies department which happens not to possess any expertise in dealing with the motor trade. Procurement should always be the responsibility of someone with specialist knowledge.

41. Third, the general over-specification of vehicles can lead to hidden costs. While large discounts are still offered on the basic price of a vehicle, for example, chassis and cab, these can be offset by higher mark-ups on ancillary items for which discounts are not quoted separately. An examination of one London Borough's vehicle tenders received showed that the highest discount quoted often did not lead to the lowest overall price. Some authorities are acutely aware of this problem. West Yorkshire, for example, have removed items such as fog lamps from their specification because of the premium charged; Lincolnshire requires that the discount on each ancillary item is quoted separately. Others continue to produce lengthy specifications, in one case even to the point of requiring metal tax disc holders.

42. As a matter of concern at the national level, it is questionable whether there should be such a wide diversity of specifications of vehicles for essentially the same task. For example, in the UK there are 14 or so different manufacturers making about 60 or so different specifications of refuse collection vehicle. Many experts argue that there need be only four main types of refuse collection vehicle - two or three axled, narrow or wide bodied, all with the same type of compaction equipment. There is considerable scope here for local authorities to draw up standard specifications for vehicles. Vehicle manufacturers might be expected to welcome this. If common or similar specifications could be adopted, the cost of vehicles could be reduced, their reliability increased and prospects for export sales enhanced as a result.

43. Several examples of sound procurement practice were observed during this study which are worth noting, so that they can be applied more generally:

- Enfield requires that specifications for new vehicles should consider their possible alternative uses as well as the primary purpose for which they are intended.

- Preston order small vehicles in standard manufacturers' colours, either blue or white. No special painting is required, only the application of transfers of the authority's crest. Where possible the Council orders new vehicles to be delivered four weeks before or 16 weeks after the test expiry dates of the vehicles they are replacing. This avoids undertaking expensive repairs or servicing on vehicles about to be replaced. (The log book of an old vehicle is returned to the officer responsible for disposal as soon as the new vehicle is on the road.)

- The Transport Division in another authority that procures vehicles on behalf of the DLO has won committee approval to circumvent the standing orders on procurement. The same authority can now inform suppliers well in advance of anticipated vehicle requirements, often achieving a higher discount as a result.

- Inviting tenders for vehicle types over a specific period can result in higher discounts being offered than where tenderers are asked to quote on a vehicle by vehicle basis. Lincolnshire operates a two year
tendering system with their approved list of suppliers, and achieves relatively high discounts.

- Dual sourcing of vehicles is adopted by many authorities because the competitive element makes for better attention from the suppliers and better discounts.

- Some authorities (e.g. Wansdyke and Yeovil) generate revenue to offset vehicle costs by selling advertising space on the side of vehicles. This is now established practice with many bus fleets. The benefits can be significant, over £1,000 net income per annum in the case of refuse freighters. (However, some authorities may object to this practice on the grounds that they are appearing to endorse a company’s product).

- Refuse collection in inaccessible areas, such as narrow lanes, can present problems. East Devon overcomes this by using a two metre width, one ton payload tipper truck that delivers refuse to a standard freighter. A relay vehicle system is used to deliver refuse to landfill sites. In Italy, the city of Turin has a similar system using small sideloading vehicles to service 35-ton compaction vehicles.

- Many authorities, including Carrick, Dover, Stockport and Westminster, are using six and eight wheel vehicles for refuse collection. These vehicles are 24 tons gross vehicle weight (GVW) with an approximate 12.5 ton payload, in contrast to the traditional vehicles of 16 ton GVW with payloads varying between 5.5 and 7.5 tons. These permit larger refuse rounds and result in fewer trips to tip sites. Such vehicles cost about an extra £10,000–£12,000 but the increase in fuel consumption is insignificant.

Replacing and Disposing of Vehicles

44. Whilst replacement ages for non-specialised vehicles tend to be similar, there is a wide variation in specialist vehicles such as refuse freighters and street lighting platforms. Often such replacement ages are guesswork based on experience rather than a systematic analysis of the trade-off between maintenance and replacement costs. It is tempting for authorities to make short-term revenue gains by delaying replacement beyond the economic life of vehicles. The evidence of this study suggests that especially when vehicle acquisition is a departmental responsibility, local authorities tend to keep vehicles too long. Table 5 summarises the vehicle replacement policies for ten authorities studied in depth:

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<tr>
<th></th>
<th>Lowest</th>
<th>Typical</th>
<th>Highest</th>
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</thead>
<tbody>
<tr>
<td>Light Vans</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Medium Vans</td>
<td>5</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Lorries/Tippers</td>
<td>5</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Refuse Freighters</td>
<td>7</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Minibuses</td>
<td>5</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Tankers, Tower Platforms</td>
<td>5</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Tractors</td>
<td>7</td>
<td>8</td>
<td>12</td>
</tr>
</tbody>
</table>

45. The most popular form of disposal is vehicle auctions. The main advantages are that they are administratively convenient and relatively immune from corruption or price-ringing. Authorities should be aware that the commission charged by the auction firm and the collection fees are generally negotiable. West Yorkshire has found that resale values on surplus vehicles and plant can be boosted by playing the market and not releasing a whole batch of vehicles to a single auction (especially on specialised vehicles such as street
lighting tower platforms). In a few cases it may be worthwhile to trade in an older vehicle as part-payment on a new one, but the apparent improvement in the resale value will generally only be at the expense of the discount on the new purchase.

46. It is not advisable to sell secondhand vehicles privately, even though this may achieve higher prices and is common practice in some private companies. It is only by prohibiting such sales that an authority can be sure that those responsible for the replacement policy do not have any conflict of interest in administering the policy to the best advantage of the authority. One exception to this rule is the sale of vehicles, especially minibuses, to local charities, which may reduce demands on the local authority's own transport.

Reducing Fuel and Driver Costs

47. Fuel and oil for vehicles costs local government about £100 million a year. Yet this study suggests that the extent to which fuel costs are monitored on a vehicle-by-vehicle basis is uneven - four out of ten authorities studied could produce no information about fuel consumption for individual vehicles. Even in those authorities that did have some figures, officers questioned the reliability of the input data and the problem was highlighted by a number of nonsensical fuel consumption rates. In one authority that produced satisfactory data, fuel consumption differed considerably between vehicles of the same type operating in the same department. This clearly demonstrates the importance of monitoring fuel. Table 6 below shows the fuel consumption derived from information provided to the study team.

<table>
<thead>
<tr>
<th>Table 6: Recorded Fuel Consumption</th>
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<tbody>
<tr>
<td>Miles per gallon</td>
</tr>
<tr>
<td>Lowest</td>
</tr>
<tr>
<td>Cars and Light Vans</td>
</tr>
<tr>
<td>Medium Vans</td>
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<tr>
<td>Lorries up to 3.5 tons gvw</td>
</tr>
<tr>
<td>Refuse Freighters</td>
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<tr>
<td>Tower Platforms</td>
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</table>

48. The main reason for this scarcity of data is the lack of systematic records of vehicle mileages. However, the quantity of fuel dispensed is also often not verifiable; and many transport managers acknowledged that pilfering was occurring on some scale in their authority. With the exception of authorities using automatic fuel dispensers, no instance was encountered of mileage being recorded at the same time as fuel was dispensed.

Reducing Fuel Costs

49. Fuel costs can be reduced in five main ways. Pilfering can be reduced by recording the quantity of fuel dispensed at the time and place of issue, possibly using automatic equipment. Fuel efficiency can be increased by monitoring consumption, again possibly using records produced by automatic fuel dispensing equipment. If fuel consumption can be monitored on a vehicle-by-vehicle basis, rogue vehicles can be identified and appropriate action taken. Transport managers should investigate whether savings can be made by using alternative fuels such as LPG, diesel and electricity. Improved vehicle scheduling can reduce mileage and therefore fuel costs. Finally, as local authorities are large consumers of fuel, it should be possible to obtain larger discounts from suppliers through contracts negotiated by purchasing consortia*.

* See the Commission's report, Reducing the Cost of Local Government Purchases for details of the kind of steps required and the potential savings available.
50. Examples of noteworthy practice in the control of fuel include:
- London Borough of Camden which is moving towards an all diesel vehicle fleet. Eventually 200 vehicles will be converted to diesel with an anticipated annual saving of £30,000.
- Tameside claim to be making over 11% savings on fuel costs by using automatic radiator shutters. The payback period has been calculated as less than two years for vehicles travelling 6,000 miles per annum.
- Many authorities are now experimenting by using LPG as an alternative fuel. Two authorities report the payback period on conversion costs to be two to three years and 14,000 miles. Provided vehicles are travelling over 8,000 miles per annum, and given adequate fuelling facilities, the use of LPG can lead to savings. However, if dual fuel systems are necessary there will be a reduction in payload. Other reported problems include a loss of power and cold starting.
- Maidstone's Housing Department produced a league table of drivers' fuel consumption on a half-yearly basis, drawing attention to variation from the previous period. This helped to highlight any abuse, bad driving habits or rogue vehicles.
- Some authorities colour petrol to discourage pilfering.

51. In addition to reducing fuel costs, there are frequent opportunities to reduce driving costs also. There are several ways in which this can be achieved:
(a) Authorities can avoid designating employees solely as drivers. The general principle should be that no employee should be standing idle because he is designated as a driver and there is no vehicle for him to drive. So employees should be designated tradesmen/drivers, roadmen/drivers, refuse loader/drivers, and so on.
(b) Drivers should not be assigned exclusively to particular vehicles. Very often, drivers regard a vehicle as being their own and while this may lead to the vehicle receiving a higher standard of care, it should not be allowed to prevent pooling of vehicles.
(c) Where operational vehicles are pooled between user departments, it makes sense to pool drivers. In principle the same driver should be able to drive the education minibus, the social services minibus or the treasurers' courier van. People employed in this way should work under the transport manager, not for one of the user departments. The employment of spare pool drivers should be nominal and emergencies should be catered for by drafting in other employees such as administrative staff and maintenance fitters.
(d) Drivers can be assigned some maintenance duties in addition to carrying out routine daily maintenance checks of their vehicles, e.g. minor jobbing repairs. In many cases, these duties are regarded as part and parcel of the ordinary working week.

Drivers' maintenance duties are often unsupervised and can thus be neglected. Also, the time allowed can be excessive, resulting in a costly arrangement for the authority, especially if allowances are paid at overtime rates. For example, in one authority, drivers' maintenance accounted for over 8% of total transport costs. In another authority, seven hours overtime a week was allowed to each driver for routine daily checks, parking and securing the vehicle and cleaning it; in total, drivers' maintenance accounted for over a quarter of the cost of operating the Technical Services fleet. Many DLOs have now negotiated productivity agreements that involve reducing the cost of these allowances or dispensing with them altogether. Where such allowances remain it is unlikely that the authority is getting value for money.
52. The opportunities to reduce driving costs per mile (and to improve vehicle utilisation) are greatest in building maintenance. As a general rule, one vehicle per three tradesmen should be adequate provision; but this will vary depending on the geography of the area, in particular the density of council housing and the split between site-based and jobbing work. Jobbing work uses one or two men to a van while site-based work is best arranged by men reporting to site and having materials delivered.

