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EFFECTS OF BANS ON HEAVY LORRIES IN LONDON

IMPACTS ON MANUFACTURING & SERVICE INDUSTRY

by

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ABSTRACT

PATTERSON, N.S. and A.D. MAY (1980). Effects of bans on heavy lorries in London: impacts on manufacturing and service industry. Leeds: University of Leeds, Inst. Transp. Stud., WP 159(unpublished).

The report evaluates the extent to which representative samples of manufacturing and service firms drawn from the inner and outer London areas of South Shoreditch and Brimsdown respectively would be affected by proposed bans on 16 ton and 24 ton GVW commercial vehicles within Greater London.

The proportion of commercial vehicle trips to and from South Shoreditch firms affected by the bans would be low and one-quarter of the firms would be affected by a 16 ton GVW ban. One in five trips to and from Brimsdown firms is currently made by a vehicle in excess of 16 ton GVW, and two-thirds of the sample of firms would be affected. The majority of affected movements are by suppliers' vehicles rather than firms' own fleets.

Three firms particularly likely to be affected were examined in more detail, and the implications of their changing to lighter vehicles investigated. A weight-specific 16 ton GVW ban would impose annual operating cost increases on all firms if they were to maintain existing levels of service with their own vehicle fleets. Under a 24 ton GVW ban two firms would incur cost increases while, for the operations considered, there would be a saving in annual operating costs for the third. The assumption that regulations governing vehicle dimensions and carrying capacity remain unaltered is crucial to the conclusions.

Night time 16 ton and 24 ton GVW bans would affect a minority of firms, although the duration of the ban would be important. Weekend bans would not significantly affect the firms.

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1. INTRODUCTION

1.1 In the autumn of 1981 the Greater London Council appointed a Panel of Inquiry whose terms of reference were:

> "to examine the social, economic and environmental effects of banning heavy lorries within a circular route on or near the administrative boundary of Greater London, the examination to include:-
>
> > The banning of such lorries from the area at all times; and
> >
> > the banning of such lorries from the area at night-time and at weekends as an interim or permanent measure;
>
> to examine the practicalities of enforcement of any such ban; and to report."

In defining heavy lorries, it was decided to consider

a) a ban on lorries whose gross vehicle weight exceeds 16 tons
b) a ban on lorries whose gross vehicle weight exceeds 24 tons.

1.2 At an early stage the Panel sought the advice of the public and interested organisations on a number of questions, amongst which were several related to the impacts of the various possible bans on the costs and operation of freight movement:

> If a full-time ban is imposed generally upon vehicles in excess of 8* tons gvw, would there be any haulage functions which could not be carried out at all within London? If so which? Are there any haulage functions which would be facilitated?
>
> If the ban related to vehicles in excess of 16 tons gvw or 24 tons gvw what would the answer be?

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* The possibility of a 8 ton ban was later omitted from the panel's considerations.

For loads which would be transported by other means, what alternative methods of transportation would be used? Would operators be likely to turn to the use of smaller vehicles, or other transport media? How effective would such alternatives be?

What would be the net effect on cost of complying with any such ban? What is the proper method of calculating changes in costs?

How would this cost be expressed for:-

i) hauliers operating for hire and reward
ii) firms receiving or sending goods
iii) own-account operators employing their own vehicles?

1.3 At the time of the commencement of the Inquiry the Institute for Transport Studies had recently completed a study for the Department of Transport on the transport problems of inner city firms, which had included detailed case studies of 19 firms in the manufacturing and service industries in South Shoreditch (L.B. Hackney) and 19 in Brimsdown (L.B. Enfield). Surveys at each firm were concerned with identifying the types of problems affecting such firms, and their effects and costs. They included interviews with management and commercial vehicle drivers, questionnaires of employees and visitors, and surveys of parking and commercial vehicle movement. Different sizes of commercial vehicle were separately identified, and information on origin, commodity and frequency of visit obtained.

1.4 While the survey method was clearly not designed specifically with heavy lorry bans in mind, the data collected provided a useful insight into the extent to which a representative cross section of industrial firms in two very different areas of London would be affected. The Inquiry Panel therefore commissioned the Institute

'to study and report on the effects on firms . . . of a ban on the operation of heavy lorries (of over 16 tons or over 24 tons) within London . . ., the effects . . . to include, so

far as is practical, changes to the fleet of lorries, changed distribution patterns, capital and operating costs of the changes'.

1.5 While recognising that many of the original 38 firms had too small a level of heavy lorry use to justify further examination, the Panel later instructed the Institute to carry out further interviews with three or four firms to obtain the further information necessary to assess the rescheduling and cost implications of the proposed bans.

1.6 This report presents the results of this investigation. Section 2 reviews the information already collected in the earlier study, and draws conclusions based solely on this data. Section 3 outlines the approach adopted in obtaining further information from three selected firms. Sections 4 to 6 present case studies of each firm in turn, and Section 7 presents the conclusions of the investigation.

2. DATA FROM THE INNER CITIES STUDY

2.1 BACKGROUND

Data obtained from management and on site surveys of manufacturing and associated service firms in each of South Shoreditch and Brimsdown have been used to determine the transport aspects of the firms' operations and those firms which would be affected by the proposed heavy lorry bans. Details of the study areas and the samples of firms are discussed elsewhere*, where it is demonstrated that the samples are representative of the type of industry in their respective study areas.

Commercial vehicles have been grouped into five categories, type A to type E, on the basis of plated gross weight (Appendix I). Those vehicles affected by the proposed bans are:-

Type D : 16 - 24 tons plated gross weight.
Type E : 24 + tons plated gross weight.

* Working Paper 145 of the Institute for Transport Studies.

This section describes the characteristics of the firms' own vehicle fleets, and of commercial vehicle activity recorded at each firm during one working day*. Those firms which would be affected by the proposed bans are identified**.

2.2 VEHICLE FLEETS

The number of commercial vehicles owned (or on long term hire or lease) and based at the firms' premises are shown in Table 1. Table 2 indicates the composition of firms' vehicle fleets, and compares these with data from the GLTS.

Table 1. FIRM'S VEHICLE FLEETS : NUMBERS OF VEHICLES

No. of commercial vehicles in firms' fleet, and based at premises:	South Shoreditch	Brimsdown
0	3	1
1-4	10	8
5-10	3●	4
10+	1●●	5●●●
not spec.	2	1
Total	19 firms	19 firms

---

* Surveys were carried out during May - July 1980.

** Because of confidentiality requirements firms are identified by number only. Firms 25 - 44 are in South Shoreditch and 45 - 64 in Brimsdown.

● One of which (firm 44) owned 2 type E vehicles.

●● Firm 42 owned 31 type A "roundsman" vehicles.

●●● One of which (firm 47) owned 7 type D and 2 type E vehicles, and a further 7 type D trailers.

