

Work to improve the safety and environment of residential roads has been undertaken in many European countries to a greater extent than in Britain. Denmark, the Netherlands and West Germany provide particularly useful examples.

In West Germany the Buchanan approach, using road closures and one-way systems to create environmental areas, has fallen out of favour. Such measures are recognised to have limited value because of problems of access for residents, problems created by diverted traffic, and because the measures do not in themselves change driver behaviour or road user attitudes within the residential streets.

It has been replaced firstly by physical speed-reducing adaptations to residential roads that are combined with environmental improvements often aimed specifically at "quietening" the street. There are also many areas with lower speed limits of 30 km/h, though these have been generally less effective unless backed up with physical speed reducing measures (Bowers 1988: 68).

CHAPTER 5

STREET ADAPTATIONS BY LOCAL AUTHORITIES:
QUESTIONNAIRE SURVEY RESULTS

Measures used include those used in the Dutch woonerf examples for streets and those used in the Dutch woonerf examples for streets. On one hand, measures include parking to create channels has been widely used in 30km/h zones, which are now widespread. There are a wide variety of techniques employed to raise the carriageway level to achieve low speeds. "Speed tables" or "plates" are favoured more than speed humps, because they encourage a "calmer" style of driving, and usually avoid the irritating acceleration and deceleration commonly found where humps are installed. In West Germany street adaptations have now become normal practice in most urban areas. In the Nordrhein-Westfalen region, for example, there were said to be more than 2,000 schemes known to the Ministry in 1986, and this has allowed a substantial programme of evaluation and research (see the example in Table 8, Chapter 3). The Deutsches Institut für Urbanistik in Berlin has more than 1,000 documents on the subject of traffic calming.

As in Holland, there is in many cities a stated objective of making residential areas less attractive for short trips by car but more attractive for cyclists and walkers. West Germany, in common with many European countries, is also investing heavily in public transport, and the schemes for residential road improvement are often presented as part of broader strategies which embrace traffic restraint on arterial roads, and transfer of traffic from private to public transport.

PURPOSE OF SURVEY

A postal survey of local authorities was undertaken in 1986 in order to find out which authorities had undertaken adaptations to traditional residential roads, and what form these adaptations had taken. Questions asked included whether or not a safety problem on residential streets was perceived to exist, whether any traffic management schemes had been initiated with a view to making residential roads safer, and whether speed control humps had been installed. Details of schemes requested included the reasons(s) for schemes being implemented, consultation procedures and whether any other schemes had influenced the design of the scheme. The questionnaire used is shown in the Appendix.

ORGANISATION OF THE POSTAL QUESTIONNAIRE

The questionnaire was sent to every district and borough council in England and Wales, to the chief executive in the first instance for forwarding to the relevant department, unless the council had an overall technical services department in which case the questionnaire was sent directly to the head of technical services. Despite the fact that the county is normally the highway authority, every scheme known beforehand had been initiated by a lower tier authority. Some districts considered the subject outside their area of responsibility, and 34 referred enquiries to the county as the highway authority. The blurred responsibility for this type of work was revealed by replies from counties where questionnaires had been forwarded, for more than once the county referred us back to the district for details of schemes. A second survey of counties could have been undertaken, but the replies from counties as a result of forwarded questionnaires only confirmed that no adaptations had been undertaken, or provided less information on schemes than had been received from other districts in the county. These replies have been included under the district(s) they were replying on behalf of.

From the 380 posted, 182 replies were received so there was a response rate of nearly 45%. The option of conducting the survey on a sample of local authorities was considered, but rejected due firstly to the expected low response rate on account of the difficulty of targetting the questionnaire. Not only was there an unclear responsibility between county and district, there was also variation in the department handling such matters. The great majority of responses came from either Engineering departments (42%) or Joint departments such as "Technical Services" or "Development" (43%). But 13% were returned from Planning departments and 2% from other departments. The individual officers completing the questionnaire overwhelmingly were engineers (73%), while planners completed 17% and other officers completed 10%.

Secondly the varied and sometimes unique nature of these schemes made a total survey the best method of gathering information on the range of schemes undertaken as far as the response rate allowed. In the event there were usable responses from 61 local authorities which described a total of 212 adaptation schemes undertaken, a reasonable number for analysis.