The following steps have been taken by authorities to reduce driving costs associated with building maintenance in particular:

- Some London Boroughs substitute public transport for authority owned vehicles.
- Wrekin uses towed caravans from which multi-trade teams operate in various areas on a prescribed rota. This reduces transport requirements significantly and is claimed to boost labour productivity although tenants may have to wait longer for non-emergency repairs to be carried out.
- In another authority the jobbing work is done by tradesmen using authority owned vans. On-site work is done by tradesmen who find their own way to the site and are supplied with materials from the depot. The authority is looking at the use of demountable bodies for vans as a solution to holding imprest stock for tradesmen.
- In several authorities with denser urban centres only supervisors and tradesmen on emergency call out are provided with vehicles. The remainder work from area depots and are given travel allowances (time and fares or car user allowances) for travelling between jobs.

* * *

53. The objective of the measures described above is to reduce the size of the vehicle fleet and the costs of operating it, excluding maintenance costs which are discussed in the following chapter. Table 7 on page 28 provides some performance yardsticks against which different elements of transport costs can be measured.

All these yardsticks have been achieved by some authorities but, as Exhibit 5 shows, average performance in the authorities surveyed falls well short of them. It would not be appropriate to apply these yardsticks to an individual authority and on that evidence alone conclude that the authority's fleet was under or over size; yardsticks exist to alert management (and auditors) to the need to undertake a detailed review of the utilisation of individual vehicles. However, it is meaningful to apply the yardsticks to a representative sample of authorities, since the differing local requirements balance each other out. If the surveyed authorities are representative of local government as a whole (and those in the in-depth study were selected as being likely to be better than average in terms of vehicle management) it is reasonable to expect that local government would benefit to the extent of about £75 million a year from general application of the practices described above.
Exhibit 5

The surveyed authorities appear to have more vehicles than necessary*

EXCESSIVE VEHICLES IN AN AVERAGE AUTHORITY

(%)  

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweeping</td>
<td>+39%</td>
</tr>
<tr>
<td>Street Lighting</td>
<td>37%</td>
</tr>
<tr>
<td>Social Services</td>
<td>31%</td>
</tr>
<tr>
<td>Parks</td>
<td>15%</td>
</tr>
<tr>
<td>Refuse Collection (Reserved)</td>
<td>13%</td>
</tr>
<tr>
<td>General Highways Work</td>
<td>12%</td>
</tr>
</tbody>
</table>

* Based on actual vehicles held by authorities compared with yardstick measures of vehicles required for the tasks performed

Source: Audit Commission analysis of information from sample authorities
Table 7: Vehicle Operations - Proposed Performance Indicators

<table>
<thead>
<tr>
<th>Service</th>
<th>Measure</th>
<th>Yardstick of Good Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refuse Collection</td>
<td>Reserve Vehicles</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Average Utilisation</td>
<td>1,500 hrs/year</td>
</tr>
<tr>
<td>Street Sweeping</td>
<td>Channel Miles Swept</td>
<td>4,000/year</td>
</tr>
<tr>
<td></td>
<td>per Vehicle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manual Sweeping</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vehicles per Orderly</td>
<td>.25</td>
</tr>
<tr>
<td>Gully Emptying</td>
<td>Gully Flushings/Vehicle</td>
<td>12,500/year</td>
</tr>
<tr>
<td>General Highways Work</td>
<td>Vehicles per Employee</td>
<td>.33</td>
</tr>
<tr>
<td>Winter Maintenance</td>
<td>Vehicles per 100 miles</td>
<td>2.5@, 10gm/sq.m* or 3.8@, 15gm/sq.m*</td>
</tr>
<tr>
<td></td>
<td>Priority Route to be Gritted</td>
<td></td>
</tr>
<tr>
<td>Street Lighting</td>
<td>Platforms per 1,000 Columns</td>
<td>.35</td>
</tr>
<tr>
<td></td>
<td>for Maintenance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Erection Vehicles per 1,000</td>
<td>1.0</td>
</tr>
<tr>
<td>Building Maintenance</td>
<td>Vehicles per Tradesman</td>
<td>.33</td>
</tr>
<tr>
<td>Parks</td>
<td>Vehicles per Labourer</td>
<td>.20</td>
</tr>
<tr>
<td>Social Services</td>
<td>Meals-on-Wheels per Round</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Vehicles per 100 client Trips</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Day**</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>Average Utilisation</td>
<td>1,000 hrs/year</td>
</tr>
<tr>
<td></td>
<td>Average Purchase Discount</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>on New Vehicles</td>
<td></td>
</tr>
</tbody>
</table>

* rate of salt application
** a journey out to a day centre and back constitutes two trips
2 Reducing Maintenance Costs Per Vehicle

54. To meet the users' requirements and the Department of Transport's roadworthiness regulations, local authorities in England and Wales spend on average 40% of their total transport budget, some £280 million per annum overall, on vehicle maintenance. This work is undertaken in a large number of separate workshops, the largest employing over 40 skilled men, plus management and supervisory staff. They provide service facilities to their authority's user departments, many of which have a highly individual and specialist range of vehicles. With some important exceptions, like DLO vehicles and plant and the minibus fleets in education and social services, demands made on the workshops differ from those made on similar private sector workshops. For example district council workshops are often dominated by the support requirements of refuse collection vehicles; and in the counties, police fleets pose problems very different from those faced by typical commercial garages.

55. During the 1970s, the introduction of stringent legislation on the operation of vehicle fleets and the opportunities presented by local government reorganisation led to the re-building of many workshops, usually to a specification which anticipated a substantial growth in maintenance workload. Pressures from the Department of Transport to ensure adequate maintenance resulted in frequent servicing of vehicles and increases in manpower.

56. However in recent years the maintenance workload has been steadily reduced. There have been reductions in the number of DLO vehicles and plant. Refuse collection, street cleaning and other services have been contracted out in some authorities. Improvements in vehicle design and reliability have increased the required intervals between services. As a result, many workshops are over-resourced despite the action of many authorities to cope with reduced demand by demanning, marketing of workshop resources to other bodies such as the Health Authorities, and the inclusion of capital and warranty work in their range of services. The reduction in demand for workshop services must be expected to continue for some time ahead.

57. The study suggests that there are substantial opportunities to reduce maintenance costs per vehicle. In order to compare the maintenance costs of authorities with varying fleet mixes, it is necessary to weight each vehicle type by a factor to reflect its annual maintenance workload. Appendix B provides the details. Exhibit 6 overleaf shows the total maintenance costs* per weighted vehicle (fire and police vehicles are excluded because of their markedly different characteristics) in authorities studied in depth. It shows that there is approximately a 2:1 ratio between the best and the worst in terms of costs. The difference in maintenance costs cannot be explained by differences in ages of vehicles - if anything the low cost authorities have older vehicles.

58. The scope for improvements is also demonstrated by analysis of vehicle-off-the-road (VOR) days. These are shown in Table 8 on page 31, which is based on the in-depth survey among authorities expected to be above average in terms of maintenance performance. The lowest figures for the first

* Unless otherwise stated, costs from the survey are expressed in prices for the 1982-83 financial year, sometimes referred to as 1983 prices.
Exhibit 6

On average, the higher cost authorities have the potential to reduce their annual maintenance costs by £250 per weighted vehicle

SAMPLE AUTHORITIES: TOTAL MAINTENANCE COST PER WEIGHTED VEHICLE - 1983
£/year

16 Sample Authorities

Source: Audit Commission in-depth study and wider survey by auditors
vehicle categories are those for an authority operating a vehicle availability bonus scheme (Nottinghamshire).

Table 8: Average Vehicle Availability - 1983

<table>
<thead>
<tr>
<th>Category</th>
<th>Lowest</th>
<th>Average</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars and Light Vans</td>
<td>6</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>Medium Vans</td>
<td>9</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>HGV up to 7.5 tonnes GVW</td>
<td>15</td>
<td>26</td>
<td>34</td>
</tr>
<tr>
<td>HGV over 7.5 tonnes GVW</td>
<td>5</td>
<td>29</td>
<td>45</td>
</tr>
<tr>
<td>Refuse Compaction</td>
<td>10</td>
<td>49</td>
<td>61</td>
</tr>
</tbody>
</table>

59. If the maintenance costs of all the authorities studied in depth were to be reduced to those of the better authorities amongst them, then between 15-20% would be saved for the sample as a whole. If this is representative of the national situation, it is equivalent to annual savings of more than £50 million. Auditors’ reports on individual authorities quite commonly identify a potential for savings in excess of 20%. In those authorities with excess maintenance costs, the main causes are:-

(i) excessive overheads
(ii) premises and manning levels much larger than are now required
(iii) inappropriate bonus schemes. The use of traditional work-content based bonus schemes can have the effect of encouraging over-maintenance
(iv) too frequent inspection and servicing of vehicles
(v) specialist maintenance work being undertaken in-house rather than contracted out.

This chapter discusses each of these causes in turn.

Reducing Management and Administration Costs

60. Management, administration and the cost of indirect staff account for 7 to 15% of total maintenance costs. The study showed that there are two main influences on this cost area: inspection overheads which are symptomatic of a ‘bureaucratic’ approach to workshop management, and the extent to which special work (such as body repairs) is undertaken. Authorities that employ inspectors for pre-inspection or that have body and paint shops have the highest management and administration costs; typically, the extra costs amount to about £90 per weighted vehicle per annum. These practices are also associated with some of the highest maintenance costs overall (over £200 extra per annum). It is important to note that for the purpose of comparison the costs of the inspectors have been excluded from management and administration and indirect costs. The exception to the rule on body and paint shops is Nottinghamshire. This authority supports fire and police vehicles within the main county workshops organisation. This not only provides a volume of work for the body and paint shop but has enabled economies of scale to achieve low management costs. Management and administration costs of £54 per weighted vehicle for West Yorkshire are low for such a large organisation.

61. Another source of high administration costs is the incentive scheme overhead which is often hidden. In some cases this cost was up to 40p per £1 bonus paid. There are examples of the foreman spending most of his time administering the scheme; and where a full-time estimator is employed his costs may appear in the accounts as part of central administration. Indeed, inspection arrangements may be governed more by the requirement to pre-determine work content for bonus purposes than to detect faults which the fitter might miss. Work may be defined to maintain a substantial bonus earning workload. Traditional payments-by-results schemes are unlikely to be economic in a small workshop.
Table 9 compares average management and total maintenance costs for different types of workshop practices.

