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ENVIRONMENTAL QUALITY IN RESIDENTIAL
AREAS: A SOCIAL SURVEY
APPROACH TO IMPROVEMENT PRIORITIES

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A Thesis submitted in partial fulfilment
of the degree of
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SUMMARY

The research is concerned with the measurement of residents' evaluations of the environmental quality of residential areas. The research reflects the increased attention being given to residents' values in planning decisions affecting the residential environment. The work was undertaken in co-operation with a local authority which was in the process of revising its housing strategy, and in particular the priorities for improvement action.

The study critically examines the existing evidence on environmental values and their relationship to the environment and points to a number of methodological and conceptual deficiencies. The research strategy developed on the basis of the research review was constrained by the need to keep any survey methods simple so that they could easily be repeated, when necessary, by the sponsoring authority. A basic perception model was assumed, and a social survey carried out to measure residents' responses to different environmental conditions. The data was only assumed to have ordinal properties, necessitating the extensive use of non-parametric statistics.

Residents' expressions of satisfaction with the component elements of the environment (ranging from convenience to upkeep and privacy) were successfully related to 'objective' measures of the environment. However the survey evidence did not justify the use of the 'objective' variables as environmental standards. A method of using the social survey data directly as an aid to decision-making is discussed.

Alternative models of the derivation of overall satisfaction with the environment are tested, and the values implied by the additive model compared with residents' preferences as measured directly in the survey. Residents' overall satisfactions with the residential environment were most closely related to their satisfactions with the "Appearance" and the "Reputation" of their areas. By contrast the most important directly measured preference was "Friendliness of area". The differences point to the need to define concepts used in social research clearly in operational terms, and to take care in the use of values 'measured' by different methods.

residential, environment, perception, social survey

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PREFACE

The research which is the subject of this thesis was started in November 1972. At that time the University of Aston in Birmingham was pioneering a new style of postgraduate research under the Inter-disciplinary Higher Degrees (IHD) Scheme, which attempted to bridge the gap between "academic" research and the type of practical research found in industry and local government. The scheme enabled industrial bodies, local authorities and other organisations to sponsor research projects which would be carried out by a postgraduate student partly in the University and partly with the sponsors.

In 1972 agreement was reached between the West Riding County Council and the IHD Scheme at Aston to support such a research project. As with other IHD projects the subject of the research was derived primarily from the sponsors. Following Local Government re-organisation in April 1974 the project was transferred to the City of Wakefield Metropolitan District Council. The influence which the change of sponsors had upon the research is described in the thesis.

This thesis is presented in two volumes. The first volume, which is also intended as a final project report to Wakefield Metropolitan District Council (Wakefield MDC), introduces the research subject, examines the results of past research in the field, and summarises the development of the research framework. Following a description of the study areas the research results are presented in summary form. The first volume ends with a discussion of the practical implications of the research results.

The second volume contains a more detailed review of research methodologies and of the research framework, including the design and piloting

of the survey questionnaire. This is followed by a full discussion of the survey data and results. The appendices referred to in the text are at the end of the second volume. The bibliography is located at the end of each volume.

A research project of this kind cannot be carried out without extensive help and inspiration from others. It was with their assistance that numerous problems, not the least of which was the geographical separation of the sponsors and the University, were overcome. Particular acknowledgement must be made of my tutors and colleagues in the University: Mrs. G. Lee; Dr. A. Cochran; Professor E.A. Rose and the members of the Joint Unit for Research on the Urban Environment and the Department of Architectural, Planning and Urban Studies.. Especial thanks are due to my main tutor, Hugh Williams.

The staff of the two planning departments in which I worked, and who gave their assistance, are too numerous to mention by name, but their help was invaluable and much appreciated.

Chapter 1

INTRODUCTION

1.1

The object of this introductory chapter is to give a brief overview of the whole research; that is the context of the work, the research carried out, and the main conclusions drawn from the work. The chapter is aimed at those who are primarily interested in the results, and are not concerned with the full details of the research contained in the two volumes. The points made in the summary are referenced so that individual topics can be followed up, where necessary, in the main text.

1.2

This thesis is concerned with the quality of the residential environment. The residential environment was defined, for the purposes of the research, as:

"the objects and influences immediately surrounding a person's dwelling, but excluding the internal attributes of that dwelling" (2.2). Assessing the quality of an environment clearly involves value judgements, and the general objective of the research was to understand what the residents' own value judgements with respect to the residential environment were, and to investigate how these judgements related to the "objective" characteristics of the environment (2.7).

1.3

It is necessary to summarise the general background to the research, because it was in the light of this that it was decided to concentrate on the residents' reactions to their residential environments.

For a number of reasons, including the general increase in awareness

of environmental issues (2.3.3) and changes in housing policy in the U.K. (2.3.4), planners and politicians, among others, have had to take greater account of the quality of the environment surrounding dwellings in addition to considering the quality of the dwellings themselves. At the same time there has been a recognition that quality is a subjective concept and that residents' own values and evaluations of the residential environment should be taken into account when discussing the future of housing areas. For example residents' views are of critical importance in the likely success of improvement policies in any area (2.3.5).

1.4

The practical context of the research was provided by the second sponsors of the research, Wakefield Metropolitan District Council, when they began to re-appraise their slum clearance and housing improvement programme following local government re-organisation in April 1974 (2.6). This research was designed as part of the work of deciding the priorities for improvement action in the District, and the following research questions were originally posed (2.7):

- a) What physical measurable aspects of the environment should be used in deciding priorities?
- b) Can particular levels of the physical measures be regarded as standards?
- c) What relative importance do the physical measures have?

It was implicitly assumed in drawing up the research questions that the values used in answering the questions should be those of the residents (2.6.8).

1.5

An extensive research review was carried out in order to ascertain whether the three questions referred to above could be adequately answered.

However the review revealed that (3.6):

- a) the poor definition of the concepts used (e.g. preferences, satisfaction, etc.) reduced the comparability of the studies.
- b) the differences in methodology (and hence differences in the operational definition of the concepts) also made it difficult to combine or compare results from different studies.
- c) the differences in context and scope of the research reviewed further impeded the making of summary statements. The most frequent aspects of the environment omitted from the studies, for example, were the social aspects. The context is important as little research has been done in areas equivalent to Wakefield District, namely a mining area with both rural and urban characteristics (5.3).
- d) the general lack of attention to measurement in the studies made it difficult to aggregate the results. The measurement problems ranged from no attempts being made to measure the variables, to invalid assumptions made about the scale properties of the data.

1.6

The conclusion of the research review was that it was not possible to answer the questions set out in 1.4 on the basis of the existing research. Nevertheless it was possible to use the results to define the scope of the residential environment (3.6.2), and to provide a basis for the choice of research methodology.

In terms of the methodologies which were examined a trade off could be identified between the complexity of the methods and the potential quality of the results (particularly in terms of scale status). In general the simpler the method used, the lower the scale status of the results (Ch.8).

1.7 RESEARCH METHOD

1.7.1 It was decided, as a result of the research review, to carry out a survey in order to answer the following research questions based on those set out earlier (1.4), and paying particular attention to the definition of the concepts, and to the implications of the scale status of the measured variables (4.1.2):

- a) How do residents' satisfactions with the residential environment relate to the attributes of that environment?
- b) What priorities are placed by residents on different elements of their environment?
- c) Do common priorities exist among identifiable groups in the population?
- d) Can environmental standards be derived from the data?
- e) Is the social survey useful as a decision-making tool?

1.7.2 The research model adopted hypothesised that a resident's satisfaction with the residential environment is dependant upon the characteristics of that environment, and upon the social and psychological characteristics of the resident (4.2). Residents' satisfactions were measured directly using a questionnaire (4.3.3). The questionnaire was deliberately kept simple so that it could be easily used by the sponsors in a follow-up survey if necessary, and the resulting data was assumed to be of only ordinal status. The questionnaire contained questions to measure the residents' social characteristics (age, income, occupation, etc.) for use as control variables in the analysis. Residents' environmental preferences (defined operationally as their ranked preferences between the separate aspects of the residential environment listed in the questionnaire) were also measured (4.2.4). The survey was carried out in a number of case-study areas exhibiting different environments (5.2). A series of physical measures and census measures was made for each successful interview (4.3.3.2).

1.7.3 320 interviews were successfully completed in twelve case-study areas in July and August 1974.

1.8 RESEARCH RESULTS

The research conclusions can be summarised into three categories: substantive results; methodological conclusions and the practical conclusions.

1.8.1 Substantive Results

Residents' satisfactions with the separate aspects (dimensions) of the residential environment were found to be a function of the 'amounts' of those dimensions around the respondents' dwellings, the social characteristics of the respondents, and their overall satisfaction with the residential environment (6.5.2). In the case of satisfaction with the convenience to various facilities the respondents' use of the facilities had to be taken into account (6.5.2). In general the strengths of the correlations between the satisfactions and the measures made of the environment were not great, but were highly significant (Table 6.10).

Residents' overall satisfactions with the residential environment were related to their satisfactions with the separate dimensions of the residential environment, to their social characteristics, and to their satisfactions with their dwellings (6.5.3). Overall satisfaction was most strongly correlated with the residents' satisfactions with the Appearance, Reputation and Convenience of their areas (Table 6.11). The simple additive model of satisfaction in which the overall satisfaction is the sum of the satisfactions expressed with the separate dimensions of the environment was not found to be sufficient, as the evidence pointed towards a two-way process by which the overall satisfaction is influenced by the separate satisfactions and vice versa (6.5.3).

Residents held different environmental preferences according to their social characteristics and their residential environments (6.5.6). The most frequently mentioned preferences were: Friendliness; Convenience; and Suitability for Children (Table 6.13). It was found possible to group individuals on the basis of their preferences (6.5.6).

The different environmental values implied by the direct question on preferences, and the results of the correlations between the separate satisfactions and overall satisfactions emphasised the need to take care in the operational definition of concepts used in the research (6.5.5). The uses to which values obtained in different contexts is critical, and are discussed in the text (6.5.5).

1.8.2 Methodological Conclusions

The main methodological conclusions was the confirmation that it is difficult to get lay individuals to interpret lines or numbered scales as scales. In both cases respondents appeared to be more influenced by the labelling of the lines or scales than by their actual scale properties. The assumption of ordinal data was thus justified provided the labels of the scales themselves were appropriate (7.5.3).

The use of non-parametric statistics which followed the decision to assume that the data only had ordinal properties did not greatly limit the possibilities of analysis. Paradoxically the inability to use summarising statistics (e.g. regression analysis) helped to prevent superficial analysis which can result from their excessive use. False conclusions which might have been drawn on the data if interval assumptions had been made were thus avoided (7.5.4).

The instrument developed (using satisfaction questions for example)

was found to be good, reliable and above all a quick method of gaining an insight into residents' views of an area, which at the same time can be used in a semi-quantitative manner (7.5.2).

1.8.3 Practical Conclusions

Finally, referring to the application of the research to Wakefield Metropolitan District Council, the following conclusions were made:

It was found possible to obtain residents environmental preferences between the components of the environment, although the preferences obtained were influenced by the method used to obtain them (7.2). However, it was not felt useful to use these preferences as "weights" in the measurement of environmental quality because a) the physical measures of the environment were poor indicators of residents satisfaction in any case, and b) the choice of measure was found to be more critical than the weights applied to them (7.3.4).

The fact that the physical ("objective") measures of the environment were only weakly related to the satisfactions expressed suggested that the social survey data could be used directly with greater validity in the selection of priority areas for environmental improvement (7.3.7). The use of the measures of satisfaction to select priorities, and to build up a comprehensive qualitative picture of the environmental quality of areas is discussed in detail (7.3.8).

The relationships between the separate satisfactions with the environmental dimensions and the physical variables describing them, although they were not strong, were strong enough to enable the physical variables to be used as 'indicators' of environmental satisfactions. The variables could not however, be used as environmental standards (7.4).

A factor analysis carried out on the variables used to measure the environmental conditions resulted in 9 orthogonal factors. The first five factors accounted for 80% of the total variance and were interpreted as measures of: the location of a dwelling with respect to the town centre; the tenure; household 'wealth'; density; and dwelling quality (7.6).

Using the factors it was possible to categorise the case-study areas into eight types (Table 7.2).

1.9

This chapter has briefly summarised the context, main objectives, method and results of the research work carried out, and was intended as a guide to the theme and content of the thesis. The following chapter returns to the beginning of the research, and examines in greater detail the context of the research.

Chapter 2

THE RESEARCH CONTEXT

2.1

The object of this chapter is to outline the background to the research. The chapter is divided into two main sections. The first section deals with the general background to the project; that is the developments in town planning over the last decade which have lead to the choice of the quality of the residential environment as a subject for this study. The second section discusses the particular policies and problems of the local authority sponsoring the research, and the way in which the research objectives were formulated in response to these.

2.2

Before discussing the background to the research the term "residential environment" has to be explained. The residential environment has been defined for this study as "the objects and influences immediately surrounding a person's dwelling, but excluding the internal attributes of that dwelling".⁽¹⁾ The internal quality of the dwelling was excluded as it was felt that the emphasis of research and practice in the past had been towards the dwelling itself, rather than the surrounding environment. The exclusion of the internal aspects of the dwelling enabled the research to be concentrated on the area most in need of further work. It should be noted that the definition of the residential environment given in no way restricted the consideration to the physical environment, but applied equally to social or cultural elements (Lowenthal 1972 a,b, Furton I., 1968).

(1) Based on the definition of 'Environment' given in Websters Dictionary.

2.3 GENERAL BACKGROUND TO THE RESEARCH

2.3.1 The central argument in this part of the chapter is that for a number of reasons planners, and others dealing with residential areas, have had to take greater account of the surrounding environment and its quality in addition to the quality of the dwellings themselves. There has also been a widespread recognition that the residents' own values with respect to the environment should be taken into account when dealing with residential areas. It is difficult to isolate the separate influences which have led to the concern for residents' own values and evaluations of the residential environment, but the main reasons which are identified are: the general growth in public awareness of 'environmental quality'; the change in housing policy in the U.K. in the late 1960's from redevelopment to renovation; the shift in planning away from the previous paternalist approach and the rise in demands for some kind of participation in the planning process. These reasons will be discussed in turn.

2.3.2 The claim that planners have had to take greater account of the residential environment and its quality needs some qualification, as it is obvious to anyone familiar with the history of planning that from the time of the nineteenth century reformers, like Owen, Salt or Cadbury, the environment of residential areas has been an essential part of planning (Cherry G., 1974). It is, however, the form and extent of the concern which has changed. The concern for the residential environment as it was expressed in the early history of planning took two forms: firstly a recognition of the health risks of bad urban dwellings and layouts, and secondly the moves to design new 'utopian' environments for people to inhabit. Both these aspects were entangled with assumptions about the effects of the physical environment upon residents (environmental determinism) and also assumptions about what was good for people (Madge R., 1975). The concern

for the residential environment cannot have been called a popular concern in that it did not seem to have been shared widely by the residents of the areas which were being condemned.

2.3.3 The concern for the quality of the residential environment has become more popular and widespread, although this still does not mean that it is shared by everyone (Tognacci L.K. et al 1972; Lowe P., 1975). The growth in the concern about the environment since the mid 1960s has been most evident at a 'global' level.⁽¹⁾ In Britain this concern about the wider environment was also matched by concern for more localised issues, often sparked off by particular decisions. It has been suggested that the 'environmental lobby' was first evident in the U.K. in 1967 following the decision to develop Stansted airport (Johnson S.P., 1973). This was followed in 1968 by the Roskill Commission which encouraged a wide debate, aided by the media, of the value of the environment, and of the influence of noise intrusion in particular. Other well publicised issues such as residents affected by the Westway motorway in London or by heavy lorries in Kent and Suffolk villages, have increased public interest in the environment around their homes.

The greater concern about the environment has been reflected too in the increased number of pressure groups of various types concerned with local issues. These range from branches of wider organisations (e.g. Friends of the Earth) to small groups like street committees or action groups to fight particular proposals (notably anti-motorway groups).

(1) There is evidence in the spate of books published around 1970 "Only one earth", "Blueprint for Survival", "Closing Circle" etc. (e.g. Commoner B. 1972; Meadows D.H. et al, 1972; The Ecologist, 1972; Ward B. and Dubos R., 1972).

The concern has been recognised at the government level as the setting up of the Department of the Environment in 1970 perhaps illustrates. The Three Towns studies published by the Department in 1973 adequately summarised the position:

"... there is growing concern about the quality of life in towns. Rising standards of expectation, rapid technological change and above all, keener public interest in the environment have led to a greater concern for the quality of urban life." (DOE; 1973b)

2.3.4 The second main influence in the selection of the residential environment for study, apart from the growth in popular concern for the environment, was the change in housing policy in the U.K. at the end of the 1960s. Housing policy after the war was dominated by the housing deficit left as a result of the war and in particular the problem of old and inadequate housing (Cullingworth B., 1973). Apart from the newly developed suburbs and new towns, where estate design and environmental considerations were considered important, decisions affecting existing housing areas were based almost entirely on the quality of the dwellings themselves. The 1957 Housing Act laid down specific physical criteria by which the fitness of a dwelling could be assessed (Brookes J. and Hughes K., 1975).

For a variety of reasons, which it is not necessary to recall here, there was a change of emphasis in the 1960s, heralded by the government reports of 1966 ("Our older homes") and 1967 ("Scotland's older homes") which called for a greater concern for the environment surrounding old houses. The White paper of 1968 ("Old houses into new homes" Cmnd 3602), followed by the 1969 Housing Act emphasised this major development in housing policy which firstly laid greater emphasis on the improvement of dwellings as opposed to clearance, and secondly noted the role of the residential

dential environment in assessing and implementing improvement policies. One object of the 1969 Housing Act was for a local authority to provide a framework within which individual householders or landlords would improve their property. Part of this "framework" were the environmental improvements which the local authority could carry out in declared improvement areas (General Improvement Areas - GIAs) and for which a sum of £200 per dwelling was available. The 1974 Housing Act which was introduced partly to increase the effectiveness of the 1969 Housing Act and to remove some of the abuses which had arisen under the earlier Act (notably "Gentrification" in some areas of London (Hamnett C., 1973)), did not fundamentally change the aspect of the housing policy which is central to the argument; that is the role of the residential environment in the policy.

An examination of the methods used by local authorities to assess their housing stock for the purposes of deciding on clearance or improvement areas shows the importance now accorded to the environment (Duncan T.L.C., 1971). In 1974 about a quarter of the larger local authorities were employing some kind of environmental index, mainly with the object of selecting General Improvement Areas.⁽¹⁾

2.3.5 The current importance of the residential environment has been demonstrated, but this is only part of the research context. The other important part is that account must be taken of residents' own values with respect to their local environments. The change in housing policy described above has also been instrumental in underlining this point. A major implication of the shift in housing policy, arising mainly from the voluntary nature of the improvements, was the need to take residents' desires into consideration

(1) Crook M.A. and Morgan R.J., private communication.

in implementing the policy.

It has been pointed out that in carrying out redevelopment and slum clearance policies the local authority was generally able to proceed despite protests against schemes (Pepper S., 1971); the needs of the inhabitants having to take second place to the need for redevelopment (Cullingworth B., 1973). In improvement areas, however, the local authority is essentially concerned with the needs and wants of the inhabitants, and requires their support rather than their lack of opposition (Pepper S., 1971).

2.3.6 The change in housing policy which has encouraged local authorities to take greater notice of residents' needs cannot be seen as the only influence which has led to an emphasis on residents' values with respect to the environment. It is necessary to return to the broader context of planning in general.

As was noted above, much early planning was paternalist in nature, and it was taken for granted that the needs of people were understood - although the conceptions of needs were often based on highly simplified image or stereotypes of people (Ravetz A., 1974). This assumption that needs were understood cannot easily be separated from the deterministic beliefs which were held about the influences the environment had on residents (Madge R., 1975). Eversley has pointed out that until the last war planners had little contact with the community, and did not need to have any contact (Eversley D., 1973). Planning activity has only slowly recognised the existence and importance of different lifestyles, preferences and aspirations in the community (Cherry G.E., 1973), but the change has come about in the last two decades.

The reasons are complex and are associated with changes in society at

large as well as within planning. Planning itself has, with the help of the media, come to the fore in public debate, and the differences between the values of 'the planners' and the 'planned' have often been clear. The increasing speed of changes in society and particularly in the rate of demolition and slum clearance in urban areas contrasted the way in which many planners worked (i.e. in 'physical' terms) with the way residents looked at things (i.e. more concerned about social aspects). There was often also a gap between the aspirations of those moved out of clearance areas and what they got; resulting in discontent with the lack of facilities in post-war estates, for example (Eversley D., 1973). Certain notorious schemes also served to illustrate that the needs of residents were not yet understood. Cherry quotes the example of the Rye Hill improvement scheme in Newcastle where "the plan was produced from a set of values which were not those of the local community" (Cherry G.E., 1973). The subsequent failure of this and other schemes underlined the need to take local values into account.

It is not necessary to give further examples of the events which have led planners as a profession to question their previous paternalistic approach, as the point was accepted in the 1968 Town and Country Planning Act (consolidated in the 1971 Town and Country Planning Act). This Act gave individuals a statutory guarantee to receive information and make views on planning issues to the local authority. Whatever the practical problems of carrying this out, and the discussion and criticism of the Skeffington Report⁽¹⁾ indicate that there are many problems, the formal establishment of the principal is important.

(1) The Skeffington report "People and Planning", was commissioned by the Government in the wake of the 1968 Planning Act to "consult and report on the best methods, including publicity, of securing the participation of the public at the formative stage in the making of development plans for their area". Committee on Public Participation in Planning (1969).

2.3.7 The background to the research thus comprises a complex mosaic of trends and legislation which, in the field of housing policy, has led to a greater emphasis being placed on the environment surrounding housing and also upon the residents' values with respect to that environment. It is within this general context that the specific tasks of the local authority for whom this research was done have to be considered. The following section examines in detail the specific research context.

2.4

The specific research reported here was undertaken within the wider context of the West Riding County Council, and later the City of Wakefield Metropolitan District Council. However, as will be clear from the discussion below, the problems they were faced with, and the programmes they had set in motion, mirrored to a large extent the trends which were identified in the previous sections. The object of this section is to show how the research responded to the particular problems of the local authorities involved, and in particular the influence on the research of local government reorganisation which took place during the research.

2.5 WEST RIDING COUNTY COUNCIL

2.5.1 In 1972 the County Planning department set up a research group with a staff of five, whose first task was to initiate a survey of the "environmental quality" of the whole of the county area. The survey was only loosely linked to any specific policy issues, and was part of the county's response to the increased interest generally in environmental quality (2.3.2). The survey was mainly intended to provide a background source of information which the local authorities within the county could use. The stated object of the survey was:

"to draw up a list of priorities to decide which areas need improvement
ment

ment, bearing in mind what is feasible in the form of General Improvement Areas, Land Reclamation, etc." (West Riding County Planning Department, 1972a).

2.5.2 At about the same time discussions began between the County Planning Department and the IHD scheme at Aston University with a view to the joint sponsoring of some research which would provide a useful input to the work of the County's research group.

Initial discussions with the group, followed by an evaluation of the results of a pilot survey of residential environmental quality which they had carried out in Pontefract, revealed several issues which the research group felt were both critical, and in need of further work. Three main areas of concern were identified:

- a) What physical criteria should be used in evaluating the environment of residential areas?
- b) How do these physical criteria relate to each other, and to the social conditions in an area?
- c) What relative importance should these criteria be given? (Implicit in this last point was the need to consider the priorities of the residents of an area).

2.5.3 Two main reasons lead to these issues being identified. Firstly, it was clear that the environmental quality measuring method which the group was using⁽¹⁾ was not able to differentiate well between areas in the town of Pontefract with different environmental conditions. Secondly, the pri-
orities

(1) The environmental scoring system was based on the Survey of Housing and Environmental Deficiency method as used on Teeside. See West Riding County Planning Department (1972b); also Duncan T.L.C. (1971).

orities resulting from the method did not accord with any intuitive priorities obtained by visiting the areas. Although this latter reason was not of great validity, because of the subjectiveness of the concept of 'quality', it did suggest that further investigation was required.

An additional reason was that the members of the research group themselves were not fully convinced that the values implied by the measurement method accurately reflected the values likely to be held by the residents of the area.

2.5.4 In response to these discussions a research project was formulated with the following general aim:

"To generate criteria by which a local authority decides on priorities for planning policy, and investment, towards environmental improvements within primarily residential areas." (Letter from West Riding C.C., 22nd June, 1973)

This was the basis of the IHD project from which this thesis grew.

2.5.5 Although no specific policy context was formally stated the research was implicitly linked to the problems of selecting areas for General Improvement Area treatment. Thus when local government reorganisation was approaching in 1974, and negotiations for the transfer of the project began, it was at the District level (i.e. the housing authority), rather than at the new Metropolitan County level that discussions took place.

Therefore in April 1974 the research was transferred to the Wakefield Metropolitan District Planning Department (Policy and Research Section).

2.6 WAKEFIELD METROPOLITAN DISTRICT COUNCIL

2.6.1 The change to a different authority, although based in the same area, inevitably lead to some restructuring of the research. The main result was not a change in the direction of the research, but the provision of a more specific policy context. A discussion of the approach which Wakefield Metropolitan District took to their housing policy is necessary to illustrate that context.

2.6.2 Immediately after re-organisation took place a joint working party on housing policy was formed, made up of representatives of the three departments which were involved with housing in the new District: Planning; Environmental Health; and the Housing Department. The Policy and Research Section, to which the research was attached, provided the Planning Department's input into this working party.

The need for a revised and co-ordinated housing strategy arose mainly from the variations in the programmes which the new District had inherited from the thirteen former local authorities of which all or part had been incorporated into the new District.

2.6.3 An early project report on housing strategy submitted to the working party emphasised the need for a strategy to "establish a firm base upon which future decisions can be made and evaluated ..." (City of Wakefield Metropolitan District Council, 1974a).

The basic aim of the strategy was stated as follows:

"to ensure an adequate supply of residential accommodation within the City of Wakefield Metropolitan District area compatible with the demands of the various sections of the population in terms of quantity; environmental and space standards; locational, financial and other requirements." (City of

Wakefield Metropolitan District Council, 1974b).

2.6.4 The assessment of the present housing situation was to be considered in three parts, each part requiring the collection of information:

- a) housing needs and demands
- b) housing supply
- c) resources available

A 1^{1/2}% sample household survey of the whole District was originally proposed to provide part of the necessary information.

2.6.5 Two factors, however, reduced the emphasis given to the 'first principles approach' outlined above. These were: the existence of more immediate problems in the housing sphere; and the difficulties the three departments had in working together effectively in the immediate post-reorganisation period. The first reason is of greater significance to the format of this research, and will be outlined in greater detail.

2.6.6 One such problem was the programme of General Improvement Areas (GIAs) inherited from the previous authorities. Since the change in national housing policy in 1969 and the introduction of powers to encourage dwelling improvements on an area basis (2.3.3) five GIAs had been declared within the Wakefield Metropolitan District area. At the time of re-organisation at least ten times this number of GIAs were in various stages of planning by the former local authorities. There was thus an urgent need to co-ordinate and rationalise the future programme of GIAs with regard to the relative priority of each proposed area in the District as a whole. In addition there was a need to re-appraise the clearance programmes; one partly completed clearance areas, for example, being at a stage where complete clearance or renewal of remaining properties were options which had to be decided

upon urgently.

2.6.7 Consequently the Environmental Health department decided to carry out a physical survey of the housing in the District, with the object of declaring a rolling programme of GIAs for the following 15 years. On the basis of the manpower resources available to the department it was decided to concentrate on the older housing stock; that is dwellings built before 1919.⁽¹⁾ The housing survey, as proposed originally, concentrated upon the dwelling condition and possession of dwelling amenities. In the context of government requests to include the environment in the assessment of housing programmes (2.3.3) the Environmental Health department were prepared to survey any additional environmental measures suggested by the Planning department.

2.6.8 The Planning department was thus faced with a similar problem to that which had confronted the research group at the West Riding County Council, namely: by which criteria should the residential environment be judged, and what relative priorities should these criteria be given. In the light of the general debate on whether planners' values were the same as the residents' values in any residential area (2.3.5) the Policy and Research section of the Planning department felt that before attempting to design any environmental quality measurement method a social survey should be carried out in the District to obtain more information on residents' environmental values.

2.6.9 Since the basic aim of the proposed survey was similar to the aim of

(1) A comparative sample survey of the environment was carried out by the planning department late in 1974 which came to the conclusion that the worst environmental conditions were associated with the pre-1919 housing stock. This is somewhat at variance with the conclusions of this research. See also Duncan T.L.C. (1971) p.75.

the research brief formulated in conjunction with the West Riding County Council it was possible to incorporate the thesis research into this aspect of the District's work.

There were two problems associated with this:

- a) sample size - the resources available for the thesis research were clearly not sufficient to enable an adequate sample of conditions or population throughout the District to be interviewed. However it could serve as a useful pilot and exploratory tool.
- b) timing - the 3 year time scale for IHD research did not accord with the urgency of the results. In the event only an early review of research (Cane S.T., 1973) was available to the section before they had to design the environmental survey schedule.

2.6.10 The results of the research were thus intended to be applied to the work of the Policy and Research section in two main ways:

- a) to validate (or otherwise) the values and environmental aspects used in the Environment and Housing Survey carried out in 1974.
- b) to serve as a basis for any future survey work to update the Housing Strategy. Important in this aspect was the aim that the research should not be restricted to pre-1919 housing as the District's survey was. The importance of this application of the research was increased when the proposed 1% sample social survey of the whole District was abandoned as a result of reductions in local authority spending in 1974.

2.7 RESEARCH TERMS OF REFERENCE

2.7.1 In the light of the new practical context the research problem was redefined as follows:

As part of the informational input in assigning priorities for environmental improvement, the Wakefield Metropolitan District Council need to

know the following:

- a) What physical, measurable aspects of the environment should be used in deciding priorities? For example, if the dwelling and its surrounding environment are to meet the needs of the resident, and be a source of satisfaction to him or her, what physical variables, if any, have an influence on this?
- b) Are there particular levels of the physical aspects of the environment which are critical and could be regarded as standards?
- c) What is the relative importance of the environmental aspects? Importance in this case was defined as the relative contribution to the needs or satisfaction of the residents attributable to the particular aspects of the environment, or relative priorities as expressed by the residents themselves.
- d) Practical advice on survey techniques, to be provided as a continuous feedback of information as the research progressed, and which could be used later by the District in any similar survey.

2.7.2 The work began with an extensive review of previous research with the aim of firstly, providing a basis for the research and secondly, with providing some initial answers on environmental values and measures for the District who needed to go ahead with part of their survey immediately. (2.6.9) The following chapter concentrates on this second aim of the research review.

Chapter 3

RESEARCH REVIEW

3.1 INTRODUCTION

3.1.1 The object of the research review was twofold. The first aim was to investigate to what extent information on residents' environmental values and aspirations already existed, in a form appropriate to be used by Wakefield M.D.C. in their survey of housing environments (2.6.9). This aspect is the subject of this chapter. The second objective of the review was to examine the different research methodologies which have been employed, in order to provide a rational basis on which to design the current study. This aspect of the research review is reported below in chapter 8 (Vol.II).

3.1.2 This chapter starts with a review of the problems involved in attempting to provide 'answers' from a range of different research projects. One of the most important problems was the definition of the concepts involved, and it was found necessary to provide a brief conceptual framework, before discussing the individual studies, in order to be able to categorise the research into meaningful groups.