RESULTS

A simple count of local authorities undertaking any form of residential road adaptations showed that 71 out of the 182 respondents had done so. This means that authorities with adaptations is a minimum of 17% (assuming ALL those with adaptations did reply) and a maximum of 39% (assuming that the response is representative). This revealed a greater interest in adaptations than was originally anticipated. Although the questionnaire was more complex for authorities that had undertaken adaptations to residential roads, the response rate appears to be slightly better from authority types having a greater incidence of adaptations. There are exceptions, however: while London authorities had one of the lowest response rates, they are known to have one of the highest rates of adaptations undertaken.

A major hypothesis of this survey was that most authorities undertaking adaptations would be responsible for large urban areas with greater traffic problems and therefore more accidents on residential roads. This was tested by grading authorities into three groups dependent on the size of the largest urban area they included or were part of. The definition of urban areas was taken from the 1981 census, and the population size groups were taken firstly as those urban areas with a population of more than 200,000 people present, secondly those areas with populations greater than 70,000 but less than 200,000, and thirdly the mainly rural areas with no one urban area having a population of 70,000 or over. The last group included approximately one half of the replies (87), so that the authorities dealing with larger urban areas have effectively been subdivided to double check any correlation of variables with the size of urban areas. Table 11 compares variables according to this urban size classification.

TABLE 11: EFFECT OF URBAN POPULATION SIZE ON SELECTED VARIABLES

	POPULATION SIZE			TOTAL
	200 000+	70 000-200 000	<70 000	
NUMBER OF RESPONSES	58 (32%)	37 (20%)	87 (48%)	182 (100%)
LAs WHO EXPRESSED CONCERN	39 (40%)	22 (23%)	36 (37%)	97 (100%)
% OF SIZE GROUP ANSWERING "YES"	68%	60%	41%	
LAs WITH TRAFFIC MANAGEMENT SCHEMES	44 (44%)	24 (24%)	33 (33%)	101 (100%)
% OF SIZE GROUP ANSWERING "YES"	77%	65%	38%	
LAs WITH PHYSICAL ADAPATATIONS	37 (52%)	18 (25%)	16 (23%)	71 (100%)
% OF SIZE GROUP ANSWERING "YES"	65%	49%	18%	
TOTAL NUMBER OF SCHEMES	125 (59%)	47 (22%)	40 (19%)	212 (100%)

Although less than one third of LAs were in the 200,000+ category, this group accounted for 59% of all schemes. Nearly half of LAs were in the less than 70,000 population group but these LAs accounted for only 19% of the schemes. 84% of LAs in this group had no schemes at all. This group accounted for over 60% of LAs with no schemes.

Looking at the types of scheme, 77% of the LAs with urban populations over 200,000 had Traffic Management (TM) schemes (44% of all TM schemes reported) compared to only one third of the LAs with a population less than 70,000.

This pattern is even stronger when physical adaptations are looked at. 52% of LAs with adaptations had urban areas over 200,000. Again 77% of these had adaptations compared to a third in LAs with under 70,000 (Both these relationships were statistically significant on the Chi-square test at the 1% probability level).

There is a close relationship between population size and a LA's concern about pedestrian safety. 40% of LAs expressing concern were from areas with urban populations of 200,000 plus, while over half of LAs with under 70,000 said they had no concern (probably meaning that this was not a perceived problem). When concern about pedestrian safety was directly related to LAs with physical adaptations it was found that 56% of LAs expressing concern had carried out adaptations. Read another way, nearly half had not! On the other hand 20% of LAs expressing no concern had made physical adaptations (This relationship was significant at the 1% probability level on the Chi-square test).

This relationship between the size of urban areas and the likelihood of adaptations and TM schemes was perhaps to be expected. So was the correlation between the perception of an accident problem on residential roads and the size of the urban area.

The greater use of TM schemes to improve the safety of residential roads (101 authorities had done this) shows that the "Buchanan approach" is still the more usual method used to improve the safety of residential roads.