**Table 9: Management Costs and Workshop Practices**

<table>
<thead>
<tr>
<th>Workshop Practice</th>
<th>Management, Admin, and Cost of Indirect Staff</th>
<th>Total Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specialist inspectors</td>
<td>51</td>
<td>683</td>
</tr>
<tr>
<td>Some staff inspectors but routine service inspection is by fitters</td>
<td>69</td>
<td>788</td>
</tr>
<tr>
<td>Full inspection at all scheduled visits</td>
<td>144</td>
<td>991</td>
</tr>
<tr>
<td>No body/paint shops or only minor repairs</td>
<td>58</td>
<td>735</td>
</tr>
<tr>
<td>Full body and paint shop</td>
<td>142</td>
<td>961</td>
</tr>
</tbody>
</table>

62. It is only in the largest workshops that a full-time workshop manager is needed. In practice, the job may be structured in one of several ways:-

(a) There may be a full-time workshop manager (in some authorities the foreman erroneously carries this title). This is unusual.

(b) In "large" workshops, where there are more than 30 direct personnel, there may be a senior foreman and receptionist team at a central repair depot. One or more of the transport department officers, including the transport manager himself, will perform various managerial duties such as regular visits to sub-workshops, perhaps also delivering service spares supplies for the week.

(c) In "medium" or "small" organisations with less than 30 direct personnel, a diversity of solutions have been successfully adopted, for instance:-

- a popular reporting structure is Transport Manager, Assistant or Technician, Foreman and Receptionist with sub-depots run by charge-hands

- in some organisations the Transport Manager has two senior Foremen (sometimes referred to as Superintendents) reporting to him, one responsible for reception, the other for production

- day to day management may be delegated to the user, the fitters being essentially on attachment. This may be found in fire and rescue mobile fitter teams, some police workshops and highways DLOs. The authority with one of the lowest maintenance costs per weighted vehicle (Norfolk) adopted this structure.

63. In any workshops employing more than, say, 10 fitters, reception of vehicles and liaison with users becomes a job which the foreman or charge-hand will be hard pressed to handle in addition to his other workshop duties. The extent of the receptionist's work is dependent on vehicle visit frequency rather than the work content of repairs. Support of a fleet of police vehicles places a much higher demand than support of an HGV fleet of similar maintenance manhour work content. The receptionist's main duties usually include: calling-in vehicles for scheduled visits and booking-in vehicles, defining the defect from the driver's defect report, raising the job sheet, progress-chasing and external liaison.

64. An alternative structure for reception centres may be appropriate where there is a senior inspector or vehicle examiner. In this case there may be a reception clerk, as opposed to a foreman-receptionist. There is, of course, a difference between a clerk and a foreman-receptionist, who is qualified to inspect vehicles when occasion demands - such as clarification of a defect report - and the inspection orientated reception unit in which *every* vehicle
arrival may be the subject of a full inspection. The latter arrangement should only be employed by an authority which is experiencing particular problems with its maintenance, such as unroadworthy vehicles or bonus schemes out of control.

65. In short, there is no evidence from the study that high management ratios were necessary to achieve high labour productivity - high management overheads were often associated with high direct labour costs. In this study those workshops which avoided specialist work and carried out only basic safety checks, wear and tear maintenance and routine servicing had overheads lower by as much as 30%. Specialist work requires considerable management attention, special facilities and separate training and should only be undertaken when it can be demonstrated that it can be done more cheaply than by contracting it out, either to private garages or to a neighbouring authority’s workshops. Unfortunately, many workshops undertake such work without costing it properly e.g. by using marginal rates of cost, thus distorting comparisons with the cost of contracting it out. Exhibit 7 overleaf shows the management resources which are required in different size workshops. In addition to those shown in the Exhibit there may be engineering and other staff involved in transport management.

66. Most of the successful authorities had maintenance resources, either in-house or contracted-out, located on or close to the users' depots, often with small teams of less than ten personnel. District councils should probably have a single workshop, with perhaps one or two satellites. Specialist work should normally be contracted-out, as may be the servicing of some light vehicles. County councils will have a network of workshops adapted to the geography of the county. These may be backed up by a central repair workshop, particularly where police and fire vehicles are supported and specialist facilities can be justified. Many authorities now have premises which are substantially larger than required and often in the wrong location. Partly in consequence, manning levels are often higher than is necessary and competitive with the private sector. These two factors are discussed separately below.

67. The location and size of maintenance workshops are both important influences on cost-effectiveness. (This report excludes any detailed discussion of the technicalities of workshops design, and concentrates on capacity requirements).

68. Authorities have often needed to provide in-house maintenance facilities because there was no established alternative source. This led to the development of large central workshops. Availability of alternative maintenance sources is still a problem for specialist vehicles and plant, of which local authorities have a high proportion and for vehicles based in rural areas. Furthermore, use of an existing trade source for support of specialist vehicles may well place the authority in a vulnerable single-supplier situation.

69. However, if the authority is not providing local maintenance facilities, the user is put to the inconvenience and cost of ferrying vehicles to the workshop. Many of the advantages of running its own workshops are then lost. For these vehicles it will usually be best to arrange front-line service and repair with outside garages or other authorities.

70. Dedicated local workshops with the advantage of proximity to the user are often the most efficient. These are typically found at: highway depots, police central garages, social services depots, metropolitan districts' central depots. In the case of fire and rescue maintenance, it is normal practice for a mobile team with a suitably equipped and stocked van to visit the fire stations
## MANAGEMENT RESOURCES REQUIRED IN DIFFERENT SIZED WORKSHOPS

<table>
<thead>
<tr>
<th>WORKSHOPS ORGANISATION</th>
<th>TOTAL NUMBER OF PERSONNEL</th>
<th>OFFICERS ABOVE RANK OF FOREMAN (Equivalent — Men)</th>
<th>FOREMAN/RECEPTIONISTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Either a single depot or a main depot and not more than 20% of the workforce in small sub-workshops</td>
<td>10</td>
<td>Occasional involvement</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>½ or occasional</td>
<td>1 or 2</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>⅔ with administrative duties</td>
<td>2</td>
</tr>
<tr>
<td>A number of medium size workshops or a central repair depot with a number of sub-workshops with more than 4 personnel</td>
<td>30</td>
<td>1</td>
<td>At individual locations as for single workshops</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>1½</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
for routine servicing and minor repairs. Health and Safety Act requirements dictate that workshops shall have at least two people on the site.

71. Premises are frequently substantially larger than is now required, even when they also perform non-maintenance work. As Exhibit 8 overleaf shows, many of the authorities in the sample studied have more workshop capacity than is needed; it suggests that capacity reductions of around 15% may be possible. Table 10 shows details for six of the authorities examined in depth. On balance three of the six authorities - selected as likely examples of good maintenance practice - had over-large premises.

Table 10: Maintenance Premises
Adjusted for subcontracted work, excluding mowers

<table>
<thead>
<tr>
<th>Authority Reference</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighted Vehicles per Bay</td>
<td>26</td>
<td>28</td>
<td>45</td>
<td>24</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>Covered Square Feet per Bay</td>
<td>1,106</td>
<td>1,025</td>
<td>1,002</td>
<td>2,333</td>
<td>635</td>
<td>867</td>
</tr>
<tr>
<td>Covered Square Feet per Weighted Vehicle</td>
<td>41</td>
<td>36</td>
<td>22</td>
<td>63</td>
<td>21</td>
<td>28</td>
</tr>
</tbody>
</table>

72. Of the two authorities with the lowest covered square feet per bay, one supports a high proportion of light vehicles (police) so would be expected to have smaller bays. The other supports over 100 major items of earthmoving equipment, though much of the work is done on location. Authority 3 has a high proportion of work sub-contracted. It is clear that Authority 4 has premises far in excess of its essential requirements. The fieldwork during the study showed that Nos. 1 and 2 also have excess premises. In one case, high labour hours and slow turnaround of vehicles resulted in vehicles occupying bays for too long; in the other, part of the premises was under-utilised. In one authority a heavy goods vehicle testing station was built in the belief that this would be authorised by the Department of Transport. It was not, and the large covered area provided is now more than half empty most of the time.

73. As vehicles have increased in size many older workshops no longer allow access to the largest vehicles in the fleet. Any such restrictions need to be identified and their importance evaluated. However, the prime requirement is that there should be an adequate number of "bays". Many modern workshops have a significant excess of bay capacity. The number of bays required is related to the number of vehicles in the workshops (under cover) at any one time and to the number of fitters. Because many workshops work overtime and some operate shift systems, it is usual to think in terms of "bay-days": a single shift, five day working shop with 10 bays provides a capacity of 50 bay-days per week; if the same workshop does Saturday morning overtime, its capacity increases to 55 bay-days per week.

The demand for these bays is the product of the number of vehicle visits and the time in the workshops. The latter is dependent on the work to be done on the occasion of the visit. Typically, bay utilisation should be 70%-80%. An efficient, fast-turnaround workshop, which also operates extended scheduled visit intervals, may need as few as two/thirds of the number of bays as one having the opposite style of operation. One workshop bay per 35 weighted vehicles constitutes good practice. One authority achieves 65 weighted vehicles per bay by operating a two-shift system.

74. On balance it is likely to be more cost effective for police and fire vehicles to be maintained in the main county workshop rather than by a separate workshop. The main advantages are to the county workshop, which would be able to spread its overheads over a larger volume of work and to justify specialist facilities. In the past, the main criticism voiced against having
Exhibit 8

Most authorities studied had excess maintenance capacity

MAINTENANCE CAPACITY INDICATORS - 1984

16 Sample Authorities
police and fire vehicles maintained in county workshops is that they do not get the attention they are considered to deserve. However, this study has demonstrated that this need not be the case since in the one county in the in-depth sample which maintained the police and fire vehicles the level of maintenance and user satisfaction were good. The county workshop achieved this by making special arrangements for these vehicles, including setting up satellite workshops at the police and fire garages.

75. Authorities should ensure that vehicle ferrying time and "vehicle off the road" days, are fully costed in an overall transport information system to enable sound decisions on economic workshop sourcing, from the vehicle user's point of view. In one authority, the expenses of undue vehicle movement to and from workshops is avoided by a policy of using trade workshops to support any vehicles which are located too far from the authority workshops. The same authority also made use of a neighbour's workshop, where dedicated arrangements had been established. Another authority used a computer model to define workshop locations, and, elsewhere, the management information system was used to highlight vehicle ferrying time.

76. Auditors' reports on individual authorities cite numerous examples of workshops which have low productivity and are over-manned. However, in this study, only one situation was encountered in which an increase in productivity would have greatly reduced the level of maintenance costs. On the other hand, there were important examples of workshops running at below maximum productivity which were nonetheless highly cost effective because of the low overhead burden. A small excess of fitters' capacity can be desirable if it permits a quick turnaround of vehicles and hence reduces vehicle downtime. For example, one large workshop organisation in the public sector strives to return all vehicles to the user by the end of each working day.

77. Authorities which included in their information systems regular analysis of the support manhours required for various equipment avoided excess manpower. A general criticism of workshops' management information systems is that few include an analysis of labour hours booked against vehicle categories.

78. Manning levels in workshops should be calculated against an assessment of the total support man hours required for the vehicle fleet. To perform this calculation precisely it is necessary to apply a weighting to each category of vehicle, which reflects the typical extent of maintenance work. Appendix B gives a set of weights which can be used for this purpose. Good practice corresponds to 41 man hours per weighted vehicle per annum.