Table 2. FIRMS' VEHICLE FLEET : COMPOSITION (%)

Vehicle Type (%)	South Shoreditch	South Shoreditch excl. firm 42*	Brimsdown	London** (1971 GLTS)
A	58.1	27.9	17.4	A } 41.2
B	20.3	34.9	28.1	B
C	18.9	32.5	47.0	C 37.4
D	0	0	5.8	D 13.2
E	2.7	4.7	1.7	E 8.2
Total	100%	100%	100%	100%

* Firm 42 owned 31 type A "roundsman" vehicles.
** GLTS data reported in TRRL SR465.

2.3 COMMENT - VEHICLE FLEETS

(i) There are relatively few vehicles owned by the firms which were surveyed. The average number of vehicles per firm is 2.7 in South Shoreditch (excluding firm 42) and 6.4 in Brimsdown. The numbers per firm are more a function of operational requirements than size of firm. Three clothing firms in South Shoreditch do not own any commercial vehicles, and somewhat suprisingly a Brimsdown distribution firm (61) has no vehicles.

(ii) The number and proportion of type D and E vehicles based at firms in both study areas are extremely low, but particularly so in South Shoreditch where there is a predominance of the small type A and B vehicles.

(iii) Only one firm in each study area has type D or E vehicles based on their premises:

South Shoreditch No. 44 2 x Type E
Brimsdown No. 47 7 x Type D; 2 x Type E; 7 type D trailers.

Firm 44 is a small haulier employing 5 people, and sharing "under the arches" premises with another haulage firm of about the same size. Firm 47 is a large manufacturer of aluminium and copper products. It has a large warehouse which forms an integral part of the operations approximately $1\frac{1}{2}$ miles away from the main works.

(iv) The proportions of type D and E vehicles in firms' fleets in each study area are considerably less than the London average derived from the 1971 GLTS. Probably reasons include:

- the majority of firms in the sample are from manufacturing industries.
- no large service firms have been included in the sample.
- major hauliers, nationalised industries, large distributors and security firms are not included.
- the sample has been designed deliberately to include small firms (although there is no clear relationship between size of firm and size of fleet).

(v) There are no immediately apparent reasons for the greater number of vehicles per firm in Brimsdown, but it is partly due to greater fleet numbers of three of the Brimsdown distributors.

(vi) There is a preference for smaller vehicle size in South Shoreditch. While this is partly for operational reasons (because of the nature of the firms' activity), the fact that proportionally more trips are made by South Shoreditch firms' vehicles in the congested conditions of central and inner London may be a contributing factor.

(vii) The management of five firms stated that the vehicles which they operated were not, in their opinion, of optimum size. The details are shown in Table 3.

Table 3. NON-OPTIMUM VEHICLE FLEETS

Firm	SIC	Emp't	Existing Fleet	Comment*
SHOREDITCH				
26	12	140	1B, 1C	Height restriction at entrance to works. Larger vehicles would help dispatches.
BRIMSDOWN				
47	6	ca. 600	1B,7C,7D,2E	Larger vehicles would help distribution schedules, but cannot be accepted on premises of some customers
51	9**	16	4C	A greater number of smaller vehicles would give more flexibility in vehicle scheduling.
55	12	42	1B	Larger vehicles would result in fewer dispatch trips being required.
56	12	22	1B	Larger vehicles would result in fewer dispatch trips, however customer requirements determine distribution frequency in any case.

* Comments provided by management
** Function is mainly distribution.

2.4 VEHICLE MOVEMENTS

Each firm was surveyed during its normal working day (usually ca. 0730-17.00). Table 4 gives the number of vehicle movements recorded and Table 5 indicates the type of vehicle. Data from the GLTS and the Traffic Monitoring Review are provided for comparison. Appendix II contains the number of movements at individual firms.

Table 4. VEHICLE MOVEMENTS : NUMBERS OF VEHICLES

Number of commercial vehicles per day (ca. 9 hours).	South Shoreditch	Brimsdown
< 10	6	12
10 - 19	10	4
⩾ 20	3	3
Total	19 firms	19 firms

Table 5. VEHICLE MOVEMENTS : COMPOSITION (%)

Vehicle type (%)	South Shoreditch*	Brimsdown	Stops in** London area	Traffic composition*** Inner areas	Traffic composition*** Outer areas
A	23.4	6.9			
B	34.1	17.0	A+B} 54.7	A+B} 53.8	A+B} 48.9
C	38.3	54.3	32.8	33.7	33.7
D	2.4	14.4	8.3		
E	1.8	7.4	4.2	D+E} 12.5	D+E} 17.4
Total	100%	100%	100%	100%	100%

* Excluding trips by "roundsman" vehicles at firm 42
** 1971 GLTS data reported in TRRL SR 465
*** GLC Traffic Monitoring Review and TSN 277, 1980 data.

2.5 CHARACTERISTICS OF TYPE D & E TRIPS

Table 6 lists those firms at which type D or E vehicle trips were recorded, and Table 7 lists characteristics of those trips.

TABLE 6 - TYPE D and E VEHICLE MOVEMENTS*

firm	SIC	activity	emp't	D trips	E trips	Total
39	22	transport	11	1	1	2
41	23	distribut'n	30	1		1
42	23	distribut'n	51	1(1)	1(1)	2(2)
43	23	distribut'n	25	1		1
44	22	transport	5		1(1)	1(1)
		Total: South Shoreditch		4(1)	3(2)	7(3)
45	6	metal manuf.	34		1	1
46	6	" "	342	3	1	4
47	6	" "	600	18(16)	4(3)	22(19)
48	7	mech.eng.	100	1		1
50	9	elect.eng.	42	2		2
51	9	" "	12	1(1)		1(1)
52	12	metal goods n.e.s.	58		1	1
56	12	" "	22		1	1
58	19	other manuf.	404	1		1
59	19	" "	216	1		1
60	22	transport	23		1	1
61	23	distribut'n	22		1	1
64	23	distribut'n	29		4	4
		Total: Brimsdown		27(17)	14(3)	41(20)

* numbers in brackets are numbers of these movements by company owned vehicles.

TABLE 7 TYPE D and E TRIP CHARACTERISTICS (numbers of vehicles)

		Sth Shoreditch		Brimsdown	
		D	E	D	E
(A) Freq. of visits to site (excl.co. owned vehs.)	>1/wk	2	1	4	2
	>1/mth	1	0	0	2
	<1/mth	0	0	3	3
	1st visit	0	0	2	4
(B) % of time veh. spends in London (incl.co.vehs)	0-25%	0	0	4	10
	26-50%	0	0	4	1
	51-75%	0	0	1	1
	76-100%	4	2	7	2
(C) Trip purpose (incl.co.vehs)	deliver	2	1	7	11
	collect	1	1	8	1
	both	1	1	6	2
	other	0	0	0	0
(D) No. of drops per journey					
- av., co.vehs.		↑	↑	2.1	2.7
- av.,non-co.vehs.GLC based		*	1.8	13.0	1.0
- av., non-co vehs. based elsewhere		↓	↓	6.0	3.2

(*values for the 4 trips recorded are 1, 7, 7 and 50).