Local Authorities were also classified by type, adapting the classification of Craig (1981) for the Office of Population Censuses and Surveys (OPCS). A good relationship was found to exist between District Type (DT) and LAs which have made physical adaptations. Table 12 describes the DTs and shows (a) the response rate for each DT; (b) the % of LAs in each DT in England and Wales; (c) the total number of adaptation schemes in each DT, (d) the frequency of replies from each DT; and (e) the number of authorities which have physical adaptation schemes in each DT. Percentages are given in brackets. Percentages for (c) and (d) are percentages of ALL schemes and LAs responding respectively. Percentages in (e) are of LAs in each DT with schemes.

TABLE 12: PROFILE OF DISTRICT TYPES (DT)

DT	DESCRIPTION	(a) RESPONSE RATE (%)	(b) % IN E & W	(c) NO. OF SCHEMES	(d) NO. OF LAs WHO REPLIED	(e) NO. OF LAs WITH SCHEMES
1	Established high Status	44.8	14.6	9 (4)	26 (14)	5 (19)
2	Higher status growth Areas- mainly rural	56.5	5.8	0 (0)	13 (7)	0 (0)
3	Higher status growth Areas- mainly urban	34.8	5.8	9 (4)	9 (5)	3 (33)
4	More rural areas	35.8	19.9	9 (4)	29 (16)	5 (17)
5	Resort & Retirement Areas	55.2	7.3	12 (6)	17 (9)	5 (29)
6	Mixed Town & Country (mainly rural)	53.8	9.8	22 (10)	20 (11)	7 (35)
7	Mixed Town & Country (mainly urban)	40.6	16.9	25 (12)	27 (14)	7 (30)
8	Traditional Manufacturing	47.6	5.3	44 (21)	11 (6)	9 (82)
9	Service centres and Free-standing cities	64.5	7.8	42 (20)	20 (11)	12 (60)
10	Areas with much LA housing	40.0	2.5	11 (5)	4 (2)	2 (50)
11	Parts of inner London	35.3	4.3	29 (14)	6 (3)	3 (83)
TOTAL (average)		46.3	99.9	212(100)	182(100)	61

The object of grouping LAs in this way was to test for any other variables on the incidence of residential road adaptation. A further correlation of rural areas with few schemes can be seen, and the near universal incidence of adaptations undertaken in the traditional manufacturing areas perhaps reflects the concentrations of older terraced housing in these areas. This is probably due to the larger number of G.I.A.s and H.A.A.s in areas of terraced housing for, as will be shown, these schemes financed almost half of all adaptations.

It can be seen that the greatest concentration of schemes (that is DTs which have the greatest percentage of LAs having schemes) is in DTs 8 and 11 with 82% and 83% respectively of LAs having implemented schemes. Together they account for a third of all schemes. Other areas with large numbers of schemes are DTs 6, 7 and 9 which had 10%, 12% and 20% respectively of all schemes. However in these three areas the schemes appear to be concentrated within particular authorities (some individual councils having 9 or more schemes). The % of LAs in these three areas with schemes is 35%, 30%, and 60% respectively.

The DTs having the least number of schemes are DT1, DT3 and DT4 each with only 9 schemes and with at least two thirds of LAs having no schemes. DT2 had no schemes at all. The relationship between DTs and number of schemes is statistically significant at the 1% probability level on the Chi-square test.

FURTHER ANALYSIS OF ADAPTATION SCHEMES UNDERTAKEN

Of the 71 authorities who had reportedly undertaken residential road adaptations only 61 gave details of any schemes. Some of these included schemes to increase parking provision only, while one authority mentioned carriageway widening schemes in order that motor vehicles could pass each other easily. While such measures may improve safety for some groups of road users, they are not likely to satisfy environmental or pedestrian priority objectives. Most authorities however described schemes which were "pedestrian friendly". The questions were somewhat ambiguous, but the authors were keen not to exclude schemes by being too specific. Another difficulty is that there is a variety of terminology applying to such schemes which is in itself often ambiguous. Although it has not been possible to separate out the few schemes which were designed for other objectives, it is the responses that described schemes aiming to improve pedestrian environment and safety that are of the most interest. The following results are based on the total of 212 schemes mentioned by the 61 LAs.