79. The work of the direct labour force may be broadly classified as routine servicing, mechanical maintenance and special repairs, overhauls and capital works.

80. Routine servicing is an important matter of policy and administration because it is closely linked with the role of inspection and supervision. It has a vital influence on the utilisation of labour. Routine servicing of vehicles garaged inconveniently far from an authority workshop should be considered for contracting-out to garages.

81. Mechanical Maintenance consists of three main categories of work:--

"Minor repairs, mechanical repairs and overhaul of assemblies. Minor repairs may be undertaken by inspection and service bay personnel and small sub-workshops may be restricted to this category of work. Mechanical repairs, i.e. exchanges of parts and assemblies and minor body repairs, are undertaken in all workshops organisations. Most go so far as to exchange engine units, though there is a limit to the size of unit which many workshops could handle. All of this work could be undertaken by the trade if there happened to be conveniently located repairers. But this is often not the case, particularly for
specialist vehicles and plant. So it is usually necessary to provide basic support on an own-workshops basis.

82. **Overhaul of assemblies** is now the exception rather than the rule. It is usually undertaken by specialist repairers who provide guaranteed exchange units. The occasional overhaul of certain assemblies is, however, economic under certain circumstances:

(a) police vehicles' electrical fittings outlive the vehicles, so they can be cleaned and repainted at minimum cost and reused;
(b) many items on fire and rescue appliances are special purpose and present supply problems on reconditioned units. The same comment applies to special vehicles and some buses;
(c) a workshop may find itself in possession of a spare engine or gearbox for a popular model of vehicle, which they may repair, perhaps as part of an apprentice's training.

But overhaul of assemblies in any volume is work for a specialist shop. All such repairs should be rigorously controlled by prior estimate of cost and a comparison with the reconditioned-unit price (bearing in mind that the latter carries a guarantee) and monitoring job cost against the estimate.

83. Special repairs, major overhauls and capital work are often a source of high on-costs. Many workshops do such work on a marginally costed basis, on the grounds of good labour utilisation. However, if the structure of a workshop which only undertakes the basic essentials of maintenance is compared with that of a workshop doing a variety of special work, it is clear that the former has much lower on-costs. Once specialist resources are set up, management then want them to be fully occupied.

84. Similar comments apply to special repairs as to overhauls, particularly if such work is regular. Points to note are:-

(a) Special work should be separately costed between maintenance (i.e. service and repair) and capital works headings. Capital works are any work which changes the form of the vehicle, including initial fit-up, new and changed livery, modification and work prior to the disposal of vehicles. Capital works are often included under maintenance on the grounds that this is the way to recover the costs from users. This makes it difficult to appraise basic workshop performance.
(b) Special self-contained shops such as body and paint shops and mower overhaul shops should have their own set of simple management accounts.
(c) In-house prices have to be tested regularly against the trade. The best way is to ensure that part of the work is regularly contracted out. Specialist work should be costed on a basis which fully reflects the costs over and above routine mechanical maintenance. The argument that non-maintenance work merely occupies spare capacity may be valid in the very short term, but not necessarily in the long term.

85. Excess manning can be due to any or all of the following, each of which needs to be examined in detail.

(i) **Poor Supervision.** Labour utilisation may be low because personnel are working slowly, or ineffectively with excessive undeclared lost time. The latter may occur as delays in the progress of work, as long breaks, or as early finishes before the end of a half shift; or even as extended road test time or travelling to obtain spares. Detection of such situations, which may not be admitted by supervision, is generally a task for a work study officer.

(ii) **Attendance on Users.** There are a number of situations in which labour utilisation is poor because too high a proportion of time is spent on attendance on the user: e.g. mobile teams' travelling time, ferrying vehicles, cold start standby on user location or collection of spares by
direct personnel. Such situations may well be justified in total cost terms,
but need careful scrutiny and control.

(iii) *Excessive Work Content.* This is a frequent source of high labour and
parts cost. Examples are over-frequent service visits, over-inspection,
"make-work" attitudes in a work-content based incentive scheme,
double handling of vehicles between the in-inspection/service bay and
the main shop or specialist tradesmen, overhaul of assemblies which
should be replaced by reconditioned units.

(iv) *Management Pressures.* Workshops personnel are often subject to
pressures which discourage booking of non-productive time and encour-
age the "spreading" of a day's hours across all the jobs done in the day.
The reverse should be the case and the labour charge-rate should be
based on a realistic proportion of non-chargeable time.

(v) *Use of semi-skilled fitters for lubrication work.* These are now the
exception. It is more convenient and cost-effective for the fitter doing
the service to drive the vehicle round to the lubrication bay when it
needs an oil change or if it is a model which has a significant number of
greasing points.

(vi) *Excessive work on insurance and warranty claims.* It is doubtful whether
it is worthwhile claiming for all work which ought to be covered by
warranty. Many local authorities have negotiated with manufacturers to
undertake warranty work on their own fleet in-house, usually at a low
labour charge rate; this is seen as a way of keeping the utilisation of the
workshops high and is a response to extended warranty periods on
vehicles. However, the administration cost can be high. It may be better
to claim only for major warranty work, and then arrange for the vehicle
to be returned to the dealer. One authority which adopts this practice
expects to be given a free replacement vehicle from the dealer. Another
authority employs the Freight Transport Association to undertake
acceptance tests of new vehicles, and returns faulty vehicles to the
dealer. Apparently, the extra discount from waiving warranty rights on
vehicles is quite small and does not justify the risk of incurring a major
fault.

**Ensuring Sound Incentive Bonus Schemes**

86. Incentive schemes should support the main objective of the organisa-
tion, which is to maintain vehicles in roadworthy condition at minimum cost to
the authority. Schemes which pay bonuses on the basis of vehicle availability
can achieve this. Schemes which pay bonuses based on achieving a specified
number of services, including work arising from such services, are also
successful. Both schemes need to have manning level agreements which relate
the establishment of the workshop to an assessment of the total annual
maintenance workload of the fleet in terms of the number of "support man
hours" required.

87. It is clear from this study that some managements have been more
successful than others in arriving at a satisfactory and constructive deal in terms
of correct manning level and speed of service. Table 11 overleaf shows that a
work-content based system is no guarantee of economy of labour hours.

88. This study suggests that maintenance costs per weighted vehicle are
higher in workshops with traditional incentive schemes based on a job-by-job
evaluation of work content. Such schemes pay the fitter a bonus of up to 50%,
based on the amount of maintenance work performed on each visit and the
time taken to do the work. Provided the allowed time for the work has been
correctly assessed - which is not always the case - such schemes encourage high
utilisation of fitters' time, but often mean more maintenance work is done on
vehicles than is actually required. More significantly, such schemes usually


Table 11: Results of Different Incentive Schemes

<table>
<thead>
<tr>
<th>Charged Manhours per Weighted Vehicle</th>
<th>Type of Incentive Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range 34-52</td>
<td>Support man-hours, vehicle availability, task completion or time allowance per workshop visit</td>
</tr>
<tr>
<td>Average 42</td>
<td></td>
</tr>
<tr>
<td>45-62</td>
<td>Traditional job by job assessment of work content without pre-inspection</td>
</tr>
<tr>
<td>58-76</td>
<td>Traditional job by job assessment of work content with pre-inspection</td>
</tr>
<tr>
<td>Average 52</td>
<td></td>
</tr>
<tr>
<td>Average 67</td>
<td></td>
</tr>
</tbody>
</table>

stipulate that the vehicles must be pre-examined by a skilled inspector to assess the amount of work required, and sometimes post examined to assess the quality of the work performed. Thus, with work-content based incentive bonus schemes, vehicles are typically double or triple handled, resulting in delays in turnaround and increases in man hours per vehicle.

89. These schemes can be very costly to administer, up to 40p per £ of bonus paid; schemes with administration costs of more than 25p per £ of bonus paid are likely to be of net disbenefit to the authority. In short the penalties of trying to optimise fitters' productivity by assessing the work content of individual jobs can be excess overhead costs and reduced vehicle utilisation. Moreover, it is usually a mistake to judge the success of an incentive bonus scheme by its indicator of performance on the BSI scale (typically 75-125, with 100 constituting standard performance). This measure of performance can appear quite satisfactory, say 100, despite the maintenance cost being excessive and turnaround time for vehicles deplorable. A true measure of a scheme's success is the number of weighted vehicles in the fleet per fitter and the average number of days off-the-road for each vehicle type.

90. Misgivings about traditional bonus schemes were expressed by the majority of the transport and workshop managers at a seminar held during this study. However, they were also reluctant to abandon such schemes until there were better alternatives.

The evidence of this study, and wider experience, is that a scheme based on the total annual work required to support a fleet of vehicles can be much more effective than one based on job by job evaluation of work content. Support manhour based schemes (which are suitable for small or large workshops) result in performances as good as those in traditional schemes. They also carry low administration overheads and reward the fitter for achievement of low maintenance costs. Such schemes can also provide the appropriate information for manpower and capacity planning, analysis of the effect on maintenance costs of changes in the fleet mix and patterns of working. In addition, the schemes highlight other aspects of workshops operations that management may wish to include in the scheme, e.g: vehicle availability to the user, special work other than routine service and repair jobs. Finally, disputes on individual job times are eliminated.

Norfolk and Nottinghamshire both operate support manhour based schemes successfully and show results better than many traditional schemes. Under one of these schemes, the variable element of pay was in no way related to manhours worked. Instead, the bonus was related to the availability of vehicles or plant items to the users. However, participation in this vehicle-availability bonus was conditional upon agreement to a defined manning level, which was in itself based on calculation of the annual support manhours for each category of vehicle or plant. There were two sets of targets:

(i) Support Manhours Targets. These were evaluated by an historical analysis of hours booked against various categories of vehicle coupled to rated activity sampling. A complete annual throughput was analysed
every three years. The method of analysis was in sufficient detail to enable adjustment of targets in response to changing work patterns such as changes in service visit intervals.

(ii) Availability Targets. These were set by statistical analysis of achieved availability, and assessed in relation to a monthly count of numbers of vehicles and plant items supported. However, until recently, the availability count was only taken on Friday evening. It is now being taken on Wednesday, Thursday and Friday and averaged.

Performances were calculated separately for three groups: vehicle fitters, plant fitters and mower shop (summer only). The bonus scale paid up to 33.3% of basic rate, calculated as follows:

0.95% of Bonus Calculator Rate (i.e. basic rate) for each 0.1% improvement in availability from 94.0% (zero bonus) to 97.5% (maximum, i.e. 33.3% bonus).

The traditional approach enabled bonuses to be paid to individuals over a wide range of BSI performance from as low as 60 up to as high as 120 or more. When such schemes were first introduced, the performances of individuals would differ. Keen workers earned bonuses; others followed suit when they saw the possibilities of good earnings. This is missing from support manhours schemes, which have to pay a group bonus. Hence, the support manhours type of scheme is most appropriate as an evolution from traditional incentives. Such a scheme could be applied in situations where performances are currently low, but where this is the case, the application must be via a well negotiated and managed "productivity deal".