The results, as far as they can be summarised given the problems discussed, are then dealt with. The broad conclusion of the review was that the usefulness of the research results found was limited by the numerous factors which reduce the comparability of the research. However as a guide to the scope of the residential environment, and to the factors which are likely to influence a person's response to the environment, the review proved of use.

3.2 THE USE OF EXISTING RESEARCH - THE DIFFICULTIES

3.2.1 There were several problems which arose when attempting to obtain

specific answers to the research questions posed in chapter two from a review of previous research. Firstly, because the scope of research into the residential environment is relatively wide, each single piece of research tended to cover just a part of the whole problem area. This meant, for example, that only selected aspects of the residential environment were considered, making comparisons between different research projects difficult. The same limitation in scope also occurred indirectly through the choice of areas or of sample population used in the research.

3.2.2 Secondly, the studies were clearly carried out for different purposes, with the methodology as the focus in some cases, rather than the results. The form and applicability of any results obtained varied with the aim and methodology of the research. The close link between the methodology and the results has implications for the attempt to generalise research results in this field which will be referred to again below (3.3).

3.2.3 Thirdly, there was a time dimension to the reviewed research. Studies carried out a decade ago may relate to conditions or values which are no longer relevant. Care therefore had to be exercised when trying to summarise research carried out at different periods.

3.2.4 Finally, different definitions and measurement bases of the concepts used in the various research approaches reduced the comparability of work which otherwise had similar aims and methodologies. This was particularly the case with the specification of the environmental variables; for example 'upkeep' was a frequently used term which referred in different studies to: private upkeep of dwellings; public upkeep of buildings, landscaped areas and roads; and litter collection. Where definitions and assumptions were given, allowance could be made, but frequently concepts and terms were used without either the definitions or assumptions being made explicit.

3.2.5 Taken together the above points suggested that it was difficult if not impossible, to draw definitive answers from the range of research available. However, given these constraints, some general conclusions could be drawn. Before dealing with any of the reviewed research it is necessary to define briefly the categories of methodology, and the basic definitions of concepts which have been used in the studies.

3.3 METHODOLOGIES AND CONCEPTS

3.3.1 Because of the definitional problems associated with the terms such as 'attitude', 'satisfaction', 'preference', etc. which are frequently used in the research it is necessary to provide a general conceptual framework within which it is possible to locate each separate piece of research. In fact it will be seen later that most of the concepts used in research reviewed here can only be defined in operational terms, in relation to the measurement techniques used and the research context (8.6).

3.3.2 There is the implicit assumption in all the work reviewed here that a person has a set of values, goals or beliefs with respect to the residential environment, and that these are expressed as behaviour, desired behaviour, expressions of attitude or of satisfaction by the individual. A number of different conceptions of man and his behaviour are explored in a later chapter. (8.2). For this preliminary chapter it is sufficient to assume that man has some kind of value system which links conceptually the residential environment and a person's responses to it. It is therefore these values, a general term meaning the conceptions by which things are compared and approved or disapproved relative to one another (Johnson H.M., 1961), that the planner is interested in (8.2.2).

3.3.3 Definitions

The term 'value' is a rather general one, and it was rarely used in

the research studied. The following more specific terms, obviously related to values were more frequently used. The terms and their definitions, given here, are discussed more fully in Volume II (8.2).

- a) Attitudes are generally defined as "learned pre-dispositions to respond to an object in a consistently favourable or unfavourable way" (8.2.3, Allport F.H., 1935).
- b) Preferences are a type of attitude in which an object is given priority or viewed more favourably in relation to another object or objects (8.2.4, Couch I.R., 1973).
- c) Satisfaction. If man is regarded as a goal-directed being then satisfaction can be thought of as the statement of an individual's position with regard to his goals (8.2.5, Canter D., 1973).
- d) Behaviour can be seen as a cyclic process in which an individual is motivated to 'behave', this behaviour being directed towards some goal. If the goal is achieved behaviour may cease, or the goal itself may be changed and behaviour recommence (8.2.6, Stagner R., 1970).

3.3.4 Having very briefly defined some of the relevant concepts, the main categories of methodology can be described. One useful categorisation is into two groups: Direct and Indirect methods (Lemon N., 1973).

3.3.5 Direct Methods

Direct methods of obtaining residents values are virtually synonymous with attitude questioning in its widest sense. They are distinguished from indirect approaches by the fact that the objectives of the questions are clear to the respondents (Lemon N., 1973). Thus in the direct approach respondents are asked openly about their attitudes, satisfactions or preferences. The form of the questions can vary from a completely unstructured discussion to structured and scaled questions. In addition the research

context can range from a hypothetical one to a behavioural or even a simulated one.

3.3.6 Indirect Methods

In indirect methods values are inferred or interpreted from some secondary source. This secondary source could in fact result from normal questionnaire methods, but through the use of questions in which the objective of the question is not clear to the respondents. The most commonly used indirect methods in environmental research have been the interpretation of people's values from their behaviour, or from their simulated behaviour. Economic behaviour (e.g. use of house prices) and migration behaviour are two examples which have been extensively used in order to find out people's preferences between dwelling types or environments.

Note that not all behavioural research aims to interpret values; in many cases the values are assumed and the behavioural differences are related to differences in some other variable e.g. the physical environment (Michelson W., 1970).

3.3.7 The full conceptual and methodological implications of the two basic approaches, and of the different techniques within them, are discussed in chapter 8 (Volume II), as this volume is more concerned with results and the operational applications of the research.

The review of results which follows is arranged under the two methodological headings: direct and indirect methods.

3.4 DIRECT METHODS

3.4.1 Among the direct methods reviewed two separate approaches could conveniently be identified:

a) Attitude approaches; including questions on residents' likes and dis-

likes of the environment; attitudes towards specific environmental attributes, etc. Satisfaction approaches, although identified in chapter 8 as a separate category on conceptual grounds, have been grouped with the attitude questions, because the similarity of the questionnaire measurement techniques involved makes the results comparable.

- b) Preference approaches; in direct questioning 'preferences' refer to the respondent's choice or preference, as obtained by direct questioning, between different environmental attributes or dimensions. (8.4). These directly stated preferences are distinct from the preferences which may be revealed by house purchase or by migration and be derived by indirect methods.

3.4.2 Environmental Attitudes and Satisfaction

3.4.2.1 The simplest method of obtaining attitudes or satisfactions with the residential environment is by the use of open ended questions. Questions such as "What do you like about your home area?" have often been used in estate evaluation and follow-up surveys, and have been more frequently used than more sophisticated types of question including scales. The analysis of responses to open ended questions is difficult for a number of reasons:

- a) When no pre-selected categories are used responses are difficult to compare; some important aspects may be forgotten by respondents, or they may be articulated differently by different respondents.
- b) It is difficult to obtain an indication of the strength of the attitude, or the relative importance of the attitudes. The number of times an aspect is mentioned is commonly used as a measure, but has no strong theoretical justification.
- c) The number of aspects mentioned by a person is related just as much to the loquacity of the respondent as to the importance of the attitudes;

inter-personal comparisons are therefore suspect.

- d) It is difficult to relate the characteristics of the environment to the responses because of the difficulties of scaling and aggregating open responses.⁽¹⁾

Because of the above reasons it is only possible to combine the results from different studies in a very generalised manner. The most common attitudes measures are 'LIKES' and 'DISLIKES' of an area, and table 3.1 below draws together the findings of eight studies in which open questions were used.⁽²⁾ The non-comparability of categories used in the different studies has led to great generalisation when combining results. Dislikes, in particular, often tended to be highly specific, and attempts to categories them into useful groupings led to an inevitable loss of meaning.

Table 3.1 LIKES AND DISLIKES COMBINED FROM EIGHT STUDIES⁽²⁾

ATTITUDE	APPROXIMATE ORDER OF IMPORTANCE (3)	ENVIRONMENTAL ASPECT
<u>LIKES</u>	1 2 3	People in area Quiet, 'pleasant' area (healthy, open, etc.) Easy access to shops, schools, buses, town centre and work
<u>DISLIKES</u>	1 2	Poor appearance; dirtiness; noise; air pollution; industry within area. Poor conveniences to shops, school, buses, town centre and work.

Note that the information obtained in this way can give no indication as to the reason particular aspects were liked or disliked; for example, it could

(1) See Menchik M. (1972) and Couch I.R. (1973) for attempts to do this.

(2) The eight studies were: Duncan T.C. et al (1971); DCE (1971); Jephcott P. (1971) MHLG (1966a); MHLG (1970); National Economic Development Office (1971) Smith J.P. (1971); Wilkinson R. and Sigsworth (1972).

(3) Based on frequency of occurrence in the eight studies.

be that these aspects were very important to respondents or, possibly, the level of provision or quality of the aspects was poor. Neither is it possible to state what was regarded as a poor appearance or pleasant area in specific physical terms.

3.4.2.2 The other main form of attitude question is the structured and scaled question. This form offers greater possibilities of analysis, particularly in the identification and measurement of relationships between attitudes. The predominant method has been to ask respondents to rate their neighbourhoods, dwellings or environments on a number of scales. One of the most frequently used scales was an overall evaluation of the neighbourhood.

The existence of scaled responses enables two main relationships to be examined:

- a) between the scaled attitudes and any measures of the environment, and
- b) between a person's overall evaluation (e.g. their overall satisfaction) of their neighbourhood and their attitudes to the separate aspects of that neighbourhood.

In only a minority of cases have the physical characteristics of the neighbourhood been related to the attitudes, one of the main problems being the measurement of the environment (Troy P.M. (1972), Lensing J. and Marans R. (1969), Onibokum A.G. (1974)). The studies in which attitudes have been successfully related to physical measures have dealt with specific aspects of the environment, notably noise and visual intrusion (McKenna A.C. (1963); Langdon F.J. and Griffiths (1968), Hopkinson R.G. (1971)). These studies will be referred to again later when dealing with more specific relationships. For the present task of building up a general

al picture of the influence of the environment on residents' satisfactions with an area, and their environmental values, these studies are not of great assistance.

The second type of relationship mentioned above was that between measures of residents' overall evaluations of their neighbourhoods⁽¹⁾, and their attitudes to the separate aspects of that environment (e.g. appearance, convenience, quietness, etc.). Three studies which have related separate scaled attitudes to an overall evaluation of the neighbourhood are discussed here (DOE 1972a; Troy P.N. (1972); Lansing J.B., Marans R.W. and Zehner R.B. (1970)). All three studies used regression analysis to relate the separate attitudes to parts of the environment to the overall evaluation. This enabled them to compare how much each separate aspect contributed to the overall evaluation of the neighbourhood, which can be seen as a measure of the importance of each aspect. It should be noted that the use of regression analysis requires the assumption, among other things, of interval data. The way in which the attitudes are scaled is therefore of critical importance, a point which will be re-examined later (8.4.3.1).

A general summary of the results of the three studies is given in Table 3.2.

With these three studies, as with the unstructured approaches it is extremely difficult to do more than provide a composite generalised picture.

(1) Overall evaluations have been obtained in slightly different manners; for example Troy P.N. (1972) used one question: "Considering all aspects, and using a 5 point scale from very poor to very good, how would you rate this locality as a place for you and your family to live". Lansing J.B., Marans R.W. and Zehner R.B. (1970) asked four separate questions at different points during the interviews, and, finding that there was a high degree of correlation between the answers to these questions, concluded that all four referred to the same 'dimension' of attitude which they defined as "estate satisfaction".

Table 3.2 CONTRIBUTIONS TO OVERALL EVALUATION OF NEIGHBOURHOOD

STUDY	DIMENSION OF ENVIRONMENT	% of Variance in Overall Evaluation explained
DOE (1972a)	Appearance attractive	28
	Satisfaction with dwelling	10
	Satisfaction with maintenance	8
	Not arranging to move	2
	<u>Total variance explained</u>	<u>48</u>
Troy P.H. (1972)	Evaluation of Social Environment	31
	Evaluation of Environment	13
	Evaluation of Dwelling	10
	Evaluation of Convenience	8
	<u>Total variance explained</u>	<u>62</u>
Lansing J.B., Marans R.W. and Zehner R.B. (1970)	Good upkeep	31
	Friendly, similar people	10
	No noise	3
	Adequate space	3
	<u>Total variance explained</u>	<u>47</u>

Although variables under study were more closely defined and measured, the definitional and contextual differences mean that a full comparative analysis is not possible. For example Troy P.H. (1972) found that 31% of the total variance in overall satisfaction was explained by the respondents' evaluations of their social environment, and yet this variable was not

included in the other studies referred to.

3.4.3 Environmental Preferences

3.4.3.1 The final type of direct method of obtaining residents' environmental values, is to ask respondents about their priorities or preferences with respect to the components of the environment. This was commonly done by getting respondents to rank, or to scale according to their importance, a list of environmental attributes. Individual preferences were then usually aggregated either by calculating the mean (or median) 'score' of an attribute, or by the number of times an attribute was mentioned as a priority. Apart from the theoretical problems of aggregating individual responses to form communal priorities (Arrow K., 1963), the main problem with trying to summarise the results of more than one study was that in fixed response surveys not all the attributes of the environment were covered in all surveys. For example the social attributes of the environment were frequently omitted, as were safety aspects; both of which have been found to be of great importance in particular studies (Troy P.N., 1972; Hinshaw M. and Allot K., 1972).

3.4.3.2 The table below (Table 3.3) aggregates the priorities found in five surveys which had approximately comparable approaches (Duncan T.L.C. et al (1971); Hinshaw M and Allot K. (1972); National Economic Development office (1971); Troy P.N. (1972); MFLG (1966b)). However because of the reasons given above it has not been possible to give an indication of the precise degree of importance of each attribute, although the list is in approximate descending order of importance, on the basis of the number of times the attribute occurs, and the rank given in the studies.

3.4.4 The direct methods of obtaining residents' values reviewed have enabled a number of general statements to be made. Close comparison between

which are loaded highly on the factors. For example Kain J.F. and Quigley J.M. (1970) report that the factor which added most to the value of the properties included in their survey was a "Basic Residential Quality" factor. This factor included the overall condition of the structure, the quality of the landscaping and cleanliness, among other variables. Wilkinson R.K. (1973) found that 41% of the variances in house prices was explained by what he termed the 'Environmental Factor' which included a wide range of variables such as house type and age, distance from the city centre, density and socio-economic group characteristics of the area. Clearly the practical use of such a widely defined factor is limited.

In a later study with Archer, Wilkinson used unrotated principal components of observations on individual dwelling units and regressed these components on the house prices (Wilkinson R.K. and Archer C.A. (1973)). The contribution of each component to the explanation of house prices was thus obtained. The contribution of the original variables to each component was then calculated. Table 3.4 shows the results of the regression equation which included six of the original fourteen principal components. As the table shows the most important variables affecting the house prices were related to the size of the dwelling and its plot (i.e. density), rather than to the social or physical characteristics of the environment.

Table 3.4 REGRESSION OF PRINCIPAL COMPONENTS ON HOUSE PRICES:
CONTRIBUTION OF VARIABLES



Aston University

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Source: Wilkinson R.K. and Archer C.A. (1973).

3.5.2.3 The economic behaviour approach then, although conceptually attractive, has several drawbacks which have made it less useful (to date) for indicating residents' values of the environment. These drawbacks (8.5.4.2) include the constraints in the housing market, the low proportion of people who move each year, and the exclusion of non-house buyers (an important point in Wakefield District with only 40% owning homes compared with the national average of 51%). Further drawbacks which have been illustrated in this section are the problems of separating highly correlated influences on house prices; the use of factor analysis resulting in complex factors difficult to interpret, and the predominant effect of the dwelling size and type on the prices compared with other influences.

3.5.3 Migration Behaviour

3.5.3.1 The rationale for using migration behaviour for the study of environmental behaviour is that these values should be expressed in the choice of location or dwelling, within the constraints operating on the individual. This latter caveat is necessary because the constraints of housing supply and access to that housing may completely outweigh other considerations. As in the economic behaviour approach a further disadvantage is that only a small proportion of residents move in any one year. In 1971, 36% of households nationally were found to have moved in the last 5 years, and these households were not typical of the population as a whole (General Household Survey, 1971 (HMSO 1973)).

3.5.3.2 Migration research has tended to concentrate on the reasons for moving, rather than on the characteristics of the locations moved to (except in broad terms e.g. employment opportunities). The results from most surveys show, however, that the proportion of moves for which the

external environment is given as a prime cause is small. Work by Simmie (Simmie J.M., 1972) and by the Department of the Environment (DOE 1972b) has shown that over half the reasons given for moving relate to the dwelling itself (size, tenure, etc.) or are social reasons (marriage, household changes, illness, etc.). The influences vary for different social groups; for example with the dwelling and steady employment source being most important for working class groups (Simmie J.M., 1972).

3.5.3.3 The constraints on moving have been illustrated in several studies in which the desire to move out of an area has not been followed up by migration, for a number of reasons, including cost (Kasl S. and Harburg E. 1972; Drettboom T. et al 1971). The Centre for Environmental Studies is currently carrying out a study of the desire to move, in a situation in which the normal constraints on moving are altered (Bird H., 1974). The study is using the filed request for council house moves or exchanges in sectors of London and Newcastle. The number of persons requesting a move as a percentage of the total residents on an estate has been found to be related to measures of overcrowding, amenities and open-space. However these preliminary results have shown a relatively low degree of explanation of the total requesting moves (R^2 of .34 for example - see later 8.5.4.3).

3.5.3.4 The problem of the research having concentrated on the reasons for migration, and the relative unimportance of the residential environment among those reasons has resulted in little useful information on residents' values from migration research. The use of hypothetical moves (or locational preferences) as a method of avoiding the problem of constraints on migration is discussed in 3.5.5.

3.5.4 Simulated Economic Behaviour

3.5.4.1 This approach, also referred to as the 'gaming' approach or priority

ority evaluation approach, combines some of the attributes of the attitude approach within a framework which simulates economic behaviour. Respondents' values are revealed by the way in which they 'spend' their given resources (counters or mock-money for example) on redistributing or improving simulated environmental conditions. This approach improves on attitude questioning in one major respect, and that is the way in which the respondents are forced to make choices between limited alternatives, and thus have to trade-off improvements to the environment on the basis of their values. The 'price' assigned to any variable can, if necessary, reflect the actual costs of improving that variable.

3.5.4.2 This method of obtaining environmental values, pioneered by Wilson in the USA in the 1960's (Wilson R.L. 1962) and developed in the UK by Hoinville and Social and Community Planning Research (SCPR) (Hoinville G. 1971) is discussed in greater detail in chapter 8 (8.5.5).

3.5.4.3 When the focus of interest is turned to results rather than methodology the limitations of the method are apparent. One major disadvantage for example is that the number of elements (e.g. different environmental attributes) which can be compared or traded-off at one time is limited to about seven (Rowley G. and Wilson S. 1975). Because of this limitation the gaming method has usually been applied to specific problems, rather than to obtaining general environmental values. The method has not been used sufficiently for there to have been an accumulation of experience, or of results, in different environmental conditions. In the present context of obtaining research results for general use this approach is therefore of limited use.

3.5.5 Simulated Migration Behaviour - Locational Preferences

3.5.5.1 Two approaches which attempt to overcome some of the difficulties

of migration research (i.e. that only a small percentage of people move each year; that there are many constraints on choice of location, etc.) are dealt with here. The first approach looks at peoples' preferences between areas, or more strictly between their perceptions of the areas; and the second approach utilises pictures to represent environmental conditions between which the respondents are asked to choose.

3.5.5.2 Two surveys have concentrated on residents' perceptions of other areas, and their preferences between them. One study showed that areas which were more familiar to the respondent, and were therefore likely to be closer, were preferred (Johnston R.J., 1972). Areas which were perceived to be of high status were also favoured.

In the other study Couch related the relative preferences expressed for the areas to the differences in conditions and distance between the respondent's home area and other areas (Couch I.R., 1973). The mean preference scores for individuals in one area for the other seventeen areas in Couch's survey were then regressed upon ten physical variables. Four physical variables were included in the regression equation and accounted for 96% of the variance in mean preferences. The variables were: difference in distances from the areas to the city centre; distance between the two areas in question; the differences in proportion of council tenancies; and the differences in the percentage of dwellings having all basic amenities.

The importance of Couch's work is that it underlined the fact that environmental values are not absolutes, but are closely related to the existing environmental conditions. This has important implications when one is trying to apply the results of one study to a different situation.

3.5.5.3 The second approach involves the use of laboratory techniques in

order to remove the constraints of a) the limited number of moves made, and b) the differing perceptions of alternative locations. Both studies described here utilised photographs of the alternative locations or environments between which respondents had to choose (Wilson R.L., 1962; Peterson G.L., 1967).

Wilson asked respondents to evaluate several photographs along a number of environmental dimensions using rating scales. The respondents then had to rank the photographs in order of preference. He concluded that "Spaciousness" and "Beauty" were attributes which were of most concern, and that "Friendliness" and what he terms "Homeyness" were most associated with the preferred photographs.

Peterson assumed that the visual environment is made up of vectors of independent linear attributes. These attributes were scaled by respondents for a number of photographs, and preference scores given to each photograph. The attributes were found not to be independent, and hence a factor analysis was carried out. 95% of the variance in the preference scores was explained by the resulting four factors, 75% by the first two:

"Physical Quality"	(perceived age of dwelling and 'expansiveness' loaded higher on this factor)
"Harmony with Nature"	(greenery, open space etc.)
"Noise"	(i.e. unknown variables in the photographs)
"Quality of the Photographs"	

One major difficulty with this approach is that of controlling what is perceived in the photographs. The appearance of the quality of the photograph in the list of factors in Peterson's study emphasises this point. A further problem is that of making objective measurements of the environment represented by the photograph to which the perceptions could possibly be related.

3.5.6 This review of indirect methods has shown that it is more difficult to obtain general results from the indirect methods than from the direct methods. This is largely because of the variety of approaches used, resulting in very few closely comparable studies. No attempt was therefore made to draw up a table of combined results.

3.6 SUMMARY

3.6.1 This research review has sought to identify, from existing studies on the residential environment, what values residents hold with respect to the environment. The aim was to relate the results to the work of Wakefield District. However, it is apparent that it has not been possible to do this; apart from the differences in definitions and methodology between the studies there are three main reasons for this difficulty:

- a) the partial coverage in each of the studies. In the structured questionnaire studies, for example, the absence of an environmental aspect from the questionnaire prevents its consideration. This may not only reduce the amount of variation in an overall evaluation explained, but can also radically alter the apparent priorities of the other factors. Aspects of the social environment in particular have been ignored in many studies.
- b) the extreme multi-collinearity of environmental variables makes it difficult to separate out independent physical influences. The use of factor analysis to produce independent factors also leads to aggregate variables whose meaning in physical terms is not always clear. This is important to a local authority which is naturally having to deal to some extent with separate physical aspects of the environment.
- c) the areas used in the surveys have, with few exceptions, not covered the range and type of conditions experienced in Wakefield District (see 5.1). Three characteristics in particular have not been covered:

the inter-mixed rural and urban settlements of different sizes; the tenure bias towards council properties with significant proportions of National Coal Board properties; and finally the areas of mining and associated derelict land.

Therefore a very incomplete picture of residents' environmental values which could relate to Wakefield District was gained from the reviewed studies, pointing to the need for further work to be carried out within the District. Before discussing the form of any further work the research review can provide useful information for two further topics.

3.6.2 The first is the scope of the residential environment. It is useful to base the interpretation of the definition of the residential environment (2.2) on the research which has already been carried out, despite the limitations which have been noted. Table 3.5 lists the different variables which have been included as part of the residential environment in studies carried out up to 1973 (Cane S.T., 1973).

The main problem in trying to produce such a list is a semantic one: different studies use different nomenclature to describe the same or similar concepts. Such similar variables have been combined in the table (see table 9.1 for further details). This list then serves as a working definition of the scope of the residential environment; and its use and development is described in the next chapter (4.2).

3.6.3 The second topic on which the research review can throw some useful light is the nature of the variables which affect residents' environmental values.

The first factor is clearly the environmental conditions themselves. A small number of studies which have related attitudes to measures of the

Table 3.5 SCOPE OF THE RESIDENTIAL ENVIRONMENT

Variable identified in Research	Approximate number of studies in which variable is found
Basic Residential Quality	3
Dwelling Unit Quality	3
Clean Air	3
Appearance	8
Reputation	4
Quietness	10
Safe place to live	8
Spaciousness	3
Cleanliness	7
Car Parking	2
Privacy	3
Friendliness	11
Maintenance	5
Greenness	5
Good for children	6
Price	1
Non residential use	3
Crowdedness	3
View	1
Convenience to city, shops	11
schools	9
work	6
transport	10
parks	5
entertainment	6
Post Office	1

Source: Table 9.1 (Vol. II)

actual environment have been mentioned, but as yet the evidence has tended to be contradictory. The estate layout and types of block was not found to be significant in variations in peoples' attitudes in the Estate outside the Dwelling study (DOE, 1972a), but density and site plan were found to have an influence in Lansing, Marans and Zehner's study (Lansing J.B., Marans R.W. and Zehner R.B., 1970). In conditions of particularly high environmental deficiency or stress, values may be very influenced. The incidence of crime or vandalism has been found to be one of the main factors by which people judge an area if they come from an area where there is a crime or vandalism problem (Smith J.P., (1971); Kasl S. and Harburg E. (1972)).

The second factor which has been found to influence environmental values is the social characteristics of the residents. Although the evidence on the effects of social composition is conflicting, the results of the research review suggest that there is a need to take account of the following variables:

- a) previous residential experience (DOE 1972a; Architecture Research Unit 1967)
- b) household composition and age (Cane S.T. 1973)
- c) Socio-economic group (Vivirakis J. et al, 1972; Goodchild B., 1974)
- d) length of residence in area (Cane S.T., 1973)
- e) education (Troy P.N. 1972; Lansing J.B. and Marans R.W., 1969)

3.6.4 The review of research has shown that it is not possible to identify general values with respect to the residential environment which can be used directly in the development of environmental evaluation methods for Wakefield District. The main reasons have been the different assumptions and methodologies which have been used in the research, and the widely differing contexts of the reviewed research.

The review has, however, provided the basis for a specific study within the District. The scope of the residential environment has been defined on the basis of the previous research, and some of the influences on residents values, and hence on their responses to the environment, have been identified. In the following chapter the research methodology is developed, based largely on the empirical findings reported here.

Chapter 4

RESEARCH STRATEGY

4.1 INTRODUCTION

4.1.1 The previous chapter highlighted the problem of using existing research work in order to identify residents' environmental values, both at a general level and, more particularly, in the context of the requirements of Wakefield District.

In this chapter the conceptual framework of the research carried out for Wakefield District is briefly outlined, followed by a summary of the assumptions made, the hypotheses developed and finally the research design itself. The object of the chapter is to make it possible to understand the major conclusions and implications of the research without having to refer excessively to the full discussion of the research strategy in Volume II (Chapter 9).

4.1.2 In the light of what was learnt from the research review it was possible to see more clearly the research requirements posed by the policy issues facing Wakefield. In discussion with the sponsors a series of four general questions had been posed (2.7.1), and these were rephrased into the following five questions (Cane S.T., 1974).

- a) How does a resident's satisfaction with the residential environment relate to the physical (and measurable non-physical) attributes of that environment?
- b) What relative priorities are placed by residents upon the different elements of their immediate environment, and how do these priorities vary?
- c) Do common priorities exist among identifiable groups in the population,

which can serve as a basis for deciding improvement priorities?

- d) Can environmental standards be derived from the data?
- e) Is the social survey useful as a tool for decision making, given that the survey data may be of low scale status?

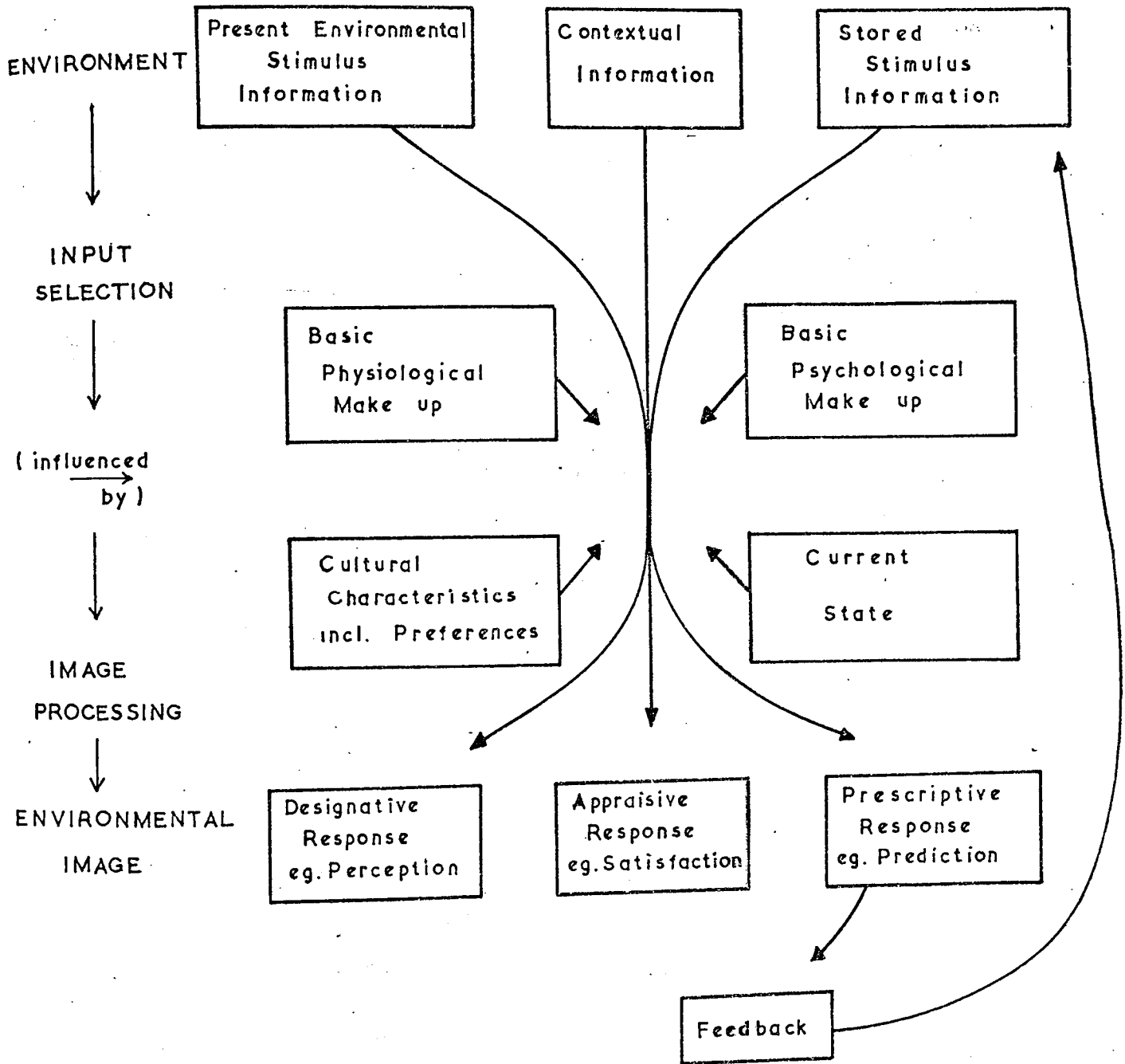
4.1.3 The following section discusses the conceptual framework of the research and outlines the development of the hypotheses from the five research questions above.

4.2 RESEARCH MODEL

4.2.1 The research is based upon the model of perception developed by Warr and Knapper and adapted by Pocock. (Warr P. and Knapper C., 1968; Pocock D.C.D., 1973). It is shown diagrammatically in figure 4.1.

4.2.2 According to the model the residential environment provides a large number of stimuli (visual, aural etc.) which the individual receives as an 'input', along with stored information of previous inputs (i.e. past perceptions) and information about the context in which the environment is being 'perceived' (e.g. the social or behavioural context of the individual). This combined input is 'filtered' and 'processed' by the individual; these processes depending upon the individual's physiological, psychological and cultural characteristics and their present state or mood (Pocock D.C.D., 1973). The output of the perception process, that is the 'perceived environment', is not just a simplified image of reality, but is a 'processed' and possibly a considerably distorted image (Koffka K., 1935; de Jonge D. 1962 ; Ackoff R.L. and Emery F., 1972). The output of the perception process has been assumed to have three aspects (Earvey D. 1969; Pocock D.C.D., 1973), and as shown in figure 4.1 these represent the "What-ness", the "like-dislike" and the "predictive" aspects of the image.

FIGURE 4.1 THE PERCEPTION PROCESS



after POCOCK D.C.D (1973)

4.2.3 It was assumed that these three characteristics of the environmental image relate to the stored image of the environment which is made up of a number of different dimensions, or constructs, e.g. noise, attractiveness, privacy (Peterson G.L., 1967; Troy P.N., 1972; Kelly G.A., 1970). In other words for each dimension of the environment, say for privacy, an individual's perception has a designative element (identifying the dimension - privacy, and the amount of privacy); an appraisive element (liking or disliking the amount of privacy); and a prescriptive or expectancy element (e.g. a reaction to the privacy which will affect future perceptions). Although it would have been possible to identify the nature and identity of the dimensions, for example using group discussions or some form of repertory grid technique (Kelly G.A., 1970), it was decided in view of the time and resources available for the study to assume them from the review of literature carried out (Table 3.5).

4.2.4 In the development of the hypotheses the following definitions of the terms in the model were used.

- a) Perception of a dimension of the environment was defined as the designative output of the perception process (see 4.3.3.3 for how this was measured).
- b) Satisfaction with a dimension of the environment was defined as the appraisive output of the perception process, and is the result of the comparison an individual makes between what he perceives (designative output) and what he expects (Canter D., 1973).
- c) Preferences for the dimensions of the environment were defined as the ordinal verbal priorities expressed by individuals with respect to the dimensions of the residential environment. Preferences can be regarded as part of the cultural characteristics (figure 4.1) of the individual which affect the perception process, and a reflection of an individual's

environmental values. (See 4.3.3.4 for measurement of preferences.)

4.2.5 A further part of the model which requires explanation is that which relates the satisfactions which an individual expresses with a specific dimension of the residential environment to the satisfaction expressed with the residential environment as a whole (9.2.3). The model of satisfaction, based on work by Peterson and others (Peterson G.L., 1967; Troy P.M., 1972) states that the overall satisfaction expressed is a function of the satisfactions expressed for each separate dimension of the residential environment. The contribution which each separate satisfaction makes to the overall satisfaction is a further measure of an individual's environmental values.

4.2.6 The model which has been outlined above provides a method of relating the attributes of the residential environment to the responses which individual's have to the environment. The research questions given above (4.1.2) were framed into the following hypotheses:

- a) Different individuals express different satisfactions with the common dimensions of the environment.
- b) The satisfactions expressed are dependant upon the environmental conditions and the characteristics of the individual.
- c) When the environmental conditions are controlled, individuals may be grouped on the basis of their common expressions of satisfaction.
- d) An individual's overall satisfaction with the residential environment is a function of his satisfaction with each of the separate dimensions of the residential environment.
- e) Individuals have different preferences between the environmental dimensions.
- f) Individuals may be grouped on the basis of their preferences.

g) Individuals' stated preferences for different dimensions of the environment can be related to the contribution which their satisfactions with the separate dimensions of the environment make to their overall satisfaction with the residential environment.

4.2.7 It will be noted that the hypotheses make no reference to an individual's perceptions. This is because an initial data analysis of the survey (see 10.4.3) showed that in most cases it was not possible to find a significant difference between the measures of perception and of satisfaction for a dimension. The reasons for this are fully discussed in section 10.4. The original research hypotheses (9.3) were thus revised using only one set of measures of the perception output.

4.3 RESEARCH DESIGN

4.3.1 In the light of the findings of the research review, and of the resources available to the study it was decided to adopt a social survey approach to the measurement of the variables in the above research model. The total number of interviews which could be handled was felt to be in the order of 300, which, assuming a response rate of around 75%, meant that a sample population of 400 had to be selected (9.4).

4.3.2 Sample Choice

4.3.2.1 In order to test the hypotheses developed from the model it was necessary to select a population experiencing different environmental conditions, and also with varying social characteristics. It was originally intended to select a discrete number of areas with relatively homogenous conditions within each area, and to match a number of respondents living in each area with one extensive set of physical variables. At the pilot stage (9.5) it was realised that respondents were reacting to environmental variables which related to the immediate area around the dwelling, and which at the same time varied considerably within the areas. It was

therefore decided to match each respondent with a separate set of environmental variables which related to his/her 'micro' environment.

4.3.2.2 The approach of grouping the sample into a number of case-study areas was, however, retained for two reasons:

- a) the case study areas provided a convenient method of sampling the environmental conditions (variations between the areas were still likely to be greater than variations within the areas).
- b) the task of interviewing was simplified by grouping the respondents.

4.3.2.3 Twelve small case-study areas within Wakefield District were selected from a list of twenty areas suggested by the Planning Department. The criteria for the selection of the case-study areas were as follows:

- a) The areas between them had to exhibit as wide a range of environmental conditions as possible. The predominant age and type of dwelling in the areas was used as an indicator for selection.
- b) The areas between them had to contain a range of residents with different social characteristics. Tenure was used as a crude indicator of this.
- c) At the request of the District the areas had to be located in different parts of the authority. This enabled the location variables (e.g. distance from a main centre) to be sampled.
- d) Priority was given to areas which had some environmental problems. In effect this resulted in the exclusion of high cost private developments (at the expense of the first two criteria).

The selected areas are described in detail in the next chapter (5.2).

4.3.3 Measurement

4.3.3.1 Three types of variables in the research model had to be measured: the experimental variables (i.e. the environmental characteristics); the

dependant variables (i.e. the residents' responses); and the uncontrolled variables (e.g. characteristics of the respondents). The measurement of each category of variable is dealt with in turn.

4.3.3.2 The Experimental Variables

The experimental variables, that is the characteristics of the environment, give rise to a basic measurement problem. This is the conflict between the complexity of the residential environment and the need for a limited number of simple survey measures which could be operated within the constraints of time and expertise available. The number of variables was limited by two factors:

- a) the capacity of the statistical analysis package used and
- b) the time required for measurement in the field.

This latter factor became more critical after the decision had been made to match each respondent with a set of environmental measures. A limit of 50-60 variables was therefore set initially.

The criteria for the selection of the measures were:

- a) the variables had to have an established or hypothesised relationship with the perceived dimensions of the residential environment. The initial choice was made on the basis of the relationships found in the review of research.
- b) the measures had to be as 'objective' as possible; that is subject to the minimum of observer variation. Although all the physical measures in this study were made by the author this condition was important if the results were to have any general validity.
- c) the measures had to be as simple as possible, and preferably require the minimum of specialist knowledge. The pilot survey gave an opportunity to test the measures against this criterion, resulting in a number of scaled variables being altered to simple categorised variables (9.6.2).

- d) the measures should be reasonably typical of those which were in current use in planning departments. The work which the West Riding Research Group had already carried out was used as a convenient starting point (2.5.1).

Of the 54 independent variables finally included (Appendix A, Volume II) twenty two were categorised measures of the residential environment (e.g. type of dwellings, road, view, etc.); twelve were numerical measures of some kind (e.g. width of road, number of dwellings within a given area, frequency of buses etc.) and two were subjective measures of dwelling quality and upkeep (9.6.2). In addition the distances to fourteen types of facilities in the locality were measured (e.g. nearest primary school, park, industry etc.); and five variables were taken from the 1971 census for the enumeration district in which the respondent lived (e.g. tenure, car ownership etc.)

4.3.3.3 The Dependant Variables

There were three main measures of the individuals' responses to the residential environment: perception and satisfaction with the separate environmental dimensions (later combined - 10.4.3); and overall satisfaction with the residential environment. Before dealing with each of these measures two important general points about the use of questionnaires need to be made:

- a) The first point is the problem of specifying the concept or attribute to which the respondent is gauging his response. In this study the definition of the environmental dimensions was obviously most critical. It is virtually impossible to achieve the ideal of ensuring that all respondents are reacting to the same stimulus, even in the laboratory. In a questionnaire survey one is relying upon symbols (words in this case) which are chosen to represent the desired signals or stimuli

occurring in the environment (Harvey D., 1969). Unfortunately these symbols may not be interpreted in the same way by all respondents; a word may have a different meaning in different contexts, dialects or with different emphases. The most important way of reducing the amount of misinterpretation in the questionnaire is by careful selection of the wording (in this case from the research reviewed earlier), followed by pilot work. The wording was therefore tested in a pilot survey, and several alterations or additional explanations agreed upon with the interviewers (9.5).

- b) the second point is the problem of measurement (9.6.3). Assuming first of all that the respondents have some concept or idea of measurement or scales in their minds with respect to the environmental dimensions the problem is one of externalising or reproducing these measures as accurately as possible. It was felt that it would be too optimistic to expect very high order data from doorstep interviews without a considerable additional effort being made in scaling the responses (Torgerson, 1958). The methods of achieving ratio or even interval data were felt to be too complex and time consuming and hence likely to result in a reduction of the size of sample which could be handled. Gaming approaches, although conceptually attractive, were rejected mainly because of the limitations on the number of dimensions which could be considered by using the method (8.5.5).

Therefore the assumption was made that the responses to the questionnaire were of ordinal status only. This is an important assumption because although much survey data obtained by local authorities by interviews surveys has equally low data status it is often analysed without regard to this fact. The assumption of ordinal data for the response variables has led to the extensive use of non-parametric statistics in the analysis.

The measurement techniques for each of the categories of responses (taking the perception and satisfaction responses together) are dealt with in turn.

4.3.3.3.1 The Measurement of Satisfaction and Perception

As a result of the testing at the pilot stage (9.6.3) a numbered scale descending from 7 (e.g. very satisfied) to 1 (e.g. very unsatisfied) was chosen as the measurement instrument. Each intermediate scale position was also labelled (see respondents' sheets, Appendix D, Volume II). Note that the numbers on the scales were only assumed to have ordinal properties.

Experience in the pilot surveys suggested that it was the labels rather than the numbers (or their order) which the respondents 'searched' for and used in judging their satisfactions. The wording of the labels, as well as the numbering of the scales, was thus critical to the assumed ordinal scale properties.

Including the separate aspects of convenience a total of 25 different dimensions of the environment were identified from the research review (see 9.6.1). As the pre-selection of the dimensions could have led to important aspects being missed (e.g. employment) an open-ended question on likes and dislikes of the areas was included to provide a check on the scope of the dimensions included. In addition the pilot survey was used as a first check on the dimensions (9.5).

The general wording of the questions (see Appendix D) was "How clean or dirty is your neighbourhood?" (Cleaness), and it was assumed that the responses to these questions corresponded to the appraisive output of perception in the research model discussed above (4.2).

4.3.3.3.2 The Measurement of Overall Satisfaction

Overall satisfaction with the residential environment was measured using a similar seven-point scale to those used in the measurement of the satisfactions with the separate dimensions of the environment. The question was placed at the end of the series of questions on the separate environmental dimensions, by which time, it was felt, the respondent would have a clear idea of the scope of the term "residential environment".

4.3.3.4 The Uncontrolled Variables

It was assumed, on the basis of the model, that there were four main variables which, apart from the environmental stimuli themselves, could influence the perception process and hence the resulting satisfaction responses. These were the psychological and physiological characteristics, of the individual; the cultural characteristics, and finally the 'current state' of the individual (4.2). It was clearly not possible to measure or control all these factors in research of this size, even if the measurement techniques were available. The range of variables which were included in the questionnaire was reduced by:

- a) assuming that the variations in physiological make up were random and not significant. Extreme cases (e.g. blindness or deafness) selected in the sample were not interviewed.
- b) assuming that the variations in the psychological make-up of the respondents were random, and not significant. The one mentally retarded person selected in the sample was not interviewed.
- c) controlling as much as possible the current state of the individual.

Attempts were made in the pre-interviewing discussions with the interviewers to standardise the ways of asking the questions (the questions themselves were identical of course), so that to the best of the interviewers ability all the respondents were subjected to the same style of interview. However, it was recognised that it was possible for an interviewer to influence the responses inadvertently (Lemon N., 1973),

and as a check the interviewer's identity was recorded for each respondent for later analysis.

The remaining factors which may influence the satisfactions expressed were termed the 'cultural' characteristics of the individual, namely the individual's social class, education, age etc. Twelve variables were included in the questionnaire in order to be able to control for the cultural characteristics.

Respondents' preferences were also included amongst the cultural characteristics (4.2.4), and were defined as the ordinal verbal priorities expressed by the individuals. This concept was operationalised in the questionnaire as follows: Each respondent was shown a list of fifteen main environmental dimensions (Convenience being treated as a single dimension for this question) and was asked to state the order of importance of the five most important dimensions to them.

In addition the respondent's 'environmental experience' was measured by obtaining information about the respondent's use of local facilities (e.g. frequency and location of shopping trips), and their length of residence in the area.

4.3.4 The Structure of the Questionnaire

The measurement techniques used for the different variables in the research model have been discussed, and it remains to mention the order and position of the sets of questions in the questionnaire. The design and revision of the questionnaire is discussed more fully in chapter 9 (Volume II), but the general layout was as follows:

- a) Questions 1-4 (see Main Questionnaire, Appendix D) formed a general introduction into the topic, and included questions on the length of residence, and the respondents likes and dislikes of their neighbour-

hoods. Apart from the information thus gained these questions enabled the interviewers to establish a rapport with the respondents. It was also important to ask the open questions before the respondents were 'directed' by the later specific questions.

- b) Questions 5-7 dealt with the convenience to local facilities. The questions about convenience were asked first because the concept of convenience was felt to be relatively simple and widely understood. More attention could thus be given to explaining the scales to the respondents. Respondents were also asked to rate the overall convenience of their location, and their satisfaction with that level of convenience.
- c) Questions 8.1-9 asked for respondents' perceptions of and satisfactions with separate dimensions of the residential environment. An overall measure of satisfaction was also obtained.
- d) Question 10 was the question in which the respondents preferences between the 15 dimensions were requested.
- e) Questions 11-21 asked the respondents for more personal details, e.g. age, income, employment etc. These questions were left until the end of the questionnaire to enable the interviewers to have built up a rapport with the respondents, and to have dispelled any suspicions which may otherwise have reduced the responses to the personal questions.
- f) At the request of the sponsoring authority a set of questions (22-27) were included asking about the respondents' dwellings and future housing intentions. The analysis of the responses to this latter section are not reported in the thesis as they have already been reported separately (Cane S.T., 1975).

4.3.5 The Sample Frame

The electoral register was used as the sampling frame within each of

the twelve case-study areas. The reason the register was used, rather than sampling the dwelling units, was that it was felt that a better social balance would be achieved in this way. A disadvantage often experienced when the dwelling units are sampled is that housewives have predominated among the respondents. It was thought that this particular bias could be avoided, particularly if interviewing were extended or even concentrated in the non-working hours. This was in fact largely successful (see 6.2).

Given a target sample size of approximately 400, and 12 case-study areas, it was initially decided to select 40 respondents in each area. However in some of the smaller case-study areas (e.g. Thornes, Glasshoughton and Streethouse - see 5.2) a sample of 40 entailed a call on almost every other dwelling, and consequently the sample size in these areas was reduced to 25-30. Note that as the research design had been modified so that each respondent was matched with a separate set of environmental measures a constant sampling fraction within each of the areas was not necessary.

4.3.6 The Survey

The survey was carried out during July and early August 1974. Two interviewers were employed, and, with the author, carried out the interviewing in each case-study areas in turn. No one interviewer was allowed to conduct a majority of interviews in any area in order to reduce any effect of interviewer bias. Attempts were made to contact persons in the sample at least three times, at different times and on different days of the week, before the interview was abandoned.

The physical measures were made in September 1974, after the exact membership of the interviewed sample had been established. Photographs of all the areas were taken at the same time.

This chapter has provided a brief summary of the conceptual framework and design of the research in order to make the discussion of the results more meaningful and to avoid the need for excessive reference to the full discussion in Volume II.

To complete the background to the research it is necessary to describe the nature of area in which the research was carried out. Chapter 5 thus examines the general characteristics of the case-study areas and sets them within the general context of Wakefield Districts as a whole.

WAKEFIELD DISTRICT AND THE CASE-STUDY AREAS

5.1 WAKEFIELD DISTRICT

5.1.1 Location

Wakefield Metropolitan District is located along the northern fringe of the Yorkshire Coalfield, forming a zone of transition between the industrial areas of the Pennines (Huddersfield, Halifax, etc.) to the west and the predominantly rural plains extending towards Humberside to the east (Fig 5.1). The District can also be regarded as transitional between the Leeds conurbation to the north, and the mixed rural and mining area around Barnsley in the south.

5.1.2 Population

In 1971 the total population of Wakefield District was just under 300,000, of which the City of Wakefield itself accounted for 56,000 (City of Wakefield Metropolitan District Council 1974c). To the east of the city the District includes the so called "Five Towns Area", comprising the towns of Pontefract, Normanton, Featherstone, Castleford and Knottingly which all had populations of between 15,000 and 38,000 in 1971. The population density falls off in the southern part of the District, particularly in the former Wakefield Rural District south of the City. A number of isolated mining settlements and towns in the south-eastern sector of the District (e.g. Hemsworth, Fitzwilliam and Elmsall) raises the population density towards the southern boundary of the Districts.

Recent trends in the population change have shown an overall growth of population in the District from 1961-1971, at a rate slightly above the national average (Table 5.1). This is a change from the position between 1951-1961 when the growth rate was half that of the national average.

FIGURE 5.1

LOCATION OF WAKEFIELD DISTRICT

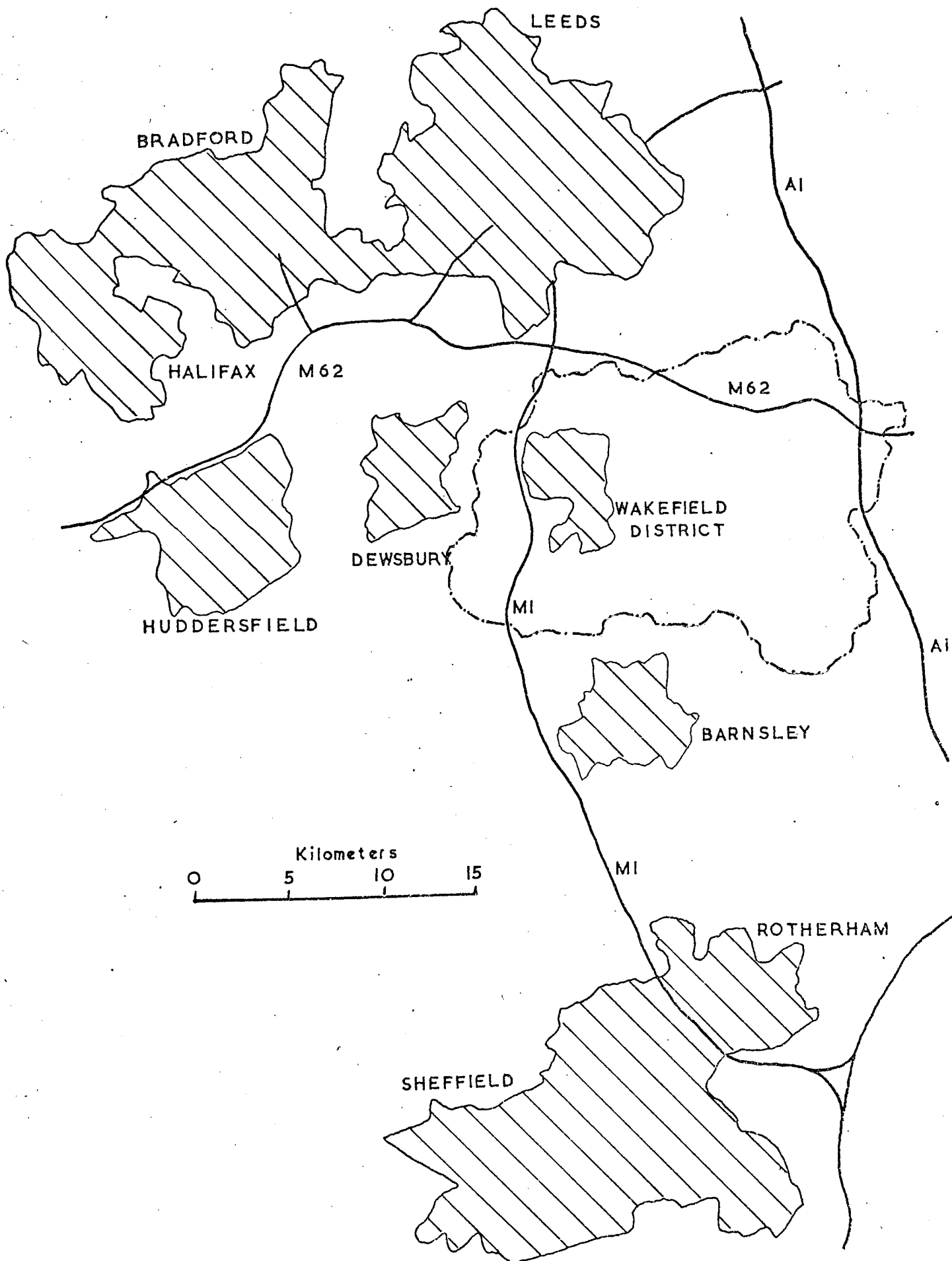


Table 5.1 Population Change in Selected Areas in Wakefield District



Aston University

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Source: City of Wakefield Metropolitan District Council (1974e)

The District totals mask a number of areas of marked growth and decline within the District. The reasons for these changes are closely linked to the economic development of the area, particularly the decline of mining (see 5.1.3); the increased urban influence of Leeds; and constraints on residential development (Harrison E., 1974). The two main changes have been the growth of Knottingly, mainly as a result of the opening of a new pit (Kellingly) in the 60's; and the decline in population of Castleford as a result of clearance activities in the town and the lack of suitable land for new developments.

5.1.3 Economy

Coal mining has traditionally dominated the employment of the area, with 20% of the employed population in the District still directly employed in the mining industry (60% in the Normanton and Hemsworth/South Kirby areas). The major feature of the mining industry has been the steady decline in persons employed since the war. Between 1962 and 1973 over 13,000

coal mining jobs were lost in the District, a drop of 43% (City of Wakefield Metropolitan District Council; 1974c). During this period one new pit was sunk, at Kellingly, employing over 1,500 men, a development which as mentioned has had a marked effect on the growth of Knottingly.

Mechanical engineering, the second most important industry in the District, has traditionally been based on mining, but has obviously had to diversify in order to survive. The textile industry, third in importance, has also been in a state of decline, but remains an important source of female employment.

Service industries are generally under-represented in the area, and serve essentially only a local population and industry. Wakefield City, as a centre for administration, distribution, construction and transport for a wider area, is an exception.

New industrial developments in the District, apart from the new mine, have in many cases been linked with trading estates or factories set up on reclaimed colliery tips (e.g. Whitwood near Normanton, and Featherstone).

The employment structure for the District as a whole reflects this industrial structure, and shows marked differences from national averages (Table 5.2). The District has a significantly higher proportion of skilled manual workers (the influence mainly of mining), and has a small proportion of persons in all other groups, particularly in the non-manual sector (reflecting the small service industry sector), and the employer and management sectors.

5.14 Housing

The major distinguishing characteristic of the housing stock in

Table 5.2 Employment

Employment Group	Wakefield District [✕] 1971	UK ⁺ 1971
Professional	2.5	4.0
Employers and Managers	8.2	14.6
Intermediate and Junior Non-Manual	11.8	20.0
Skilled Manual & Own-account Non-professional	43.9	33.4
Semi-skilled Manual & Personal Service	13.1	19.5
Unskilled Manual	5.8	6.6

Sources: ✕ City of Wakefield Metropolitan District Council (1974c)

 + General Household Survey, HMSO (1973)

Wakefield District is the large proportion of council property (Table 5.3). In 1971 43% of households in the District rented from the council (28% nationally) compared with 40% who owned their homes. The private rented (unfurnished) sector is similar in size to the national average, but in character it is fundamentally different, being largely properties owned by the National Coal Board. In terms of housing stock and management the National Coal Board estates resemble the council sector (see also descriptions of case-study areas), although the proportion of pre-1919 dwellings owned by the National Coal Board is higher.

In terms of dwelling age and provision of basic amenities the housing stock of Wakefield District is slightly better than the UK average (Table 5.4). 30% of the dwellings in the District were built before 1919, a smaller proportion than the U.K. as a whole (31-36%), and considerably

Table 5.3 Housing Tenure

Tenure Category	Households %	
	Wakefield District 1971	UK 1971
Owner Occupied	40.0	50.2
Local Authority	43.0	28.0
Private Rented (Unfurnished)	16.0	16.9
Private Rented (Furnished)	0.3	4.6

Source: City of Wakefield Metropolitan District Council (1974d)

Table 5.4 Housing Facilities

Facilities	% of Households	
	Wakefield District 1971	UK 1971
Exclusive use of all 3 basic amenities	86	82.1
No hot water	3	6.4
No fixed bath or shower	7	8.7
No internal W.C.	12	12.0

Source: City of Wakefield Metropolitan District Council (1974d)

smaller than the proportion for West Yorkshire (40%). 86% of households in the District had the use of all 3 basic amenities, compared with the national average of 82.1% in 1971. 2% of the total housing stock was classified as unfit in 1972 (City of Wakefield Metropolitan District Council, 1974d); this proportion rising to 3.5% in the Northern Division of the District (Five Towns Area).

Overcrowding affected a slightly lower proportion of households in the District compared with the U.K., 1.2% of households were living at a density of over $1\frac{1}{2}$ persons per room in 1971, the national figure being 1.4%.

The present concentration of residential development is in the vicinity of Wakefield (related to Wakefield's growth as a service centre, and possibly as a dormitory area for Leeds), and in the Knottingly-Pontefract area (linked partly with the new Kellingly pit). The limits to residential development in some areas through mining subsidence and the sewage disposal capacity (in the case of Castleford) has further influenced this recent pattern of developments (Harrison E., 1974).

5.1.5 Environment

The Wakefield area has had a poor reputation for air and river pollution, and for derelict land. The origins of the pollution, and the actions being taken to improve the situation differ, and will be dealt with in turn.

a) Air Pollution

The three main sources of air pollution in the District have been identified as: domestic smoke, coke oven discharges, and power station dust (Carrol J. et al, 1963). The coke ovens, of which there remains one installation in the District (at Glasshoughton), and the power stations

produce intensified local pollution. Domestic smoke is a more widespread problem which is exacerbated by the resistance of the coal miner's lobby to the introduction of clean air zones, and the replacement of concessionary coal with other fuels or subsidies (Wall G., 1973). In the District as a whole 31% of premises were covered by smoke control orders in 1972, but in the towns of Featherstone, Normanton and Castleford the percentages were 0, 2 and 3 respectively (Yorkshire and Humberside Economic Planning Council; 1974). In 1969 Castleford had the dubious distinction of being the second most polluted town in the country (Carrol J. et al, 1973).

b) Water Pollution

The two main rivers in the District, the Aire and the Calder, are estimated to have effluent forming 50-75% of their total flow (Carrol J. et al, 1973). The main problem is that of foam arising from the detergents used in the textile industries to the west of the District. Therefore the improvement of the rivers remains largely outside the control of the District.

c) Derelict land

Derelict land in Wakefield District is almost entirely associated with the coal mining industry, especially the abandoned spoil tips and open cast workings. The problem of derelict land is concentrated to some extent in the Five Towns areas. It is estimated for example that about a quarter of the area of Castleford is spoiled land in some form; in Featherstone the total residential area is only four times the area of the surface mineral workings (Carrol J. et al, 1973).

The effect of the derelict land which exists in the southern part of the District is somewhat ameliorated by the large proportion of rural landscape surrounding the collieries.

A certain amount of reclamation has already taken place in the District. One of the original programmes of reclamation was associated with the construction of the M1 motorway through the area. Government grants have also been used to clear old tips for the provision of industrial development zones (e.g. at Whitwood, and Featherstone). Former colliery waste is currently being used for brick making at Featherstone and Glasshoughton, resulting in the gradual removal of the waste. The main open cast working in the District, near Streethouse, Featherstone, is being progressively levelled and landscaped as the working is extended, but equivalent action is not being taken at the other active collieries where the extension of derelict land is continuing.

5.2 THE CASE STUDY AREAS

It will be recalled that 12 case-study areas were selected as a form of sampling for the environmental conditions (4.3.2). As the areas will be referred to extensively in the next chapter, and in the second volume, it is necessary to describe the areas briefly. The descriptions of the areas have been based largely on the physical measurements which were made for each respondent (9.6.2), and the main characteristics of each area are given in table 5.5 in which the areas have been grouped according to the predominant tenure type in the area. The locations of the areas are shown in Figure 5.2. It will be noted that some areas contained two distinct parts (the original requirement for internal homogeneity having been dropped), and these parts are given separately in the table, although the following descriptions treat the parts of the areas together.

5.2.1 Eastmoor (Completed Sample size 31; Figure 5.3)

This case study area comprises most of the large council estate of the same name which lies in the north-eastern sector of Wakefield at a

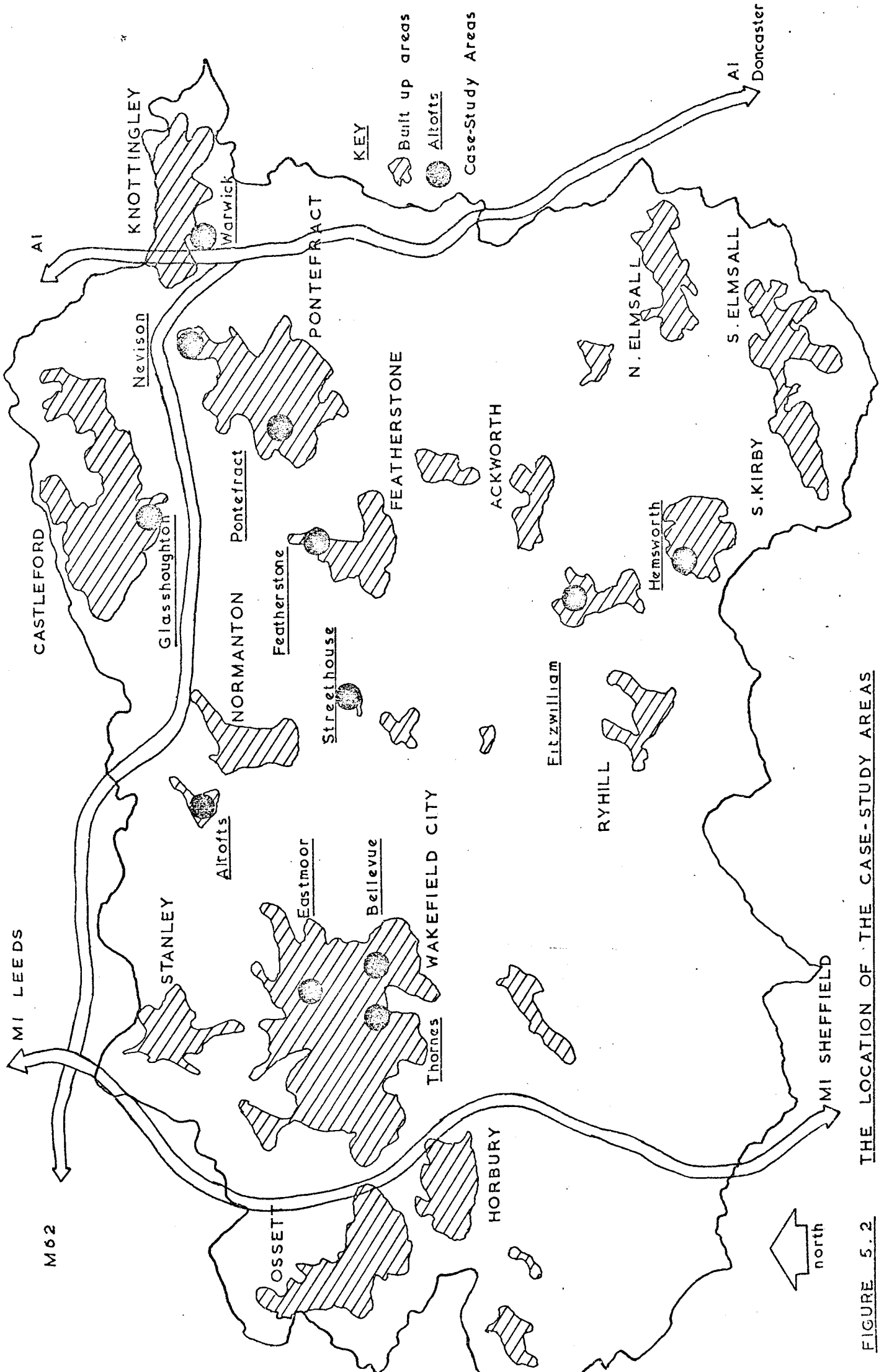


FIGURE 5.2 THE LOCATION OF THE CASE-STUDY AREAS

Table 5.5 The Case Study Areas

Tenure	Area Name	Main Characteristics of House and Location
Council	EASTFOOR	Large inter & post war estate; semi-detached dwellings mostly; EE part of Wakefield City
	STREETHOUSE	Isolated inter & post war estate near colliery; terraced & semi-detached dwellings
	FITZWILLIAM (WEST)	Small inter war 'garden suburb' estate in mining settlement; semi-detached dwellings
	HENSWORTH (WEST)	Small inter war estate on edge of town; semi-detached dwellings
	BILLEVEE (COUNCIL)	Small areas of inter-war semi-detached plus scattered blocks of 3 storey flats, and some maisonettes; S. of Wakefield City centre
	WARWICK	Large post-war estate; open plan layout; on outskirts of Knottingly; terraced dwellings
F.C.B.	FITZWILLIAM (EAST)	Pre 1919 terraces; alongside disused colliery
	NEVISON (WEST)	Isolated post war estate on fringe of Pontefract; semi-detached (pre-fabricated) dwellings
OWNER OCCUPIER	NEVISON (EAST)	Small inter-war 'garden suburb' private estate; on frange of Knottingly alongside FCB estate; semi-detached dwellings
	FEATHERSTONE (WEST)	Post 1960 development of detached, semi-detached and bungalows; infill site alongside colliery
MIXED	GLASSHOUGHNEE	Pre 1919 terraced area between colliery & coking plant; FCB, owner-occupied & furnished tenancies
	WICKNES	Close to Wakefield City centre, pre 1919 terraces, plus later infill.

Table 5.5 The Case Study Areas Continued

Tenure	Area Name	Main Characteristics of House and Location
MIXED	ALFOFTS	Outlier of Normanton; mainly semi-detached & detached; owners-occupier & council, also pre-1919 terraces
	FEATHERSTONE (EAST)	Pre-1919 terraces & inter war semi-detached; owner-occupied & unfurnished tenancies
	HEMSWORTH (EAST)	Pre-1919 terraced area close to Hemsworth centre; owner occupied & unfurnished tenancies
	BELLEVUE (WEST)	Pre-1919 terraced area, partly cleared, near Wakefield centre, problems of traffic and dereliction

distance ranging from 1 to $2\frac{1}{2}$ km from the city centre. The part of the estate nearest the city centre was developed before 1939, the remainder being completed in the 1950s. The majority of the dwellings are semi-detached brick buildings, with gardens at the front and back. A small number of 2 storey flats, mainly housing elderly persons, are also to be found. The older dwellings on the estate have recently been improved by the council.

The appearance of the whole estate typifies inter war council estates, with narrow curving roads (lined with verges and trees in the earlier part, Plate 5.1), limited off-street parking facilities (Plate 5.2), and the predominance of hedges. The estate is provided with both secondary and primary schools; a small shopping centre and a bus service linking the estate to the city centre. Although most parts of the estate are within 200 metres of a bus stop the service along some of the routes is not frequent (i.e. less than once every half an hour). Car ownership, according to the 1971 census, was relatively low with 29% of households owning cars.

The southern part of the estate overlooks the city centre and the industries which straddle the river Calder; whilst a colliery, which borders the eastern side of the estate, is only visible from the eastern fringe of the estate. (Plate 5.3).

5.2.2. Streethouse (Completed Sample size 18; Figure 5.4)

The Streethouse case-study area comprises the whole of an isolated council estate on the western edge of Featherstone, near Sharlston. It was developed from the 1920s up to the mid 1950s and although it includes some terraced cottage dwellings is primarily made up of semi-detached dwellings. Despite the presence of hedges and verges in that part of the estate with semi-detached dwellings the estate does not give the visitor

FIGURE 5.3 EASTMOOR

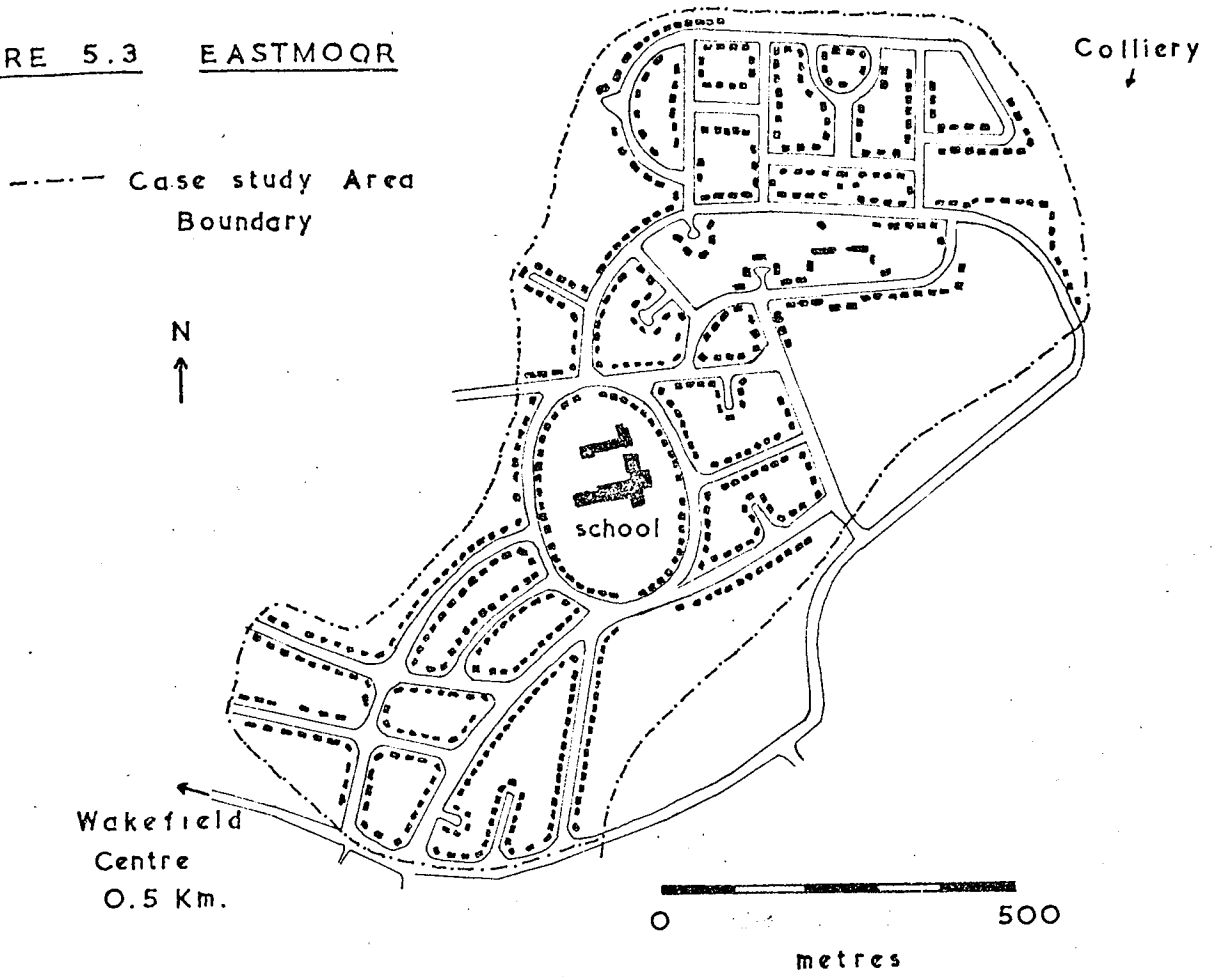


FIGURE 5.4 STREETHOUSE

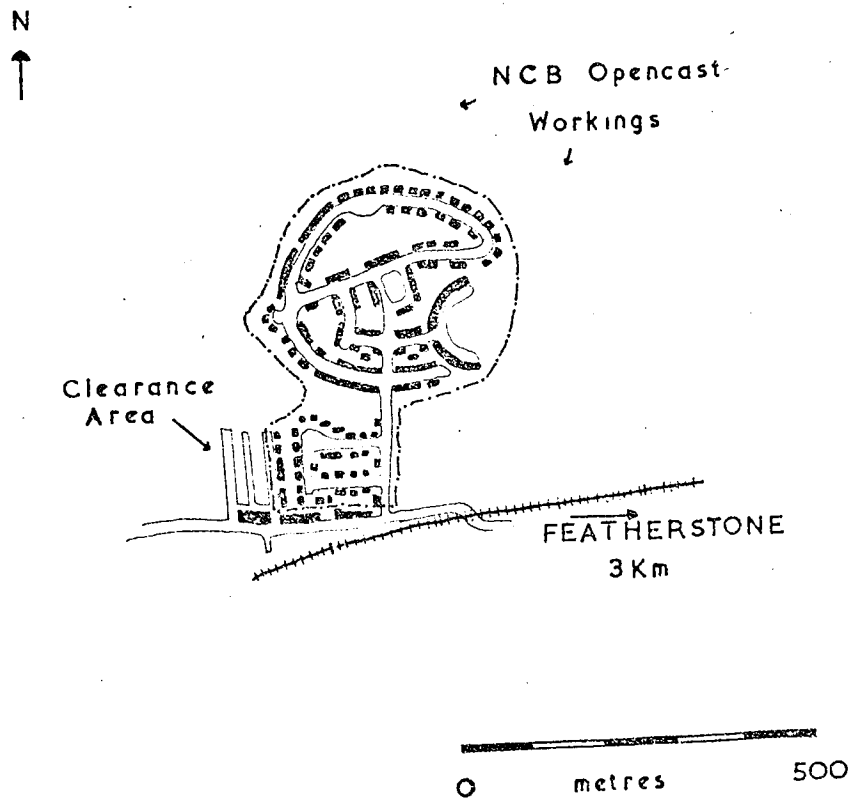




PLATE 5.1 EASTMOOR

The inter-war section of the estate: note the number of trees and the presence of verges and hedges.

PLATE 5.2 EASTMOOR

A later part of the estate, illustrating the use of verges for parking, and fewer trees.



PLATE 5.3 EASTMOOR

Parts of the estate back directly onto a colliery and colliery sidings.



the impression of being as 'green', for example, as Eastmoor.

A number of old terraced dwellings in the south-west part of the case study area had recently been demolished (Plate 5.5). This derelict area and the extensive NCB open cast mining operations taking place all around the northern fringe of the estate served to intensify the impression of isolation of the estate.

The area is served by a small number of general stores, but has no other shopping facilities. Such facilities (e.g. chemist and Post Office) are to be found in Featherstone, 3-4 km to the east. There is a regular bus service from the southernmost edge of the estate to Featherstone which operates every 15-20 minutes during the day.

Car ownership rates on the estate were low in 1971, only 20% of households having cars. It is therefore not surprising that there was a lack of off-street parking facilities.

5.2.3 Fitzwilliam (Completed Sample size 28; Figure 5.5)

Fitzwilliam lies $2\frac{1}{2}$ to $3\frac{1}{2}$ km north of Hemsworth; the study area being that part of the settlement of Fitzwilliam which lies to the north of the railway line. The colliery, coke works, and railway station, the original economic bases of the settlement, have all been closed; leaving a problem of employment in the area.

Two distinct parts of the case study area can be distinguished. To the north west (Fitzwilliam-West) is a small inter war council estate of 'garden suburb' appearance. This impression is given by the layout of roads (generally narrow - and mostly cul-de-sacs) associated with the predominance of hedges and trees surrounding the semi-detached dwellings (Plate 5.6). The dwellings were in the process of being improved at the



PLATE 5.4 STREETHOUSE

Delivery of miner's
concessionary coal in
a post-war section of
the estate.

PLATE 5.5 STREETHOUSE

The view towards the
estate from the area
of recently demolished
terraces.



PLATE 5.6 FITZWILLIAM
(WEST)

This council estate is
laid out on garden-
suburb lines.

time of the survey. A primary school is located in this part of the area.

The other section of the case-study area (Fitzwilliam-East) comprises a National Coal Board estate of pre 1919 terraced dwellings. The layout of the estate is simply a number of parallel terraces which front either onto a road (Plate 5.7) or onto an overgrown expanse of grass of uncertain ownership (possibly formerly allotments) (Plate 5.8). The dwellings have small back gardens and rear service alleys (Plate 5.9). Two sides of this part of the case-study area are bordered by the derelict colliery buildings and spoil tip. The latter is slowly being reclaimed, and a golf course is planned for the area.

Both sections of the area contain general shops, and the main road which links the two parts has additional shops, including a chemist. Other facilities (e.g. larger shops, upper schools and a park) are located in Hemsworth. Buses run towards Hemsworth every 15-20 minutes during the day. Car ownership on the NCB estate was low in 1971 (10-20% households having cars), but higher on the council estate (20-40% having cars).

5.2.4 Hemsworth (Completed Sample Size 24; Figure 5.6)

Hemsworth case-study area, which lies to the west of the town centre, can also be divided into two distinct sections.

Hemsworth-West is a small inter-war council estate of semi-detached dwellings about 1 km from the town centre. In contrast to Fitzwilliam west the external appearance of the dwellings and the gardens is poor. The dwellings were being extensively improved at the time of the survey. There are no shops within this part of the area.

The eastern section of the area, only $\frac{1}{2}$ km from the centre, comprises four parallel streets of pre 1919 terraced dwellings fronting straight onto

FIGURE 5.5 FITZWILLIAM

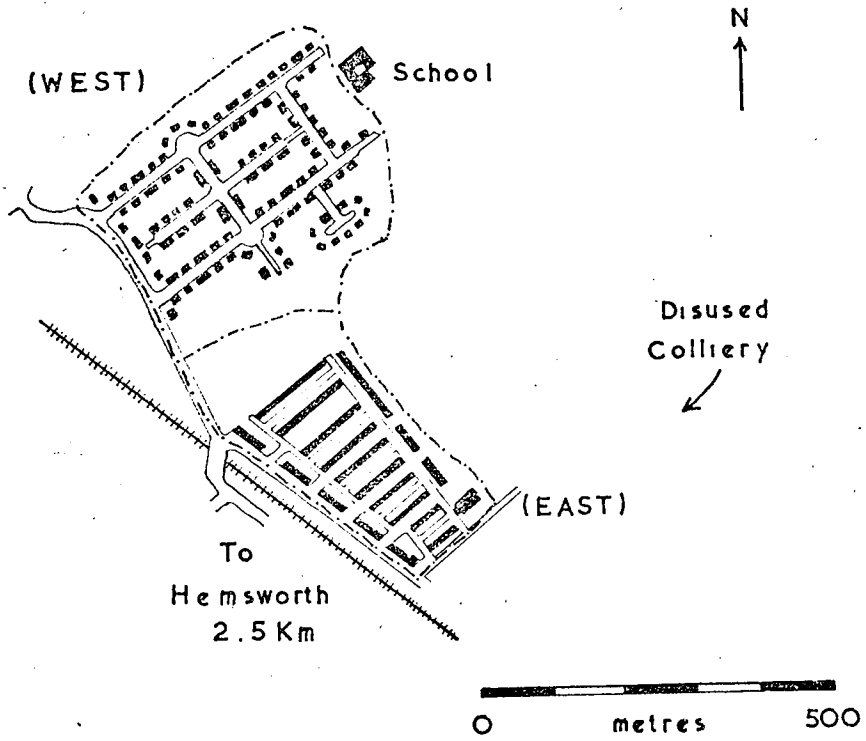


FIGURE 5.6 HEMSWORTH

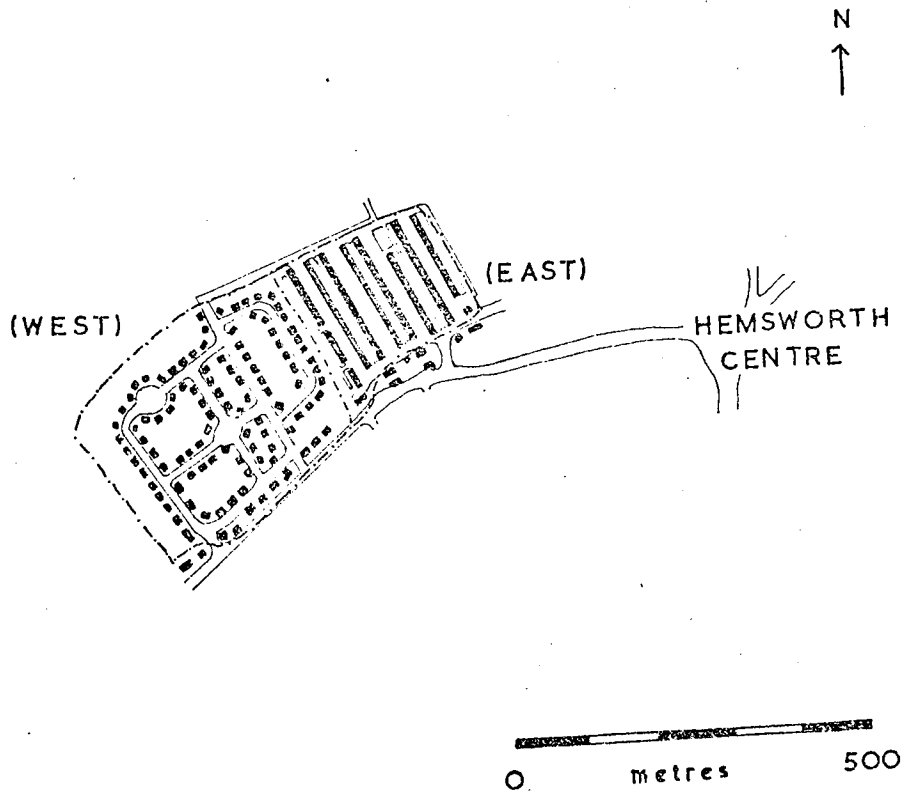




PLATE 5.7 FITZWILLIAM
(EAST)

NCB terraces fronting
onto former allotments.

PLATE 5.8 FITZWILLIAM
(EAST)

NCB Terraces: note the
relatively wide street
compared with the
council estate
(Plate 5.6)



PLATE 5.9 FITZWILLIAM
(EAST)

The backs of the
NCB terraces shown
above.

the street, and smaller in size than those in Fitzwilliam (Plate 5.10). The dwellings are backed by small yards and narrow rear service alleys (Plate 5.11). They are mainly owner-occupied, although there are a few unfurnished tenancies. Although some dwellings had been improved several others within the terraces were empty or up for sale at the time of the survey and this, together with the heavy domestic smoke pollution, gave the area a dismal aspect. There are several general stores within the terraces. Parking is largely restricted to the roads; a small number of garages have been constructed at the end of one set of terraces.

Neither parts of the area have any grass verges, or many trees, although both are backed by open country. A primary school and a childrens play area are close at hand, and all shopping facilities, upper schools and parks are within 1-2 km of the case-study area.

Hemsworth itself is a centre for bus routes to the larger towns of the area, for example Barnsley (12 km), Doncaster (21 km) and Wakefield (15 km).

5.2.5 Bellevue (Completed Sample size 28; Figure 5.7)

Bellevue case study area is within the City of Wakefield, between $1\frac{1}{2}$ and 2 km from the centre. The area straddles the main Doncaster road. The area has been divided into two sections on the basis of tenure.

The first part (Bellevue - Council) includes all the council property in the area, and lies mainly to the east of the Doncaster road, although two 3 storey blocks of flats and some maisonettes are located on the other side (Plate 5.12). These latter infill dwellings were built in the 1960s, but the remaining council dwellings, semi-detached houses and old persons flats (Plate 5.13) date from the inter-war period and early 50's. All except the flatted dwellings have private gardens.

PLATE 5.10 HEMSWORTH
(EAST)

Some of the few improved dwellings in the terraces. Note the small dwelling size compared with the terraces in Fitzwilliam (Plate 5.8)



PLATE 5.11 HEMSWORTH
(EAST)

The backs of the terraces shown above.

PLATE 5.12 BELLEVUE
(COUNCIL)

One of the new council flats on an infill site in Bellevue.



The other part of the area (Bellevue-west), comprising the other tenure categories, contains mainly pre 1919 terraced dwellings located to the west of the Doncaster road. Some rows of terraces have been cleared in the last few years, the infill sites mostly being used for council developments, although some private dwellings are to be found (Plate 5.14).

There are three sources of disturbance in the area which deserve mention. Firstly there is the main Doncaster road which, until the opening of the M62 after the survey was completed, was one of the main east-west through routes for heavy traffic in the area (Plate 5.15).

Secondly the power station immediately to the east of the area is a major source of dust and also noise (particularly intermittent and sudden noise when steam pressure is let off) (Plate 5.16).

Thirdly the pockets of partly cleared and derelict houses alongside the area as well as being poor in appearance were being used as unofficial lorry parks at the time of the survey.

The area is well served by buses to the town centre, with buses every 10 minutes during the day. The shops along the Doncaster Road in the area are in a state of decline (Plate 5.17), a fact which is compensated for the residents by the proximity of the city centre.

5.2.6 Warwick Estate (Completed Sample size 27; Figure 5.8)

The bulk of this case study area is made up of a large post war council estate in the southern part of Knottingly, the most recent dwellings of which were completed around 1970. A small number of private dwellings are included along the northern edge of the estate. The estate has been one of the main reception areas for the 'immigration' of mining families, mostly from Durham and Scotland, associated with the development of the Kellingly Colliery.

FIGURE 5.7 BELLEVUE

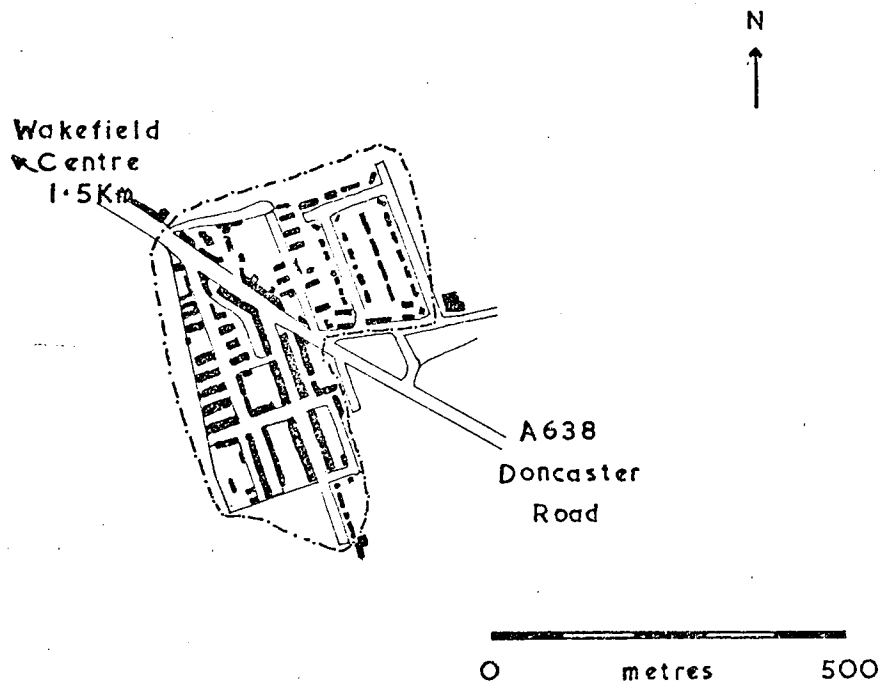
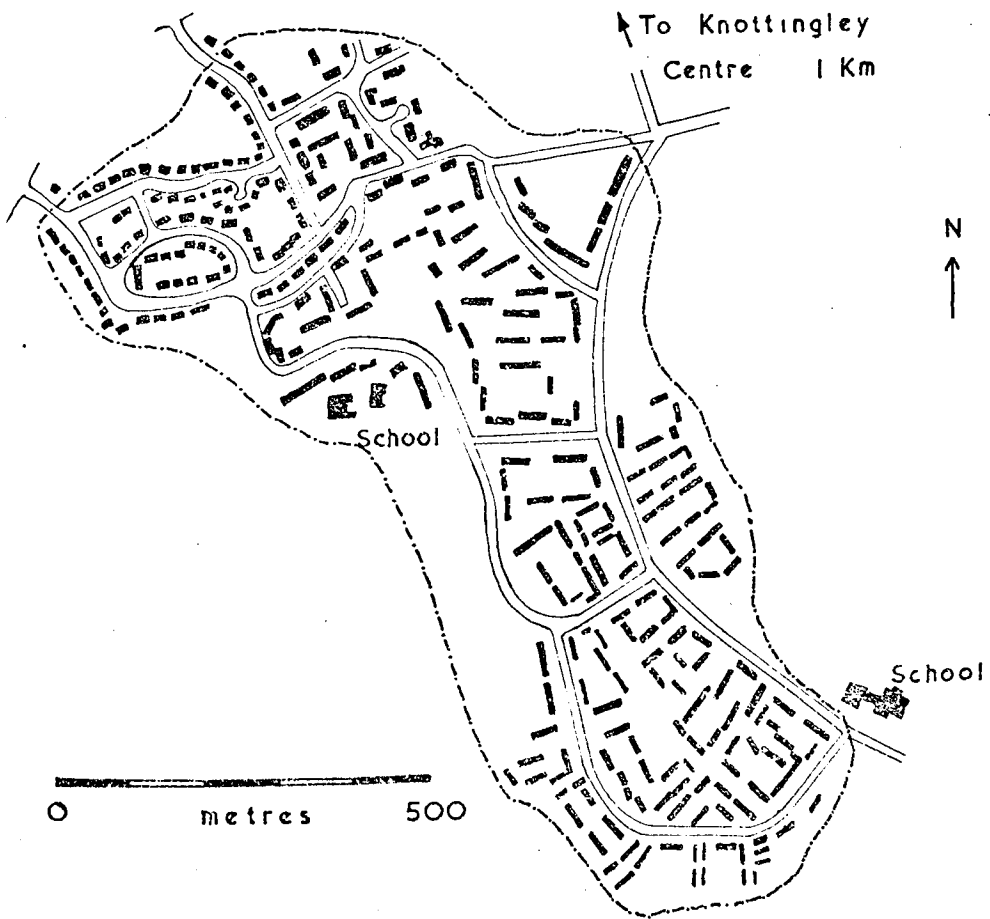


FIGURE 5.8 WARWICK ESTATE



Apart from a few semi-detached and flatted dwellings most of the houses are built in terraces of four dwellings or more (Plate 5.18). The estate has an open plan, Radburn layout; most dwellings have private rear gardens. The large grassed areas and open aspect give the estate a green and open appearance despite the lack of mature trees and the large size of the estate (Plate 5.19).

The estate is provided with a small shopping centre, community facilities, schools, and was the only case-study area to have a supervised children's adventure playground. It was also the only area which had widespread evidence of vandalism (mostly broken street lamps and street furniture) (Plate 5.20).

The centre of Knottingly is 1-2 km from the estate, and is served by a bus from the estate every 20-30 minutes. The car ownership rate on the estate in 1971 was moderately high compared with the other case-study areas (38% of households owned cars).

5.2.7 Nevison (Completed Sample size 32; Figure 5.9)

Nevison is an isolated settlement 2-2 $\frac{1}{2}$ km north east of the centre of Pontefract, and two distinct parts can be identified. To the west, the larger part, is a post-war National Coal Board estate consisting of semi-detached dwellings which were erected in the 1950s as part of the 'package' to attract miners into the district (Plate 5.21). All these dwellings have front and back gardens lined with small concrete fences; many of the gardens and fences being in poor repair. The estate is virtually treeless, but is bordered on the northern side by fields stretching down to the new M62 (Plate 5.23). A primary school is located on the western edge of the estate. Car parking in this part of the area is restricted to the roads, and to the waste areas behind some of the dwellings (Plate 5.24). Car ownership in 1971 was moderate, with 37% of



PLATE 5.13 BELLEVUE
(COUNCIL)

Old persons flats

PLATE 5.14 BELLEVUE
(WEST)

A private infill development and open space, on cleared areas of former terraces



PLATE 5.15 BELLEVUE
(WEST)

The Doncaster Road, a main through route for heavy traffic until the opening of the M62, after the survey.

PLATE 5.16 BELLEVUE
(COUNCIL)

Showing the proximity
of the power station
to the east of the
area.



PLATE 5.17 BELLEVUE
(WEST)

Closed shops along the
Doncaster Road



PLATE 5.18 WARWICK

Typical building form
of the estate. The car
is illegally parked
on the grass



PLATE 5.19 WARWICK

The open layout with absence of planting and abundance of litter.



PLATE 5.20 WARWICK

The estate shopping centre showing evidence of vandalism

PLATE 5.21 NEVISON (WEST)

The standard NCB dwelling type with rendering and concrete fencing. The unkempt garden was typical of the estate.





PLATE 5.22 NEVISON (WEST)

Family involvement in clearing away the concessionary coal

PLATE 5.23 NEVISON (WEST)

The view from the estate towards Fernbridge power station. Note the play facilities!



PLATE 5.24 NEVISON (WEST)

One of the waste areas behind the dwellings, used mainly for parking.

households owning cars.

The second part of the area adjoins the NCB estate, but is actually in the former Knottingly UD, whereas the NCB estate is within Pontefract. This part of the area is a small inter-war private estate of semi-detached houses. The dwellings are larger (Plate 5.25), more spaced and surrounded by more vegetation than the NCB dwellings, making a sharp contrast between the two parts of the areas (Plate 5.26). Most of the dwellings have garages within their curtilages, and car ownership is high with 60-70% of the households owning cars in 1971.

There are a number of small shops on the edge of the case-study area, and also in the centre of the NCB estate. Between 1 and 2 buses run per hour on average during the day to Pontefract.

5.2.8 Featherstone (Completed Sample size 31; Figure 5.10)

This case study area lies between $\frac{1}{2}$ and $1\frac{1}{2}$ km from the centre of Featherstone along the B road linking the town with Castleford. Two parts to the area can be distinguished; a new private development, and an area of pre-war dwellings of mixed tenure.

The new private estate, comprising detached, semi-detached and bungalow dwellings built since 1967, is bordered on the west by the pit stack of Featherstone Colliery (Plate 5.27) and on the south by the Ivy Street/Mountpleasant Clearance area. Despite the fact that the most recently completed dwellings had been occupied for over a year at the time of the survey most of the estate roads and footpaths had not been completed (Plate 5.28).

The other part of the case study area contains pre 1919 terraced dwellings in the main, plus a few inter-war semi-detached dwellings. The terraces front straight onto the roads and have no off-street parking

FIGURE 5.9 NEVISON

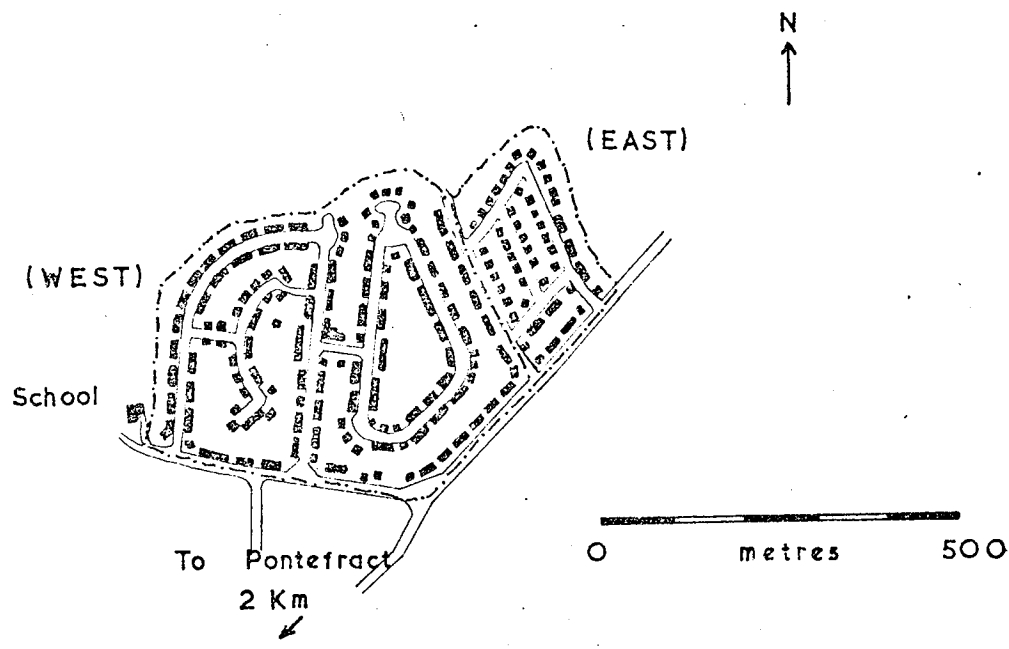


FIGURE 5.10 FEATHERSTONE

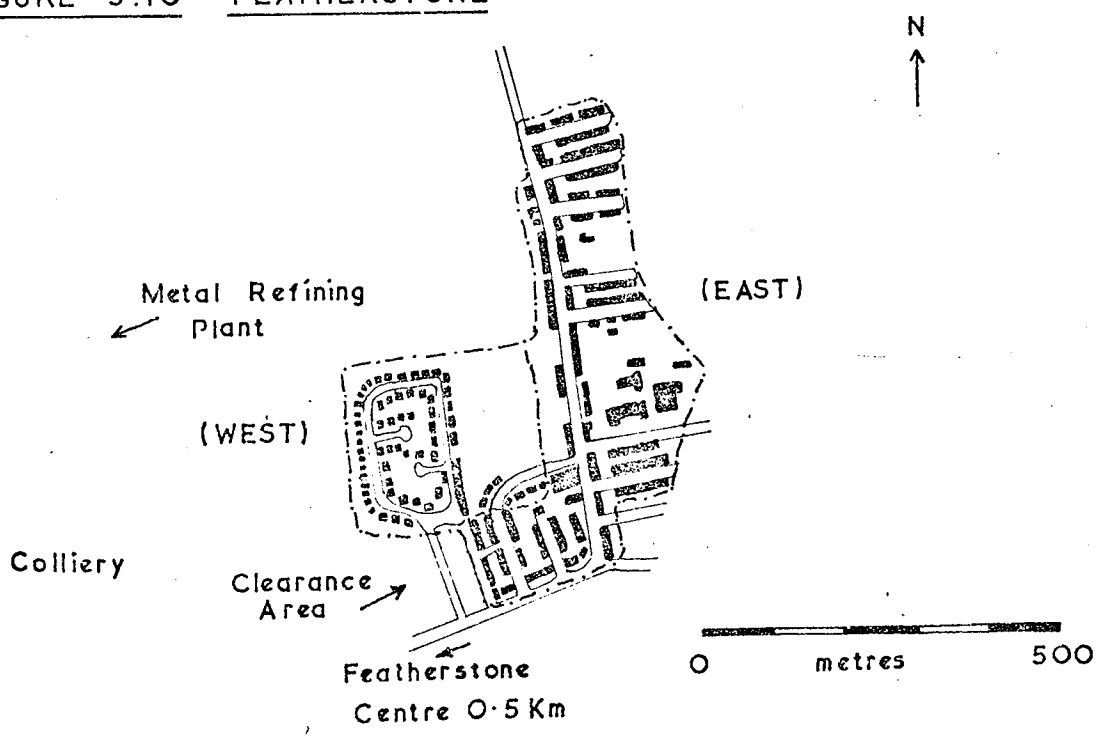




PLATE 5.25 NEVISON
(EAST)

The inter-war private estate. Note the hedges and trees

PLATE 5.26 NEVISON

Illustrating the contrast between the NCB estate on the left and the private estate on the right.



PLATE 5.27 FEATHERSTONE
(WEST)

New private development in the shadow of the colliery pit stack.



facilities. Numerous small shops are to be found along the main road in the area, and both primary and secondary schools are close. The proportion of households renting unfurnished properties was 40-50% in parts of this area (none being NCB properties), and only 70% of households had all the basic amenities in 1971 (many of these properties probably being in the clearance area).

Neither part of the area is well endowed with trees, giving a harsh appearance which is accentuated by the pit stack rising to the west of the area. Shopping and parks are to be found within $1\frac{1}{2}$ km of the area, and buses run along the main road into Featherstone every 15-20 minutes during the day.

5.2.9 Glasshoughton (Completed Sample size 23; Figure 5.11)

Glasshoughton is situated $1\frac{1}{2}$ - $2\frac{1}{2}$ km south of the centre of Castleford. The case-study area is bordered on the southern and western sides by the Glasshoughton Colliery and Coking Plant. Some dwellings, owned by the National Coal Board, are within 100 metres of the coke works (Plate 5.30) and the rest of the area is within 250 metres of them. The coking plant in particular is a heavy source of air pollution and noise, as well as a generator of heavy goods vehicle traffic. Part of the spoil tip which intrudes into the area is gradually being used for brick making.

The dwellings in the area are mostly pre 1919 in age, and apart from the NCB dwellings are all privately owned or rented. The NCB dwellings have front and back gardens, and the remaining dwellings are mostly terraces which front straight onto the streets and have small back yards (Plate 5.31). In 1971 only 50% of the households in the area had all the basic amenities. There is little off-street parking, and few trees in the area.

The terraces contain several small general stores, and buses run every



PLATE 5.28
FEATHERSTONE (WEST)

The private development is bounded to the north by fields. Note the unfinished footpath.

PLATE 5.29 FEATHERSTONE (EAST)

The end of one of the terraces, showing the effect that the air pollution has on posters!



PLATE 5.30 GLASS-
HOUGHTON

Views from the end of the main terraces towards the coking plant. The roofs of the NCB terraces adjacent to the plant can just be seen.



10 minutes during the day into Castleford. Although the primary school is close other school levels are in Castleford itself.

Apart from the colliery and coking works surrounding the area, a small textile works is located within the area and produces a certain amount of noise. A haulage contractor, also within the area, is an additional generator of heavy lorry traffic (Plate 5.32).

5.2.10 Thornes (Completed Sample size 18; Figure 5.12)

This small case study area lies wedged between the railway and the main Denby Dale road (linking the M1 to Wakefield City from the south) between $\frac{1}{2}$ and $1\frac{1}{2}$ km from the city centre. Most of the dwellings in the area are pre 1919 terraced houses of various sizes; the smaller dwellings fronting straight onto the road, and the larger ones with both front and back gardens. A small number of semi-detached dwellings have been constructed on infill sites since the last war. Off-street parking facilities are better than usual in terraced areas, mainly on backland or within the curtilages of the larger dwellings. The tenure in the area is predominantly owner-occupation, although 20-30% of the households in the area rented unfurnished property in 1971.

The area, being close to the city centre, is conveniently located for most facilities (shops, schools, buses etc.), and Thornes Park is located on the opposite side of the main road making the area one of the 'greenest' amongst the case study areas. The presence of the park lessens the visual impact of the main road, which does however remain a source of noise and danger.

At the last census over 90% of the dwellings had all the basic amenities, and the car ownership rate (51% of households owning cars) was

FIGURE 5.11 GLASSHOUGHTON

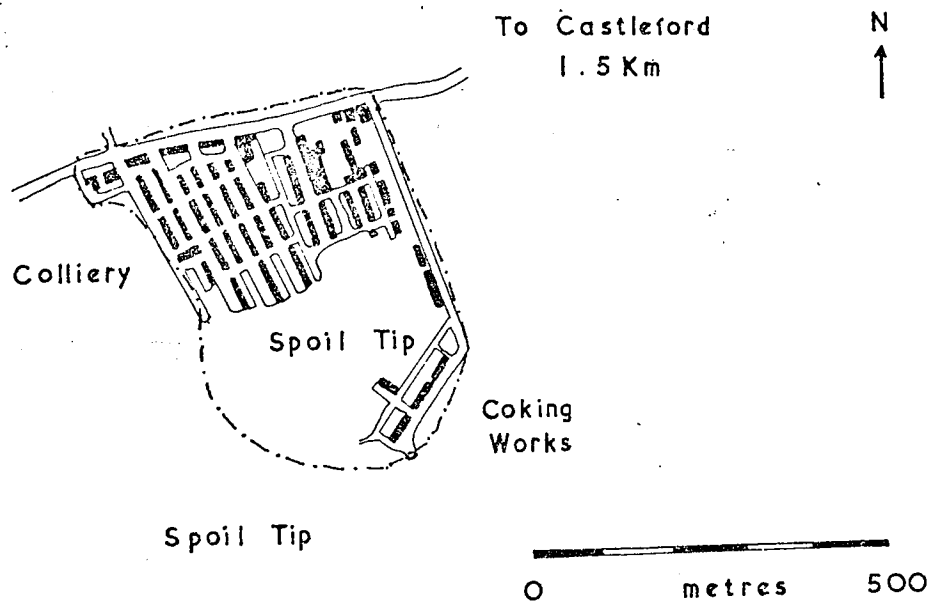
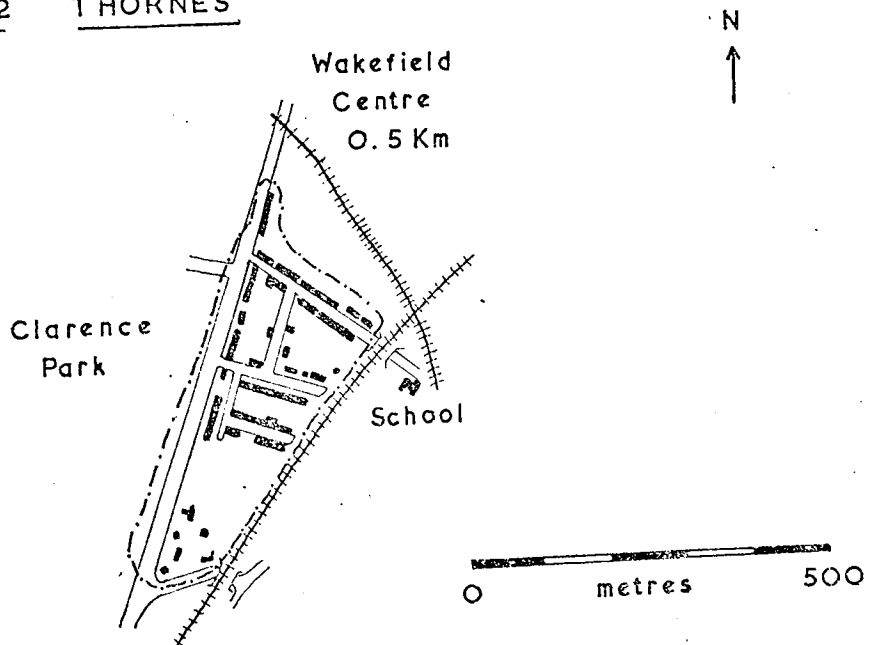


FIGURE 5.12 THORNES



relatively high for the District.

5.2.11 Pontefract (Completed Sample size 31; Figure 5.13)

The Pontefract case study area lies north of the main Wakefield road immediately to the west of the town centre. The area contains a wide range of dwelling types and ages, although little from the post-war period. Closest to the town centre there are a number of large old detached houses set in secluded surroundings. Further to the west and north are areas of smaller pre 1919 dwellings, some in terraces (Plates 5.33 and 5.34). Further still to the west is an area of inter-war dwellings which include privately owned bungalows and detached properties, and semi detached council properties. In the extreme western part of the area is a small area of pre 1919 dwellings, now mostly in council ownership.

The area is relatively well endowed with trees, except in some of the terraced streets. There are primary schools within the area, and the other school levels are within 1-1½ km. The eastern part of the area fringes directly onto the town centre, which is a shopping centre for a wider catchment area than just Pontefract. Bus services along the Wakefield road into Pontefract centre run on average every 15 minutes during the day, whereas a service which runs through the area itself only operates once or twice an hour.

5.2.12 Altofts (Completed Sample size 29; Figure 5.14)

Altofts, the majority of which is included in the case-study area, is a dormitory area just outside Normanton which has a generally good reputation as a residential area. It is reasonably accessible by car from Wakefield, Castleford and Normanton. The latter is only 1 to 2 km distant.

The housing in Altofts ranges from a few pre-1919 terraces with dwellings fronting straight onto the street and small rear yards, to post

FIGURE 5.13 PONTEFRACT

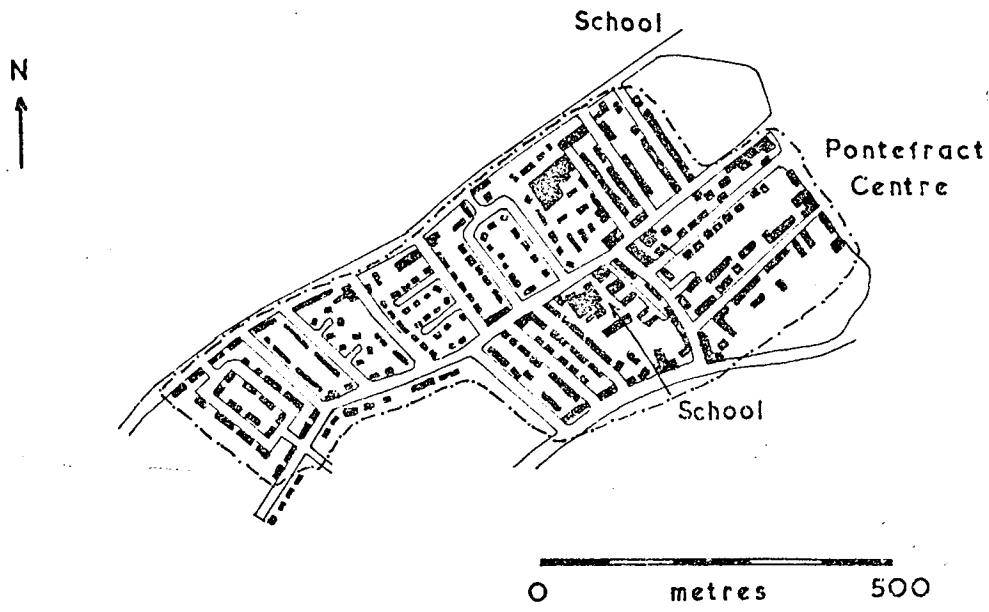


FIGURE 5.14 ALTOFTS

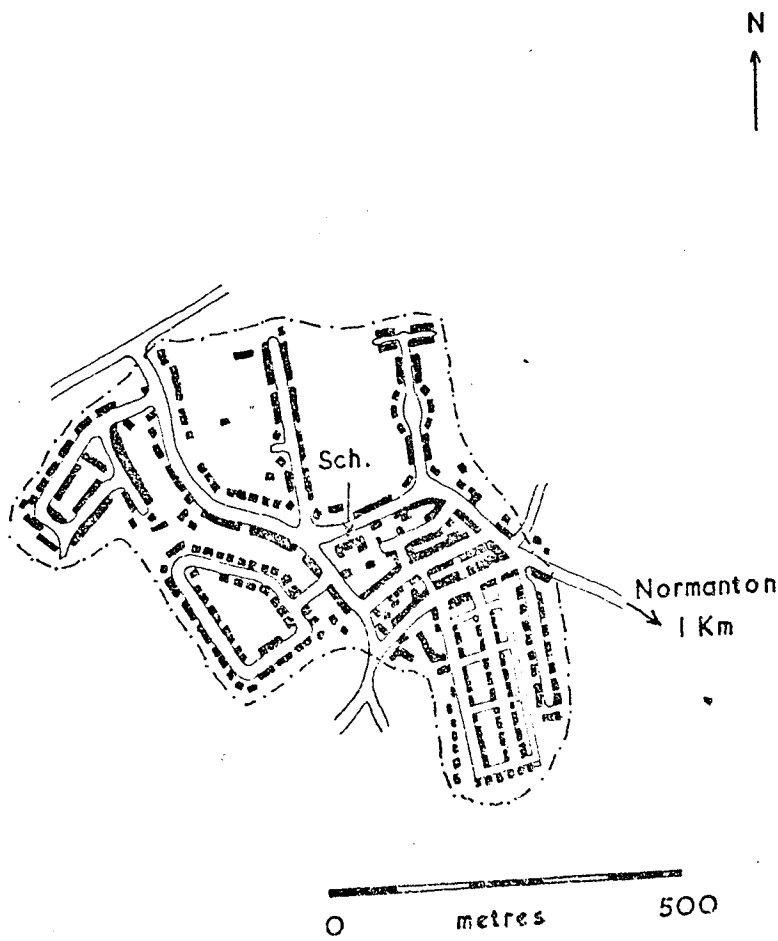


PLATE 5.31 GLASS-
HOUGHTON

The view westwards
through the terraces
to the colliery



PLATE 5.32 GLASS-
HOUGHTON

A heavy vehicle from
the haulage firm based
in the area

PLATE 5.33 PONTEFRAC

Nineteenth Century
dwellings of mixed
tenure. Note the
amount of trees



war council and private semi-detached dwellings (Plate 5.35). The inter war period is represented by several large privately owned detached houses with gardens.

The area is served by a number of small shops, mostly located within the terraced areas, and a primary school. Remaining facilities are located in Normanton which is served by buses every 20-30 minutes.

The area possibly owes its status to the fact that it is distant from any major industries, and enjoys a semi-rural location. However the car ownership rate is surprisingly low compared with what might be expected in such an area; 37% of households owned cars in 1971.

5.3 SUMMARY

This chapter has provided a fairly detailed description of Wakefield District and the individual case-study areas, as this was felt to be necessary if a full understanding of the results was to be gained. In summary three general points should be made:

- a) The survey does not relate to a 'normal' urban area, but to a District which contains a range of different sized settlements from a small city to isolated mining villages. This has obvious implications for concepts like convenience, and also in the operation of the housing market.
- b) The economic predominance of mining is not the primary concern here, but it has an influence in a number of ways: the large percentage of skilled manual workers; the environmental effects of mining and coke production; the existence of the NCB tenure category and also the attitudes towards environmental quality.
- c) The bias, in the choice of case-study areas, towards the older and poorer housing. The effect that this concentration on the older areas



PLATE 5.34 PONTFRACT

An adjacent street of dwellings contemporary to those in the previous plate

PLATE 5.35 ALTOFTS

Pre 1919 Semi-detached dwellings - just one of the variety of dwelling-types in the area



PLATE 5.36 ALTOFTS

Pre-War private development



has had on the representativeness of the sample population is the first topic of concern in the next chapter.

Chapter 6

THE SURVEY RESULTS

6.1 INTRODUCTION

6.1.1 This chapter has two objectives. The first is to describe the characteristics of the sampled population and their housing, and to compare and relate these characteristics to those of Wakefield District in order to give an indication of the generality of the results. The second objective of the chapter is to summarise the substantive conclusions of the survey; that is the results which relate specifically to the research model and hypotheses (described in full in Volume II). The methodological and operational conclusions of the research are dealt with in the following chapter.

6.1.2 The survey achieved a response rate of 72.4%; a total of 320 interviews being successfully completed. Table 6.1 shows the distribution of the sample by case-study area. The response rate varied between the areas from 60% in Hemsworth and Streethouse to 80% in Nevison. The variation in effective sampling fraction was not important for the research design (4.3.2), hence no weighting was applied to the data.

6.2 SOCIAL CHARACTERISTICS OF THE SAMPLE POPULATION

6.2.1 Age-Sex Distribution

Table 6.2 shows the close correspondence between the age-sex distribution in the sample and the distribution for the Wakefield District in the 1971 census. The smaller proportion in the 15-19 age group in the sample is primarily due to the use of the electoral register as the sample framework, meaning that only those persons who were aged 18 or over were 'eligible' for the sample. When this is taken into account by estimating the census population in the 18 and 19 age groups there is no statistical

Table 6.1 Survey Response

Case-Study Area	Approximate Population in area 1971 (1)	Sample size	Completed interviews	Response Rate %	Achieved sampling fraction %
Thornes	567	25	18	72.0	3.2
Eastmoor	4980	40	31	77.5	0.6
Bellevue	847	40	28	70.0	3.3
Hensworth	1164	40	24	60.0	2.1
Fitzwilliam	1121	37 ⁽²⁾	28	75.7	2.5
Featherstone	2143	40	31	77.5	1.4
Altofts	2526	40	29	72.5	1.1
Nevison	2037	40	32	80.0	1.6
Pontefract	3082	40	31	77.5	1.0
Glasshoughton	595	30	23	76.7	3.7
Streethouse	1122	30	18	60.0	1.6
Warwick	5277	40	27	67.0	0.5
TOTAL		442	320	72.4	

N.B. (1) Population figure given is total population and not just the voting population from which sample was selected. Population totals were obtained by aggregating 1971 Census E.D. figures, hence boundaries do not coincide exactly with the case-study area boundaries.

(2) Three households originally selected for the sample were found to live outside the case-study area and were thus excluded from the sample.

Table 6.2 Age-Sex Distribution



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- (1) Source: City of Wakefield Metropolitan District Council, 1974e
- (2) The total for Wakefield District is of persons over the age of 15 (the nearest comparable figure with the electoral population from which the sample was selected).

difference between the sample and the District populations at the 5% level.

Slight differences are, however, apparent between the two populations. Firstly, women were over-represented in the sample; 54.9% of the sample were women against 51.3% in Wakefield District. The largest deviations were in the 45-49 and the 60-64 age groups. It is clear that it is mainly the younger male (i.e. working) age groups which were under represented. The emphasis placed on evening interviewing, and the availability of shift workers during the day, have been the main reasons for the small size of this bias.

6.2.2 Marital Status

Table 6.3 shows the sample and the District populations divided into age, sex and marital status categories. Once again the under 19 (and single) group were under-represented as one would expect from the sample framework. Similarly, once this has been taken into account, by estimating the numbers in the younger age group in the District who would not be in the sample framework, there is no statistically significant difference between the two populations at the 5% level.

Overall 74.6% of the sample were married, 13.5% were single, and 11.9% were widowed or divorced. The corresponding figures for Wakefield District in 1971 were 70.5%, 19.7% and 9.8%.

6.2.3 Household Size and Type

Table 6.4 compares the household size distribution for the sample with the figures for the West Riding in 1971, and for the West Yorkshire Conurbation in 1969 (comparable figures for the District were not readily available). 60% of the sample were members of households of less than 3

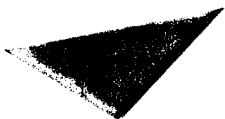
Table 6.3 Age and Marital Status

A. MALE



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(1) Source: 1971 Census

Table 6.4 Household Size Distribution



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Sources: (1) 1971 Census
(2) DoE (1971 b)

persons, compared with 50% in the West Riding and 70% in the Conurbation. 9% of the sample came from households with 6 or more persons, compared with 13.6% in the West Riding and 5% in the Conurbation. The figures for the sample correspond with the District's position as a transition zone between the main conurbation centres of Leeds, Bradford and Huddersfield, and the more rural fringes of the West Riding. The average size of household in the sample was 3.3, compared with the District average of 3.0.

Table 6.5 compares the distribution of household types in the sample (using the Department of Environment definitions)⁽¹⁾ with the UK average, as given in the General Household Survey (HMSO, 1973) (District figures were not available). As the differences between the two figures are obviously due to regional differences as well as to biases in the sample, the differences can be pointed out but not fully evaluated.

The main differences are the smaller proportions of individuals under 60 and of old small households in the sample. The small proportion of individuals under 60 has already been explained in terms of the sample frame. On the other hand there is a higher proportion of large families and, more particularly, of large adult households, in the sample. 32% of the sample lived in households which were categorised as large adult households, compared with 18% in the General Household Survey. This may indicate a tendency for the elderly to remain in a family household in this District, rather than living on their own.

6.2.4 Socio-economic Group

Table 6.6 gives the socio-economic group distribution for the sample and for Wakefield District. The District figures are based on the occupation of the head of the household, whereas the sample figures include the

(1) The following definitions of household type were used. Small adult households and individuals under 60 were later combined because of the small numbers in the sample.

<u>Household Type</u>	<u>Number of persons in household aged:</u>	
	<u>Under 16</u>	<u>16 and over</u>
1. Small adult household	Nil	2) (none aged 60 or over)
Individuals under 60	Nil	1)
2. Small families	1 or 2	1 or 2
3. Large families	3 or more (or 2)	any number (or 3 or more)
4. Larger Adult household	0 or 1	3 or more
5. Older small households	Nil	1 or 2 (at least one aged 60 or over)

Table 6.5 Household Type

Household Type [⌘]	Sample %	General Household Survey 1971 %
Individuals under 60	1.3	5.1
Small Adult Household	13.9	14.0
Small family	14.2	22.0
Large family	15.5	12.5
Large Adult Household	32.0	18.0
Old Small Household	23.1	28.5
TOTAL	316	11,858

[⌘] Household type based on D.O.E. categories (See note in text 6.2.3)

Table 6.6 Socio-Economic Group



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(1) Source: 1971 10% sample census

occupation of the respondent in those cases in which the head of the household's occupation could not be obtained. The effect of this is particularly noticeable in the 'insufficient information' category, which contains very few cases for the sample.

Excluding this latter category, the two distributions are still significantly different at the 1% level. The main divergences between the two populations are the smaller proportion of employers and managers in the sample, and the higher proportion of intermediate and junior non-manual workers. The higher proportion of the latter is partly due to the above mentioned coding of the respondent's occupation in some cases, rather than the occupation of the head of household. This mostly happened when sons and daughters of the household head were interviewed, and a high proportion of these were employed as non-manual workers.⁽¹⁾ A further reason for the under-representation of the employers and managerial class is the deliberate avoidance of the better quality private housing in the survey i.e. those areas in which one might expect the upper occupation category to live.

6.2.5 Income

The only comparable income data available is contained in the General Household Survey (HMSO, 1973), and Table 6.7 compares income figures for the UK with those for the sample. Most respondents gave the main source

(1) A comparison of the socio-economic groups for the sample and for the case-study area populations in an earlier paper (Cane S.T., 1975a) showed that the proportions in each SEM in the sample were between the figures given for the areas in the census based firstly on the head of household's occupation, and secondly on the occupations of all the household members. This supports the given reasons for the differences between the sample and the district figures.

of income for the household, the average income being £31.20. In some cases, however, it was only possible to obtain information on the respondent's own income rather than the main income, and when these respondents are included the average income falls to £30.20.

Table 6.7 Income

£ per week	Number of Respondents giving:		All incomes %	General Household Survey 1971(2) %
	Main household income (1)	Non-main income		
under 15	35	4	13.5	30.4
16-20	29	9	13.2	12.8
21-25	33	7	13.9	14.0
26-30	18	4	7.6	14.4
31-35	39	4	14.9	9.3
36-40	57	-	19.8	6.9
over 40	48	1	17.1	12.2
No. of respondents	259	29	288	10,072
Average income	£31.2	£27.0	£30.2	

(1) includes pension/unemployment income

(2) General Household Survey 1971, HMSO

The main contrasts with the General Household Survey data are the higher proportion earning less than £15 in the 1971 national survey, and consequently the higher average income in the sample. Despite the lower proportion of employers and managers in the sample there is still a higher proportion of high incomes in the sample. There are two main reasons

which may account for this: firstly the effect of inflation in the three year time difference between the two surveys; secondly the predominance of highly paid skilled manual work (with overtime opportunities) in the area.

It should also be noted at this point that income data is notoriously inaccurate: there is no guarantee that people earn what they say they do, and 'average take-home pay' may have been interpreted in different ways.

6.2.6 Car Ownership

The percentage of households owning cars in the sample was 38.5%, compared with the District average in 1971 of 41.1%. Thus despite a general rise in car ownership in the country from 1971-1974 the sample figure is still below the 1971 District total. This finding corresponds with the decision to concentrate on the poorer areas i.e. areas in which car ownership is likely to be lower (cf. individual case study area figures in chapter 5).

A further small influence was those respondents who themselves did not have the use of a car, although there was a car belonging to someone else in the household. On the basis of the interviewers reports this difficulty applied to less than 2% of the sample.

6.2.7 Length of Residence

27.5% of the sample population had lived in their present dwellings for less than 5 years, compared with 30% of the District population (1966), and 36% in the UK (Table 6.8). 34% of the sample had lived in the same dwelling for over 20 years, and 15% for 30 years or more. This seems to indicate a more stable population in the case study areas, as the figures are not the result of a bias towards the elderly in the sample (see 6.2.1), although there is a bias towards the older housing (6.3.2).

Table 6.8 A. Length of Residence



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B. Number of Moves in last 5 years



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Sources:

- (1) City of Wakefield Metropolitan District Council (1974 e)
- (2) General Household Survey, HMSO 1971

Only 7.8% of the sample had moved twice or more in the last 5 years, compared with 12% in the UK, again indicating a slightly more stable population.

6.3 CHARACTERISTICS OF SAMPLE POPULATION'S HOUSING

6.3.1 Tenure (Figure 6.1)

The distribution of tenure categories in the sample closely reflects the District proportions. The owner-occupied sector is only slightly under-represented as a result of avoiding recent high quality private developments. The proportion of National Coal Board tenancies is probably higher in the sample than the District average, although it is not possible to distinguish the NCB category in the District figures.

6.3.2 Age and Type of Dwelling

Table 6.9 shows the distribution of the sample population according to the age and type of dwelling. 33% of the sample lived in terraced dwellings dating from before 1919; 23% lived in inter-war semi-detached dwellings, and 18% in post-war semi-detached dwellings. The main contrast with the District is the smaller proportion of post-war dwellings in the sample; and, in comparison with the dwelling type data for the West Yorkshire Conurbation, a smaller proportion of purpose built flats and other dwelling types (e.g. converted flats).

The larger proportion of pre 1919 terraced dwellings in the sample is again the direct result of the avoidance of the better and more recent developments. The only recent housing included were those infill sites within larger areas of older housing (e.g. in Bellevue) or those which had particular environmental problems (e.g. Featherstone (West) and the Warwick estate).

Table 6.9 Age and Type of dwelling



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- Sources: (1) City of Wakefield Metropolitan District Council (1974 d)
(2) DOE (1971 b)

6.3.3 Dwelling Size

Figure 6.2 shows the number of bedrooms in the sampled respondents' dwellings. 94% of the sample lived in 2 or 3 bedroomed dwellings. This is a larger proportion than in either the West Yorkshire Conurbation, or the UK, both with a proportion in the order of 82%. This may be a characteristic of the limited range of housing in the District as a whole (for which figures were not available) rather than just of the sample, although the exclusion of the upper end of the housing market from the sample may have lead to the exclusion of some larger dwellings.

FIGURE 6.1

TENURE

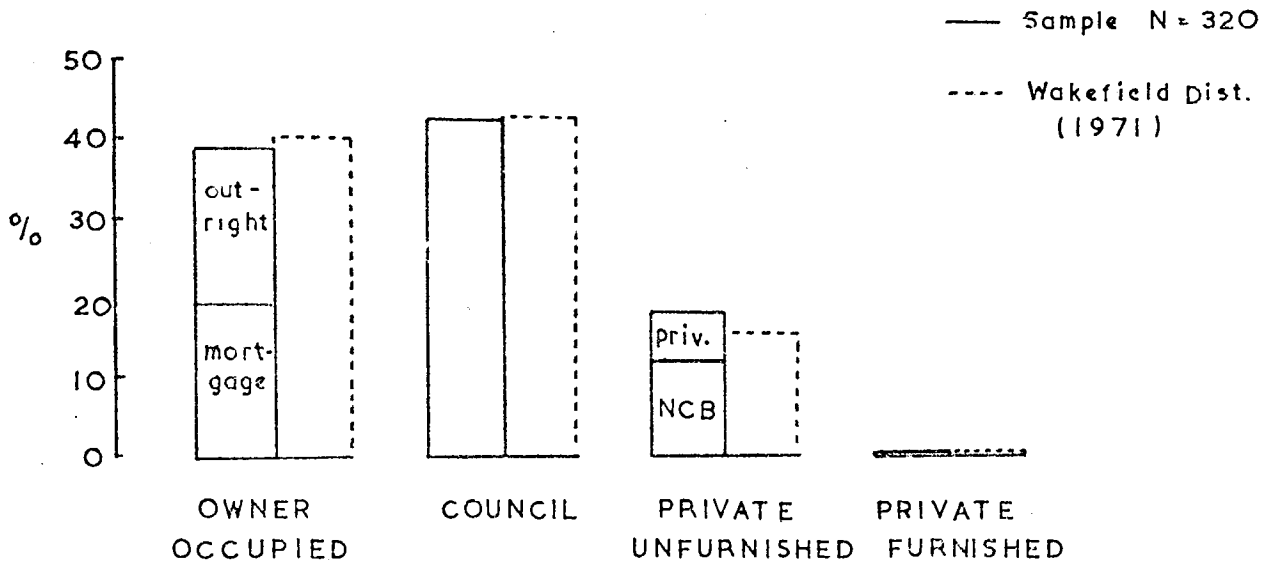
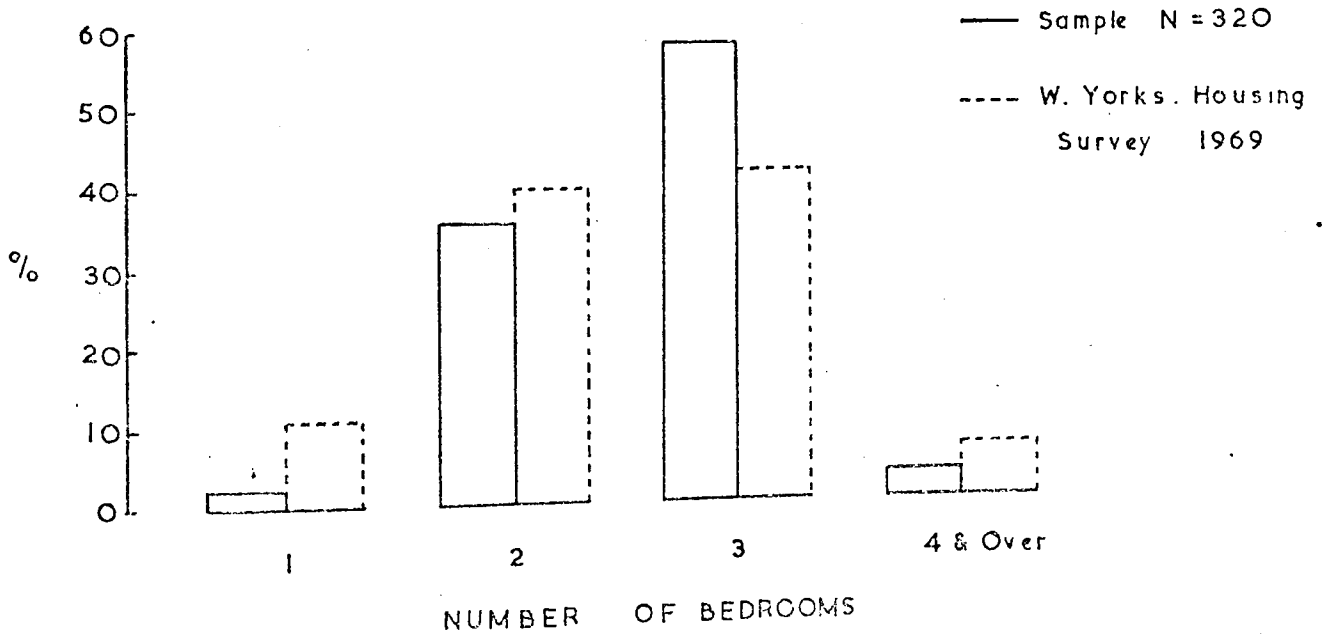


FIGURE 6.2

DWELLING SIZE



6.3.4 Dwelling Facilities

Despite the higher proportion of older housing in the sample the percentage of dwellings with all three basic amenities was higher than that for the District as a whole (Figure 6.3). The figure was 93.4% for the sample, and 86% for the District. This is partly the result of improvements which have been carried out over the 3 years since the census, and partly the result of clearance activities. Some dwellings selected in the original sample had been cleared since the voters list had been produced (notably in Streethouse and Pontefract).

6.4 THE SAMPLE CHARACTERISTICS - CONCLUSION

6.4.1 The preceding sections have shown, where comparisons were possible, that the characteristics of the sample are fairly representative of the District. This finding is not so important for the research design as the analysis gives the possibility of controlling for the social variables or the physical variables. However it is of greater importance for the application of the data to the practical problems of the District e.g. the elucidation of residents preferences, the derivation of standards etc. It is important for it must be shown that the preferences found in the sample, for example, can be applied to the population of the District. On the basis of the social and housing characteristics of the sample population the sample appears to be representative.

6.4.2 It has not been possible to compare the environmental conditions experienced by the sample compared with the general District conditions because of the lack of District data. The range and distributions of the physical variables in the sample are discussed in detail in a later chapter (10.2.2).

6.4.3 The discussion can now turn to the second objective of this

FIGURE 6.3 DWELLING FACILITIES

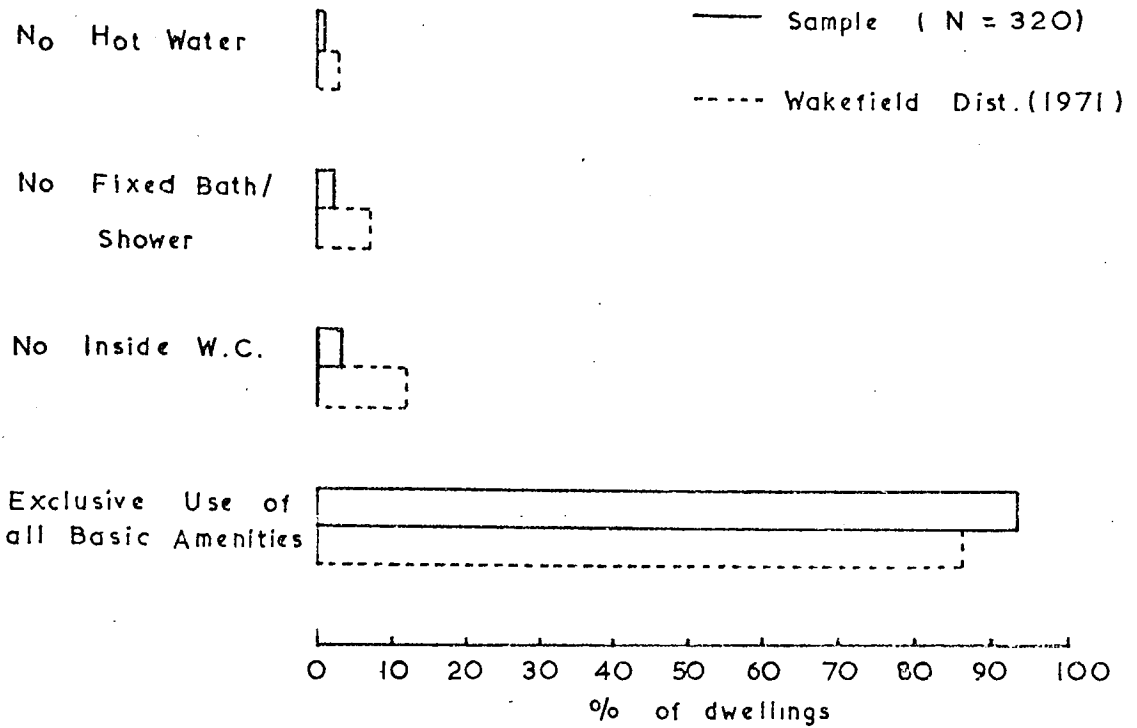
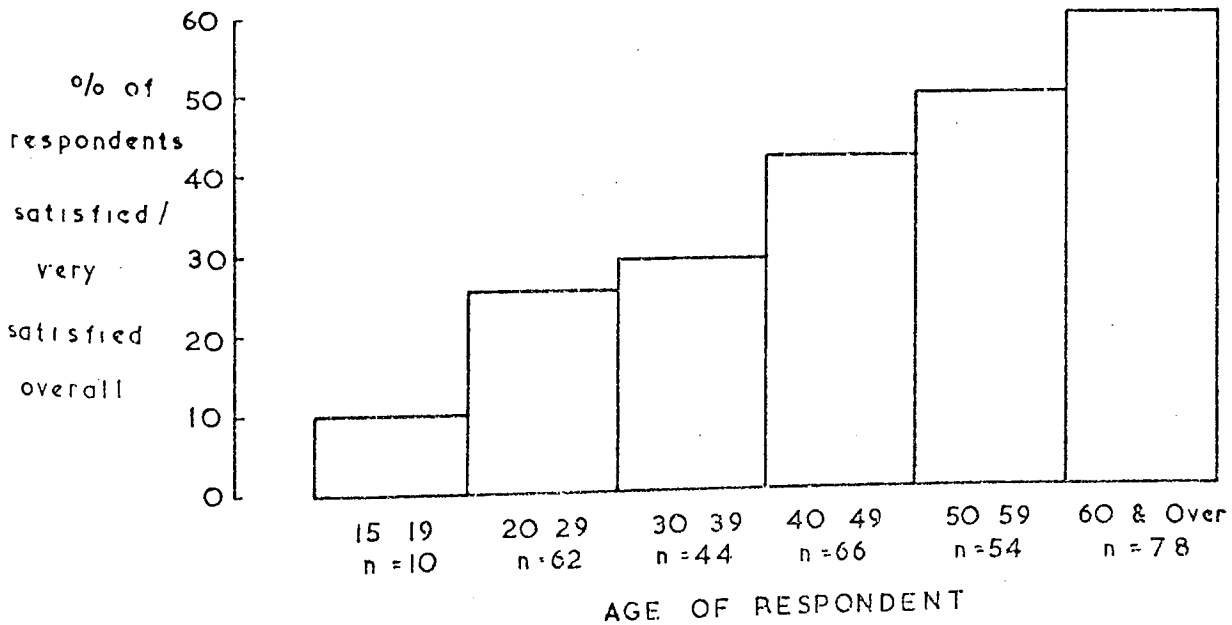


FIGURE 6.4 OVERALL SATISFACTION AND AGE



chapter, and that is a summary of the substantive results of the research. The full results are contained in chapters 11 to 13 (Volume II), and cross-references are given where appropriate.

6.5 RESEARCH RESULTS - SUBSTANTIVE CONCLUSIONS

6.5.1 The results discussed here are those arising from the testing of the hypotheses set out in section 4.2.6. Each section is therefore headed by the hypothesis being discussed; the order in which the hypotheses are discussed is, however, slightly different from the order in chapter 4.

6.5.2 Hypotheses a and b (4.2.6):

"Different individuals express different satisfactions with the common dimensions of the environment" and

"The satisfactions expressed are dependant upon the environmental conditions and the characteristics of the individual."

Satisfaction with the dimensions of the residential environment was found to be a function of:

- a) the 'amounts' of those dimensions of the residential environment around the respondent's dwelling (11.2). The relationships were highly significant, but weak. The strongest first order correlation had a non-parametric correlation coefficient (Kendall's Tau) of -0.34 (Table 6.10), and the others were in the range 0.2 to 0.3.

The relationships were, however, in the expected 'directions' and with the expected variables in most cases. For example satisfaction with appearance and with the greenness both increased with the number of mature trees in the vicinity; satisfaction with upkeep increased as the proportion of well kept dwellings in the area increased.

The low order of strength of correlation for individual (as

Table 6.10 Correlations between Satisfaction and the Environmental Variables (1)

SATISFACTION WITH	ENVIRONMENTAL VARIABLES																			
	Location in Town			Other Locations			Dwelling Quality			Density		Pen-	Social	Other						
	Distance to Chemist	Distance to Town Centre	Distance to Secondary Sch.	Distance to a park	Distance to Primary School	Distance to main road	Distance to Play facs.	Age of dwelling	% of dwells in poor cond.	Number of parking spaces	% of dwells poorly kept	% households with all amens.	Density	length of curtilage	Number of trees	% H/holds with rentg unfurn.	% H/holds over 1 1/2 pp room	% H/holds without car	Frequency of buses	
Appearance							.22		-.23						.25	-.23				
Reputation									-.22						.25	-.22	-.28			
Layout															.23					
Cleanness															.25					
View														.24		-.21				
Typkeep																				
Quietness																				
Suitability for Children						.20									.21					
Greenness															.22					
Car Parking										.24										
Convenience to a Park	-.23							-.21												-.22
Convenience to Shopping		-.21																		
Convenience to Nursery School																				
Convenience to Primary School																				
Convenience to Secondary School	-.25	-.21	-.25																	

(1) Values of Kendall's Tau over ± 0.20 only. All relationships shown are significant at the 0.1% level.

opposed to grouped) data is comparable with other research in this field. For example in studies dealing with noise and visual intrusion correlations of between 0.29 and 0.56 (assuming interval data) between annoyance and the physical variables have been achieved (McKinnel, A.C., 1963; Griffiths I.D., and Langdon F.J., 1968; Hawkes R.J., 1975).

b) the social characteristics of the respondents (11.3). The relationships were not as strong as those with the physical variables, but were independent of the physical variables. The basic social characteristic involved was the respondent's age, and in most cases the correlations with the older social variables were no longer significant when the age was controlled for. In general, the older the respondent the higher the satisfaction expressed. This is illustrated in figure 6.4 which shows the relationship between age and the overall satisfaction with the residential environment.

In specific cases other social variables were independently related to the satisfactions with the environmental dimensions. For example the type of household was related to the satisfactions expressed with the safety of the area; households with children were in general less satisfied (11.3.8) (Figure 6.5).

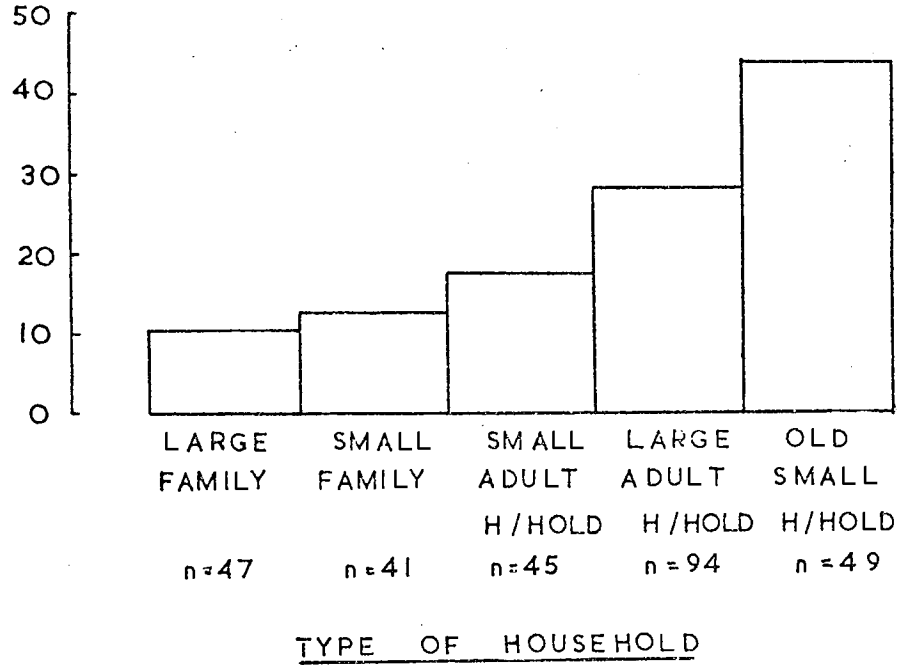
c) The overall satisfaction with the area (12.7). As discussed below in more detail the simple additive model of satisfaction was not found to be adequate because of the existence of a two-way relationship. Thus Overall satisfaction has some influence on the satisfactions expressed with the separate dimensions of the environment.

d) In the case of satisfaction with the convenience of local facilities in particular, respondent's satisfaction was also dependent upon their use of the facilities in question (11.4). For facilities where there was an element of choice of which facility could be used (e.g. secondary⁵

FIGURE 6.5

SATISFACTION AND HOUSEHOLD TYPE

% of respondents satisfied or very satisfied with the suitability of the area for children



school, park), the distance to the facility actually used, rather than the nearest, was the important variable. For example Kendall's Tau for the relationship of satisfaction with the convenience of a park and the distance to the park frequently used was -0.50, compared with -0.27 for the distance to the nearest park. In the case of shopping, respondents who did their shopping every day related their satisfaction with the convenience of shopping to the distance from a local corner shop. The satisfaction of those who shopped less frequently was more related to the distance to a chemist shop (i.e. an indicator of a larger shopping facility) or to the town centre.

6.5.3 Hypothesis d (4.2.6):

"An individual's overall satisfaction with the residential environment is a function of his satisfaction with each of the separate dimensions of the residential environment."

Residents' overall satisfactions with the environment around their homes was found to be related to three factors:

- a) their satisfactions with the separate component dimensions of the residential environment (which in turn were related to the physical characteristics of the environment) (12.7) (Table 6.11).
- b) the social characteristics of the respondent (12.2). Age was again the main variable (Figure 6.4) (Table 6.12).
- c) the residents' satisfactions with their dwellings (12.2). It is interesting to note that the respondents' satisfaction with the dwelling (referring to the dwelling as a place to live in, and not just to the appearance of the dwelling) is a significant factor in their satisfaction with the environment. This finding strengthens the argument for the two-way process of satisfaction in which the respondents' gen-
eral

Table 6.11 Correlation of Overall Satisfaction with Satisfactions with the Separate Environmental Dimensions (1)

ENVIRONMENTAL DIMENSION	KENDALL'S TAU
Appearance	.463 ^{***}
Reputation	.323 ^{***}
Satisfaction with Home	.291 ^{***}
Convenience	.258 ^{***}
Layout	.286 ^{***}
Cleaness	.141 [*]
View	.133 [*]
Upkeep	.128+
Air Quality	.113+
Council Upkeep	.105+

Significance Levels ^{***} .1%, ^{*} 1%, + 5%

(1) Correlation coefficients given are the estimates of their independent correlations with Overall Satisfaction (see 13.6).

Table 6.12 Correlation of Overall Satisfaction with the Social Characteristics of the Respondents (1)

SOCIAL VARIABLE	KENDALL'S TAU (First Order Correlation)	KENDALL'S TAU (partial correlation, controlling for age)
Age	.186 ^{***}	-
Income	-.147 ^{***}	-.065
Household Size	-.138 [*]	-.056
Length of Residence	.100 +	.078

Significance Levels ^{***} .1%
^{*} 1%
+ 5%

(1) The influence of the environment has been controlled for. See Ch.12.2

eral feeling of satisfaction influences their satisfaction with other things including the dimensions of the environment.

Different models of satisfaction were investigated as it was clear that a simple additive model was not sufficient (12.4). Because of a lack of time-series data it was not possible to verify the two-way process, although all the evidence suggested it was the most likely model (12.7).

The strengths of the correlations between the overall satisfaction and the satisfactions with the environmental dimensions varied considerably (Table 6.11). Because the dimensions were not independent of each other (e.g. Upkeep and Cleaness were both related to Appearance) partial correlation was used in order to obtain the independent correlations (13.6). Thus when the satisfaction with Appearance, the variable most strongly correlated with overall satisfaction, is controlled for the dimensions which are closely related to Appearance are less strongly correlated with overall satisfaction, and Reputation becomes the second most strongly correlated dimension. This is followed by satisfaction with the dwelling when both Reputation and Appearance are controlled for.

The conclusion that satisfaction with appearance is the most closely related variable to overall satisfaction corresponds with the results of the DoE study "The Estate outside the Dwelling" (DoE, 1972). "Upkeep" was not so closely related to overall satisfaction as in the DoE study, probably because it was also found to be closely associated with "Appearance" in this research. A dimension which does not feature in the list, but which has been found to be closely related to overall satisfaction in other studies (e.g. Troy P.N., 1972; Lansing J.B. and Marans R.W., 1969; Wilkinson R.K. and Sigsworth E.M., 1972), is "Friendliness". The fact that there was a low correlation between overall satisfaction and the satisfaction with Friendliness appears to stem from the very small variation

in the satisfaction scores. In other words either for genuine reasons, or because respondents did not want to give a bad impression to the interviewers, the majority of respondents said that their area was "very friendly". This lack of variation would tend to reduce the strength of the correlations (see also below for discussion of preferences).

6.5.4 Hypotheses e (4.2.6):

"Individuals have different preferences between the environmental dimensions."

Residents environmental preferences, defined operationally as the ranking according to the importance to the respondents of a list of environmental dimensions, are shown in Table 6.13. The dimensions are ranked by the number of times each was said by a respondent to be one of five most important dimensions to them.

The top preferences were "Friendliness"; "Convenience"; "Suitability for Children"; "Cleansness of Area"; and "Safety"; together accounting for 44% of the responses.

The priorities identified are comparable with those aggregated from other surveys as part of the research review (Table 3.3).

6.5.5 Hypothesis g (4.2.6):

"Individual's stated preferences for different aspects of the environment can be related to the contribution which their satisfactions with the separate dimensions of the environment make to their overall satisfaction with the residential environment."

Preferences, as operationally defined, and the strengths of the correlations with overall satisfaction do not yield the same ranking of the dimensions as hypothesised (Table 6.13).

Table 6.13 Residents' Priorities

ENVIRONMENTAL DIMENSIONS	PERCENTAGE OF TOTAL MENTIONS AS ONE OF TOP FIVE PREFERENCES	RANKING BY CORRELATION WITH OVERALL SATISFACTION (1)
1 Friendliness	10.7	
2 Convenience	9.2	4
3 Good for Children	8.4	
4 Clean Area	7.9	6
5 Safety	7.7	
6 Privacy	6.4	
7 Clean Air	6.3	9
8 Quietness	5.3	
9 Appearance	4.9	1
10 Greenery	4.0	
11 Council Upkeep	3.4	10
12 Reputation	2.6	2
13 Good Layout	2.6	5
14 Good View	2.6	7
15 Private Upkeep	1.6	8

(1) See Table 6.14

For example, "Appearance", which was the most strongly correlated variable with overall satisfaction was ninth priority according to the ranking of preferences. "Friendliness", which was the top preference on the basis of the direct question to the respondents was not among the dimensions which were significantly correlated with overall satisfaction. Only two dimensions were among the top six dimensions according to both methods: "Convenience" and "Clean area".

Four main reasons can be suggested to account for the differences found:⁽¹⁾

- a) the small range of responses to some dimensions, notably "Friendliness" and "Privacy", inevitably reduces the strengths of the correlations on the satisfaction method (6.5.3).
- b) the questionnaire layout may have influenced the satisfaction responses (12.6), although the effect of this was estimated to be small.
- c) the fact that some of the dimensions are closely related may mean that respondents have, for example, chosen "clean area" whilst assuming that this would imply a good appearance too. In other words the meaning of the terms may have varied from respondent to respondent.
- d) the most fundamental of the four reasons is that which relates to the form of the question and the concepts which the operational definition implied. The preferences relate to a hypothetical future state (e.g. the features which would be important if the respondent moved) and the everyday trade-offs between costs and change are not present in such a question. The satisfactions on the other hand relate to the existing situation in which the respondents' priorities are constrained by the costs, or the perceived likelihood, of any change.

The difference emphasises the need to define and keep the concepts clear in social research of this kind, and to consider the concepts in operational as well as theoretical terms.

6.5.6 Hypotheses c and f (4.2.6)

"When the environmental conditions are controlled, individuals may be

(1) Note that Troy also found differences between the two methods of obtaining priorities in his study (Troy P.N., 1972) (See 8.5.2).

grouped on the basis of their common expressions of satisfaction."

"Individuals may be grouped on the basis of their preferences."

It was not found practical to divide individuals into groups on the basis of their satisfactions, because of the range of responses even after physical conditions had been controlled, and because of the lack of clear 'break points' in the range of responses which could serve as category boundaries. It was a simpler proposition to group individuals on the basis of their choice of priorities (13.2).

Several different combinations of groups were selected, and after a comparison of the relationships between social and physical variables and the different preference groupings, division into six groups was found to give the best all round explanation.

Respondents were assigned to one of the six groups on the basis of their first preference. If the respondent had not selected any of the top six dimensions: "Friendliness", "Convenience", "Good for Children", "Safety", "Privacy", or "Cleansess (of Area or Air)" they were assigned to one of the groups on the basis of their second preference (and so on until all respondents had been assigned to one of the six preference groups).

Analysis of the membership of the six preference groups suggested two main influences on preference choice:

- a) the social characteristics of the respondent (13.3), notably the type of household (whether there were children or not) and the age of the respondent. Households with children were more likely to be concerned with the suitability of the area for children or with safety. Older respondents were more likely to be concerned with the Friendliness of the area.

b) the physical conditions in the area. Evidence for this was less conclusive. The imverified hypothesis suggested by the relationship of the preference groups to the physical data is that respondents tend to choose as a priority that dimension which he or she is either most satisfied or most dissatisfied with (13.4).

6.6

The substantive conclusions of the research have been dealt with very briefly partly because they are discussed in greater detail in Volume II, but also so that the emphasis of this volume on the operational application of the work is not overshadowed. In the summary of results which has been presented there has been no discussion of the relevance or application of the results to the problems of Wakefield District. This is the objective of the following chapter, which is the concluding chapter of the first Volume.

Chapter 7

CONCLUSIONS: THE APPLICATION OF THE RESULTS

7.1 INTRODUCTION

7.1.1 This chapter considers the research questions which were posed at the outset of the study (4.1.2) and discusses how far the survey results have answered those questions. It will be recalled that five questions were framed (4.1.2):

- a) How does satisfaction with the residential environment relate to the attributes of that environment?
- b) What priorities are placed by residents upon different elements of their environment?
- c) Do common priorities exist which can serve as a basis for deciding improvement priorities?
- d) Can environmental standards be derived from the data?
- e) Is a social survey a useful tool for decision-making in the planning context typified by that of Wakefield District?

7.1.2 The first of the research questions has already been answered in dealing with the substantive results of the research (6.5.2) and is not discussed directly in this chapter. The relationship between satisfaction and the attributes of the environment is central to the concept of environmental standards and will of course be dealt with again in connection with standards. The remaining four research questions will be dealt with in turn and finally some additional findings on the relationships between the environmental variables themselves will be discussed.

7.2 RESIDENTS' PRIORITIES

7.2.1 The research emphasised the need to define concepts of value such

as 'priorities' clearly, and in operational terms. Two different sets of priorities were obtained from the survey using different methods and implying different contexts. The two sets, those obtained by direct questions on environmental preferences and those obtained by their strengths of correlation with overall satisfaction, are therefore likely to be suitable for different purposes and should be used with care.

7.2.2 The directly measure^d priorities (i.e. those obtained from the ranking of the respondent's top five preferences from the list of environmental dimensions, see 13.1) appeared to be less constrained by the feasibility of changing environmental conditions. It was noted that the poor quality of one particular aspect of the environment often lead the respondent to choose that aspect as a priority.

7.2.3 This is in contrast to the priorities which were deduced on the basis of strengths of correlations with overall satisfaction. In this case the perceived likelihood of any change was an important consideration. Hence residents in an area with high air pollution levels were nevertheless generally satisfied as they had adapted to the conditions and saw no likelihood of improvement. However, given the choice of what to improve, e.g. on moving home, air pollution would have been a high priority. Priorities obtained in this manner were termed 'constrained' priorities because it was felt that they were affected by residents' current expectations and the adaptations which residents may have made to the environmental conditions (13.6).

7.2.4 The critical point in relation to the operational use of the survey data is which set of priorities should be used? The directly obtained priorities ('unconstrained' priorities) would appear to have more important long term validity as they are less related to existing conditions, and possibly are closer to residents' basic attitudes or values. There are

two main difficulties in using priorities obtained in this way:

a) the problem of scaling the relative importance of the priorities (8.5.3).

The most commonly used method, assuming a 'voting' model, gauges the importance of the priority according to the number of times an environmental dimension is mentioned. This simple approach (as used in Chapter 13) does not distinguish of course between the different relative importances that the priorities have for different people.

b) It is difficult to relate the dimensions which the residents selected to the environmental variables. In this survey of course the scaling of satisfactions with the separate dimensions enabled the relationship between the dimension names (e.g. Clean Area) and the measured variables to be established. If direct questions on priorities alone had been used this would not have been possible.

7.2.5 The use of the 'constrained' priorities to some extent overcomes these two problems. Firstly it is straightforward to relate the dimensions to the environmental variables, and secondly the strengths of correlations between the satisfactions with the separate dimensions and overall satisfaction provides a method of scaling the strengths of the priorities. Note that this second argument would be considerably reinforced if the data collected were of interval status and regression analysis could be used.

7.3. THE USE OF RESIDENTS' PRIORITIES FOR DECISION-MAKING

7.3.1 The third research question related to the use of the priorities i.e. whether consistent 'priority groups' could be found in the population and whether these could serve as a basis for deciding improvement priorities.

7.3.2 As discussed earlier (6.5.5) it was found possible to group the

the respondents on the basis of their 'unconstrained' priorities, but was not practicable using the 'constrained' priorities. One of the reasons for not being able to group the respondents using the latter method was the relatively small size of the sample. The small size of the sample made the investigation of relationships between satisfaction and the environmental variable within each preference group unreliable, although the relationships between 3 specific satisfactions and the environmental variables were investigated for the six groups (13.8). A larger sample would be necessary to be able to draw any general conclusions on the differing perception processes within each group.

7.3.3 Thus although it is possible in principle to divide the population into meaningful preference groups, for the purpose of discussing the practical uses of the data the sample population has been considered together as a single group with common preferences.

In discussing the use of these priorities reference must be made again to the practical context from which the research questions were developed (2.6). Wakefield District were in the process of formulating a new housing policy when the study was begun, and one of the aspects of the policy was the determination of priorities between different areas for improvement action (2.6.7). Although the priorities were basically related to the housing quality, two of the aims stated in the District's Housing Strategy statement (City of Wakefield Metropolitan District Council; 1974a) made it clear that environmental considerations were to be included:

- "a) to reduce the number of situations where housing has a totally unsatisfactory external environment by the most suitable means.
- b) to promote an environment conducive to the social well-being of the residents."

It was implicit in the discussions with the District, and in the design of the survey, that a person's satisfaction with the residential environment would be taken as the criterion of social well-being, and that residents' priorities, as determined in the survey, would be used as the basis for defining an unsatisfactory external environment.

7.3.4 The first approach adopted was to use the priorities found in the survey to check on the values which were implicit in the method which Wakefield District used to measure the environmental quality of residential areas (Volume II, Appendix D). The method Wakefield used involved a) the choice of physical measures of environmental quality and b) weighting the measures relative to one another. The constrained priorities were used as the yardstick to test both the choice of variables, and the weighting used, as the relationships between these priorities and satisfaction had been explored in the research.

7.3.5 The use of physical criteria for judging environmental quality was not justified by the survey results. The relatively weak correlations meant that the physical variables were extremely poor predictors of environmental satisfaction (Table 6.10). There were two interesting further conclusions arising from this. Firstly, the census variables were as strongly correlated with satisfactions as any of the specially measured variables, which suggested that they could be of use in an initial crude screening exercise with little loss of accuracy. The idea of initial screening using census information, followed by detailed physical surveys, or social surveys in selected areas has been carried out before (Duncan T.L.C. (1971)) although there is little evidence as to the accuracy of such screening exercises.

Secondly the poor predictive power of the physical variables suggested that it may be useful to use the results of the social survey directly i.e. use the respondents' scaling of satisfactions to measure the environmental quality. This is discussed below (7.3.7).

7.3.6 Although the residents' priorities obtained in the survey were only scaled ordinally it was clear that there were considerable differences between the values assumed by Wakefield District in their environmental quality measurement method, and those of the residents (Appendix D, Volume II). For example in the Wakefield method the state of the road and the number of parking spaces were given weights two to three times as much as the density of trees in a street; yet the survey results indicated that the density of trees was much more closely related to overall satisfaction than the other two variables. However the issue of weighting was found to be secondary to the initial choice of physical measures (Appendix D).

7.3.7 It has been suggested that the social survey data could be used directly instead of the use of physical variables as indicators of environmental quality. For example respondents were asked to rate their overall satisfaction with their areas and also their satisfactions with the separate environmental components which make up the residential environment. In other words it would be possible to base decisions on the priority of an area for improvement on the satisfactions of the residents as measured, rather than as predicted from other variables.⁽¹⁾

It is possible by using such measures as the median overall satisfaction

(1) In all the discussion in this chapter it has been assumed that the data in-puts described would form only part of the information on which a decision was made. Other information such as dwelling data, costs of improvement would also be required, depending on the nature of the decision.

in an area (and the median satisfaction with dwelling) to identify areas in which satisfaction is low, and which require some form of action. By treating the satisfactions with the separate environmental dimensions in a similar manner it is further possible to build up a comprehensive qualitative picture of each area. Basically, the median overall satisfactions can be used as a way of ranking the areas in terms of priority for some kind of action, and the median satisfactions with the environmental dimensions can provide a basis for identifying the type of action required.

7.3.8 Figure 7.1 shows the 17 case-study area parts plotted according to their median overall satisfactions and median satisfactions with the dwellings. The areas which are perceived to have environmental problems (Featherstone (East and West); Fitzwilliam (East) and Bellevue (West)) or housing dissatisfaction (Hemsworth (East); Streethouse and Nevison (West)) are immediately apparent from the graph.

Figure 7.2 illustrates the further detail which is obtained by including the satisfactions with the separate environmental dimensions. The bars represent the amount by which each case-study area median satisfaction deviated from the median satisfaction for the whole sample for that environmental dimension. Eastmoor, the area with the highest median overall satisfaction is shown to have had below average satisfaction with convenience and with the dwellings themselves. Glasshoughton, which had an average median overall satisfaction, had extremely low satisfactions with air quality, layout, reputation, appearance and cleanliness (see area descriptions 5.2). Featherstone West, which had one of the highest median satisfactions with the dwellings (which were all less than 8 years old) had very low median satisfactions with most other dimensions.

FIGURE 7.1 MEDIAN SATISFACTION BY CASE-STUDY AREA

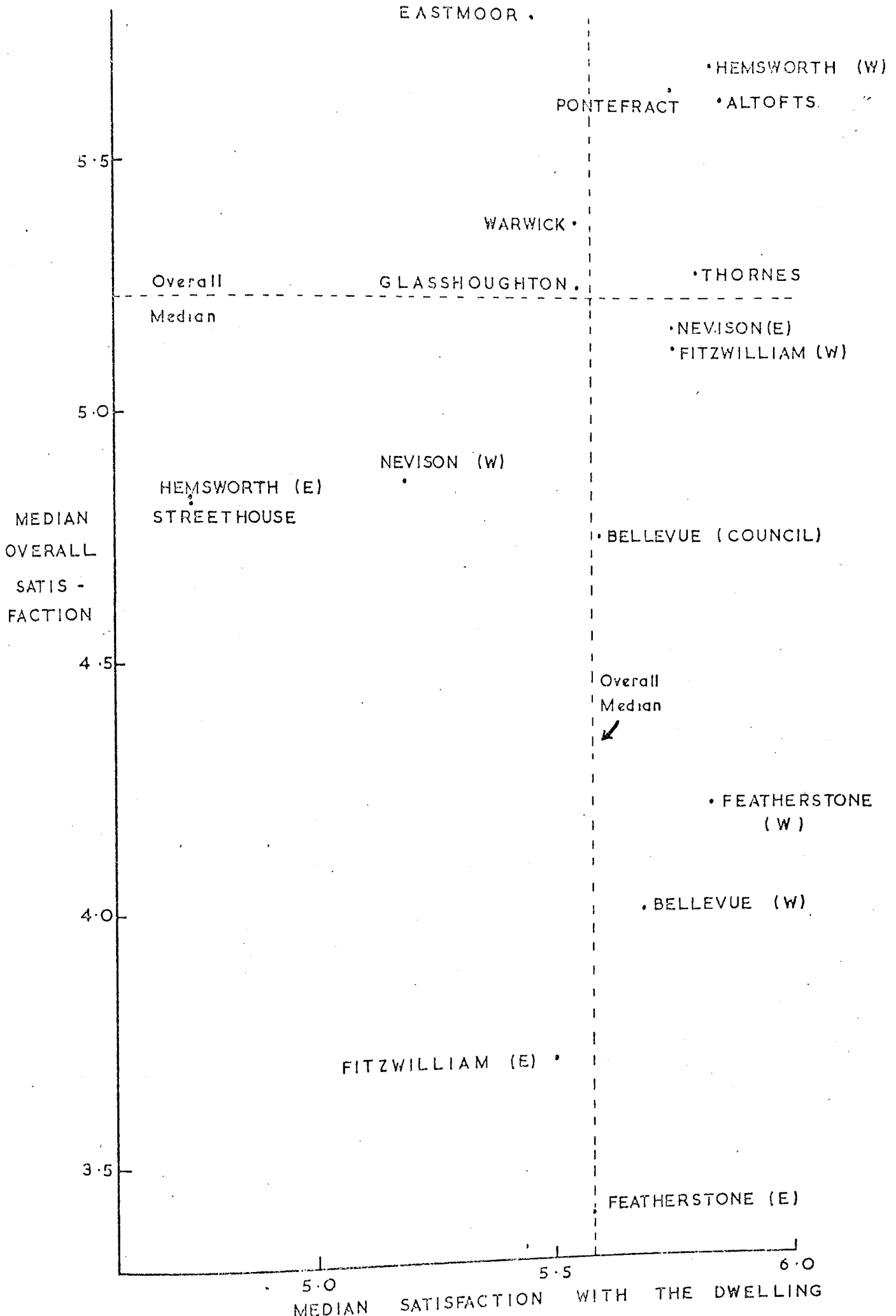
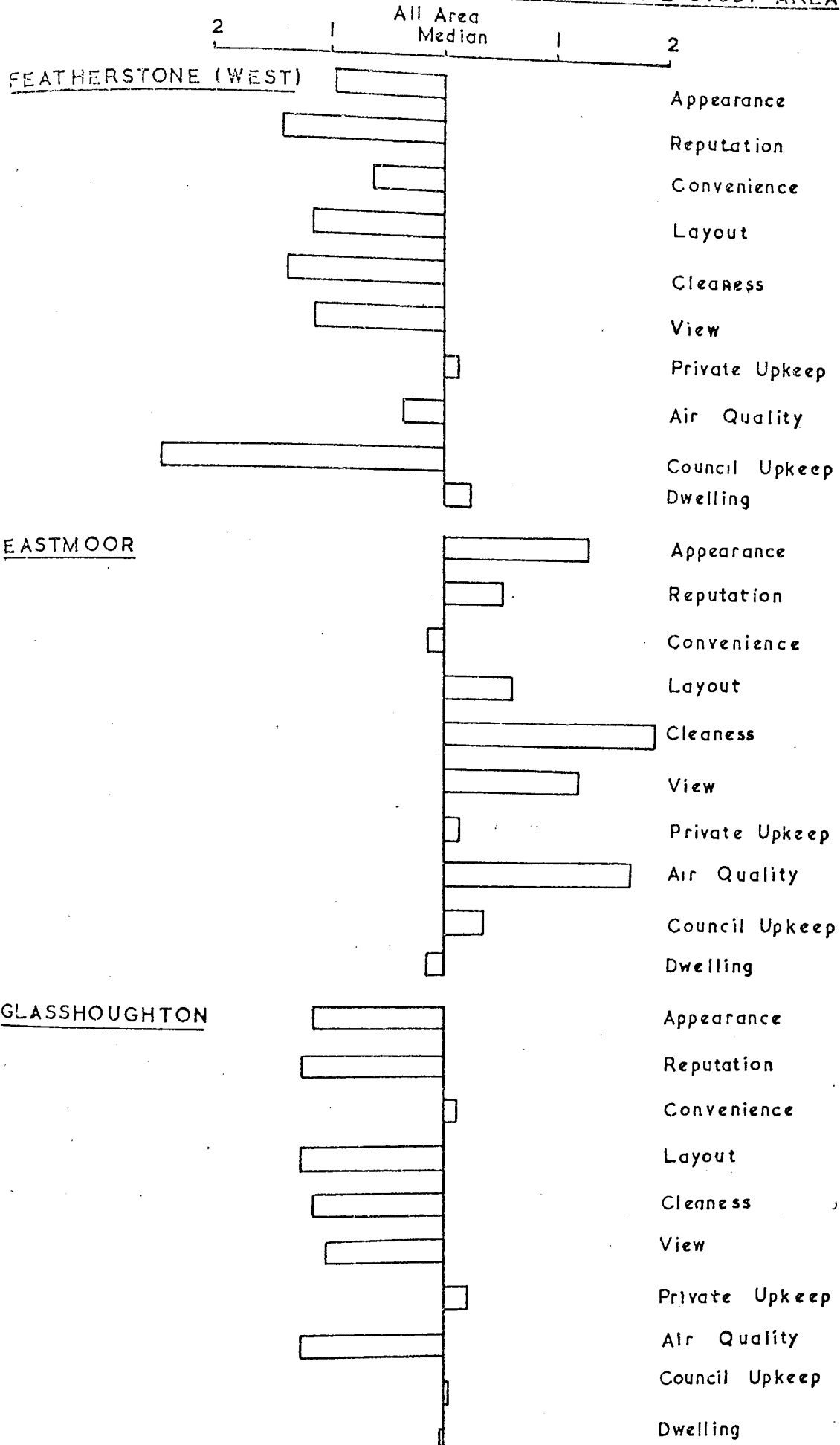


FIGURE 7.2 SEPARATE SATISFACTIONS BY CASE-STUDY AREA



A comparison of the method used by Wakefield to select priorities and the direct use of the survey data is given in Appendix D (Volume II). The strength of the method using social survey responses directly is that the data is straightforward to obtain and provides extensive depth of information. The low scale status of the data limits the ability to summarise the data (e.g. into index form), but this can be seen as an advantage as it forces each area to be examined fully on its merits (rather than the use of a single priority score for example). The disadvantage of such data is that with a large number of areas or variables it becomes difficult to handle, although initial selection on the basis of census variables or overall satisfaction scores can reduce this problem.

7.4 ENVIRONMENTAL STANDARDS

7.4.1 The relationships found in the survey between the expressions of satisfaction and the environmental variables, although not strong, were clear enough to suggest that they could be used, not as standards, but as indicators. Among the general problems of setting environmental standards (see Woodford G. et al; 1976) two are particularly illustrated by the survey data:

- a) the range of satisfactions or dissatisfactions expressed with a particular value of an environmental variable was found to be large. This problem reflects the fact that in the field of environmental quality the relatively clear-cut issues of safety and health have now been superseded by more subjective issues. This makes it difficult to specify a particular value of some variable as the standard which will ensure the right quality of provision. It is possible to state that more of certain variables would improve the environmental quality, and even to state the probability that a given proportion of the population would be satisfied with a certain level of a variable.

- b) the multiplicity of relationships between the environmental variables and the satisfactions suggests that it is not possible to select a particular value of one variable as a standard. The complexity of the interrelationships in the environment means that one variable cannot be regarded in isolation from the other variables which comprise the residential environment. The process by which overall satisfaction is derived also suggests that the lack of one aspect of the environment can be compensated by other advantageous aspects.

Thus the use of the survey data to define standards (in the sense that they represent advisory minimum values or planning requirements) is not justified. However the indicative properties of the data can be demonstrated with some examples.

7.4.2 The most obvious environmental variables in the survey which could be used in an indicative way are the distance variables. The approach used here is to plot the percentage of respondents who were dissatisfied with the convenience of a facility in each distance band from that particular facility (Fig. 7.3). The figure illustrates the progressive rise in the proportion of dissatisfied tenants as the distance from the facility increased.

Three things are highlighted in the figure:

- a) the rise in the percentage of respondents who were dissatisfied is relatively smooth; there is no clear 'break-point' which could be said to be a 'critical' distance.
- b) In only two cases (shopping; park) did the proportion of dissatisfied respondents reach half the population in the distance band within the range of distances sampled in the survey.

FIGURE 7.3 CONVENIENCE VERSUS DISTANCE

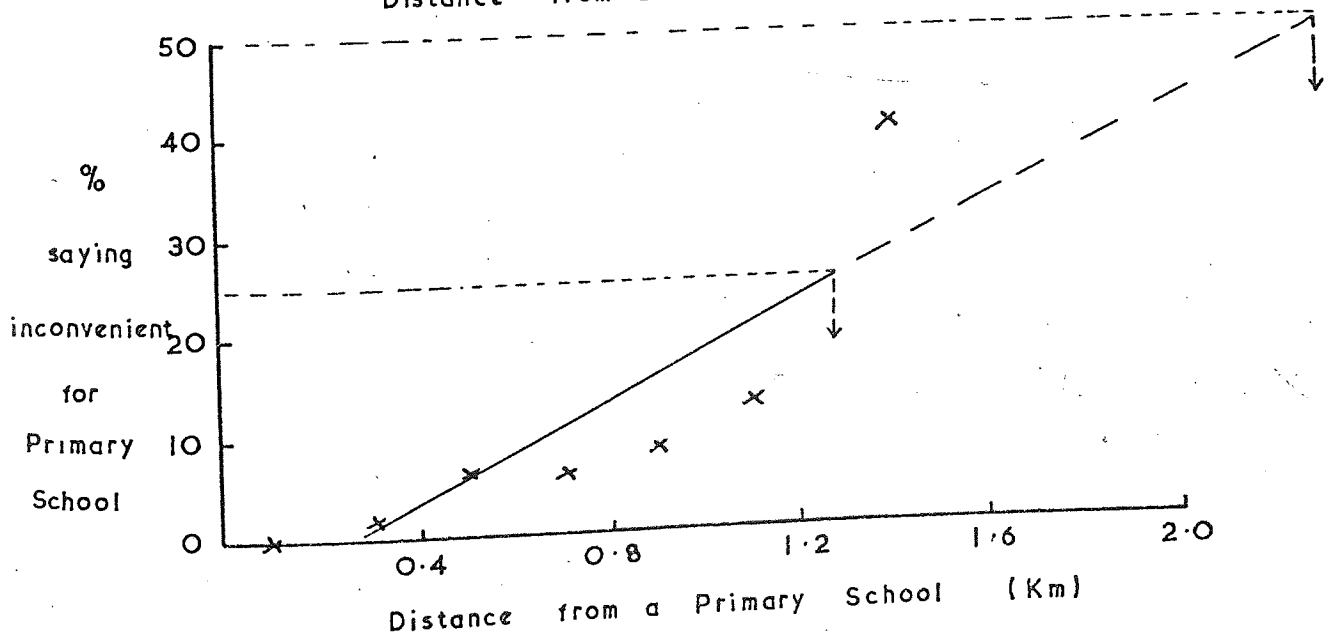
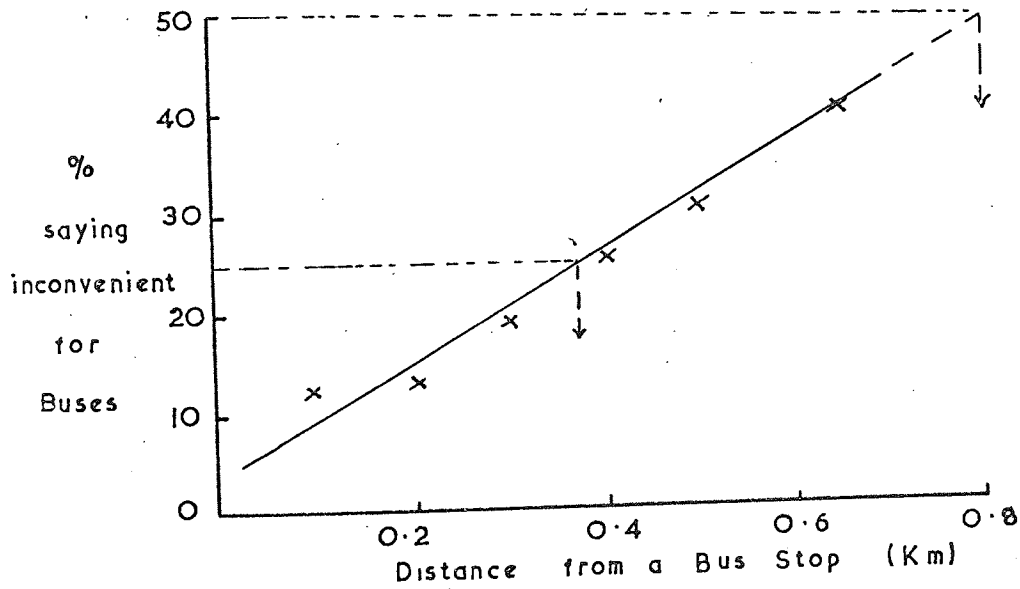
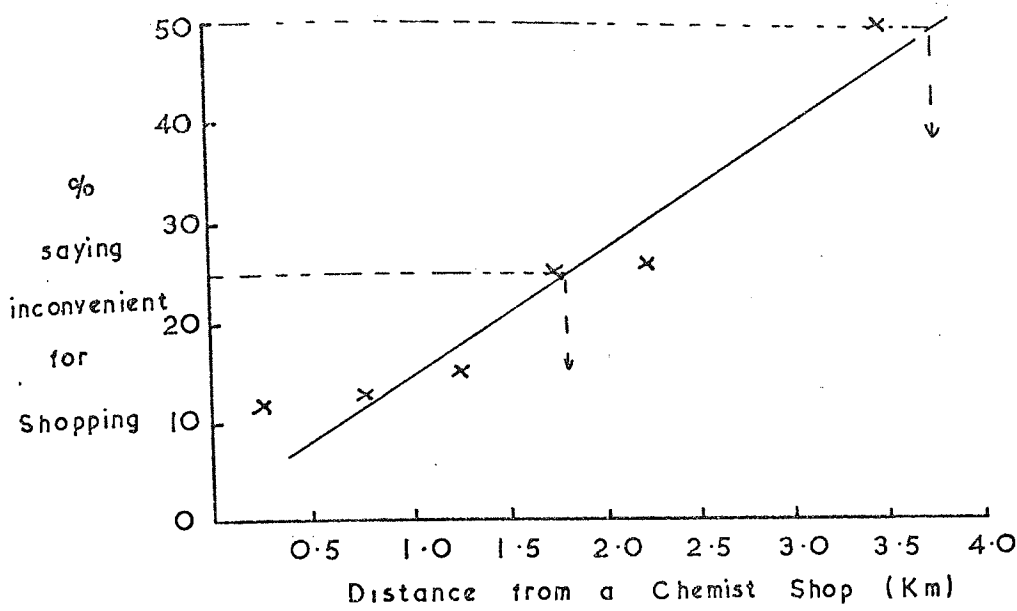
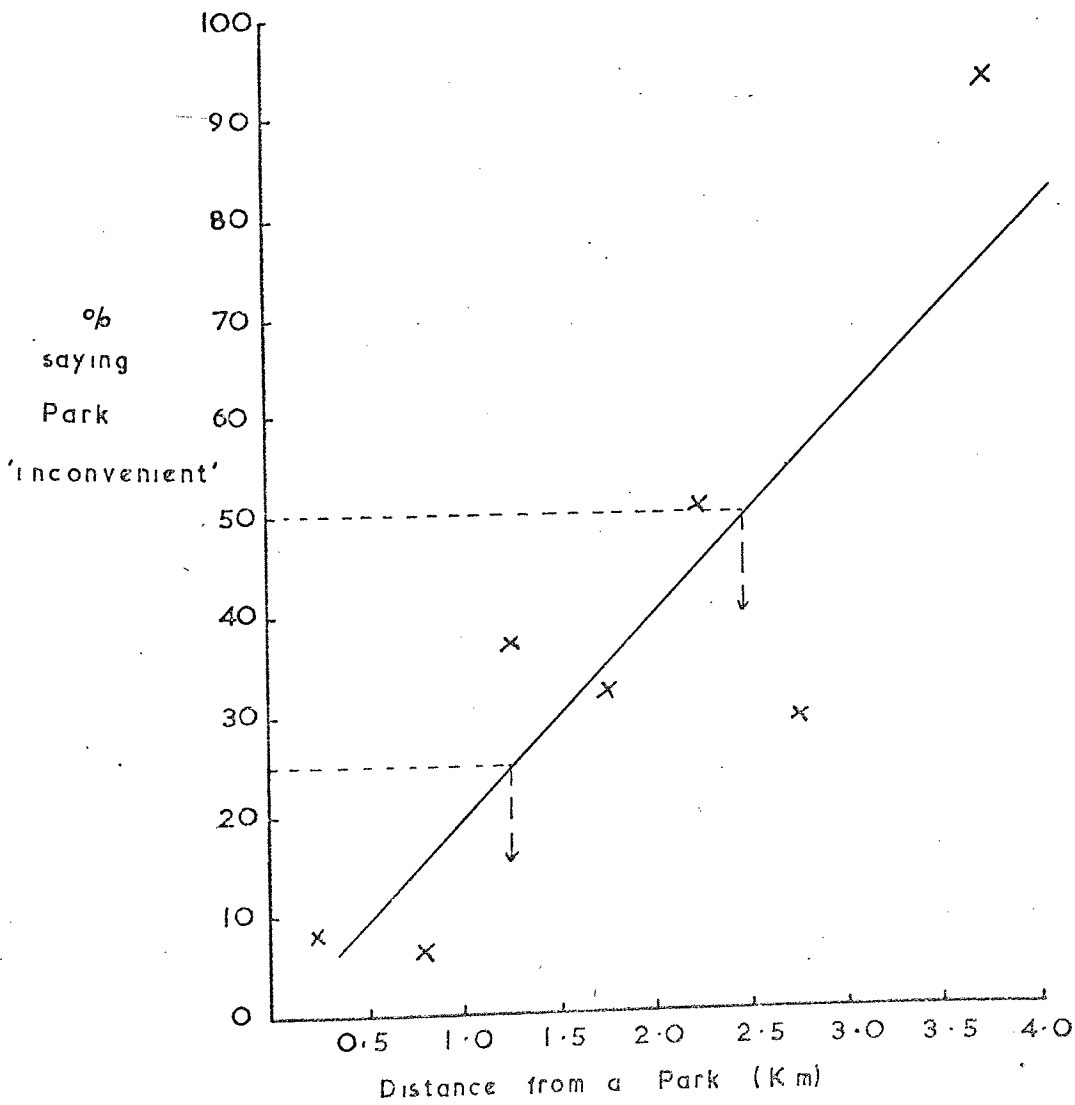
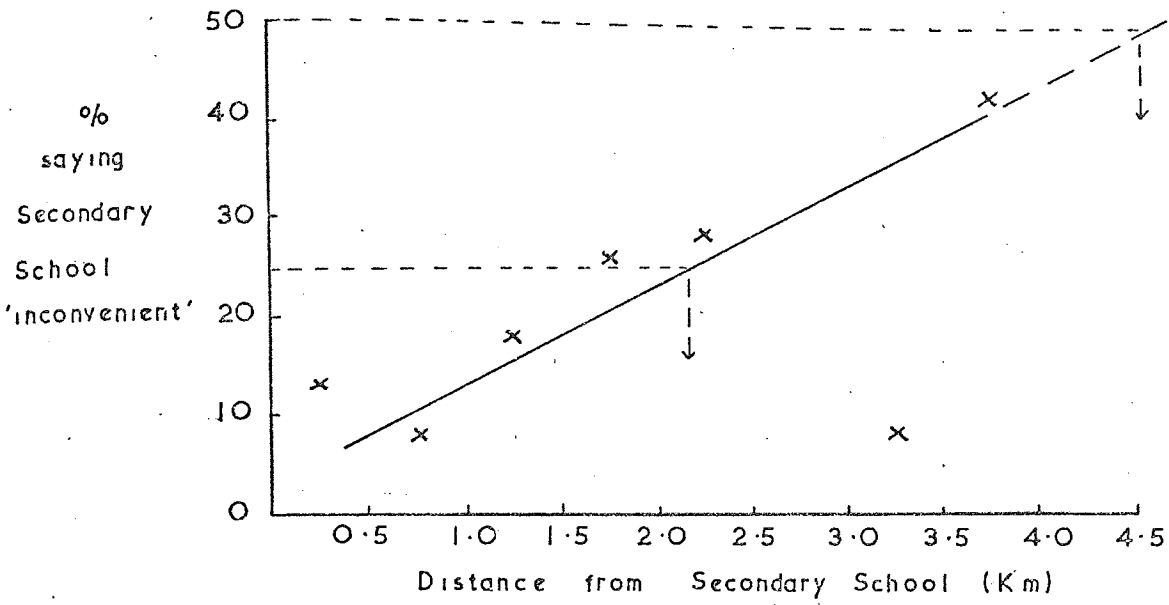


FIGURE 7.3 (Cont.)



c) the number of respondents in some of the distance bands was very small. (1)

Table 7.1 gives the approximate distance at which 25% and 50% (estimated) persons were dissatisfied to some degree with the level of convenience to the various facilities. The distances are comparable with those found acceptable by residents in a study of convenience carried out in Reading (IHIG 1966b).

Table 7.1 Distance Standards

Facility	Distance Band (km) for which		Distance band (km) within which respondents felt they were near to facility (1)
	25% Respondents Dissatisfied with Convenience	50%	
Bus Stop	0.3-0.4	0.8-0.9	0-0.4
Park	1.0-1.5	2.3-2.7	0-3.3
Primary School	1.2-1.3	2.0-2.4	0-0.8
Shopping (Distance to Chemist)	1.5-2.0	3.5-4.0	0-2.5 (Town Centre)
Secondary School	2.0-2.2	4.5-5.0	-

(1) Ministry of Housing and Local Government (1966) "Home and the Environment - A Pilot Study in Reading"

7.4.3 A number of other variables, less straightforward to interpret, also have some value as indicators of the quality of the residential environment. In the examples given the environmental variables have been plotted against the proportion of respondents who were satisfied or very satisfied with specific environmental dimensions. Four examples are given here:

(1) For example, only 5% of the sample lived over 3 km from a park; and 5% over 3 km from a chemist shop.

a) Satisfaction with Appearance

Four variables which were related to satisfaction with appearance are shown: the presence of a verge; the presence of trees along the roadside; dereliction in the area; and the number of mature trees in the vicinity of the respondents' dwellings. The relationships (figure 7.4) are clear, although again one of the problems which is apparent is the small number of respondents in some of the categories, particularly the number of respondents having a large number of trees in the vicinity. (1)

It is also clear from the figures that if all four variables were 'provided' in appropriate quantities not all residents will be satisfied. This emphasises the indicative nature of such environmental 'standards' rather than their absolute properties.

b) Satisfaction with Noise

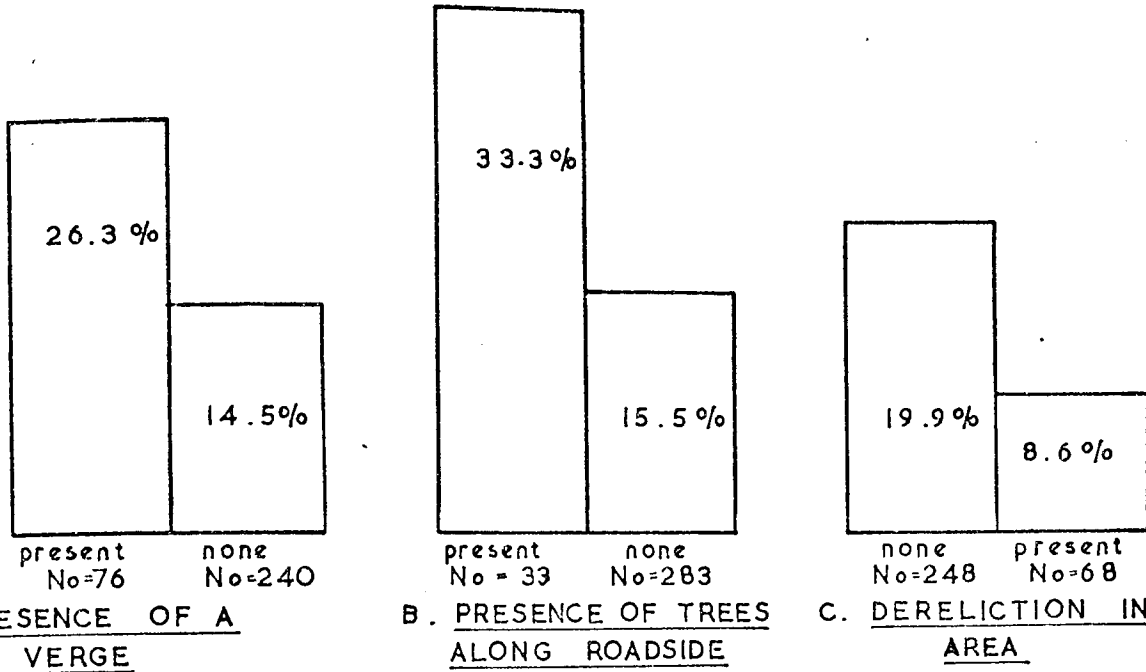
The physical variables which have been related to the satisfactions with noise conditions are: the distance from a main road; the type of dwelling; and the category of road in which the respondent lived (Fig 7.5). The relationship between satisfaction with noise and the distance from a main road is only straightforward up to a distance of 200-300 metres; after which other factors appear to have an influence. The main contrast between the types of dwelling is between terraced housing (often fronting straight onto the pavement) and detached dwellings. Not surprisingly, (2) respondents living on main roads were least satisfied with the noise conditions.

(1) This is a reflection of the relative lack of variation in environmental conditions within the District, and more particularly of the avoidance, in the choice of case-study areas, of some of the 'better' residential areas.

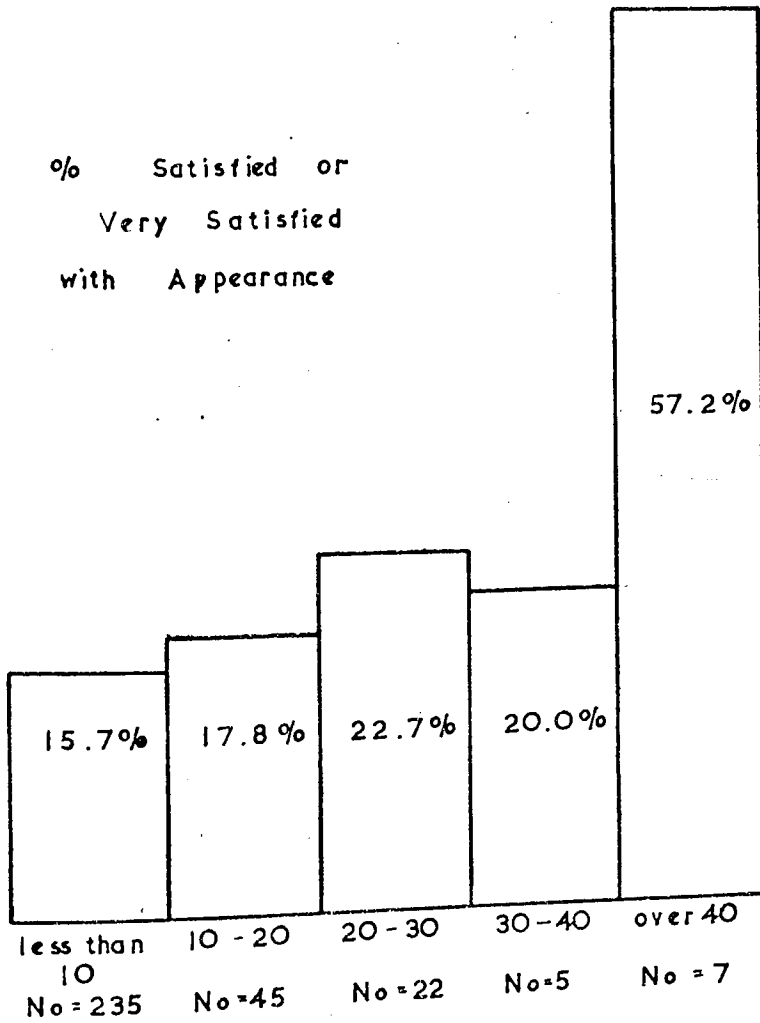
(2) The poor rating of the 'Pedestrian only' roads is possibly related to other characteristics of the estate on which all such roads were located, i.e. the Warwick Estate.

FIGURE 7.4

SATISFACTION WITH APPEARANCE



% Satisfied or Very Satisfied with Appearance

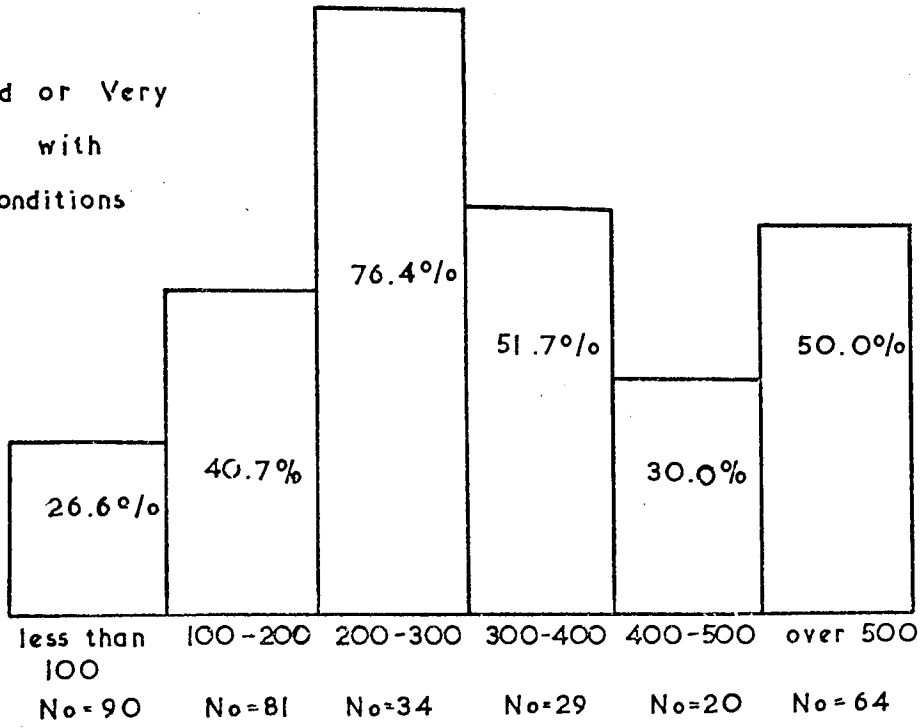


D. NUMBER OF TREES

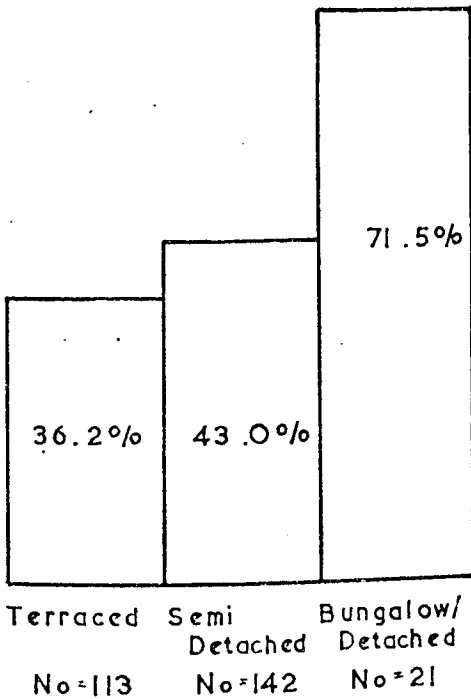
FIGURE 7.5

SATISFACTION WITH NOISE

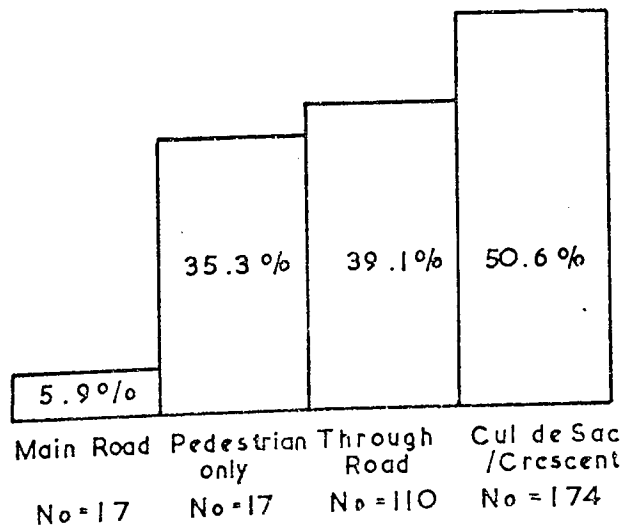
% Satisfied or Very Satisfied with Noise Conditions



A. DISTANCE FROM MAIN ROAD (metres)



B. HOUSE TYPE



C. ROAD TYPE

c) Satisfaction with Privacy

Satisfaction with privacy has been related to two variables: the type of dwelling and the type of private space provided at the rear of the dwelling (Fig 7.6). There is little variation between the dwelling types, except for detached dwellings which clearly had the highest proportion of respondents who were satisfied with the privacy. The availability of a garden, rather than a yard, was related to higher satisfaction but this could stem from the usual size differences between gardens and yards. For comparison the effect of garden or yard provision on the satisfactions with the suitability of the area for children is shown.

d) Satisfaction with Car Parking

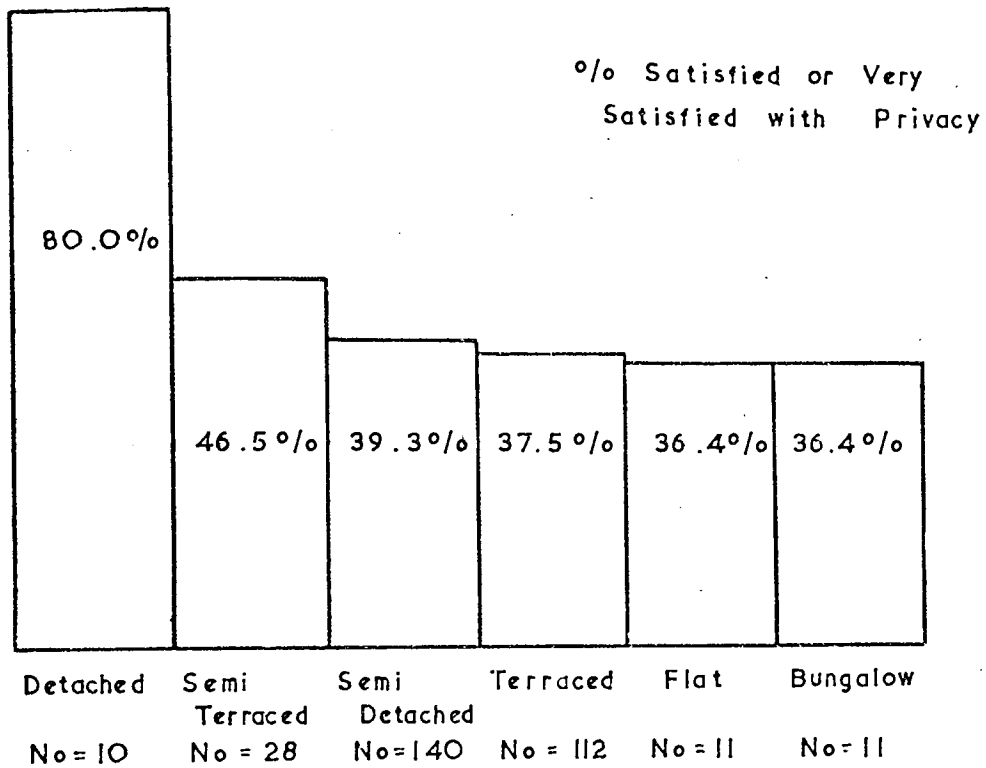
Satisfaction with car parking has been plotted against two variables: the type of car parking provision, and the amount of parking space (Fig 7.7). Both relationships are clear, and it is noticeable that it is only when the number of parking spaces per dwelling rises to more than one, or when garages are provided, that the percentage of respondents who are satisfied, or very satisfied, with parking rises to over 50%.

7.4.4 This latter dimension, namely car parking, illustrates the problems of specifying environmental standards. Car Parking is a straightforward concept (compared with 'Privacy' or 'Appearance') for which relatively easy measures exist; measures which are also directly related to satisfaction. The data can be used to predict the proportion of people who would be satisfied with different levels of provision. However they do not, and cannot, indicate what level should be chosen as a universally applicable standard.

With other environmental dimensions the measurement problems and the relationships between the variables and satisfaction are more complex. In

FIGURE 7.6 SATISFACTION WITH PRIVACY

A. HOUSE TYPE



B. PRIVATE SPACE AT REAR OF DWELLING

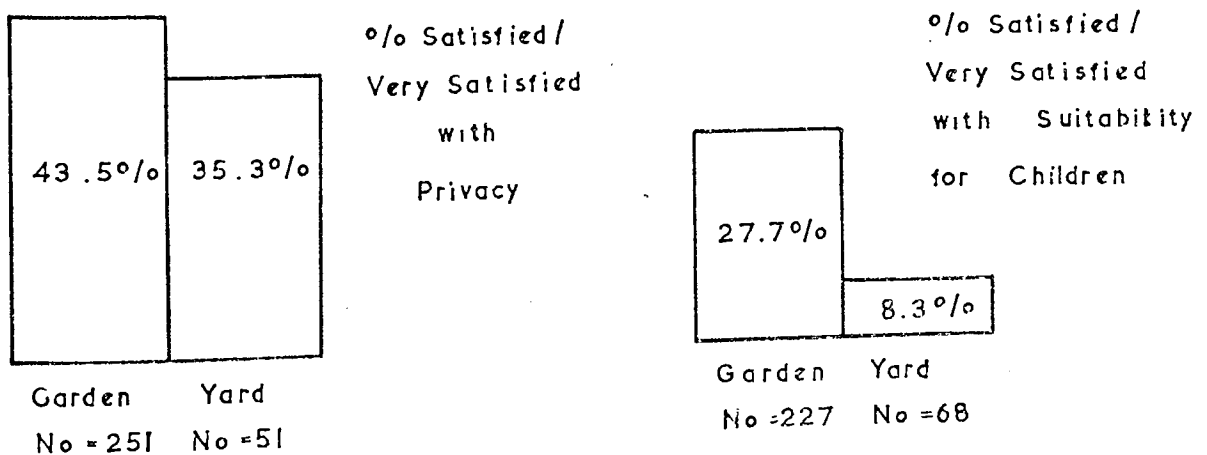
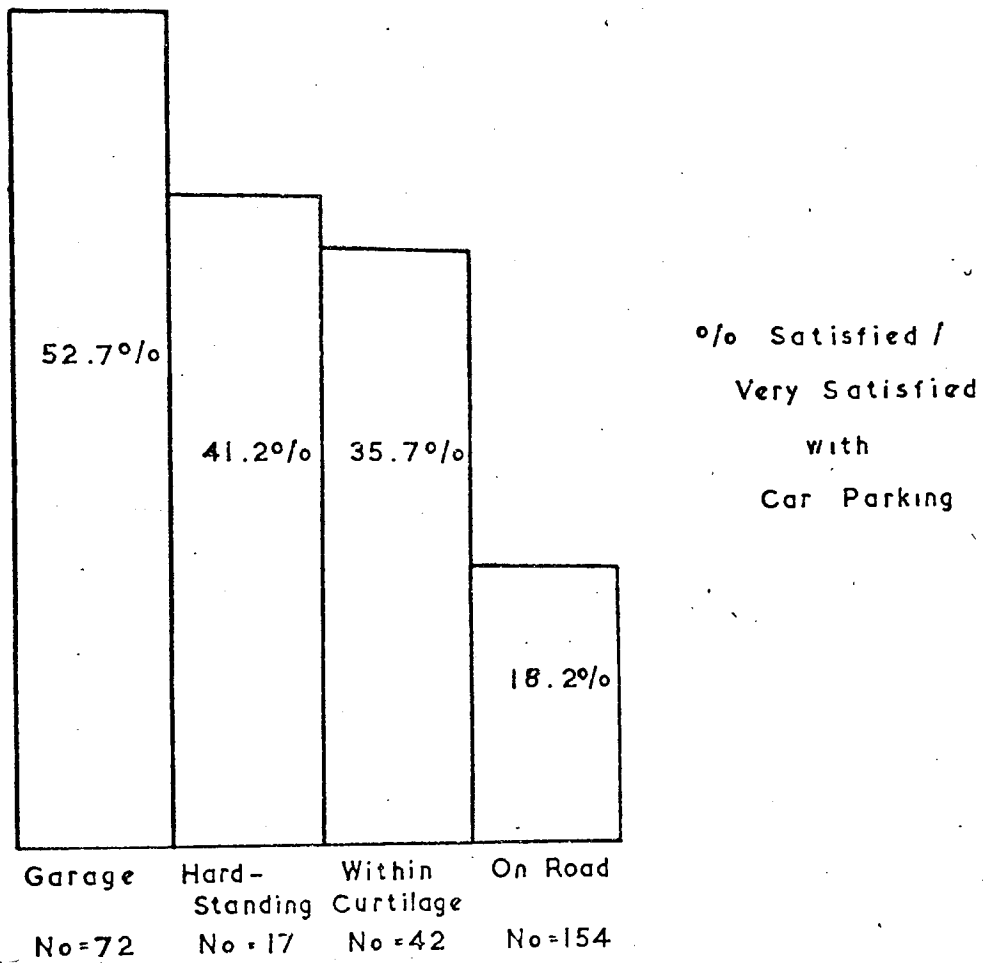
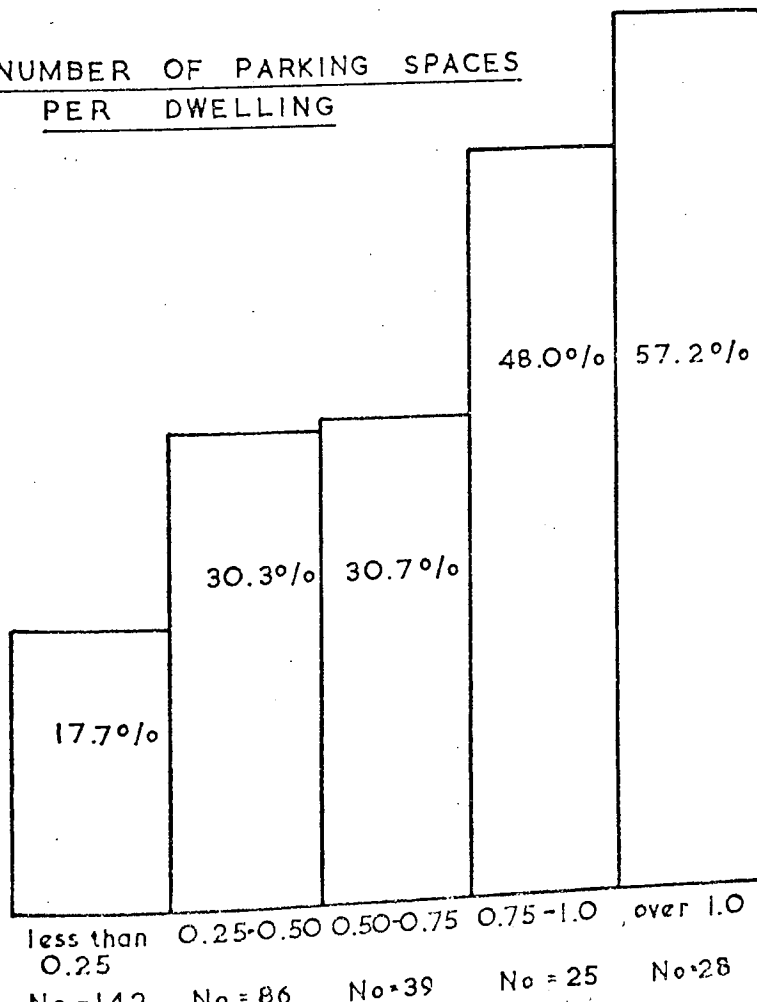


FIGURE 7.7 SATISFACTION WITH CAR PARKING

A. TYPE OF CAR PARKING FACILITY



B. NUMBER OF PARKING SPACES PER DWELLING



these cases it is not possible or reasonable to use the data in any other way than as indicative of the general level of satisfaction, or the likely changes if the conditions are altered.

Additional care has to be exercised in any attempt to apply 'standards' which are derived from this research to areas with different conditions. This is because the close inter-relationships between the environmental variables means that one cannot isolate a simple variable which has universal validity.

7.5 THE USEFULNESS OF THE SOCIAL SURVEY

7.5.1 There are a number of conclusions which relate to the methodology employed, and the ability to use the results obtained. The first point is a general one: the basic concept of value which is used, and more particularly the operational definition of it as expressed in the measuring instrument, will have a major influence on the values found. This is clearly illustrated in the different preferences obtained in the survey i.e. those obtained directly, and those inferred from the correlations with overall satisfaction (6.5.5). Both measures were assumed or hypothesised to be indicative of a person's environmental values (4.2), yet it is obvious that different values have been measured.

This has important implications for

- a) social research in general; emphasising the care which should be taken in the definition and operationalising of concepts, and
- b) the use which should or can be made of available results from existing research obtained, using different methods and assumptions (3.5.6).

7.5.2 The second conclusion is that the instrument developed, using the 'satisfaction' questions for example, is a good, reliable and quick method

to gain an insight into residents' views. All major aspects of the environment were covered by the questions and there was no excessive halo effect between the questions (12.6), once the intercorrelations between the environmental dimensions had been controlled.

However the instrument was not refined enough to distinguish between the two hypothesised perception outputs measured: the designative and appraisive outputs (4.2). This was mainly the result of the low scale status of the measured responses.

7.5.3 Thirdly, the assumption that the survey data was only of ordinal status was justified by the evidence from the pilot and main surveys that lay individuals did not easily interpret the line or numbered scale as a true scale. In the latter case respondents were found to respond to the labels on the scale, rather than to the scale positions themselves. There is therefore also a need to select the phrasing of labels with care. In any survey in which no extensive attention has been paid to scaling methods data obtained from scales such as those used in this research should not be assumed to have interval or ratio properties.

7.5.4 The use of ordinal data, which follows from the conclusions on the scaling methods, can, with careful analysis, enable useful conclusions to be drawn. It a) enables more to be learnt qualitatively about the results b) prevents false conclusions, based on unjustified scale assumptions, being drawn and c) prevents any superficial analysis which is possible using interval data by virtue of the fact that summarising statistics (e.g. regression coefficients) are available. Such statistics obscure, or ignore, awkward or extreme observations.

7.5.5 The research has explored a number of relationships with the use of

an unsophisticated survey technique which is typical of the methods used by many local authorities. Despite the limitations which ordinal data assumptions have imposed a great deal of information and explanation has been gained.

Clearly, however, further research is required in the development of an accurate, and easy to use measuring instrument which can obtain interval data and also be used in the field with lay individuals without excessive time loss. The Priority Evaluator Device (Hoinville G., 1971) has great potential if its scope can be widened (3.5.4).

The measurement problem also applies to the environmental conditions, a point which is dealt with elsewhere (4.3.3.2).

7.5.6 This chapter has concentrated on the use of the survey data in order to select priorities for environmental improvement. The issues of environmental standards and identification of types of area have also been discussed. A further important 'by-product' of a social survey of the type used in the research is the detailed local information which is obtained, usually in the form of complaints. These essential^y local problems, which may be physical or management problems for example, although apparently minor nevertheless have a great effect on resident's satisfactions with their area. Examples in this research were the infrequent street cleaning in Featherstone, the developers slowness in completing estate roads in Featherstone (West), and the lack of pedestrian crossings in Hemsworth. Information gathered as part of a social survey can therefore be used to generate a quick response by local authority to problems which are perceived locally as important.

7.6 THE RESIDENTIAL ENVIRONMENT

7.6.1 A further major conclusion was drawn from the research after the

analysis of the various environmental measurements which were made as part of the survey.

It was recognised when selecting the case-study areas that the dimensions of the environment tended to vary together, resulting in distinct types of area. Two clear examples among the case-study areas were the inter-war council estate (semi-detached dwellings; gardens; hedges; narrow roads; peripheral location etc.) and the late nineteenth century terraced areas (parallel streets; small gardens or yards; narrow pavements; terraced dwellings fronting straight onto the street etc.). The factor analysis carried out on the physical variables provided a means of characterising the case-study areas (Appendix B).

7.6.2 Nine factors were identified, of which the first four accounted for 71.3% of the total variance (Appendix B, Table B.2). The first factor (26% of variance) was a locational measure of the area with respect to the town centre (correlation between this factor and the distance to the centre was 0.969). The second factor was a tenure variable describing the rent sector only. (Correlation of 0.832 with the proportion of council tenants and -0.687 with the proportion of private tenants). The third factor posed difficulties of interpretation, it was highly loaded on three census variables and appeared to have more of a social interpretation: the proportion of households without cars; the proportion of households living at a density of over $1\frac{1}{2}$ persons per room and the proportion of households renting private unfurnished dwellings. The factor was possibly an indicator of household means (see Appendix B; B.3). The final factor of interest here was primarily a measure of density (correlation of -0.757 with the number of houses).

7.6.3 These first four factors have been used in Figure 7.8 to plot the

case-study areas. The two main axes of the graph are the location factor (distance from centre) and the tenure factor (proportion of council/private tenancies). The other two factors are shown by bars for each area: the vertical bars represent the density, and the horizontal bars the 'social' factor. Using the diagram a number of different area types can be identified. It is instructive to compare the resulting types with the housing groups identified in a similar exercise (using cluster analysis) carried out by Buchanan for the Nationwide Building Society (Buchanan J., 1971).

Table 7.2 shows the identified categories of area (see 10.2.3 for further discussion). Note that there are several equivalent types of area to those found by Buchanan (e.g. public semi-detached; private semi-detached). However there are also major differences which are related to: a) the complex settlement structure of the Wakefield area, in which there is not a single centred area, but a range of settlements of varying sizes from pit and agricultural villages through to Wakefield City itself. b) the presence of mining in the area. This not only introduces a further tenure category (NCB rented dwellings), but has also led to small isolated settlements built at relatively high densities i.e. which have some inner urban area characteristics, but a rural location (e.g. Fitzwilliam). c) the use by Buchanan of enumeration districts data (census variables, map measurements and local authority data, compared with the more detailed data input in this research. One would therefore have expected to identify area types more precisely.

7.6.4 It is not a straightforward process to equate the area types with the expressions of overall satisfaction, because of the numerous variables involved. However a comparison of Figures 7.1 and 7.8 does indicate that satisfactions are highest in the public and private semi-detached areas

FIGURE 7.8 CASE STUDY AREA CHARACTERISTICS

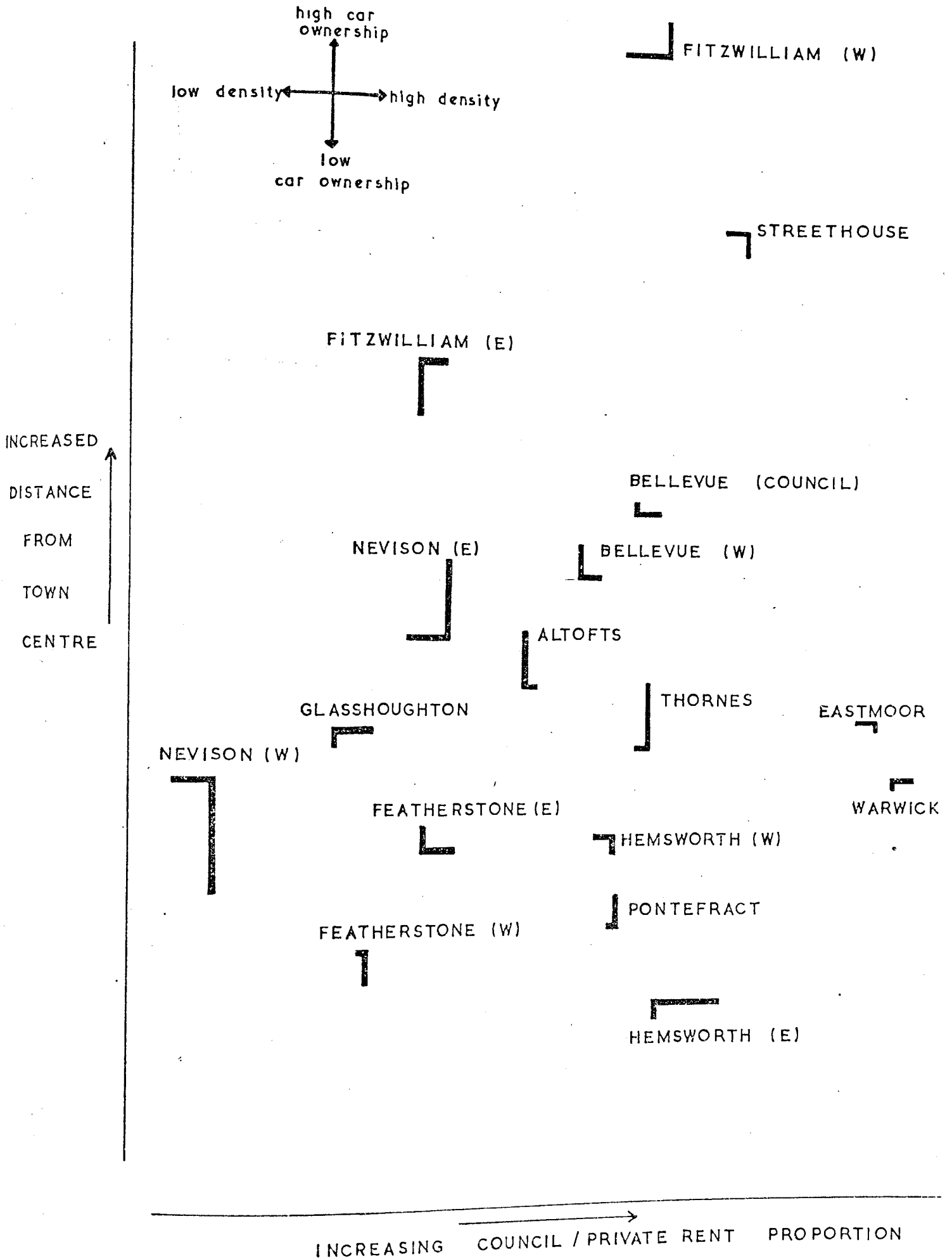
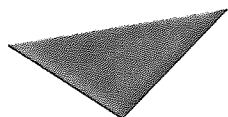


Table 7.2 Area Types



Aston University

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(1) Buchanan J. (1971)

(2) The tenure differences between Hemsworth East and West are not apparent on the figure because the census enumeration districts do not coincide with the case-study area boundaries.

(3) The Warwick Estate has been included here on the basis of tenure mainly; the main building form is post 1960 terraces.

(e.g. Eastmoor, Altofts), and in the mixed tenure inner areas (e.g. Pontefract and Thames).

7.7 CONCLUSIONS

7.7.1 This research has had to strike an extremely difficult balance between the practical needs of a planning authority and the demands of academic research. The division of the results into substantive results and the operational application of the results is evidence of this. However the study has succeeded in illustrating that relatively simple survey techniques, although resulting in data which is not of high scale status, is nevertheless a powerful decision-making and research tool.

7.7.2 The research has also identified a number of avenues for further work, the most important of which are:

- a) the design of simple scaling methods which are easy to operate and which nevertheless give interval data
- b) further detailed work on individual environmental dimensions in order to improve the measurement of the appropriate variables. Work has been concentrated on noise and visual intrusion in the past, but must widen out to include other aspects of the environment.
- c) to compare the different methods of measuring residents' values in order to be able to specify their meaning and potential use more closely.
- d) improvements to the model of the build up of overall satisfaction to include sources of satisfaction outside the residential environment (e.g. employment) to see how these relate to expressed satisfactions with the environment.
- e) critical examination of the methods used by local authorities to measure environmental quality in the light of the values found in this and other research.

f) Finally, this research has, of necessity, taken a static view of environmental quality. The survey questions related to one specific time, and yet it was apparent from the responses that environmental changes were as important as absolute environmental values in affecting satisfaction. There is therefore a need to monitor the changes in satisfaction occurring in an area as the result of changes in the conditions. To date the research using this method has been virtually restricted to changes in the noise climate (from new roads, aircraft etc.), but must be extended to all other aspects of the residential environment.

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