Of these 61 LAs, 37 had undertaken speed reduction measures on residential roads (58%). Only 6 LAs specified that these speed reduction measures were speed humps, although several authorities wished to install speed humps but were deterred from doing so by the siting requirements of the DTP. Even so the majority of speed reduction measures described as implemented or proposed were not speed humps.

Table 13 provides a summary of how the 212 schemes and 61 LAs varied on a number of key factors such as age of adjacent housing, other authorities involved, funding, reasons for implementation, and what techniques were used.

Almost half of these schemes (43%) were done as part of the environmental improvements within the GIAs and HAAs, and this may explain why the most mentioned reason for doing them was given as environmental improvement. To verify this a crosstabulation was done between the number of schemes receiving GIA/ HAA funding, and LAs reporting "improved environment" as a reason for implementation. 90 schemes (43%) stated improved environment as a reason AND had GIA/ HAA funding, which would appear to confirm the relationship. It should be noted that most schemes were done for more than one reason, and many authorities (quite rightly in the authors' view) did not want to specify a main reason for some or even all of their schemes.

The majority of the schemes (142 or 67%) were done by the responding authority unaided and the level of involvement of the county (in 32% of the schemes) was mostly as the authorising highway authority, their financial involvement was much more limited. Several of the sources of funding used are available only to a limited number of authorities. The widespread use of area improvement grants and, to a lesser extent, Urban Programme grants for this work may suggest that authorities without access to these funds will be less able to implement adaptations to residential roads. These authorities will tend to be those covering the smaller urban areas and mainly rural districts. Indeed several authorities pointed out that they would like to make adaptations to residential roads but couldn't afford to.

TABLE 13: DETAILS OF THE SCHEMES

		PHYSICAL ADAPTATION RESPONDING LAs SCHEMES DESCRIBED WITH SUCH SCHEMES			
		NUMBER (MAX 212)	%	NUMBER (MAX 61)	%
AGE OF ADJACENT HOUSING	PRE 1919	129	61	52	85
	INTER-WAR	34	16	23	38
	POST 1945	27	13	16	26
	MIXED	14	7	12	20
	NOT STATED	40	19	11	18
OTHER AUTHORITY (IES) INVOLVED	COUNTY	62	32	24	34
	CENTRAL GOVT.				
	AGENCY	5	4	5	9
	OTHER	13	6	5	8
	NOT STATED	142	67	46	75
REASONS FOR IMPLEMENTING	IMPROVED SAFETY	112	53	54	89
	" ENV'MT	143	66	54	89
	RESIDENTS DEMAND	113	53	44	72
	OTHER	24	11	10	16
	NOT STATED	22	10	7	12
METHOD(S) OF FUNDING	GIA/ HAA	90	43	28	46
	TRAFFIC & ROAD SAFETY BUDGET	7	3	5	8
	INNER URBAN/ AREA PROGRAMME (IAP)	6	3	2	3
	HOUSING (H.I.P)	13	6	10	16
	OTHER SOURCES	21	10	16	27
	MIXTURE 2 OR MORE	6	3	5	8
	NOT STATED	74	35	21	34
	TECHNIQUES EMPLOYED IN ADAPTATIONS	PINCH POINTS	86	41	40
PAVEMENT WIDENING		83	39	38	62
JUNCTION NARROWING		71	34	31	51
ROAD CLOSURE		54	26	24	37
CARRIAGEWAY TWIST		36	17	21	34
SPEED HUMPS		29	14	15	25
PEDESTRIANISATION		17	8	7	12
REFUGES/ BOLLARDS		17	8	6	10
ONE WAY WORKING		13	6	8	13
CHANGED SURFACE		9	4	7	12
SHARED SURFACE		7	3	3	5
OTHER		74	35	28	46
MIX OF 3 OR MORE		71	34	34	56

Turning to the techniques themselves, alterations to the horizontal alignment of carriageways and kerbs are the most popular techniques. Shared surfaces are legally difficult to implement on existing streets. There is a rather low incidence of surface changes to carriageways, but unlike the more popular techniques this measure had to be detailed by the respondent and was not a suggested response in the body of the questionnaire. The number of such schemes may therefore be under represented.

Table 14 shows the nature of the residents' consultation procedures which were undertaken by the LAs.