The standard objection to "availability" schemes is that good vehicle availability depends on good "management", which is outside workers' control. Taken as a whole, local authority workshops have a baseload of well-defined servicing work, and a predictable load of minor repairs. Therefore, in a well-run workshop, the main factor influencing vehicle turnaround is the work of the fitters, so vehicle availability is effectively a measure of fitter performance.

**Optimising Inspection and Service Intervals**

93. A distinction needs to be made between a safety check inspection and a service. A safety check in an inspection of the critical components of a vehicle, such as steering and lights, to ensure it is roadworthy. Regular safety checks are a condition of the authority being granted its Operators' Licence by the Department of Transport. Except to maintain them in roadworthy condition there is no mandatory requirement on authorities to service their vehicles, although it is obviously good practice to adhere to the manufacturers' specifications for regular services.

94. There are three main types of service: an oil change and grease which takes little time, an intermediate service involving air filters, spark plugs etc., and a major annual service. The tasks to be performed on intermediate and major services are usually laid down in manufacturers' specifications. Inspection arrangements and service intervals are important determinants of cost and are considered separately below.

**Inspection Arrangements**

95. Inspection and service arrangements have an important effect on the efficiency of maintenance operations. Inspection is required to check whether the vehicle is roadworthy in a strictly legal sense, and that it will continue to provide good service until its next scheduled workshop visit. There are two distinct views regarding delegation of responsibility by the O Licence holder to the person actually carrying out the inspection:

- that it is essential to nominate one or two individuals as being officially responsible, who must themselves carry out the inspection,
- that the skilled fitter's qualifications equip him to detect any defects;
that removing the responsibility from him detracts from the quality
of work he will do; that follow through of a suspect condition
frequently involves dismantling parts of the vehicle, so the fitter
needs to be involved.

The evidence of current practice is that workshops adopting the latter policy
are maintaining their fleets satisfactorily whilst achieving lower costs and faster
vehicle turnaround.

Table 12 shows that labour hours charged are generally higher if specialised
inspectors are involved in routine service visits:

<table>
<thead>
<tr>
<th>Inspection Arrangement</th>
<th>Direct Charged Manhours per Weighted Vehicle (sample average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specialist inspectors or Some inspectors but service inspection is by fitters</td>
<td>47</td>
</tr>
<tr>
<td>Full inspection involvement in all service visits</td>
<td>72</td>
</tr>
</tbody>
</table>

In this table we have ensured comparability by including allowances for
sub-contracted manhours and the work of staff inspectors. The reason for the
high figure when inspectors are involved is due to the double handling of the
vehicle through a separate inspection process and a tendency to find work. To
put the figures in the Table into context, we have information on one authority
where the time booked to vehicles was about 200 hours per weighted vehicle
(typically five times longer than recommended by the ICME manual - which
gives manufacturers' recommended times for doing items of work under
warranty).

96. A full time vehicle inspector/examiner is likely to be justifiable only in
fleets of more than about 300 vehicles or where a light MOT station is also
installed. Authorities which employ full time inspectors for routine scheduled
visits incurred the highest man hours per vehicle per annum and had the highest
overhead costs for management, administration, and indirect costs. The latter
effect occurs indirectly because separate inspection procedures are symptomatic
to the bureaucratic approach to the organisation of vehicle maintenance. It is
practical to eliminate unnecessary inspection by extending the intervals
between scheduled visits and by making the fitter responsible for most routine
inwards inspections.

97. In some authorities, vehicles make scheduled visits to the workshops
every four weeks, while others maintain their vehicles in equally roadworthy
condition with scheduled visits only every 12 weeks for light vehicles and eight
weeks for high mileage heavy goods vehicles. All the authorities in our sample
were maintaining their vehicles in satisfactory roadworthy condition, and had
no significant adverse criticisms from the Licensing Authority.

98. If service visit frequencies are, without good reason, more than
recommended there are several penalties that are incurred. First, the user
department suffers the inconvenience and expense of having vehicles off the
road more often than is necessary. Second, too many scheduled visits often
mean over-serviced vehicles. It is quite common to service a vehicle when it
visits the workshop, irrespective of the mileage since the last service. This leads
to excessive maintenance costs.

99. A study of auditors' and consultants' reports shows a significant number
of authorities schedule all their vehicles for a visit to the workshop about every
four weeks. This study demonstrates that, with certain vehicles, the intervals
between scheduled visits can be more than sixteen weeks without detriment to
the roadworthiness or safety of the vehicles and hence without criticism from
the government appointed vehicle examiners.
100. Long intervals between scheduled visits are possible if drivers can be relied on to complete the statutory defect reports. Drivers are usually required and paid to undertake a daily visual external inspection of their vehicle. One authority which experimented with extended intervals between scheduled workshop visits, found that there was a slight increase in unroadworthiness of their vehicles, but in nearly every instance the defects should have been detected and reported by the drivers.

101. Some authorities are over-cautious in their attitude to the Licensing Authority, feeling that they may come in for adverse criticism if they extend the intervals between scheduled visits. Authorities with a tradition of poor maintenance standards may need to be cautious initially, but they should be re-assured that it is realistic to extend the intervals. Those authorities where the vehicle returns each night to a depot with local workshop facilities may have fewer misgivings about extending the scheduled intervals.

102. The practice of giving a full intermediate service to the vehicle when it comes into the workshop, irrespective of its mileage since the last service also increases costs. This is defended on the grounds that inevitably remedial work is required on the vehicle as a result of the safety check, so the fitters may as well give the vehicle a service. The penalty costs of this are witnessed by numerous auditors’ reports on individual authorities, where whole groups of vehicles are being given services every 500 or 1,000 miles when they are due only every 5,000 miles or more. Table 13 below gives details from one auditor’s report on a district council where the vehicles visited the workshop every 3 weeks, with services undertaken every alternate visit.

Table 13: Miles Between Services
Illustrative Example for a District

<table>
<thead>
<tr>
<th>Description</th>
<th>Average</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedford 10 cwt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini 6 cwt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bedford 18 cwt</td>
<td>1100</td>
<td>390 - 2300</td>
</tr>
<tr>
<td>Sherpa</td>
<td>800</td>
<td>600 - 1200</td>
</tr>
<tr>
<td>Bedford 25 cwt</td>
<td>1400</td>
<td>1100 - 1600</td>
</tr>
</tbody>
</table>

Auditors’ reports give instances of vehicles having travelled less than 10 miles between services. Since each service costs from £50 to £150, over-servicing is expensive. Research work on a private sector fleet does not support the widely held belief that extra services reduce the occurrence of breakdowns.

103. The frequency with which vehicles need to be seen by qualified personnel and the extent of work to be undertaken are shown in Exhibit 9 overleaf. A "safety check" in the Exhibit involves a workshop visit. Some authorities adopt a spot-check system, which ensures that the vehicle is seen monthly by an examiner at a location convenient to the user, so no off-the-road time is incurred; in this case the workshop visit is waived. However, as Table 14 shows the scheduled visit intervals for the authorities studied in depth vary considerably.

Table 14: Observed Safety-Check Intervals
Scheduled Visit Intervals

<table>
<thead>
<tr>
<th>Vehicle Category</th>
<th>Lowest</th>
<th>Average</th>
<th>Highest</th>
<th>Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>light vehicles, very low mileage</td>
<td>4</td>
<td>12</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>light vehicles, normal mileage</td>
<td>4</td>
<td>9</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>normal HGV</td>
<td>4</td>
<td>7</td>
<td>16</td>
<td>12-16</td>
</tr>
<tr>
<td>special HGV</td>
<td>4</td>
<td>6</td>
<td>9</td>
<td>6–8</td>
</tr>
</tbody>
</table>
GUIDELINE SERVICE VISIT INTERVALS

<table>
<thead>
<tr>
<th>VEHICLE CATEGORY</th>
<th>SAFETY CHECK</th>
<th>SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low mileage cars (say under 8,000 miles/year)</td>
<td>25 weeks</td>
<td>On mileage</td>
</tr>
<tr>
<td>Light vehicles under 3.5 T GVW except as above and high mileage police cars</td>
<td>12 weeks</td>
<td>On mileage</td>
</tr>
<tr>
<td>High mileage police cars</td>
<td>3 to 4 weeks</td>
<td>On mileage</td>
</tr>
<tr>
<td>Low mileage HGV (say under 8,000 miles/year)</td>
<td>12 to 16 weeks</td>
<td>On mileage</td>
</tr>
<tr>
<td>High mileage HGV</td>
<td>8 weeks</td>
<td>On mileage</td>
</tr>
<tr>
<td>Refuse and other special vehicles</td>
<td>On condition and usage of vehicles. Typically 6 to 8 weeks</td>
<td>On mileage</td>
</tr>
</tbody>
</table>
Exhibit 10 overleaf provides a check list of recommended arrangements for reception, inspection and servicing.

Contracting Out

104. Many authorities experience difficulty finding a private garage equipped, competent and suitably located to undertake the maintenance of special purpose vehicles and plant such as refuse collection vehicles and heavy goods vehicles. Therefore, most authorities need some workshop facilities of their own. Normally the question is not whether an authority should have workshops of its own, but how many and where? There needs to be a regular review of workshop sizing and location related to the pattern of vehicle deployment. Wherever the need for a workshop has been confirmed, it ought then to be more economic for it to undertake most of the routine servicing and maintenance of those authority vehicles garaged within a reasonable radius of its location.

105. Contracting out maintenance is an option in three situations:-
(a) where an authority's workshops are demonstrably inefficient and attempts to improve efficiency have failed
(b) for those vehicles garaged an inconvenient distance from the nearest authority workshop
(c) for specialist work that is uneconomic to undertake in-house.

106. Well-run authority workshops need only consider (b) and (c). In many authorities, particularly rural counties and some rural districts, it will nearly always be advantageous to contract out the maintenance of some of the vehicles either to private garages or to other authorities.

107. In this study the authority with one of the lowest maintenance costs per weighted vehicle (£600) subcontracted the maintenance of about one third of its fleet. This authority was subcontracting as a matter of policy and was structured accordingly with a remarkably slim internal organisation. However a substantial portion of this authority’s sub-fleet was maintained in a district council workshop, and the fleet as a whole comprised very low mileage "clean" vehicles and, at the other extreme, 13 waste disposal vehicles supported by a newly established dedicated contractor whose charge-rate was only £6.50 per hour.

108. There is an ambivalent attitude towards tyre contractors, one authority claiming to have made substantial savings by bringing such work back in-house. However, special facilities are needed to handle large tyres, particularly for on-the-road-punctures, so the tyre contractor is clearly here to stay. A similar situation exists with regard to breakdown recovery vehicles. Only one authority had no recovery vehicle; but only two were equipped to recover the heaviest vehicles in their fleet.