(E) Trips crossing GLC boundary					
(i) Co-vehs.**					
	- trips totally with GLC	1	1	13	2
	- trips crossing GLC bdry.	0	1	4	1
(ii) Non co-vehs.***					
	- trips totally within GLC	1	1	1	1
	- trips crossing GLC bdry.	2	0	8+	10++

** All vehs. visiting S.S. and B'down are based within GLC.

*** All vehs. visiting S.S. are based within GLC.

+ 6 trips by vehicles based outside GLC.

++ 9 trips by vehicles based outside GLC.

2.6 COMMENTS - VEHICLE MOVEMENTS

(i) The daily commercial vehicle movements recorded at the firms are in broad agreement with generation rates suggested in the literature* and variations are explained by the characteristics of operation of individual firms. Only in the case of one Brimsdown distributor (firm 63) was the relatively low level of commercial vehicle activity difficult to explain.

(ii) There were relatively few movements to and from South Shoreditch firms by type D and E vehicles. The 7 movements recorded involved only 5 firms all in the service sectors. The proportion of movements (or "stops") by type D and E vehicles (4.2%) is much less than for London as a whole, 12.5%, derived from 1971 GLTS.

(iii) By contrast, 21.8% of all movements in Brimsdown were by type D and type E vehicles, somewhat in excess of the London average. The 27 trips by type D and 14 by type E involved a total of 13 firms.

(iv) Excluding the 22 trips to and from Firm 47 (mostly by the firm's own vehicles) the proportion of type D and E movements recorded at the remaining 18 Brimsdown firms (12.1%) was in agreement with the London average.

(v) Differences in vehicle composition between study areas are partly a reflection of differences in firms' operations and products, differences in firms' own fleet composition, differences in origins/destinations, and may be due to the fact that vehicles to and from South Shoreditch spend a greater proportion of their time in central and inner London.

(vi) About half the D and E vehicle movements are by firms' own vehicles, and the majority of these trips are within the GLC area. By contrast most trips by non-firm vehicles cross the GLC boundary. About half of the drivers of D and E vehicles spent more than 50% of their driving time within London, and Table 7 suggests that many of the drivers of non-firm vehicles visited the firm regularly.

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* Which themselves cover large variations within each industrial grouping or sub-grouping.

(vii) Table 7 also suggests that large vehicles are more important for deliveries to firms than for the distribution of their output.

(viii) It should be noted that the surveys did not include any night time operations by those firms which worked shifts. These firms are listed in Table 8.

TABLE 8. FIRMS WORKING A SHIFT SYSTEM

firm	SIC	activity	comment
34	18	printing etc.	Although not ascertained, night deliveries are unlikely.
35	18	printing etc.	Likely to be night deliveries and collections of packets etc. in small vehicles*
36	18	printing etc.	Likely to be night deliveries and collections of packets etc. in small vehicles*
37	18	printing etc.	Although not ascertained, night deliveries are unlikely.
42	23	distribution	Night deliveries to firm probably in 2 or 3 type C or D vehicles. Roundsman vehicles start deliveries ca. 0500.
46	6	metal manufact.	Although not ascertained, night deliveries are unlikely.
47	6	metal manufact.	Not known if there are night deliveries.
55	12	metal goods n.e.s.	No night deliveries.
57	16	bricks, glass etc.	Although not ascertained, night deliveries are unlikely.
58	19	other manufact.	No night deliveries.

* type A or B vehicles and not affected by proposed bans.

2.7 IMPLICATIONS

(i) There are differences between study areas, both in type of industry and vehicle activity. The samples are intended to represent conditions in inner and outer London.

(ii) Few firms in South Shoreditch would be affected by 16 ton and 24 ton GVW bans; over half the Brimsdown firms would be affected.

(iii) The proportion of commercial vehicle trips affected in South Shoreditch would be low; in Brimsdown one in every five commercial vehicle trips would be affected.

(iv) Most firms have few movements by type D or E vehicles in any one day; nevertheless the effects of bans could be considerable if these movements account for a large proportion of activity.

(v) The effects of the bans on firms via impacts on suppliers could be as severe as the direct effect via firms' own vehicle fleets.

While these broad implications can be drawn from the previous study, it is necessary to obtain further information from firms in order to determine the alternatives which are open to firms in the event of a ban, those which they would consider, and the resulting costs.

3. FURTHER SURVEYS: OBJECTIVES AND METHOD

3.1 The results of Section 2 indicate the extent to which manufacturing and service firms own and make use of heavy commercial vehicles, and relate this to their total commercial vehicle activity. Although the number of heavy commercial vehicle movements recorded at many firms was low, particularly in the inner study area, the imposition of the proposed bans could nevertheless require considerable adjustment to vehicle fleet composition, vehicle scheduling, and operating practices.

In order to evaluate these likely effects it was necessary to obtain more detailed information from the firms themselves. The results in Section 2 were used as the basis for identifying a shortlist

of those firms likely to be most affected by the bans, and on which analysis of implications and costs could be concentrated. The main criteria for selecting these firms were:

(i) they should have control over the commercial vehicles used;
(ii) transport should clearly be an important part of their overall operations; and
(iii) their existing transport operations should be dependent on the use of commercial vehicles in excess of 16 tons GVW.

The criteria suggested that the following firms warranted further study:

South Shoreditch:	Firms 42 and 44
Brimsdown:	Firms 47 and 64.

These four firms were approached to provide detailed information on their transport operations, and there was a positive response from three of them. The fourth, firm 42, was part of a larger group which had already made a submission to the Inquiry.

3.2 A semi-structured interview with management was designed to provide information to evaluate the effects of the following bans:

(i) A 24 hour ban on vehicles in excess of 24 tons GVW
(ii) A 24 hour ban on vehicles in excess of 16 tons GVW
(iii) Night time bans for 24 tons and 16 tons GVW vehicles
(iv) Weekend bans for 24 tons and 16 tons GVW vehicles

This required a detailed description of the firm's distribution system, of which the main items were:

(i) Major origins and destinations, and commodity descriptions.
(ii) Associated branches, depots etc.
(iii) Distribution patterns including vehicle numbers and type, numbers of trips, numbers of drops, load factors by weight and volume.
(iv) Objectives of the firm's transport operations, including level of service objectives or requirements, and constraints.

(v) Costing information (such as vehicle depreciation policy).

As well as establishing as comprehensive a picture as possible of current activities, the interview sought management's views on the firm's most likely reaction to the bans, and on their preferred option from a range of possible options:

(i) Use lighter vehicles.
(ii) Use transshipment depots on the edge of the GLC area.
(iii) Relocate affected operations.
(iv) Use an alternative mode (rail, water).
(v) Cease affected operations.

and in the case of night/weekend controls:

(vi) Cease night/weekend collections and deliveries.

Managment was also given the opportunity to specify any other reaction which they thought feasible.

3.3 The analysis concentrated on identifying those parts of the firm's transport activities which would be affected by the bans, and the extent to which they would be affected. Importantly, the cost implications were explored, and for this a relatively simple reaction by firms to the bans was adopted. It was assumed that firms would:

(i) continue existing operations at their present locations,
(ii) change to lighter vehicles, and
(iii) re-schedule if necessary.