TABLE 14: NATURE OF RESIDENTS CONSULTATION

NATURE OF CONSULTATION	NUMBER OF LAs USING IT	%
RESIDENTS GROUP LIASION	16	31
PUBLIC MEETINGS	24	46
SURVEY	1	2
LEAFLETS	3	6
LETTER TO RESIDENTS	5	10
OTHER	3	6
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	52	100%
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It should be noted that an authority may have used more than one method of consultation. In this case only the "highest" method as depicted by the order above, is counted.

Only 15% of the 212 schemes included in the survey response had been evaluated.

Few LAs were influenced by the Dutch or German schemes (5%). DB 32 had considerably more influence (23%), especially among the engineers (28%). Conversely more planners than engineers were familiar with the overseas schemes (13%). In many authorities a combination of influences is apparent with 25% reporting being influenced by two or more "external" factors. However nearly half considered their schemes "unique", to local circumstances and based on local initiative.

Table 14 shows the nature of the residents' consultation procedures which were undertaken by the IAs.

TABLE 14: NATURE OF RESIDENTS CONSULTATION

NATURE OF CONSULTATION	NUMBER OF IAs USING IT	#
RESIDENTS GROUP LIAISON	16	31
PUBLIC MEETINGS	24	48
SURVEY	1	2
LEAFLETS	3	6
LETTER TO RESIDENTS	5	10
OTHER	3	6
	52	100%

It should be noted that an authority may have used more than one method of consultation. In this case only the "highest" method as depicted by the order above, is counted.

CHAPTER 6

Only 12% of the 212 schemes included in the survey response had been evaluated.

CONCLUSIONS

Few IAs were influenced by German schemes (5%). 28% had considerably more influence (23%), especially among engineers (28%). Conversely more planners than engineers were familiar with the overseas schemes (13%). In many authorities a combination of influences is apparent with 25% reporting being influenced by two or more "external" factors. However nearly half considered their schemes "unique", to local circumstances and based on local initiative.

CONCLUSIONS

In Chapters 1 and 2 it has been argued that residential roads should be designed to suit pedestrians foremost rather than moving vehicles; their function should be part of the residential environment rather than part of the highway network. There often appears to be a bias towards providing for the needs of motor vehicles, however, especially where highway or traffic functions are carried out by departments separate from those carrying out housing and planning functions. If the highway authority is a higher tier authority, this bias may be further exaggerated. Although new-build residential roads are now often built to suit the pedestrian priority recommended in Design Bulletin 32, there has been no similar instruction to highway authorities to change the priorities on existing residential roads.

The case studies in Chapter 4 show that work done to improve the safety and environment of residential roads often fails to unite these two objectives, although there is no reason (as argued in Chapter 3) why they cannot be effectively implemented together. Indeed, there are many successful examples in other parts of Europe (see the Dutch and West German case studies). Again, one reason for this failure appears to be the organisation of responsibility for residential roads. Where pedestrian priority is the main concern, the highway authority may initiate adaptations without exploiting opportunities for environmental improvement. Conversely, where adaptation schemes are implemented on traditional residential roads to improve the environment (eg as part of a GIA or HAA scheme), the safety aspects could often be more effectively tackled without additional outlay.

There are thus two related problems in the administration of traditional residential roads:

1. They are often still regarded as highways, despite functions and requirements that are very different from arterial roads, and this seems to stem from street layout being the concern solely of the highway and traffic authority, and its associated departments.
2. Where adaptations have been made, there has been a lack of coordination of the safety and environmental objectives, leading to many missed opportunities. Lack of coordination between departments perpetuates this problem.

For the highway authority, residential roads present fewer problems than the arterial roads, and thus take the lowest priority and command few financial resources. The exception is when a specific safety problem prompts the authority to act, often (as in the Fairbanks Road, Bradford and Broomhall, Sheffield case studies) after pressure from the residents. When residential roads are improved as part of area improvement schemes they are a subsidiary concern to the main improvement work on the area's housing (eg Deplish, Rochdale and Lynton Street, Derby). Area improvement schemes are also the concern of the lower tier authority, which may not have ultimate responsibility for highways and traffic. Considering as well the lack of comprehensive design guidance on adapting traditional residential roads, it is not surprising that many improvement schemes fail to do all they might for safety as well as the environment. There is an urgent need for further

research and guidance on the techniques available and the circumstances in which they are best applied. The initiative for such work, including setting up demonstration projects, should be taken by central government.

