Value for money in the Fire Service: some strategic issues to be resolved

1. As part of their audits of the accounts for 1984-85, the Commission's auditors have examined the value for money being achieved by 36 of the 54 fire brigades in England and Wales. This work was based on an Audit Guide prepared by the Commission and issued in late 1984.

2. This paper summarises the findings of the local projects. It is in two parts, reflecting the main conclusions to emerge from the work:

(i) Within the existing constraints of nationally agreed conditions of service, there are only modest opportunities to secure better value for the annual expenditure of some £650 million a year. In many cases the fire service appeared to be managed notably well,

(ii) But, by international standards, the UK fire service is expensive - about double the level in some continental countries. This prompts some questions about strategic issues that deserve to be addressed at the national level - since fire services are an example of what amounts to a national service locally administered.

Modest near-term value improvement potential

3. Every year, fire brigades turn out to around 300,000 fires in England and Wales, (and to a further 250,000 calls that turn out to be false alarms). One hundred thousand of these fires are in occupied buildings; and a small proportion of these do serious damage. Around 700 people lose their lives and a further 7,000 are injured as a result of fires. The cost of fire damage is typically around £500 million a year (including some £100 million damage to local authority property). Fire brigades also answer a further 100,000 emergency calls not involving fire: for example, traffic accidents or almost any kind of emergency that other public services are unable to deal with.

4. To deal with these problems, the fire service in England and Wales employs 36,000 whole-time firemen, 13,000 part-time firemen, and 5,000 non-uniformed employees. The service will have cost some £650 million during 1985-86, or £30 per household; the table below provides a breakdown of the costs of the service.

5. Thus, operational firemen make up around 60% of the cost of the service, these being the staff who man brigades' firefighting appliances and provide the front line of fire protection. The main firefighting unit is the pump, of which the service deploys about 2,500. Each pump normally requires a crew of five (or four for a back-up pump), which can be provided in three main ways:

- Shift-manning. About 900 pumps are manned by whole-time firemen, 24 hours per day, 365 days per year. Providing the normal crew of five at all times requires about 27,000 firemen, at a direct cost approaching £300,000 per pump. Shift-manned pumps deal with some 75% of all fire calls.

All the reports published by the Audit Commission in the last three years have set out either specific recommendations for action by local authorities or conclusions on the local impact of government measures, e.g. for distributing block grant or controlling local authorities capital spending.

Occasionally, however, studies carried out by the Commission raise issues which go wider than the Commission's terms of reference and which appear to merit broader discussion and debate. Accordingly, the Commission plans to publish a series of Occasional Papers as a contribution to the wider discussions of important management issues affecting local government services. The first paper raises issues connected with value for money in fire protection services; why does fire protection cost considerably more in Britain than in comparable EEC countries; and why, at the same time, are death rates from fire twice as high in many cases? Other Occasional Papers will follow, as material emerging from the Commission's studies warrants.
Retained-manning. A further 1,500 pumps, mainly in rural areas, are manned entirely by "retained firemen", part-time volunteers who are paid a small fixed retainer, plus a fee for each turn out. Such pumps typically have an establishment of 10-12 retained men, earning around £2,500 per year, a total annual cost of only around £25,000 per pump. Their principal limitation is that they are assumed to take up to five minutes to turn out. This means that they cannot be used at all in areas where Home Office standards call for a five minute arrival time, and can only cover a more restricted area elsewhere, e.g. a five-minute travel radius where the prescribed arrival time is ten minutes.

Day-manning. Finally, some 100 pumps are manned by 12-15 whole-time firemen, who work from the station during the day, and also serve as retained firemen at other times. A pump manned this way costs not much more than half the level of a shift-manned pump, though this can be higher if housing has to be provided. There are also a few other variants, for example, pumps manned by a nucleus of say six whole-time firemen, backed up by retained men.