109. External maintenance costs, too, need to be controlled effectively. Specifically:
(a) Control of price. Price structure should be agreed with suppliers, e.g. labour charge - rate per hour; limitations on hours charged; agreed discounts on parts; prices for routine servicing; prices for frequently occurring jobs (e.g. brake linings or clutch). There should be a formal annual (or more frequent) review of maintenance costs incurred with garages in terms of:
- Cost per vehicle by category
- Price structure and work content
(b) Control of work content. There should be a price limit at which the supplier has to obtain advance authorisation for a repair, and at which the authorising officer visits the garage. Removed parts should be retained by the garage for a period so the authorising officer can check
### CHECK LIST FOR RECEPTION, INSPECTION AND SERVICING

<table>
<thead>
<tr>
<th>Number of Direct Personnel</th>
<th>FORMALISED WORKSHOP</th>
<th>FLEXIBLE WORKING</th>
<th>SMALL WORKSHOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAGE</td>
<td>GUIDANCE NOTES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle Cleaning</td>
<td>A necessary workshop task only under certain circumstances eg. Pre-MOT</td>
<td>Full-time Yardman</td>
<td>Ancillary or Fitter</td>
</tr>
<tr>
<td>IN - Reception</td>
<td>In large workshops a full-time receptionist is necessary. Reception documentation is important</td>
<td>Full-time Receptionist</td>
<td>Receptionists' duties include in-inspection of defect vehicles</td>
</tr>
<tr>
<td>IN - Inspection</td>
<td>Overlaps routine servicing tasks and reception of defect vehicles</td>
<td>Inspector/Examiner</td>
<td>Fitter (Inspector PT)</td>
</tr>
<tr>
<td>Routine Servicing</td>
<td>Mainly comprises inspection, filter changes, and oils and coolants. Some minor repairs</td>
<td>Fitter</td>
<td>Fitter</td>
</tr>
<tr>
<td>Mechanical Repairs</td>
<td>Exchange of faulty parts. Dis-assembly for further diagnosis. Adjustments</td>
<td>Fitter</td>
<td>Fitter</td>
</tr>
<tr>
<td>Assembly Overhauls</td>
<td>Minor or supply-problem assemblies only, OR full assembly overhaul facilities</td>
<td>Fitter or Separate Shop</td>
<td>Fitter (occasionally)</td>
</tr>
<tr>
<td>Other Repairs &amp; Capital Works</td>
<td>Eg. work which may be done by specialists – Auto-electrical, Bodywork, Paint Shop</td>
<td>Specialist Tradesmen</td>
<td>Fitter (occasionally, minor)</td>
</tr>
<tr>
<td>OUT - Inspection &amp; Road Test</td>
<td>May or may not include routine road test</td>
<td>Inspector or Chargehand</td>
<td>Inspector or Chargehand as required</td>
</tr>
<tr>
<td>OUT - Reception</td>
<td>Is usually poorly documented so VOR data is hard to obtain</td>
<td>Full-time Receptionist</td>
<td>Receptionist</td>
</tr>
</tbody>
</table>
| Stores                    | Historically often overstocked and over-manned | Full-time Storekeeper and Storeman | Storekeeper or Foreman | }
them, and there should be a warranty claim system which clearly alerts
the officer responsible to warranty claim eligibility. Service visit
frequencies should be controlled as for in-house maintenance.

(c) Management information. There should be a management information
system which provides cumulative collated information showing costs
incurred by vehicle category at each supplier.

110. Control of contracted-out maintenance can be time-consuming. One
library department previously used to place the maintenance of its library vans
with private garages, but it required the part-time effort of one person to
control it. Another county authority places with outside garages the front-line
maintenance (i.e. service and minor work arising) of all vehicles stationed more
than five miles from a county workshop. A mobile quality control inspector has
authority to inspect any council-owned vehicle. This authority monitors the
cost of front-line maintenance of these vehicles against the cost of in-house
maintenance, as a check on the competitiveness of the authority's own
workshops.

111. In arrangements between authorities, the danger is that disputes may
arise as to the priority to be accorded to vehicles. In one district workshop, the
county block-books 36 hours per week of one fitter and in this way receives the
priority it considers necessary.

* * *

112. In summary, the study suggests that there are worthwhile opportunities
to reduce maintenance costs per vehicle. Table 15 sets out some yardsticks
against which maintenance performance can be assessed.

Table 15: Vehicle Maintenance Proposed
Performance Indicators
1983/84

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yardstick of Good Practice</th>
<th>Indicator of Potentially Unsatisfactory Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-the-road days per annum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- cars and light vans</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>- medium vans</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>- heavy goods vehicles up to 7.5T GVW</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>- heavy goods vehicles over 7.5T GVW</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>- refuse collection vehicles</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>Annual Maintenance Cost per Weighted Vehicle</td>
<td><strong>£700</strong></td>
<td><strong>£850</strong></td>
</tr>
<tr>
<td>(Parts Cost included in above Maintenance Cost)</td>
<td>(£250)</td>
<td></td>
</tr>
<tr>
<td>Weighted Vehicles Per Workshop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee (all grades)</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Weighted Vehicles Per Fitter</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Booked Hours Per Weighted Vehicle p.a.</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>Weighted Vehicles Per Bay</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Bay Utilisation</td>
<td>70%-80%</td>
<td></td>
</tr>
<tr>
<td>% Maintenance Contracted Out (Counties)</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Safety Check Intervals (normal mileage, excl Special HGV)</td>
<td>12 weeks</td>
<td></td>
</tr>
</tbody>
</table>

Exhibit 11 overleaf summarises the features of well-run local authority
maintenance organisations. If the authorities studied are representative,
bringing average maintenance performance up to yardstick levels would save
local government £60-70 million a year.
### FEATURES OF WELL RUN MAINTENANCE ARRANGEMENTS

<table>
<thead>
<tr>
<th>STRUCTURE</th>
<th>STYLE</th>
<th>SYSTEMS</th>
<th>SKILLS/STAFFING</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Separate cost centre within main transport organisation</td>
<td>• Commercial approach</td>
<td>• Close monitoring of vehicle maintenance costs against a prepared budget</td>
<td>• A competent and reliable workforce</td>
</tr>
<tr>
<td>• Lean managerial and administrative structure</td>
<td>• Competitive pressures on the workshops, including regular comparisons of the cost of in-house and contracted-out maintenance</td>
<td>• Analysis of support man hours for different vehicle types</td>
<td>• In-house workshops undertaking only routine service and repair except where the volume of work could justify specialist facilities</td>
</tr>
<tr>
<td>• Close links with the individual service departments with structure designed to meet their requirements</td>
<td>• Close links with private garages</td>
<td>• Close monitoring of vehicle downtime, distinguishing waiting time from time being worked on</td>
<td>• No full-time inspectors/examiners except in large fleets (say more than 300 vehicles)</td>
</tr>
<tr>
<td>• Workshops located close to users' depots</td>
<td>• Delegation of routine decisions to fitters where appropriate. Fitters allowed to identify with the vehicles they maintain</td>
<td>• Exception reports on downtime, and maintenance costs</td>
<td>• Fitters undertake most routine inwards inspection of vehicles</td>
</tr>
<tr>
<td>• Contracting-out of the maintenance of those vehicles garaged inconveniently far from an authority workshop</td>
<td>• Maintenance services designed to accommodate the particular requirements of each service department eg. workshops located at users' depots, and maintenance undertaken at periods of low demand for vehicles</td>
<td>• Fitters bonus schemes not based on job by job assessment but rather on support man hours coupled with vehicle availability or task completion</td>
<td>• Tight control of manpower resourcing, with manning levels assessed against the annual maintenance workload for the fleet expressed in terms of support man-hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• About 10 vehicles per workshop personnel (including staff grades) in districts, about 15 in counties</td>
</tr>
</tbody>
</table>

About 10 vehicles per workshop personnel (including staff grades) in districts, about 15 in counties
3 Installing Appropriate Management Arrangements

113. It will be evident that the steps outlined in the first two chapters of this report may only be possible if the appropriate management arrangements are in place. In particular, management of transport operations and maintenance requires:

(i) Centralised managerial control in most, if not all, circumstances - though this does not imply centralising all maintenance in one workshop.
(ii) Timely, accurate and comprehensive information for management.
(iii) A commercial management style.

This chapter describes each of these requirements in more detail.

Centralised Management Control

114. In virtually all the authorities studied in this work, important elements of transport operations and management were under central control: repairs and maintenance, procurement and disposal, specification and insurance. There are also good reasons for having the vehicle provision under central control as well:

(a) Pooling arrangements are more likely to work smoothly under these circumstances. If all reserve vehicles are pooled, the fleet size will be reduced; and integrating the workload of, for example, passenger carrying vehicles used by education and social services departments will be facilitated.

(b) The right balance between ownership and spot and contract hiring will be struck more readily if the transport manager has overall responsibility for the authority's vehicle fleet. Spot hiring will be co-ordinated - unlike the unco-ordinated arrangements found in most decentralised authorities. Moreover, authorities should be better placed to obtain the best available discounts for volume if the manager in question has the overall procurement budget with which to negotiate.

(c) Transport overheads should be minimised. Where operations are under departmental control, there will always be a risk of duplication of effort or failure to take advantage of the appropriate professional skills.

(d) Managerial accountability is clear. It will not be possible, for instance, for the transport manager to excuse low utilisation or excessive vehicle reserve levels on the grounds that "the users are responsible for operations". By bringing all vehicle costs under the budget of a specialist manager the right conditions for obtaining appropriate discounts on vehicle purchases, replacing vehicles at the right time, monitoring fuel consumption, undertaking the appropriate levels of maintenance and keeping overheads (staffing, financial and legal services, workshops) to reasonable levels will be created.

(e) User departments are confronted with a full cost of owning and running vehicles - in contrast to the situation in many decentralised transport organisations, where the full costs are not identified to those who are, in effect, paying for them.

115. The Exhibit in the summary (page 6) showed the main features required in a successful centralised transport organisation. They are to be
found in many of the authorities participating in this study. For example:
- in Lincolnshire, the transport management organisation offers a contract hire with maintenance service to all user departments and is charged with making a surplus of 5%. User departments have the ultimate sanction of using commercial hire firms if they can demonstrate that this would be cheaper for the authority. Regular checks are made of internal hire rates against hire firms.
- in Tameside and Berkshire transport provision is centralised. In Tameside transport is controlled by a transport manager reporting to a members’ transport committee. In Berkshire the transport manager in effect offers users contract hire with maintenance, including the provision of a replacement vehicle in the event of a breakdown.
- in Maidstone, transport management is centralised under the transport officer who is chief officer. He is also responsible for the municipal bus undertaking but is independent of other transport users. Ownership, purchasing, replacement and maintenance are all under his control. Although vehicles are all theoretically in a central pool, many of them are on permanent assignment to users. A transport co-ordinating committee helps to ensure efficient utilisation and there are a number of vehicles that swap departments during the course of a day.