In order to satisfy the needs of pedestrians, the planning of residential roads must include social considerations and public participation to a level more usually associated with housing renewal and local area planning exercises. This may be done either by putting responsibility for residential roads into the hands of the local housing and planning authority, or by boosting the role of transport planning within local authorities. In West Germany, for example, progress has been achieved with greater local autonomy, and especially where transport and planning functions have been combined. Street adaptations now form part of a wider transport policy, and apply to all roads, not just residential roads. In this country, in the absence of similar policies, it might be better to remove responsibility for residential roads from the (county) highway authority. Perhaps the unitary authorities created after abolition of the metropolitan authorities are better placed to coordinate the improvement of pedestrian safety and environment on residential roads.

Chapter 2 emphasised that pedestrian safety in residential areas is concerned particularly with child safety. Child accident rates in the UK are high compared with many other countries (eg. Sweden's rate is a quarter of that in the UK). Moreover, some countries have achieved marked improvements in recent years (eg Sweden and West Germany). It is tempting to conclude that the improvements in these countries are due to greater progress in adapting residential streets for pedestrian priority, but there are insufficient data to support or refute this.

The survey of local authorities discussed in Chapter 5 found evidence of street adaptations by 71 of the 182 authorities responding to the questionnaire (39% of respondents), but this indicates that 60% of all authorities had undertaken no adaptations. Amongst authorities which had street adaptations, there were wide variations in objectives, techniques, implementation, and awareness of European practice. The "Buchanan approach" to road safety in residential areas using environmental traffic management is more common than physical redesign of streets (101 as compared to 71 respondents).

The hypothesis that adaptations are more likely to be carried out by authorities in larger urban areas was supported by the survey results. For example, authorities with a population of less than 70,000 accounted for 48% of the respondents but only 19% of the schemes, whereas authorities with a population of over 200,000 accounted for only 32% of respondents but 59% of schemes.

It is clear that the incidence of adaptations owed much to the various techniques for the renewal of older housing areas. Almost half the reported adaptations were financed from GIA or HAA budgets, and almost all traditional manufacturing towns reported schemes in this context. Indeed access to special funds of this sort has a large influence on whether a local authority is likely to implement schemes. It also has a bearing on the type of scheme, with those forming part of an urban renewal project being concerned

with environmental as well as road safety objectives. Most schemes (67%) were undertaken solely by the responding authority, and the level of County involvement was small. Nevertheless, the responsibility for such schemes is not always clear, as shown by the fact that 32 Districts referred the questionnaire to the County for reply, and some Counties referred them back again to the Districts.

Of respondents giving details of schemes, 58% claimed to have carried out adaptations designed to reduce traffic speed. Only 16% of these, however, specified that speed humps had been used. Some authorities expressed a wish to use humps, but had been deterred by DTP regulations (a situation that should have changed since more flexible siting requirements were issued by the DTP.)

The type of scheme most commonly used involved a change in the horizontal alignment of carriageways and kerbs. Changes in vertical alignment (including humps), and the use of shared space were rare. Few schemes used a combination of different measures to reinforce the effect, or to satisfy a number of objectives, and fewer still (if any) could be described as part of an area-wide programme to achieve wider transport objectives. In this respect in particular, practice in the UK lags far behind that in neighbouring European countries.

Consultation with residents was widely undertaken, with 77% of respondents using "face to face" techniques, either liaison groups or public meetings. The popularity or effectiveness of schemes is largely unknown, however, since only 15% of them had been the subject of evaluation. Despite the large amount of experience of this kind of work in other European countries, few local authorities were aware of it, or even admitted to being influenced by external sources. Even Design Bulletin 32 was cited by only 23% of respondents.