The cost estimates which have been prepared are "snapshots" of before and after annual operating costs. In view of the costing information supplied by the firms, the operating cost tables of Motor Transport (7 April 1982) have been judged to be the most appropriate of the more readily available cost sources. They do, however, refer to platform semi-trailers. While this is satisfactory for firm 47, firms 44 and 64 operate box body trailers, for which operating costs would be of the order of 5% greater than for flats of corresponding weights.

It should be noted that in considering the costings it has been assumed that the bans refer only to gross vehicle weight, and there are no changes to the existing regulations governing vehicle dimensions. This assumption has important cost implications for all three firms. It has also been assumed that the change-over to smaller vehicles would be frictionless, and that the introduction of the bans would not temporarily distort the market either for firms' products or for vehicles.

3.4 As with the earlier surveys of firms the enthusiasm of management, and the quality of the data which they supplied, varied between firms. Firm 64 was well informed and closely monitored their transport operations. This was much less the case with firm 44, for which consignment data and load factors were far from adequate. The responsibility for firm 47's transport operations was fragmented as the result of recent staff rationalisation and cost-reducing initiatives. No single member of the management staff had either a clear picture of, or responsibility for, transport operations. Consequently the amount and quality of data and opinions which this firm was able to provide was somewhat less than hoped for.

Of the four firms approached for detailed information, firms 42 and 64 were well acquainted with the current Inquiry and the proposed bans, firm 44 had only vague knowledge and had not considered the implications were the bans to be imposed, and firm 47 had not heard of the proposals and the work of the Inquiry.

3.5 The distribution and scheduling arrangements of firms 44 and 64 are based on predictable and repetitive 24 hour cycles which were adequately described by management. Vehicle scheduling at firm 47 is much less predictable because of factory input and output requirements and because of customers' needs. For this firm, detailed vehicle records covering all movements over a one week period were obtained.

3.6 The case studies of Sections 4, 5 and 6 summarise each firm's overall operations, describe their transport activity, consider management's anticipated reaction to the bans, assess the likely implications, and make relatively straightforward cost estimates of adjustments which could be required in response to the bans.

4. CASE STUDY 1: FIRM 44 (South Shoreditch)

4.1 BACKGROUND

SIC : 22 Transport and Communications
Hire and reward.

Operations/activity: Road haulage involving trunk movements of built up consignments into and out of London and surrounding area, and local distribution of broken down loads. There is no warehousing or storage.

Administration: The firm is part of a larger haulage group. The operations at the South Shoreditch depot are largely independent of the activities of other members of the group, however major decisions on depot functions, scheduling, and vehicle acquisition and utilisation are taken elsewhere. Much of the firm's bookkeeping is also carried out elsewhere.

Employment: Total employment is 14, the majority of whom are drivers.

Commodities: General merchandise from parcel size to ½ ton pallets; no incompatible or specialised commodities.

4.2 TRANSPORT ACTIVITY

4.2.1 Transport activity can be divided into 3 elements.

i) trunk haul to Lancashire/Yorkshire depots for distribution to locations elsewhere in the U.K.
ii) local collections and deliveries associated with trunk haul.
iii) other local collections and deliveries.

Trunk haul is carried out using 32 t GVW, 40' trailer (type E[1]) box body artics. Most local collection and delivery is by type C

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1 Refer to Appendix I for vehicle classification.

vehicles ($7\frac{1}{2}$-16 ton GVW) box body rigids, although occasionally trunk haul vehicles may be used for (ii) above.

The vehicle fleet based at South Shoreditch consists of:

2 x type B
5 x type C
2 x type E (32 t GVW, 40' box body, 2500 cuft)

During periods of high activity the firm can draw on other vehicles operated by the group.

4.2.2 The typical 24 hour trunk haul cycle operates as follows[1,2]:

i) By 1900 there are 2 loaded 32 ton GVW trailers (A & B) ready to be sent to Lancashire. At the same time, there are, at Lancashire, 2 loaded 32 ton GVW trailers (C & D) ready to be sent to South Shoreditch.

ii) There are a total of two tractor units involved in the operation, one originally at South Shoreditch and the other at Lancashire.

iii) At 2000 the South Shoreditch tractor takes trailer A to the Toddington service area on the M1, where the driver meets trailer C from Lancashire. Drivers exchange vehicles, and trailer C is driven to South Shoreditch.

iv) Trailer C is dropped at a secure depot in South Shoreditch, and the driver returns to Toddington with trailer B.

v) Drivers exchange vehicles and the South Shoreditch driver returns to South Shoreditch with trailer D.

vi) These operations are completed by 0500-0530, and trailers C and D are left for unloading by the day staff, who arrive at 0730.

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1 This simplifies the operations to the extent that some on-movement into Kent is ignored, as is the use of a secure lorry park in South Shoreditch (approx. 1 mile from firm no. 44's site) used to store trailers during the shuttle operations between South Shoredtich and Toddington.

Neither is likely to effect re-scheduling.

2 There are three drivers involved, one based at South Shoreditch and two at Lancashire.

vii) Trailers C and D are unloaded and the goods distributed locally by type C vehicles. Consignments collected by type C vehicles during the day are loaded into trailers C and D. By 1900 this loading is complete and trailers C and D are ready for dispatch to Lancashire.

4.2.3 Approximately 100-120 individual consignments are collected in the London area for dispatch north in the evening. Consignment type, size and weight is not predictable (there are no significant long term contractual arrangements), however they consist of divisible loads of general merchandise. The number of articles per consignment can vary from 1 to 30, and the consignment weight from 25lb to 1000lbs. A 24 hour service is provided to customers, usually by phone, throughout the day. Typically it was estimated that of the 2 vehicles dispatched north each evening, one is fully loaded and the other is approximately half full (by volume). Total consignment weight was seldom a constraint, and there were no capacity problems. It was usual for both vehicles arriving each morning from Lancashire to be fully loaded (again by volume). It was not possible to obtain detailed consignment information.

4.3 MANAGEMENT'S ANTICIPATED REACTIONS TO PROPOSED BANS

4.3.1 24 ton; 24 hour Ban

Management was unable to estimate their reaction to the proposed bans although they considered that the 40 foot trailers could still operate from their depot in South Shoreditch since they were loaded to capacity by volume rather than weight. It is difficult to verify this without the necessary information on total consignment weights. However, it appears from the scanty evidence obtained that loads per vehicle are likely to be around 10 to 11 tons with maxima of 15 to 16 tons a remote possibility. This would suggest that management are correct in assuming that 24 t vehicles, with a capacity of 16 t could be used, provided that the volumetric capacity of a 40 foot trailer was still available. No explanation was given for the use of 32 t rather than 24 t vehicles currently, and it may be that there would

be hidden costs, for example in lost compatibility with other activities in the group, from a transfer.