116. Even though many authorities apparently have sound organisation structures, it will be evident from the two preceding chapters that this is no guarantee of competitive costs. Centralised management control may be necessary; but it is not sufficient to secure value for money. It is important that a central transport organisation should not be in a protected monopoly position. The evidence of this study is that in such circumstances central provision can become inefficient, with high overheads and poor maintenance practices. To guard against this, regular comparisons should be made with outside contract hire rates and maintenance costs, and user departments should be allowed the ultimate sanction of going outside the authority for their vehicles if this can be shown to be consistently cheaper. Moreover, without the necessary information and appropriate management style, any structure will be less than fully effective. These points are considered below.

Comprehensive Management Information

117. Good managements should be supported by good information systems; but the mere fact of information availability should not automatically be presumed to imply efficiency. In one authority in the study there was no comprehensive management information system yet transport was generally well controlled, especially on the maintenance side. Conversely, another authority, with a plentiful supply of information including daily reports of vehicle usage and downtime, ran a fleet with very high reserve vehicle levels and an above-average cost per vehicle. Moreover, the quantity of management information can be a false indicator of management efficiency. There can be a low awareness of the availability of such data by the officers for whom it was intended, or a low understanding of its content. The sheer quantity of data distributed to transport managers and users may also present problems.

118. Nevertheless, well-managed authorities without a sound information system are the exception rather than the rule. All the well-managed transport organisation authorities were aware of the cost implications of their operations. Local authorities with fleet sizes above about 100 vehicles should consider computerising their management information system, and above about 250 vehicles the benefits of computerisation will be considerable. The basic information required is as follows:

(a) An up-to-date vehicle fleet inventory, showing user department, operating base and vehicle type.
(b) Utilisation reports separately identifying the individual vehicles' running time, standing time, idle time and time in the workshop.
(c) Fuel consumption reports for individual vehicles.
(d) Monthly comparison of budgeted and actual costs, itemised by cost and vehicle types.
(e) The level of spot hiring in terms of vehicle days and costs, related to usage and cost of authority-owned vehicles.
(f) Exception reports, which identify any vehicle that warrants attention because its performance falls outside specified limits.
(g) A workshop operations analysis, covering overheads, hours and costs for the direct labour force and parts and other costs.
(h) Maintenance analysis by main vehicle category and by user department, including labour hours and cost, parts cost, and vehicle-off-the-road days.
(i) Life to date repair history for each vehicle.

119. While most of the information required is self-apparent, some difficulties have been experienced in calculating full operating and maintenance costs, monitoring vehicle utilisation and tracking maintenance performance. These are therefore discussed in more detail below.

### Calculating Full Operating and Maintenance Costs

120. All authorities produce cost data of some description, usually at monthly intervals although sometimes weekly. However, a vehicle costing system is frequently mistakenly regarded as a substitute for a management information system. In most authorities a costing system is needed to ensure that the identified costs of running vehicles are fully recharged to services or jobs. This is done by charging an hourly (sometimes daily or weekly) rate for the use of a vehicle and monitoring recoveries (total amount recharged) against total vehicle costs. Imbalances are corrected either by adjustments to the hourly rate during the financial year or by apportioning an additional charge or rebate at the year end. All too often this is the sole reason for separately identifying vehicle costs and adjustments are made without questioning the underlying cause of deviation from the budget.

121. There are four main problems associated with using existing cost data either to make decisions within an authority or make comparisons between authorities.

(a) Firstly, some costs that should be attributable to transport are not always charged against vehicles and plant, in particular, depot charges and central overheads (for example, financial and legal services). These omissions can make the local authority's charge rates look better than they really are when compared with alternative ways of acquiring vehicles such as contract hire. Exhibit 12 overleaf shows the costs that should be included in any cost comparisons.

(b) Secondly, the on-cost charged on many types of vehicle costs differs considerably between authorities. This is illustrated by Table 16 on page 53 which shows on-cost charged on fuel, parts (directly purchased and bought-in) and the workshop labour rate in the in-depth sample of authorities covered in this study. The true on-cost is rarely correctly identified and in some cases is not perceived at all. For example, the table shows that one authority levies no on-costs on either fuel or parts, whilst others incorrectly choose to treat fuel in the same manner as parts (for fuel, the handling costs are lower and the turnover rate is greater than for normal stores issues). Some of the authorities with quoted low on-costs recoup their overheads by means of an “administration” charge per vehicle, varying from £1,000 to £3,600.
Almost half the costs in any transport organisation are either fixed or related to fleet size

COST BUILD UP IN A TYPICAL COUNTY TRANSPORT ORGANISATION

£m, at 1984 prices
(excluding police and home to school transport)

Source: Audit Commission analysis of local information
Table 16: Variations in Overhead Allocations
Nine Transport Organisations

<table>
<thead>
<tr>
<th>On-costs (%)</th>
<th>Lowest</th>
<th>Average</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>Nil</td>
<td>24</td>
<td>58</td>
</tr>
<tr>
<td>Parts (stock items)</td>
<td>Nil</td>
<td>23</td>
<td>58</td>
</tr>
<tr>
<td>Parts (direct purchase)</td>
<td>Nil</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>Workshop Labour</td>
<td>48</td>
<td>150</td>
<td>283</td>
</tr>
</tbody>
</table>

(c) Transport department accounts often do not differentiate between the transport and workshops functions, except in the direct costs of maintenance, labour and materials. Hence the all-important costs of workshops’ overheads - typically twice the direct cost of labour - may not be readily available.

(d) When looking at only one year of an authority's expenditure, it is necessary to make allowances if that year is not representative of the authority's long-term position. For example, an authority may choose to make no contributions that year to its repairs and renewals fund but such a situation cannot last for long.

122. Only one of the nine authorities in the study of vehicle maintenance was able to provide a standard workshops operating cost statement, clearly setting out only those costs which were directly attributable to workshops and needing minimal adjustment to arrive at a set of figures which could confidently be used for comparative purposes. Workshop labour costs were presented in so many ways, each including different aspects of overheads, that they were not immediately comparable between authorities.

123. Exhibit 13 overleaf shows the labour cost structure of a well-run authority workshop, charging £10.50 per hour for service and repair (a realistic and competitive rate for 1982/83). The Exhibit shows how the workshop charge rate is made up of six components; fixed costs and overheads equal those of direct labour. The term 'direct charged labour' covers the costs of labour booked against individual jobs and includes basic pay, overtime, bonus and employer's National Insurance and superannuation contributions. 'Dead-time' includes non-productive time, holidays and sickness. Premises costs should be calculated at an economic asset rental, or debt charges, whichever is the higher. The other components of cost are self explanatory. The total hourly charge rate is almost exactly three times the wages element of direct charged labour (£3.51 before employer's contribution is added to make £4.30).

124. Many authorities do not calculate their workshop charge rate in this manner. In one, the quoted charge-rate was £5.48 per hour, compared with our calculation of a full recovery charge rate of £10.80 per hour. Another authority bid for work from an Health Authority at a rate of £8.50, when the rate for full recovery should have been about £13.

125. When comparing their workshop charge rates, authorities should include an asset rental in the charges for their premises; otherwise new workshops carrying heavy debt charges appear uncompetitive against ageing workshops with no debt charges. This discrepancy is a major bone of contention with workshop managers and distorts decisions on whether to build new premises. If an asset rental is charged as part of the workshop labour rate then any excess over debt charges could go towards a building renewals fund. In this study we have re-analysed all the workshop charge rates so that authorities' maintenance costs can be compared on a consistent basis. In order to make informed judgements about their maintenance costs, authorities should adhere to the conventions outlined above. Not to do so will mask the true level of maintenance costs and distort comparisons with contracted-out costs.
Exhibit 13

Fixed costs in a well-run workshop can exceed direct labour costs

BUILD UP OF MAINTENANCE CHARGES

Rate per hour, £1983

Source: Audit Commission analysis of data supplied from sample authorities
126. Having corrected for these inconsistencies, there are still substantial variations in costs per vehicle even within a sample including many apparently well managed transport organisations. Table 17 below shows the range observed during this study for different types of vehicle.

Table 17: Annual costs Per Vehicle
1982-83 excluding fuel

<table>
<thead>
<tr>
<th></th>
<th>Lowest</th>
<th>Average</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars and Light Vans</td>
<td>£ 1,150</td>
<td>2,042</td>
<td>2,692</td>
</tr>
<tr>
<td>Medium/Large Vans</td>
<td>1,500</td>
<td>2,572</td>
<td>3,701</td>
</tr>
<tr>
<td>Minibuses</td>
<td>1,663</td>
<td>3,030</td>
<td>5,182</td>
</tr>
<tr>
<td>Lorries/Tippers&lt;7.5 tonnes GVW</td>
<td>3,800</td>
<td>4,638</td>
<td>6,187</td>
</tr>
<tr>
<td>Refuse Collection</td>
<td>7,600</td>
<td>11,691</td>
<td>18,193</td>
</tr>
</tbody>
</table>

127. Few authorities produce reliable summary information for management on the utilisation of vehicles which will help determine the optimum fleet size. Where vehicles are used exclusively on one service and costed to that service, departments see no reason to make any record of vehicle use. This is typical of education and social services and inspectors'/supervisors' vans in technical services departments, where over-provision of vehicles can remain undetected.

128. Users of transport in direct labour organisations have more detailed records of vehicle and plant use for the purpose of apportioning vehicle costs to jobs and services, usually via an hourly charge rate. However, many authorities hold this data only on basic documents such as daily vehicle haulage sheets. The only summary data produced may be total recoveries, i.e. total usage multiplied by the hourly charge rate, which is monitored against vehicle costs.

129. Vehicle utilisation statistics can often be misleading because of the variety of ways employed to record vehicle use. At one extreme, some authorities declare a vehicle as being used for eight hours if it is driven out of the depot just once during the day. At the other extreme, some authorities only record the time that a vehicle is actually being driven and ignore standing time on site. More confusion arises where different recording practices are adopted in the same department. For this reason, it is unreliable to judge an authority's efficiency by the utilisation rate it quotes, unless the basis on which it is calculated is given at the same time. A further problem arises in a centralised transport authority where two rates of vehicle utilisation may be quoted: the proportion of time that vehicles are on hire to a service department from the transport manager, and the proportion of time that vehicles are used while in the possession of the service department.

130. From the service department's viewpoint, a useful definition of utilisation is the total number of hours a year the vehicle is made use of. This figure may then be compared with the theoretical time the vehicle is available for use (1960 hours less time for maintenance and repairs). "Time made use of" includes journeys from the garage to jobs and journeys between jobs, loading and unloading time and essential waiting time. Provided that the use of vehicles on this particular task is justified, it is satisfactory to measure "time made use of" in units of half-days or shifts (i.e. any half-day on which the vehicle is used for any significant task counts as 3½ or 4 hours).

131. Target utilisation levels for groups of vehicles should be 1700 hours per annum for general-purpose light vehicles and 1500 hours for general-purpose lorries and specialist vehicles. Targets for education and social services minibuses will necessarily be lower - around 1000 hours. However, utilisation levels on isolated items can be considerably lower than this before ownership becomes unjustified. This minimum utilisation level can be determined by a comparison of in-house costs with general spot-hire costs. This calculation
needs to be performed by each authority, but as an illustration table 18 gives the results of such a calculation in one particular authority:—

Table 18: Illustrative Minimum Utilisation Level To Justify Ownership

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Hours p.a.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Vans</td>
<td>1250</td>
</tr>
<tr>
<td>Cars (2 litres and above)</td>
<td>1150</td>
</tr>
<tr>
<td>Medium and heavy vans</td>
<td>950</td>
</tr>
<tr>
<td>HGV, Standard (and refuse vehicles)</td>
<td>900</td>
</tr>
<tr>
<td>Specialist HGV (e.g. lighting towers)</td>
<td>600</td>
</tr>
<tr>
<td>Standard Plant Equipment</td>
<td>800</td>
</tr>
<tr>
<td>Specialist Plant Equipment with irregular demand (e.g. tracked plant)</td>
<td>400</td>
</tr>
</tbody>
</table>

132. If there are several vehicles or plant items in a fleet with utilisation levels close to the minimum then this is an indication that the fleet size is too large.

133. The danger with monitoring utilisation in the way suggested above is that it may mask ineffective use of vehicles during the working day. It will be necessary to review regularly whether the use of vehicles on this task is effective. The calculation required is the trade-off between the costs of the vehicle and improvements in productivity that the use of the vehicle can effect. For example, a tradesman’s light van costs about £10 a day. In rural areas, the time saved may make it worth assigning each tradesman with his own van; but in urban areas it should be possible for two tradesmen to share a van.

134. Examples of noteworthy practice in monitoring utilisation include the following:
   - Maidstone use regular computer outputs showing hours in use, hours idle and hours in workshop. Vehicle utilisation is monitored centrally over all user departments. Under-utilised vehicles are taken away from user departments and brought into a pool.
   - Preston Management Services organised a special survey of all user departments to obtain information on vehicle use. Some departments in various authorities monitor utilisation during the working day.
   - Lincolnshire employs a utilisation officer whose job is to co-ordinate spot hiring arrangements within the authority.
   - South Tyneside allow end of year balances on the transport account to be carried forward to the following year. This avoids the need for frequent changes in the hourly charge rates or for end of year adjustments to user departments, neither of which is popular with users, particularly DLOs. The authority charges users for vehicle idle time at 60 per cent of the full hourly charge rate. This encourages users to identify under-utilised vehicles while also ensuring they make sufficient payment to cover the vehicles’ standing costs.
   - Radio control of vehicles, especially for council services that have an emergency element, can prove a cost effective way of scheduling and monitoring vehicle use during the day. By eliminating unnecessary journeys (for example, return trips to a depot by tradesmen for instructions) vehicle mileage and hence running costs can be reduced.

135. In order to monitor workshops’ performance, and that of external garages, authorities will need the following fairly basic information:
(a) Information on workshop operations. This will need to include:
   - an itemised summary of directly attributable on-costs, clearly differentiating between the overheads to run the workshop itself, and the cost of external services. This should show separately the overheads to be recovered on stores mark-up
   - an hours and cost analysis for the direct workforce itemising number
of personnel, normal hours worked, overtime hours, standby payments, holidays, sickness, overtime premium, bonus premium, time booked to chargeable work and non-productive time.

- a parts and other costs analysis showing issues through stores and mark-up, direct purchases and mark-up, ferrying costs, other costs (e.g. recovery of breakdown-truck costs), sub-contracted work.

Where specialist, self contained and fully manned facilities such as a body and paint shop are in operation, a simple summary operating statement should be prepared for these activities.

(b) Information on services provided. This should be analysed by main vehicle category (a maximum of about thirty) and totalled. User department totals are also advisable. This analysis should include service and repair, capital works, tyres and charges not recovered direct from user, i.e. warranty and insurance. It should also show labour hours, direct labour cost, direct parts and other costs.

To enable inter-authority comparisons, overheads should be separately stated.

Some authorities adopt a differential overhead allocation system relative to the types of vehicle. This is to be encouraged, but is hard to standardise. There should also be a simple overall overhead recovery rate statement.

(c) Information on service performance. This should report by main vehicle category on frequency of scheduled and non-scheduled visits and vehicle off the road (VOR) hours for MOT visits, other scheduled visits and non-scheduled visits.

All the information above should be presented in a summary report per vehicle, per vehicle category and for maintenance operations as a whole.

'Commercial' management style

136. The most effective transport organisations visited during this study were distinguished by an entrepreneurial and cost conscious attitude by management and well-founded trust in its workforce. Those authorities which have been successful in developing competent and reliable teams of skilled fitters, capable of working with a minimum of supervision, are those which have the most economical and effective maintenance. This requires good management and careful selection of personnel. Those authorities which concentrated first on good management and placed second priority on sophisticated information systems were producing the best results. The DLO legislation seems to have had beneficial effects on maintenance efficiency: maintenance costs are lowest when user departments are under pressure to contain costs, as are DLOs.

137. In well-managed transport organisations the characteristic style is:-

(a) a customer-client relationship between the workshop manager and the transport manager and between transport and service departments.

(b) cost consciousness: budgets are prepared and agreed with the users for the maintenance of their vehicles. Maintenance costs are recharged on a job by job basis or as part of the all-in internal hire charge; but the user must be able to exert control over the level of maintenance within the constraints of operating a roadworthy vehicle.

(c) competitiveness: comparisons should be made between the in-house costs of maintaining vehicles and the cost of maintaining similar vehicles in outside garages or other authorities. This can only be done if the authority has calculated its workshop charge rate realistically. Internal and external hire charges are also checked regularly. Users must have the option to go outside the authority if that can be shown to be consistently cheaper.
(d) expertise: where departments are responsible for their own maintenance arrangements there is a need to ensure that they have access to engineering expertise and a good management information system.

* * *

138. This study suggests that in most large authorities savings of up to £1 million a year on their transport costs should be possible if the good practice described above is put into operation. Exhibit 14 suggests the scale of the savings opportunities, which need not involve any reduction in levels of service - assuming that the sample authorities studied are reasonably typical (and the Commission believes that they are, in general, better than average in terms of transport management). During the audits of the accounts for 1984-5, the Commission's auditors will be working with authorities to help ensure that these opportunities are grasped.
Exhibit 14

General application of good practice could reduce owned transport costs by 20%

COSTS OF OWNED TRANSPORT FLEET: IMPACT OF APPARENTLY ACHIEVABLE IMPROVEMENTS

£m, at 1983 prices

Source: Audit Commission analysis of sample authorities' performance
List Of Authorities and Organisations Consulted

1. The Commission particularly wishes to express its thanks to the members and officers in the following authorities who were studied in depth during this work:

   Arun
   Maidstone
   Lincolnshire
   Norfolk
   Northamptonshire
   Nottinghamshire
   Preston
   South Tyneside
   Waltham Forest
   West Yorkshire

2. In addition, many other authorities provided useful information:

   Alyn & Deeside  Hillingdon
   Berkshire      Leeds
   Cynon Valley   Newport
   Dartford       Selby
   Dudley         Tameside
   Dyfed          Three Rivers
   Enfield        West Glamorgan
   GLC            West Sussex
   Hastings       Yeovil

3. Data on 45 other authorities were obtained by auditors (25 in the current round, 20 in previous rounds). We also consulted fifteen private sector transport operators. As always, comparisons with the private sector were instructive.

4. Finally, the following organisations submitted comments or information:

   Association of Chief Police Officers
   Association of Chief Technical Officers
   Association of County Councils
   Association of District Councils
   Association of London Borough Engineers and Surveyors
   Association of Metropolitan District Engineers
   Association of Metropolitan Authorities
   Association of Municipal Engineers
   Borough Engineers Society
   British Vehicle Rental and Leasing Association
   Chief and Assistant Chief Fire Officers Association
   City Engineers’ Group
   Construction Plant-Hire Association
   County Surveyors Society
   District Council Technical Association
Freight Transport Association
Institute of Road Transport Engineers
Institute of Transport Administration
Institution of Mechanical Engineers
National Union of Public Employees
Police Superintendents’ Association
Society of County Treasurers
Standing Technological Conference of European Local Authorities
Transport and General Workers Union
Appendix B

Vehicle Weighting

To compare fleet maintenance costs it is necessary to allow for varying fleet mixes since the maintenance requirements of different types of vehicles vary. The following table shows the weights for some common vehicle and plant types derived from analysis of maintenance costs in six authorities studied in depth.

### TABLE B: VEHICLE WEIGHTING FACTORS

<table>
<thead>
<tr>
<th>Type of Vehicle</th>
<th>Weighting Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coaches, minibuses</td>
<td>up to 15 seats 1.1, over 15 seats 2.8, towed caravans 0.2</td>
</tr>
<tr>
<td>Cars, vans, pick-ups</td>
<td>up to 1.5 tonnes 1.0, 1.5-3.5 tonnes 1.4</td>
</tr>
<tr>
<td>Lorries and tippers</td>
<td>3.6-7.5 tonnes 2.8, 7.6-16.5 tonnes 3.4, over 16.5 tonnes 5.6</td>
</tr>
<tr>
<td>HGV artic tractors</td>
<td>4.8</td>
</tr>
<tr>
<td>Refuse collection compaction</td>
<td>6.4</td>
</tr>
<tr>
<td>Refuse disposal rigid</td>
<td>12.0</td>
</tr>
<tr>
<td>Refuse disposal trailer</td>
<td>3.4</td>
</tr>
<tr>
<td>Small sweepers hand controlled</td>
<td>1.2</td>
</tr>
<tr>
<td>Sweepers, tankers, gully emptiers large</td>
<td>4.2</td>
</tr>
<tr>
<td>Gritters body and vehicle</td>
<td>4.2</td>
</tr>
<tr>
<td>Tower platform hoist</td>
<td>2.8</td>
</tr>
<tr>
<td>Tractors normal agricultural</td>
<td>1.7</td>
</tr>
<tr>
<td>Tractors special</td>
<td>1.9</td>
</tr>
<tr>
<td>Shovels and excavators</td>
<td>3.8</td>
</tr>
<tr>
<td>Dumpers</td>
<td>0.9</td>
</tr>
<tr>
<td>Fire and Rescue fleet</td>
<td>2.8</td>
</tr>
<tr>
<td>Police fleet</td>
<td>1.2</td>
</tr>
<tr>
<td>Health Authority Ambulances</td>
<td>1.7</td>
</tr>
</tbody>
</table>

In other words, an authority operating, say, the following fleet:

- 30 light vans, 15 medium vans, 17 12-ton lorries, 10 refuse collection vehicles, 2 gritters

would calculate its weighted fleet as follows:

\[
[(30 \times 1.0) + (15 \times 1.4) + (17 \times 3.4) + (10 \times 6.4) + (2 \times 4.2)] = (30 + 21 + 57.8 + 64 + 8.4) = 181.2 \text{ weighted vehicles.}
\]

This ratio between total weighted vehicles and actual vehicles is typical for many district councils. For fleets in general, the ratio can vary between 1.5 and 2.8.
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