6. Brigades also deploy a considerable number of other appliances, for example, turntable ladders and specialized rescue vehicles. Many of these are not manned, especially in rural areas, but about 2,000 firemen are permanently employed on these appliances.

7. As the Exhibit shows, there are wide variations in the cost of the fire service in different counties, ranging from £20 per head in London, £16 in Cleveland, and only £8 in a number of other counties. Examination of individual brigades' costs shows that the main reason for these variations is differences in the number (and type) of pumps that these brigades deploy. By contrast, differences in manning or in indirect cost levels are relatively limited. For example, Cleveland's fire service is expensive entirely because it deploys 18 whole-time pumps - its manning levels are standard, and its indirect cost ratio is rather below average.

8. In examining value for money at individual brigades, auditors did not seek to duplicate the work of the Home Office inspectors, for example, by reviewing how fire officers grade their territory for risk, or how well brigades meet fire cover requirements, let alone how well they perform on their fire grounds. They were also asked not to look at fire precautions work as this is the subject of a separate review. Auditors concentrated on the level of costs incurred by each brigade to meet established standards. Most of the good practice yardsticks used in this exercise were supplied by the Home Office, though auditors were also able to make use of other work by the Commission, for example, in connection with vehicle management and purchasing.

9. Auditors' work focused on three main areas which correspond to the three key factors determining the cost of a brigade, namely, the number and type of pumps deployed, the way these are manned, and the level of indirect costs such as headquarter and divisional manpower and transport. In practice the first of these raised the most important issues.

Number of pumps

10. Each brigade has to deploy a sufficient number of pumps, stationed at suitable locations, to provide the required level of fire cover to all parts of their county. The cover required varies critically by the risk rating of the area involved:

- Urban areas. In major urban centres, or around particularly hazardous industrial installations, graded A-risk, three pumps must be available to respond to any call: two to arrive within five minutes of the call, the third within eight minutes. In other urban or industrial areas (graded B-risk), the number required is two pumps. As described in paragraph 5 above, the five-minute arrival time rules out the use of a retained-manned pump, and means that the brigade must deploy sufficient whole-time manned pumps to be able to reach any part of such areas within four minutes travelling time, with back-up from a second or a third pump.

- Residential areas. In mainly residential areas (C-risk) the minimum requirement is for one pump to be available, within eight-ten minutes. This cover can be provided in one of three ways: either by a whole-time pump, with a travel radius of say eight minutes; or by a day-manned pump, with half the manpower; or finally by a retained pump, at a fraction of the manpower cost, but with only half the travel radius (e.g. four-five minutes to turn out, plus four-five minutes to travel).

Rural areas. In rural areas (D-risk) one pump must be available within 20 minutes. Such areas are normally covered by retained pumps - or by whole-time pumps which are in any case needed to cover adjacent areas of higher risk.

11. In examining the number of pumps deployed in each brigade, auditors had to address two main issues: is each pump needed at all; and (mainly in C areas) is a whole-time pump needed as opposed to day - or retained - manned? In practice the choice between types of pumps must also be governed by the number of calls arising in each area. If a pump spends too much of its time out on calls it ceases to be able to be counted as available for cover to other calls. There are also practical limits to the number of calls that retained men can be expected to deal with. Thus, Home Office advice is that a single retained pump cannot normally be counted on to handle more than 150 calls per year, and a day-manned pump more than 600. On the other hand, if a whole-time pump is dealing with less than 600 calls, and is not already required to cover B-risk territory, then this raises a prima facie question whether cover could not be provided by a day-manned pump.

12. The review of these arrangements at individual brigades showed virtually no clear examples of whole-time pumps that could be dispensed with altogether, and one or two cases where an extra pump could probably be justified. On the other hand, a considerable number of whole-time pumps are deployed where Home Office standards could be fully satisfied by day-manning at around half the employment cost, or in some cases even by a retained pump, at around a tenth of the annual cost.

13. For example, one brigade reviewed included two whole-time pumps based on small towns covering some C-risk and a
shift. In most cases this will require re-housing. Some brigades can manage the change by providing rent allowances. However, if houses have to be acquired, the debt charges involved (maybe £5,000 pa) can easily offset most of the savings, even though in the long term the houses could represent a good investment. This difficulty could in some cases be obviated by improved liaison with the local housing authority—which in rural areas may well have council dwellings available. Another suggested solution is to give brigades the powers (which they currently lack) to provide mortgage finance to fire staff to purchase their own home, with a subsidy if necessary.

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14. In the authorities examined, auditors recommended that some 30 whole-time pumps should be considered for conversion to day-manning or even retained status. In nearly every case the facts were well known to the authority. Usually, no action had been taken because of the immense political objections that down-grading of local fire cover inevitably raises, from virtually all members of the community. To quote a report by one chief fire officer: “My professional opinion, despite many pressures to retract, remains that one or more stations within this County could be placed on the day-manning system and still continue to provide cover to conform to Home Office standards...I feel it my duty, however, to inform the members that I find absolutely no allies in my opinion, and once again since the publishing of the District Auditor’s report I have been approached by management of all types of industry, members of the hotel and boarding house profession, many shopkeepers and, members of the public in general, and of course, the unions, all expressing extreme concern at the re-introduction of day-manning proposals.”

To the Commission’s knowledge there have been only one or two examples of such whole-time pumps actually being converted to day-manning, though a number of brigades are now considering such a step.

15. One practical difficulty in the way of introducing day-manning is that the firemen involved need to be housed within five minutes’ reach of the station in order to respond in time outside the working day.

16. There will almost certainly be considerably more examples of whole-time pumps that could in theory be switched to day-manning beyond those singled out by auditors at brigades visited. The potential saving at the national level could be in the region of £5-£10 million, before allowing for housing costs. There are also clearly a fair number of retained pumps that are not strictly justified by Home Office cover standards, for example, pumps located in areas that already fall within the cover radius of nearby whole-time pumps. However, the financial saving from closing such stations is comparatively insignificant.

**Manning levels**

17. Each shift-manned pump should normally have a crew of five on duty at all times (or nine in a two-pump station). Firemen work 42 hours—a exactly one quarter of the week. Thus a minimum of four shift crews is needed to provide permanent manning. The need to cover for absence due to public holidays, leave, off-station training and sickness then raises this ratio (the “ridership factor”) to about 3.3, thus requiring an establishment of about 28 firemen to man one pump (5.5 x 5), or 48 for a two-pump station. On average, training and sickness absence in a typical brigade amount to five hours per fireman per week; but the figures are considerably higher in some cases.

18. Auditors’ reviews revealed a number of minor differences in the way individual brigades calculate their ridership factors, partly based on actual differences in firemen’s availability, or, for example, on the way staff mainly employed on fire precau-

**Indirect expenses**

21. Brigades spend £230 million on resources other than station firemen, the principal items being divisional and headquarters firemen, non-uniformed staff, premises and transport. In practice, most attention was given to non-operational uniformed staffing and to transport costs. Each warrants separate mention.

22. **Divisional and headquarters staff.** Brigades employ some 6,000 uniformed firemen in non-operational posts. Half of these are in management or staff positions at divisional or brigade headquarters—in effect the “officers” of the service. These are not counted as part of the manning of pumps though they are still available for operational duty. Fifteen hundred (mainly women) work in control rooms, typically around 20 per brigade (five shift crews of four) and considerably more in the larger metropolitan brigades. A further 1,500 are employed mainly in fire prevention work—an area auditors did not deal with, as it is currently being reviewed by the Home Office.

23. Auditors pointed out a number of cases where there appeared to be scope to replace uniformed firemen by civilian staff—though the difference between the cost of uniformed firemen and civilian staff is much lower than it is in the police. However, there was only one brigade at which auditors found the overall ratio of non-operational to operational firemen to be significantly above that suggested by the Home Office.

24. **Transport.** Fire brigades spend about £35 million on transport, mainly the maintenance costs of their fire appliances. These travel a very low mileage compared to most vehicles, but are subject to the most demanding reliability requirement.
Strategic issues to be examined

27. One reason for the relatively modest value improvement potential identified by auditors is straightforward. In many respects, the fire service appears to be notably well managed. For example:

- Auditors and the Commission's senior officers have repeatedly been impressed at senior fire officers' combination of technical qualifications, leadership skills and general management ability. None of these are unusual in themselves, but the rather consistent combination of the three is perhaps not so common.
- Another unusual feature is the generally high level of morale and self-confidence that appears to pervade many of the brigades examined. Firemen seem proud of their work and confident that they do it well; and opinion research suggests that the public generally shares this opinion.
- The Home Office has developed broadly common recruitment and training procedures for all brigades. Firemen are often recruited after a demanding selection process, and thereafter they follow a systematic and comprehensive training syllabus, with particular focus on the points at which they are promoted from one rank to the next. As well as the highly technical skills needed to fight fires, this training also includes a strong emphasis on general management and financial skills. As the Commission has already observed, the Fire Services College that provides a good deal of this training could well serve as a model for other local authority services, e.g. housing management. The Home Office also exercises close control over many other operational matters, such as the type of radio control systems to be used: a recent instruction on this subject will have cost one medium-sized brigade £500,000.
- However, if this country has an effective and well-managed service, it is also apparently a relatively expensive one, at least in its call on public funds, employing about twice as many whole-time firemen as some other European countries: One clear reason for these striking differences is the much greater use other countries make of volunteer firemen. As this report has shown, where a volunteer pump can provide the necessary arrival time — and this is a major limitation — it is in general terms considerably more cost-effective, and statistics prepared for the United Nations also indicate that UK expenditure on fire-fighting organisations (as a percentage of gross domestic product) is one of the highest in Europe.

29. International comparisons are notoriously difficult and need to be treated with great caution, especially in a service such as fire where standards can vary widely, as can the need for fire protection. For example, the UK has about the highest rate of deaths from fires in Europe, possibly reflecting differences in housing conditions, the greater use of individual heaters or fires as opposed to central heating, and perhaps also less attention to fire prevention. The figures quoted also tend to understate the overall level of resources devoted to fire protection in other countries. For example, Germany has a network of voluntary brigades (with 900,000 members) who raise most of their own finance themselves; other countries such as France and Italy make systematic use of military resources; and works brigades are a common feature in some countries. These are all a cost to their economies, but not one borne by the public sector.

25. Training. Finally, the one (rather small) area where the fire service appears to be rather generally under-utilising resources is training. Twenty eight brigades have their own training colleges, many set up some years ago when the reduction in firemen's hours led to a major increase in recruitment. With the subsequent drop in recruitment many of these facilities are under-utilised, and it is clear that costs would now be lower (and some facilities possibly better) had there been more co-operation between brigades to use regional training centres. In such cases, most of the extra cost involved is the capital charges on their initial cost, which cannot necessarily now be recouped by their closure. However, one audit report questioned the wisdom of one brigade's current proposal to spend nearly £700,000 on building a new training centre.

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26. As at March 31, 1986 the Commission's auditors had agreed on value improvements worth a total of just over £4 million a year with 16 authorities. These opportunities are now being followed up at the local level. Discussions are continuing in a further 20 authorities. And in four cases no worthwhile opportunities are being pursued. Thus, it is most unlikely that the value improvements resulting from the audit exercises carried out over the last 18 months will exceed £10 million a year. The national potential for securing improved value from the fire service, taking account of the brigades not covered is unlikely to be more than £15 million a year. This is less than 2.5% of the total annual cost of the service, and represents a much smaller potential for value improvement than the 10-15% that the Commission is accustomed to seeing in most local authority services that it has examined over the past three years.
higher salary levels. The figures below show the main sources of differences in costs:

Full-time professional service cannot now easily be reversed—even if such a move was thought desirable. Nonetheless, these initial comparisons, and comments made by senior fire officers to the Commission and its auditors over the past 12 months, suggest that there are certain features of the overall arrangements for fire protection in the UK that are not wholly conducive to good value for money, in particular:

(i) The employment conditions in force in the British service are rather rigid, and the use of part-time firemen is relatively limited.

(ii) The national approach to fire prevention is relatively unsystematic in contrast to the well organised means of putting fires out.

The following sections raise some of the issues that have been brought to the Commission’s attention, issues which appear to be worth exploring in more detail than was possible or appropriate in the course of this limited effort.

Rigid employment conditions

34. The British fire service is bound by some rigid employment conditions which must reduce the value for money it can provide. For example:

- It is implicitly accepted by most brigades that whole-time firemen cannot also work as retained men, although this is open to any other professions; and firemen themselves often work at other jobs during their free time. Thus the most highly qualified men are positively excluded from serving.

- Another unusual feature of the service is the virtual ban on overtime working by firemen, unless this is unavoidable because of a prolonged incident. Heavy reliance on overtime is expensive and generally undesirable. However, brigades’ inability to use any planned overtime makes it much more difficult to offset the inevitable peaks and troughs in availability—the effect of the same policy in the police force would be enormous. Nor is the service able, as in Holland, to call on retained men to serve as ‘part-time’ whole-timers.

- More generally, apart from the limited number of day-manned stations, there is a virtually rigid separation between whole-time manned stations and retained men. Quoting Holland again, the normal pattern in medium sized brigades is for a nucleus of fire officers to the Brigade to work with a larger number of volunteers.

35. Another rigidity built into the system is that shift-manned stations have the same crew on duty for all their pumps at all times of the day and night and without regard to the season. Yet at night fire calls are extremely infrequent. The absence of traffic makes it much quicker to turn out to a call, and in many cases it should be relatively easier to attract volunteers than it is during the normal working day. And, of course, in
ural areas fires are more frequent in the summer months. It must be worth questioning whether value for money would not be improved by concentrating resources more heavily on the more difficult times of the day, and less during the night when so little use is made of them. The day-manning principle, of course, achieves this effect with its use of a full duty crew during the day, and men on call at other times.

36. Alternatively, it may be worth asking whether firemen's skills could not be put to fuller use by, for example, taking over emergency ambulance work in certain areas or at certain times of the day (or night) when the likelihood of a fire call is low. This used to happen before 1974, and is increasingly being practised by American brigades as a way of making better use of scarce resources. Since 1974 ambulance work has all been transferred to health authorities, though fire brigades have steadily increased their involvement in other emergency work.

37. Finally, it may also be worth questioning whether firemen's working hours should be reviewed. Firemen work a 42-hour week, or in practice 48 hours every eight days. This includes two double day shifts and two eight hour night shifts when they are normally free to sleep. They then have four complete days off during which they can commonly do other work. Twenty years ago firemen worked 60 hours, which has been progressively brought down to 56, then to 48 and following the 1979 strike to 42 hours. It is difficult to avoid asking whether both they and the service would not be better off with longer hours on call, and higher pay. Dutch firemen work 56 hours, and are paid about 35% more than British firemen.

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Fire prevention

38. It goes without saying that the most effective form of fire protection is to prevent fire breaking out in the first place. There has been a major increase in this country’s fire prevention effort during the last 20 years, and the stabilising of fire damage rates provides some evidence of its success. Nonetheless, there appears to be a relatively high incidence of fires compared to many other countries, and a high rate of casualties. And it is hard to avoid concluding that the overall arrangements for fire prevention in this country are less effective than those for fire-fighting.

(a) Should more attention be paid to fire prevention? Fire prevention appears to receive considerably less publicity in this country than in some others, or than the publicity given to other public hazards. Experience all over the world shows that there are substantial reductions in fire losses as a result of the installation of sprinkler systems, and a reduction in casualties if domestic smoke detectors are used. Smoke detectors can cost as little as £10-£15, depending on type and make, and they are mandatory in much of the USA. Analysis in this country has suggested that their installation might aver 25% of fatalities. However, there is no national publicity for them, and they are seldom used, even in newly-built houses.

(b) Could incentives for fire precautions be strengthened? There appears to be little or no incentive for the owners or the builders of houses or of much non-domestic property to install fire prevention measures. House-builders see this as an extra cost that is not mandatory, and not rewarded, e.g. by being able to offer lower insurance premiums. At the same time insurers complain about the absence of elementary preventive features in the property they insure. And fire officers complain that their regulatory powers are limited; for example, they have no power to approve newly-built houses. There is clearly no easy solution to this problem, and a danger that any system that built in more incentives would incur disproportionate administrative costs. Nonetheless, it would appear that this issue at least deserves rather more systematic consideration than it appears to have received so far.

(c) Should greater efforts be made to encourage ‘self help’ by companies? On the Continent and in Japan most large industrial complexes are required by statute to maintain their own fire brigade. However, without some statutory requirement (e.g. a discount on rates or fire insurance cover) companies will inevitably prefer to rely on the local authority service. Indeed, abolition of an in-house fire service is an attractive economy for many companies looking for cost reductions.

(d) Can steps be taken to reduce the number of false alarms? False alarms do not cause damage in themselves, but they put a major strain on fire-fighting resources, being responsible for one in three of brigades’ turn-outs. The first issue is to identify the culprits. In Holland this is simple because almost everyone has immediate access to a telephone that works, and all calls can be instantly traced. The task is much more complex in this country. Many households do not yet have telephones; and it is not easy to identify which call-box made the call, though some brigades put a major effort into doing so. Some US brigades facing a similar problem have reduced the number of false alarms by routing fire calls from public telephones via the local police switchboard. The second issue is the vigilance with which those responsible are prosecuted. Again practice seems to vary widely around the country, as does the level of fines. For example, the Chief Fire Officer of Norfolk could not recall when a successful prosecution for a false alarm was last brought in his county. In 1984 there was almost exactly one conviction for every thousand false alarms to which brigades responded.

39. It should be emphasised that the Commission is raising issues that it believes need to be addressed at the national level, if achievement of better value for money from the nation’s fire services is thought to be a worthwhile objective. It is not suggesting answers. That would entail much more work than was possible or appropriate for the Commission without the aid of a special study which was not undertaken in this case.

Next steps

40. To conclude, it appears that the main opportunities to improve value for money in this service may lie not so much in raising the efficiency and effectiveness of individual brigades as reviewing the general system under which they all operate. This goes beyond the Commission’s terms of reference; and the Commission is not, therefore, in a position to offer any specific recommendations beyond the twin observations that:

(i) The issues identified above appear worthy of closer examination by those responsible at the national level, including, of course, the Home Office, senior staff of the fire service, the National Joint Council (where terms of employment are concerned) and perhaps also representatives of the insurance industry. If the Home Office is indeed interested in securing better value for money in the fire service, it could do worse than to set up a working party with responsibility for examining the issues set out above in detail.

(ii) The experience and approach of continental services – particularly in the Netherlands and West Germany, where population densities and risk ratings should be reasonably comparable for those in England and Wales – should be examined in depth. In this, as in other fields, international as well as inter-authority comparisons are likely to be instructive; but they are notoriously difficult to undertake. An extended examination by senior fire officers and Home Office officials of service standards, manning levels and costs in the Netherlands should pay handsome dividends.

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The Commission would be glad to assist as appropriate with any review that might be commissioned.