4.3.2 16 ton; 24 hour Ban

Again, management estimated that they could continue to use 40 foot trailers. This option seems less likely, since maximum loads may well occasionally exceed the 11 ton carrying capacity of 16 t vehicles, and 16 t tractors are somewhat underpowered for use with 40 foot trailers. It seems much more likely that there would be a switch to a total of six 16 ton GVW two axle rigid vehicles, three based at South Shoreditch and three at Lancashire. This would provide both weight and volume capacity for the existing nightly dispatches from both South Shoreditch and Lancashire. The implications of these changes to scheduling arrangements and operating costs are discussed below.

4.3.3 Other Bans

Since the trunk haul operations take place at night, a 16 t night time ban would impose the same costs as a 16 t 24 hour ban. A weekend only ban would not affect operations.

4.4 IMPLICATIONS AND APPROXIMATE COSTINGS

4.4.1 Scheduling under 16 ton GVW ban

It is assumed that under the 16 ton GVW ban the firm maintains existing levels of service with overnight deliveries to and from South Shoreditch and Lancashire. This requires three 16 ton GVW two axle rigids to be loaded and ready for dispatch at South Shoreditch and at Lancashire each evening. Within the constraints of driving hours and drivers' working days, the most cost-effective rescheduling still makes use of driver changeovers at the Toddington service area on the M1. There are a total of four drivers, three based at Lancashire and one at South Shoreditch. The South Shoreditch based driver delivers each of the vehicles leaving London to Toddington, hands it over to a Lancashire based driver who has brought a vehicle

down from Lancashire, and returns to South Shoreditch with the vehicle from Lancashire. He repeats this three times during the night. The first Lancashire driver returns to base with the first of the vehicles from London. He is then near the limit of driving hours and ceases work. The pattern is repeated by a further two Lancashire based drivers.

Scheduling arrangements can be summarised as:

	tractors	trailors	rigids	drivers
Existing operations	2	4	-	3
24 ton GVW ban	2	4	-	3
16 ton GVW ban	-	-	6	4

4.4.2 Approximate costs of existing and rescheduled operations

Using readily available costing information it is difficult to separate unambiguously the standing costs of a trailer from that of a tractor-trailer combination. Consequently a range of trailer standing costs of 0-25% that of a combination have been examined. Similarly the full cost of employing the third driver is difficult to establish but it has been assumed to be simply wages and National Insurance, with no contribution to fixed establishment costs. The remaining costs are equivalent to two tractor-trailer combinations or three rigids each making a return London-Lancashire trip per day. The same costing method has been used in the case of a 24 ton GVW ban, since similar numbers of vehicles and drivers are required, and the scheduling arrangements remain unaltered. Costing the revised operations under a 16 ton GVW ban is relatively straightforward provided that the same assumptions are made regarding the cost of drivers.

Total annual operating costs based on Motor Transport Cost Tables for existing and revised operations are summarized below.

Annual Operating Costs (£)

	standing	running	total
Existing operations	47800-53480	78880	126680-132360
24 ton GVW ban	39700-44050	58320	98020-102370
16 ton GVW ban	74510	79800	154310

Taking the high estimates for the articulated costings, the 24 ton GVW ban could conceivably result in an annual cost saving on trunk haul operations of £29,990 (i.e. 22.7%) compared with current operations. It is not possible to assess the extent to which the change to 24 ton GVW vehicles would affect the other operations of the group, and possibly impose costs elsewhere. A 16 ton GVW ban would lead to an annual cost increase of between £27,630 and £21,950 (21.8% and 16.6% respectively).

4.5 SUMMARY

(i) Trunk haul operations would be affected by a 16 ton 24 hour or night time ban.

(ii) Management thought that they would be unaffected by the 16 ton ban, since they could still use 40 foot trailers but, as noted above, this seems unlikely.

(iii) It appears that management would make savings of around 20% by using 24 ton 40 foot trailer vehicles, but there may be other reasons for using 32 ton vehicles which were not made apparent to us.

(iv) Weekend bans would not affect the firm.

(v) The most likely response to a 16 ton ban would appear to be to use 16 ton rigids; this would add between 15% and 20% to annual trunk haul operating costs, and require rescheduling of the 24 hour trunking cycle.

(vi) the effects of this on the firm's competitiveness are not clear but it is important to note that the trunk haul is the main service which it provides.

5. CASE STUDY 2: FIRM 47 (Brimsdown)

5.1 BACKGROUND

SIC : 6 Metal manufacture

Operations/activity: Production of aluminium and copper product principally extrusions, bars, tubes and wire. Activities at Brimsdown include production/manufacture, warehousing, distribution as well as administration. There is a warehousing depot integrated with the Brimsdown operations located 1½ miles away at Ponders End (referred to as M3), and another production branch from which materials are obtained located at Doncaster. The Brimsdown plant operates on a 24 hour basis.

Administration: The firm is part of a larger group but operates independently.

Employment: Total employment was around 600 at the time of the 1980 survey, but has been reduced considerably since then.

Commodities: There are two main groups of commodities (i) aluminium extrusions, for which length is often the important transport factor, and (ii) copper or aluminium wire. This is produced as drums commonly of ½-1 ton weight, but drums of up to 4 tons may be produced at times. The extrusion and wire operations are largely independent of each other.

5.2 TRANSPORT ACTIVITY

5.2.1 There are three main groups of commodity movements:

(i) delivery of supplies to No. 1 wire plant and No. 2 extrusion plant; 80% of these are by suppliers' vehicles.

(ii) a shuttle of intermediate and finished products and stores between No. 1 or No. 2 plant and the M3 warehouse, all by firms' own vehicles.

(iii) deliveries of wire output direct from No. 1 plant, and aluminium extrusions from M3 warehouse to all parts of the UK; 90% of these trips are by firms' own vehicles. Deliveries of wire products are usually weight constrained and of extrusions dimension constrained. Contract hauliers may occasionally be used for the more difficult loads.

5.2.2 The firm's vehicle fleet has been reduced significantly since 1980, and now consists of:

(i) 1 x 32 ton GVW artic (type E)
(ii) 3 x 19 ton GVW artic (type D)
(iii) 2 x 16 ton GVW artic (type D)
(iv) 1 x 16 ton rigid (type C)
(v) 5 x 12½ ton rigid (type C)

Vehicles (i), (ii) and (iv) are used for wire products; (iii) and (v) for extrusions.

5.2.3 There is no regular pattern to the week's movements, and unfortunately the data collected by the firm for a week's movements was incomplete. However, it appears that in the week in question the vehicles were used as follows (although where there is more than one vehicle, movements cannot be attributed reliably to specific vehicles):-

	M	T	W	Th	F	S
32 T	B/ham 11 T Wire	M3(1)* ? T Aluminium	Swansea 16½ T Wire	M/cstr 17 T Wire	Norwich 20 T Wire	-
19 T (A)	Leeds 9½ T Wire	Leeds 8½ T Aluminium + Wire	Leeds 9 T Wire	-	Local 2 T Wire	
19 T (B)	M3(3)* ? T Al/Stores	M3(4)* ? T Al/Stores	M3(3)* ? T Al/Stores	M3(4)* ? T Al/Stores	Essex 2 T Wire	M3(5)* ? T Al/Stores
19 T (C)	Local 4 T Wire	-	-	-	-	-

The two 16 t artics, the 16 t rigid and four of the five 12½ t rigids appear to be fully used on most days. The fifth 12½ t rigid serves as a spare.

5.3 MANAGEMENT'S ANTICIPATED REACTIONS TO PROPOSED BANS

5.3.1 24 ton; 24 hour Ban

Management was not able to specify how they would react to the bans but considered that for wire products they would require more smaller vehicles. Since the various products were compatible and individual drums usually less than 2 tons, the main difficulties and costs were seen as increased numbers of vehicles required, increased mileage and scheduling difficulties to meet customer requirements and (in the case of exports) shipping times.

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* Figures in brackets indicate numbers of one way trips; weights were unfortunately not recorded.

? T Indicates that weight was not recorded.

5.3.2 16 ton; 24 hour Ban

The position would be as for the 24 ton ban, but four rather than one vehicle would be affected.

5.3.3 Other Bans

Although the production plant operated 24 hours per day, there was little vehicle activity during the evenings. A night ban from 2200-0600 would have virtually no effect. Because the firm attempted to dispatch consignments for the London and S.E. area between 0600 and 0800 (to avoid congestion), and because occasionally there were vehicles returning late in the evening, a night ban extending from 2000-0800 would have a noticeable effect on vehicle scheduling.

The firm works at reduced capacity during the weekends. Although there are no deliveries of the firm's outputs, or supplies/collections by other vehicles, a shuttle between the main Brimsdown plant (Nos. 1 and 2) and the M3 warehouse at Progress Way is maintained in order to supply raw materials for production and to return to M3 with waste/empties etc. On the Saturday for which records were kept, there were 5 trips by artic vehicles (owned by the firm) in excess of 16 tons GVW, plus 2 trips by rigids less than 16 tons GVW. In two of these trips, loads of wire of 16 tons and 7½ tons respectively were involved, and two trips involved empty reels. Although clearly these trips would be affected by a weekend ban, management did not estimate the implications and effect on vehicle scheduling, and production processes, and they appear to be minor.

Management was also concerned that a size-based ban might be considered. They pointed out that some extrusions were commonly 23 feet long and occasionally 40 feet long. Production processes were based on these dimensions and would have to be ceased if vehicle controls were introduced which affected these lengths.

5.4 IMPLICATIONS AND APPROXIMATE COSTINGS

5.4.1 Scheduling under 24 ton GVW ban

The one 32 ton GVW vehicle would be affected by this ban and since it is used almost to capacity by weight on occasion it is assumed that at least the same capacity must be provided by replacements. The only apparent slack in the existing fleet is the little used 19 ton vehicle (C); it may be that vehicle (B) is also underused, but unfortunately load information is not available. Two alternative assumptions are made:

(i) that the underused 19 ton vehicle can be used for the majority of the 32 ton vehicle's loads and that another 16 ton vehicle is required for the remainder. This may be unrealistic if the survey week had an unusually low activity level.

(ii) that two 16 ton vehicles are required to replace the 32 ton vehicle.

On the week in question the 32 ton vehicle travelled 1200 miles. Assuming that this is typical, the annual costs are:

	standing	running	total
existing operations	20360	23660	44020
assumption (i)	14440*	30660	45100
assumption (ii)	28880	31870	60750

which represent an increase of between £1000 p.a. (2%) and £16000 p.a. (38%) in annual operating costs of this vehicle.

5.4.2 Scheduling under 16 ton GVW ban

With a 16 ton ban, it seems likely that the 32 ton vehicle would be replaced by two 16 ton vehicles, as in assumption (ii) above. For the week in question, all loads could have been carried by 16 ton vehicles, but it may be that on occasion the 19 ton vehicles are

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* Assumes that standing costs are already met for the 19T vehicle.

used to their capacity by weight. Two assumptions are made therefore for the 19 ton vehicles:

(i) that they can be replaced by the same number of 16 ton rigids making the same journeys

(ii) that for the week in question use of 16 ton rigids would have involved an extra journey to Leeds.

It is difficult to assess the likelihood of these or other assumptions given the lack of information and the presence of a considerably underused vehicle. It is clear however that the short journeys to M3 are unlikely to affect the calculations significantly, even if the vehicles concerned are currently used to capacity.

On the weekend in question the 32 ton vehicle travelled 1200 miles and the three 19 ton vehicles travelled 1400 miles. Assuming that this is typical, the annual costs are

	standing	running	total
existing operations	66260	40790	107050
assumption (i)	72180	50540	122780
assumption (ii)	72180	56750	128930

which represent an increase of between £16,000 (15%) and £22,000 (20%) in annual operating costs of these vehicles.

5.5 SUMMARY

(i) Some deliveries of wire products would be affected by a 24 ton 24 hour ban; this would result in an increase in delivery costs of between £1,000 and £16,000 p.a.

(ii) A larger proportion of wire deliveries and, possibly, some local movements to the depot, would be affected by a 16 ton 24 hour ban; this would result in an increase in delivery costs of between £16,000 and £22,000 p.a.

(iii) In both cases the firm's preferred option of a switch to fewer vehicles has been assumed to be the most likely option;

underuse of existing vehicles reduces the extra costs of this option somewhat.

(iv) A night time ban would have little effect on operations unless it were to continue until 0800, when severe scheduling problems would arise.

(v) A weekend ban would have a minor effect on movements to the depot, but these could readily be accommodated by existing smaller vehicles.

(vi) It is difficult to assess the wider effects on the company of the increases in cost in (i) and (ii) above; they might be expected to add 1% to 4% to the costs of certain wire products; this might affect the firm's competitiveness.

6. CASE STUDY 3: FIRM 64 (Brimsdown)

6.1 BACKGROUND

SIC : 23 Distributive trades.

Operations/activity: Trunk haulage and local distribution, warehousing/storage, order assembly of two groups of commodities, confectionery and household paper products. The first commodity group is under a relatively long standing contract, the second has been more recently negotiated. Both contracts come up for periodic renewal and are awarded by the clients to the most attractive bidder. The firm has no intrinsic competitive advantage in this process except its experience and satisfactory previous performance.

Administration: The firm is part of a larger group, although the operations from Brimsown are independent of the group's other activities.

Employment: Total employment is 39, of whom 15 are drivers. The remainder are office and warehouse staff.

Commodities: There are two groups of commodities. Group 1 consists of confectionery items, for the most part manufactured in Yorkshire. They are order-assembled at Brimsdown for distribution to individual retail outlets. Group 2 products are predominantly disposable children's nappies, and also some associated paper products. They are manufactured in France.

6.2 TRANSPORT ACTIVITY

6.2.1 Each group of commodities is processed and handled separately.

Group 1: i) Trunk haul delivery to Brimsdown depot from Sheffield.
ii) Local delivery to GLC and SE (bounded by Lowestoft, Oxford, Portsmouth).

Group 2: i) Trunk haul delivery to Brimsdown depot from France (via Dover).

ii) Distribution throughout the U.K.

In addition there are a number of other less regular deliveries of Group 1 commodities from other locations, and on occasions the depot has been used for temporary bulk storage of commodities associated with other aspects of the group's activities. These are not considered in this report.

All trunk haul operations use 32 t GVW (type E) vehicles with 40 foot box trailers. Local distribution is almost entirely by vehicles below 16 t GVW (type C vehicles), of which about 14 are based at Brimsdown. These vehicles make some 800 drops per week, with each vehicle usually making one delivery round per day. On occasions a 32 t GVW vehicle is added to this local delivery fleet.

The trunk haul vehicles of Group 1 commodities are owned and operated by the firm. Those of Group 2 are not.

Depots at Rugby and Bristol are involved in similar operations regarding Group 1 commodities.

6.2.2 For the most part operations are on a regular 24 hour cycle.

Group 1: Two 32 t GVW, 40' vehicles, fully loaded (by both weight and volume), arrive from Sheffield between 0630 and 1030. The commodity is handled in supercube steel cages stacked two high in the trailer. The vehicles are turned around in about an hour and return to Sheffield loaded with empty cages. The weight of individual consignments into Brimsdown varies from 18 to 21 tons. They are stockpiled for subsequent local distribution.

Group 2: Two 32 t GVW 40' vehicles arrive from France via Dover each day, usually arriving ca. 0800 (but dependent on ferry timetables). These are unloaded and return in 2 hours. They are operated by Ferrymasters and are backloaded before return to France. Details of backloading are not known.

Vehicles arriving are capacity loaded by volume. The total weight of each consignment is usually 4-5 tons.

Within each group, consignments are divisible and there are no incompatible products.

6.3 MANAGEMENT'S ANTICIPATED REACTIONS TO PROPOSED BANS

6.3.1 24 ton; 24 hour Ban

Management considered that the most cost-effective and efficient solution would be to relocate the depot outside the GLC, possibly to the Reading area while retaining the same functions and levels of service to clients and to final customers. Although this was the preferred option there was reservation on two points. Firstly the depot had been recently purpose modified and expanded for its current use. It was operated on a sale and lease back arrangement over 25 years (with 5 yearly reviews) and there was concern as to the capital cost penalty associated with disposal of the Brimsdown site and acquisition of premises elsewhere. Secondly there was concern that staff would not move with the firm and there would be difficulties recruiting suitable new staff.

Use of a larger fleet of lighter vehicles for the Sheffield trunk haul was also a feasible option, but less attractive because of the increase in recurrent operating costs compared with the one-off outlay involved in relocation. The use of lighter vehicles would lead to increased costs of operating more vehicles (and drivers) over the same route since there would be no opportunity to achieve economies through trunk haul rescheduling or redistribution. Local distribution would be unaffected, and, apart from the increased number of drivers for the trunk haul, there would be no increase in warehousing or staff costs.

Other options were not thought to be viable. The cost and, particularly, time penalty associated with transshipment would be likely to make the operations uneconomical compared with favourably located competitors. Transshipment was particularly unattractive in view of

the firm's present location close to the GLC boundary. There were similar concerns with the use of rail and its ability to move and transship the amount of goods required in the time required. Again, because of the competitive nature of the business, any increase in costs would not be able to be passed on. Under the rail option trunk vehicles and their drivers would become redundant. To cease operations completely would have a detrimental effect on the group's activities elsewhere and would only be reluctantly contemplated.

6.3.2 16 t GVW, 24 hour ban

A 16 ton GVW ban would have similar implications to those described in 6.3.1, except that a greater number of lighter vehicles would be required.

6.3.3 Other bans

Existing operations could be maintained under a night only ban, only there would be a loss of flexibility and some doubt that the Sheffield round trip could be achieved within drivers' hours constraints. The main difficulty was seen as the increased travel times caused by congestion co-incident with the ban ceasing in the morning, since there would be a concentration of HGV's entering the GLC area at that time.

The firm was seldom involved in weekend work and would not be affected by a weekend ban.

6.4 APPROXIMATE COSTINGS

6.4.1 No attempt has been made to cost the firm's preferred option of relocation. Approximate costs for use of smaller vehicles have been assessed for 24 ton and 16 ton bans. It has been assumed that only trunk haul of group 1 commodities is affected but it should be noted that:

(i) 32 ton GVW vehicles are used for local delivery of Group 1 goods

(ii) there are from time to time, other trips to the Brimsdown depot by HGV's in excess of 16 and 24 ton GVW

(iii) the current distribution of total vehicle operating costs of the whole fleet between trunk haul and local distribution is not known

(iv) the firm itself does not have responsibility for scheduling of deliveries of Group 2 commodities, and therefore detailed estimates of the effects of the bans have not been assessed.

The Group 2 commodities are volume constrained. A 24 ton GVW ban would not require an increase in the number of vehicles delivering to the firm, provided that existing vehicle dimension regulations were unaltered. Although a change from 32 ton to 24 ton GVW vehicles for these deliveries implies an operating cost saving for the contract haulier (Ferrymasters), there may well be implications for back-loading of these vehicles. It has not been possible to estimate whether there would be any knock-on effects on unit rates charged to firm 44. A 16 ton GVW ban, on the other hand, would most likely require a change to three 16 ton GVW two axle rigid vehicles in order to maintain the existing volume of deliveries. In this case the contractor would be faced with an operating cost increase for this part of his operations. Approximate costings suggest the following annual operating costs for trunk haul of Group 2 commodities:

existing operations (2 vehicles)	£93,000
24 ton GVW ban (2 vehicles)	£72,000
16 ton GVW ban (3 vehicles)	£97,000.

6.4.2 24 ton GVW ban

To move the present 42 ton payload of Group 1 goods from Sheffield would require 3 vehicles on the limit of the ban, instead of the 2 vehicles used at present. Based on current Motor Transport Cost Tables, this would mean an increase in total annual operating costs, excluding profit allowance, from £93,300 to £107,900. The increase, £14,600, represents a 15.6% increase in annual trunk haul operating costs.

6.4.3 16 ton GVW ban

In this case four rigid vehicles on the limit of the ban would be

required, and even then there may be difficulties moving the required payload. An additional, smaller, vehicle could be required to maintain the current 24 hour schedule, or alternatively five 16 ton vehicles with a rescheduling of trips to optimise vehicle utilization.

On the assumption that four 16 ton rigid vehicles would be just adequate, total trunk operating costs would increase annually from £93,300 to £128,700. The increase, £35,400, represents a 37.9% increase in annual trunk haul operating costs. The extent to which the change to rigid vehicles reduces the flexibility of operation of the group has not been assessed.

6.5 SUMMARY

(i) Trunk haul of Group 1 goods would be seriously affected both 24 ton and 16 ton 24 hour bans. Trunk haul of Group 2 would also be affected, and there may be some difficulties to local distribution of Group 1 goods.

(ii) Night time and weekend bans would not seriously affect the firm.

(iii) Under the bans, the firm's preferred option would be to relocate.

(iv) To remain at its present location and continue existing operations and levels of service would require a change to a larger fleet of smaller vehicles for trunk haulage of Group 1 goods. For this operation there would be the following operating cost increases:

24 ton ban:	£14,600	(15.6% increase)
16 ton ban:	£35,400	(37.9% increase)

These represent increases of approximately £1.25 and £2.55 per supercage, or 0.5p and 1.02p per carton of confectionery.

(v) The effect of these increases on the firm's competitive position is not clear.

7. CONCLUSIONS

7.1 Analysis of 38 representative manufacturing and service industry firms in South Shoreditch and Brimsdown suggests that any of the bans being considered would only have a direct effect on firms' vehicle fleets for a very small proportion of manufacturing and service industry firms.

7.2 In South Shoreditch, and possibly by extension in Inner London generally, the bans would also have a small effect on total commercial vehicle movements; a 24 ton ban would affect 2% of movements and one in six of the firms while a 16 ton ban would affect 4% of movements and a quarter of the firms. There is some evidence that South Shoreditch firms are already forced by substandard infrastructure to use suboptimal vehicles.

7.3 In Brimsdown, by contrast, a 24 ton ban would affect 7% of movements and two firms in five, while a 16 ton ban would affect 22% of movements and two thirds of the firms.

7.4 A majority of movements by vehicles of over 16 tons are for delivery to the firm and are not part of firms' own fleets. This suggests that bans are more likely to affect suppliers and firms' supplies, at least for manufacturing and service industry.

7.5 The potential effects of bans would clearly differ considerably from firm to firm. To explore these variations in more detail, case studies were conducted for three firms particularly likely to be affected. It was immediately noticeable that the ability of management to predict the effects of a ban varied considerably; in particular the largest firm concerned had some difficulty in providing details of its transport activities and was unaware of the proposed bans.

7.6 In all cases it was assumed that only a weight-specific ban was proposed, and that articulated lorries with 40 foot trailers would still be able to operate provided that they had a sufficiently low plated weight. It seems worth questioning this assumption, since

there is some evidence that environmental intrusion is perceived as being related to size rather than weight. It is a crucial decision for all three case study firms, however; all had loads which were dimensionally constrained and one would have to abandon one of its two production processes if length were restricted.

7.7 One firm did not consider that it would need to reduce its vehicle sizes provided that its vehicles could be down plated. However, it was apparent that a 16 ton ban would necessitate smaller vehicles. Although one of the other firms gave relocation outside London as its preferred option, both would be likely to switch to vehicles at the threshold of the ban.

7.8 The effects on the three firms are estimated as follows:

firm:	44	47	64
existing fleet	9	12	16
of which type D	0	3	0
type E	2	1	2
<u>24 t 24 hour ban</u>			
vehicles affected	0(1)	1	2
additional cost (p.a.)	-£30K(2)	£1-£16K	£15K
% addition for vehicles affected	-22%(2)	2%-38%	16%
<u>16 t 24 hour ban</u>			
vehicles affected	2	4	2
additional cost (p.a.)	£22-£28K	£16-£22K	£35K
% addition for vehicles affected	17%-22%	15%-20%	38%

Notes: (1) Assuming that they can be downplated.
(2) Assuming that the firm has no hidden benefits from using 32 t rather than 24 t vehicles.

7.9 The percentage increases in 7.8 above are of different proportions of the firm's total transport costs, and therefore cannot be directly

compared. For firm 44 they are an increase on the main service (trunk haul) provided. For firm 47 they could represent up to a 4% increase in the costs of certain wire products delivered to certain locations. For firm 64, they represent up to a 1% increase in the costs of the confectionery carried. It is difficult to assess the effects of these costs on firms' competitiveness.

7.10 The above cost estimates assume that uncosted effects are unimportant. In particular it is worth bearing in mind

(i) the possible distortion of the market for firms' products during reorganisation of transport arrangements;

(ii) the possible effects on the resale market of larger vehicles which would need to be traded in;

(iii) the possible need to retain Class I drivers who would be underemployed and, possibly, still paid at Class I rates;

(iv) the costs to suppliers which may well be passed on to the firms in question.

7.11 The effects of a night time ban would depend very much on its duration. Any night time ban would have the same effect as a 24 hour ban on firm 44. Bans from 2200 to 0600 would be unlikely to affect firms 47 and 64, but extension to 2000 and, particularly, to 0800 would have serious scheduling implications.

7.12 None of the three firms would be significantly affected by a weekend ban.

APPENDIX I . COMMERCIAL VEHICLE CLASSIFICATION

The system of commercial vehicle classification is that adopted by the Freight Division of T.R.R.L. for studies of freight transport. The vehicle types A to E correspond to:

A = light vans (car-based)

B = two-axle goods vehicles (non HGV)

C = two-axle goods vehicles (HGV's i.e. with rear reflector plates)

D = three axles (rigids and artics)

E = four or more axles (rigids and artics)

Typical vehicles, plated gross weight, and carrying capacity are shown below. The diagrams show only van bodies, but other body types such as platform, tanker etc. are also included in the relevant category.

TYPE OF VEHICLE	A 	B 	C 	D 	E 
Plated Gross Weight (tons)	Under 1.8	1.8 - 7.4	7.5 - 16.0	16.1 - 24.0	Over 24.0
Approximate equivalent carrying capacity (tons)	Under 0.7	0.7 - 4.9	5.0 - 11.0	11.1 - 16.0	Over 16.0

APPENDIX II. VEHICLE MOVEMENTS AT EACH FIRM (per day)

SOUTH SHOREDITCH

firm	SIC	emp't	c.v.m'ments	type D & E. m'ments
25	7	50	9	
26	12	140	8	
27	9	331	11	
28	n.a.	n.a.	n.a.	
29	14	25	7	
30	15	6	1	
31	15	34	1	
32	15	46	19	
33	17	12	11	
34	18	206	19	
35	18	72	12	
36	18	55	15	
37	18	107	21	
38	19	25	10	
39	22	11	10	2
40	23	43	20	
41	23	30	14	1
42	23	51	32	2
43	23	25	9	1
44	22	14	16	1
		total	245*	

BRIMSDOWN

firm	SIC	emp't	c.v.m'ments	type D & E. m'ments
45	6	34	3	1
46	6	342	21	4
47	6	600	33	22
48	7	100	11	1
49	9	32	1	
50	9	42	2	2
51	9	12	8	1
52	12	58	7	1
53	12	48	9	
54	n.a.	n.a.	n.a.	
55	12	42	5	
56	12	22	6	1
57	16	60	3	
58	19	404	10	1
59	19	216	17	1
60	22	23	8	1
61	23	22	5	1
62	23	92	20	
63	23	56	6	
64	23	29	15	4
		total	190**	

* (total includes 36 return trips)

** (total includes 13 return trips)

n.a. = not available.