In conclusion, this paper draws attention to a range of problems associated with the presence of motor traffic in residential areas, and examines the use of physical street adaptations as a technique for tackling these problems. The survey of local authorities found that by no means all perceived the safety and environment of residents as a particular problem, especially those representing smaller populations. Amongst authorities who have recognised the need for action, and have implemented physical measures, there are wide variations in enthusiasm and approach, often depending on urban renewal policies rather than the benefits to be gained from street design per se. In other European countries, reconstruction of residential streets to achieve a variety of objectives has been standard practice since the early 1980s, or even earlier, and a considerable amount of work has been undertaken to evaluate the consequences of the various techniques. It is unfortunate that local authorities in England and Wales are largely unaware of this work, and also have themselves undertaken little evaluation of the rather limited range of techniques employed. If there is to be a major expansion of street adaptation activity, and such an expansion is long overdue, then there is much to be gained by learning from the experience of other European countries. The collation of such experience, and translation into a form useful to British authorities is therefore an urgent task.

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Questionnaire to investigate the extent and nature of residential road adaptations in urban areas.

Definitions: I have broadly defined physical adaptations as alterations and additions to kerb-lines, surfaces, pavements, carriageways etc, as well as the addition of other features such as planting and street furniture. I am particularly interested in schemes where such adaptations have been made in order to change the nature of the road to meet safety or environmental objectives. Where I refer to traffic management schemes I mean measures that depend mostly or totally on changes to the traffic regulations, such as one-way streets and road closures.

For YES/NO answers delete inappropriate response. For other replies please write in space provided, with as much detail as is readily available to you.

Name of Authority:

Person willing to answer further queries about this questionnaire:

Position/Dept:

tel:

1. Is there a concern within the authority about a lack of pedestrian safety on residential roads within the district? YES/NO

Please identify particular problem areas if relevant:

2. Have any traffic management schemes been initiated in the district with a view to making residential roads safer? YES/NO

Please specify rough location, by area, if relevant:

3. Has the authority undertaken any physical adaptations (including speed humps or other speed reduction measures) to residential roads in the district? YES/NO

IF YES, GO TO QUESTION 5a BELOW

IF NO, GO TO 4 BELOW

4. Are any physical adaptations to residential roads planned? YES/NO

Please specify broad nature of scheme to be undertaken if relevant:

For authorities answering NO to question 3, thank you for your participation. Please use the space below for any further comments you wish to make regarding this questionnaire and its subject matter.

For authorities that have made physical adaptations to residential roads, please give me further details of these schemes, as requested below.

5. a) Does your district have any speed reduction measures (eg humps) on residential roads? YES/NO

Please specify rough locations if relevant:

b) Does the authority have any proposals for speed reduction measures that the highway authority is processing, or has rejected? YES/NO

Please specify present position with these proposals if any, and rough locations:

6. Please complete this matrix, adding information where required or ticking the appropriate box.

Other schemes for residential roads involving physical adaptations

	----- SCHEMES -----				
	1	2	3	4	5
Year completed:					
Name of any other authority involved:					
Funding from:					
Age of adjacent housing pre-1919					
inter-war					
post 1945					
Type of adaptations made					
pinch points on carriageway:					
carriageway 'twist' added:					
pavement widening:					
junction narrowing:					
speed hump(s):					
other - please specify					
Reasons for implementing improved road safety:					
" environment:					
response to residents' demands:					
<u>other - please specify</u> (please indicate most important reason with an asterix if more than one chosen).					

- LOCATIONS**
- 1.
 - 2.
 - 3.
 - 4.
 - 5.
- of schemes numbered above

If more than 5 schemes please indicate rough locations of the others and number in total over:

7. Were any consultation procedures with residents undertaken as part of the implementation of these schemes? YES/NO

Please specify the nature of this consultation if relevant:

8. Has the authority, or have others (to your knowledge), evaluated the effects of any of these schemes? (evaluation of safety, aesthetics, popularity etc all relevant). YES/NO

IF YES

Is it possible for you to provide a copy of the evaluation(s) or indicate how I would be able to gain access to this information?

9. a) Were any of these schemes influenced by any of the following (please circle relevant response):
- a) Dutch Woonerf Schemes
 - b) German "Verkehrsbeh rungung" Schemes
 - c) Design Bulletin 32
 - d) Other (please specify)

- b) If not, what influenced the choice of treatment of the schemes undertaken?

Thank you for participating, please add any further comments you would like to make concerning this questionnaire and/or its subject matter below: