An Examination of Policies and Issues relating to the Management of Industrial Land in Core and Peripheral Urban Areas

by

Keith Gordon McKinnell

Thesis

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Summary

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The principle focus of the research is on the demand for industrial land and premises and the dilemmas that flow from an inadequate comprehension of the demand component in the industrial development process at the local level.

This lack of understanding is borne out by the problems encountered in the traditional core industrial areas which are not capable of providing the appropriate supply response to the changing requirements by manufacturing industry for land and premises. There are therefore repellant forces active in the traditional core areas.

What emerges from the research is a framework for assessing and managing complex inner area and peripheral urban sites that could help form the basis of an Industrial Land Strategy. A cost-benefit methology is adopted for assessing the viability of renewal of certain areas. The author advocates the local authority as the appropriate agency for implementation of such a strategy though there are certain policy implications attached to this.

The whole concept of a viable Industrial Land Strategy rests on an understanding of both the nature and characteristics of Demand and Supply. Whilst considerable work has and is being undertaken on the supply side very little is understood of the demand side of the equation. The framework as discussed above explicitly involves greater comprehension of demand side characteristics.

In addition and within the context of this review those factors affecting the demand for industrial land and methods to determine in a quantitative sense this demand are analysed.

The geographical backcloth to the whole of this study is the West Midlands Conurbation which has formed a convenient microcosm of the problems and issues to be found. But these should not be considered unique to the area rather they are symptomatic of the general economic malaise affecting the majority of the United Kingdom's principal industrial centres.

INDEX : Management Industrial Land Urban Areas

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LIST OF TABLES

			Page
Table	I	: Regional Differences in Registered Unemployment Rates in the U.K. 1950-1980	30 (foll.)
Table	II	: Manufacturing Employment Change by Type of Area and Region 1957-1978	48 (foll.)
Table	III	: Available Industrial Land in England and Wales 1982	52 (foll.)
Table	IV	: Employment by Sector 1975 (W.M.C.C.)	59 (foll.)
Table	V	: Firms Views of Problems and Difficulties they experienced	63
Table	VI	: Detailed Breakdown of Firms Survey - Building Problems	64
Table	VII	: Detailed Breakdown of Firms Survey - Site Problems	65
Table	VIII	: Detailed Breakdown of Firms Survey - Location Problems	66
Table	IX	: Indicators of the Amount of Development Work undertaken by the Industrial Development Industry and Manufacturing Industry	76 (foll.)
Table	X	: Benefits and Costs	140

PLANS

Plan	1	Regions and Part of Sub-Regions	57 (foll.)

LIST OF FIGURES

		Page
Figure 1 :	Rationale Behind the Study	7
Figure 2 :	The Study in its Environment	7
Figure 3 :	Exports and Imports of Manufactures at 1978 Import Values	26 (foll.)
Figure 4 :	Manufacturing Employees per 1000 sq.m. of Industrial Floorspace - England and Wales 1964-1979	50 (foll.)
Figure 5 :	The Stock of Industrial Floorspace in England and Wales 1964-1979	50 (foll.)
Figure 6 :	Sectoral Employment Change in the West Midland County	59 (foll.)
Figure 7 :	Percentage Change in Industrial Floorspace (W.M.C.) 1967-1973	60 (foll.)
Figure 8 :	Percentage Change in Industrial Floorspace (W.M.C.) 1974-1978	60 (foll.)
Figure 9 :	Development of the Industrial Building Stock	75 (foll.)
Figure 10 :	Case Study One: The Study Area; Form and Building Condition; Tenure; Investment Intentions	141 (foll.)
Figure 11 :	Case Study One: Renewal Option	146 (foll.)
Figure 12 :	Case Study One: Minimal Action Option	146 (foll.)

Figure 13 : Case Study Two: The Study Area; Form and Building Condition; Tenure; Investment Intentions 147 (foll.)

Figure 14 : Case Study Two: Renewal Option 149 (foll.)

Figure 15 : Case Study Two: Minimal Action Option 150 (foll.)

Figure 16 : Case Study Two: Improvement Option 150 (foll.)

LIST OF APPENDICES

		Page
Appendix I :	Summary Findings: the Use and Renewal of the Industrial Building Stock in the Inner City by J.U.R.U.E.	189
Appendix II :	Summary Points: University of Cambridge Industrial Location Research Project	193
Appendix III :	Economic/Employment Profile of West Midlands and Birmingham Study Area	196
Appendix IV :	Comparison of Suggested Forecasting Methodologies and notes on Revealed Characteristics of Demand	208
Appendix V :	Case Study Area I: Summary Findings and Detailed Site Analyses	217
Appendix VI :	Case Study Area II: Summary Findings and Detailed Site Analyses	230
Appendix VII :	A Compulsory Alternative: Case Study	249
Appendix VIII :	An Industrial Land Management Strategy	256

LIST OF CONTENTS

	Page
Title Page	i
Summary	ii
Acknowledgements	iii
List of Tables and Plans	iv
List of Figures	v
List of Appendices	vi
List of Contents	vii

CHAPTER ONE : GENERAL INTRODUCTION 1

1.0 Background

1.1 Context

1.2 Rationale behind the Study

1.3 Statement of Aims and Objectives

1.4 Related Studies

1.5 Methodology/Approach

1.6 Structure

CHAPTER TWO : REVIEW OF INDUSTRIAL PROBLEMS AND POLICIES 22

2.0 Introduction

2.1 Historical Background

2.2 Economic Background

2.3 Policy Context

2.3.1 Introduction

2.3.2 Regional Policy

2.3.3 Inner City Policy

2.3.4 Economic Regeneration

2.4 A Theoretical Framework

2.5 The West Midlands Defined

2.5.1 Introduction

2.5.2 Definitions

2.5.3 Level of Study

2.5.4 Employment, Investment and Productivity

2.5.5 Problems

2.5.6 Policies Affecting Industry

2.6 Conclusions

CHAPTER THREE : THE INDUSTRIAL DEVELOPMENT PROCESS- UNDERSTANDING DEMAND 72

3.0 Introduction - The Function of the Development Process

3.1 The Industrial Development Process

3.2 The Importance of Demand

3.3 Understanding Demand

3.3.1 Introduction

3.3.2 Conventional Methods

3.3.3 Alternative Methodologies in Use

3.3.4 Suggested Methodologies in Outline

3.3.5 Extrapolating Floorspace Trends

3.3.6 Assessing Demand from the Extent of Stock on Market

3.3.7 Estimating the Demand for Space from Surveys of Indigenous Firms

3.4 Implications of Recent Changes

3.5 Conclusions

CHAPTER FOUR : A FRAMEWORK FOR THE MANAGEMENT OF CORE INDUSTRIAL AREAS 107

4.0 Introduction

4.1 Background

4.2 Conventional Approaches

4.3 Renewal by the Industrial Development Industry

4.4 Renewal by Manufacturing and Distributive Industries

4.5 Renewal by Local Authority

4.6 The Need for a New Approach

4.7 An Area-Based Approach - The Rationale

4.8 The Cost-Benefit Framework

4.9 Conclusion

CHAPTER FIVE : THE AREA-BASED APPROACH TO CORE INDUSTRIAL AREAS- CASE STUDIES 137

5.0 Introduction

5.1 Assessing Renewal Options

5.2 Case Study One: Renewal of a Highly Congested Area

5.3 Case Study Two: Renewal of An Industrial Area Containing Some Vacant Land

5.4 Initial Implications

5.5 Summary

5.6 An Alternative Compulsory Approach

5.6.1 Land Readjustment/Land Pooling

5.6.2 Method in Outline

5.6.3 Potential for Application

5.7 Conclusions

CHAPTER SIX : CONCLUSIONS 169

6.0 Introduction

6.1 A Review of The Major Issues

6.2 An Industrial Land Management Strategy

6.3 Need and Scope for Further Research

APPENDICES 189

LIST OF REFERENCES 259

CHAPTER ONE

GENERAL INTRODUCTION

1.0 BACKGROUND

Economic prosperity and growth of a nation is largely measured by its capacity to produce goods and services. The productive ability of the United Kingdom has steadily declined since the Second World War. The causes would seem to be varied and extremely complex but focus heavily on manufacturing industry which traditionally has been considered the productive stimulus for an industrial nation.

Economic disparity between the so-called prosperous and less prosperous regions of the country has been labelled as a prime cause for this economic malaise. Through planning controls and financial incentives directed specifically at manufacturing industry attempts were made to reduce this imbalance and though they did go some way to solving some of the problems many commentators have suggested that this dual strategy created certain other problems, in particular in the "so-called" prosperous areas.

This type of interventionist approach was however short-term and attacked the problems at a somewhat superficial level. The fundamental problems associated with the nature and character of manufacturing industry itself were left largely unresolved. There was a growing recognition with regional policy that what was really required was not a continuation of the policy of solving inter-regional disparities but rather the focus should be on disparities and shifts occurring at the intra-regional level.

Manufacturing industry, employment and output continued to decline and newer more urgent though not unrelated problems were emerging particularly associated with the social and living environment of households in the "Inner City". Initially therefore, the Inner City problem was perceived as a problem associated primarily with housing and social issues in urban cores but it very quickly became apparent that the key to solving inner city problems and perhaps go some way to resolving much wider industrial/economic issues might lie in economic regeneration of those areas.

The traditional economic base of industrial cities has lain in the core industrial areas - closely associated with the somewhat arbitrary and artificial boundaries of the "Inner City" partnership areas and it has been to industry and in particular manufacturing industry that the focus of attention and policy has in recent years turned.

1.1 CONTEXT

The principle problems associated with manufacturing industry can be observed on several levels of complexity - national, regional, sub-regional, local etc. This study explores the issues and problems as they occur at the sub-regional and local levels. Of necessity these will be placed in their wider regional and national contexts.

The West Midlands and specifically Birmingham are the study areas which provide the appropriate environmental contexts. It is suggested that they reflect the general pattern of decline that has occurred throughout the traditional industrial manufacturing areas (See Chapter 2)

The initial focus of attention, therefore, is on the problem of manufacturing decline together with a deteriorating urban fabric and a possible disappearance of the industrial city. The city of Birmingham provides the geographical context against which the issues can be more closely examined.

But more specifically and perhaps the simplest expression of the environment in which this is taking place and against which this study needs to be set is in terms of a spatial re-ordering of economic activity - an 'urban-rural' shift (Rees and Lambert). Fothergill and Gudgin's extensive empirical analysis concluded:

"The decline of cities and growth of small towns and rural areas is the dominant aspect of change in location of manufacturing industry in Britain and other Western industrial economies. The strength and pervasiveness of this urban - rural shift has been remarkable, and there is every prospect of it continuing... The larger and more industrial a settlement, the faster its decline. At the two extremes, London lost nearly 40 per cent of its manufacturing jobs between 1959 and 1975, while the most rural areas increased theirs by nearly 80 per cent during the same period."

What has emerged from this is a theory of 'Urban Manufacturing Decline' (Fothergill, Kitson and Monk) which had been implicit in earlier studies associated with Birmingham and the West Midlands undertaken by Williams et al. Essentially what is described is a process of manufacturing decline in the traditional urban core areas with a shift in manufacturing from these urban locations to peripheral or rural areas.

Put simply the theory states that there is a displacement of labour by capital in manufacturing industry which is further complicated by the fact that there is limited space available for the expansion and growth of firms and industries in the traditional urban cores. These act as repellent forces and when combined with the attractiveness of non-urban sites serve to bring about an urban-rural shift in manufacturing

industry and employment.

Inherent to the above is the overall process within which these forces operate.

The Industrial Development Process reflects the model of Supply and Demand as it relates to industrial land and premises. Within this framework are a number of sub-processes some more dynamic than others. One such sub-process attempts to describe the locating decisions by firms - whether the supply of land and/or buildings fits the criteria required by industry over a given period of time. It is suggested here that there are considerable gaps in our knowledge and understanding of this particular set of processes at all levels and therefore any accurate or meaningful predictions are not possible. In the absence of an understanding of these Demand and Supply processes over time then any strategy formulated or proposed to manage the industrial land resource becomes problematic and questionable particularly at the local level.

On the supply side there is already a considerable amount known and understood and relatively accurate predictions can be made of the future availability of land and buildings, in the short to medium term at least. On the demand side however information is vague and measurement and consequently prediction is much more problematic if not misleading.

1.2 The Rationale Behind the Study

The rationale behind this study can be described in the following terms.

The principle focus is on the demand for industrial land and premises and the dilemmas that flow from an inadequate comprehension of this factor in the industrial development process.

This lack of understanding of the demand component emerges in the problems associated with the core industrial areas which are not capable of providing the appropriate supply response to the changing requirements by manufacturing industry for land and premises. There are therefore repellent forces active in the traditional core areas.

In order to provide an appropriate response to these repellent forces and allow the industrial land resource to be managed more effectively the problems associated with these repellent forces need to be understood. This study suggests that for such comprehension to occur the nature, characteristics and function of demand for industrial land and premises in any given area are essential. Put very simply the "by whom, the what, the where, the how much and the when" of industrial land needs to be identified before any prescription for "the how" can emerge. I have developed the study of demand and its implications for providing an

appropriate management framework in this context in a linear fashion as shown below. Though this may be somewhat misleading it is felt to be the most logical approach to grappling with the dilemmas associated with demand in this context.

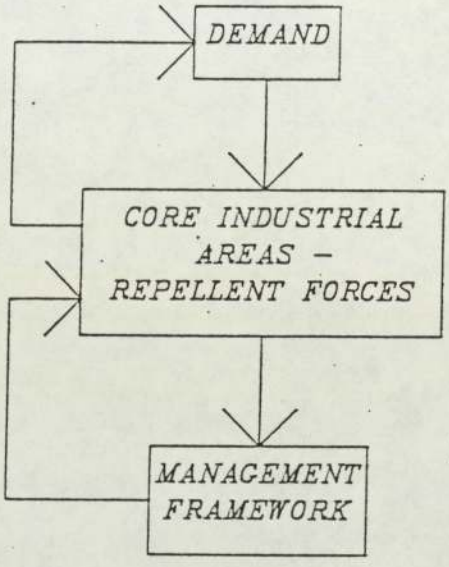


FIGURE 1 : RATIONALE BEHIND THE STUDY

However this description can be presented in a slightly different way which probably is a more valid representation of the system and the environment within which it operates.

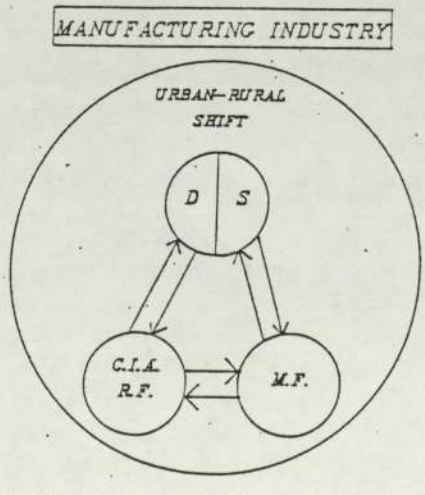


FIGURE 2 : THE STUDY IN ITS ENVIRONMENT.

The subject matter under the microscope is that of manufacturing industry. The environment in which this is operating is one of change; of a spatial re-ordering of economic activity - an urban rural shift. In this study I have used as my starting point DEMAND in the demand - supply relationship. It could be argued that the appropriate starting point could equally be CIA or MF. However the implications for the study and the resolution of the issues involved would be the same in that it would return to the 'key' factor being an understanding of the nature and characteristics of the demand for industrial land.

1.3 Statement of Aims and Objectives

The above then is an attempt to describe very generally the background nature and environment against which this study needs to be set.

The priniciple aim therefore is to focus on the dilemmas and issues associated specifically with regard to the understanding and prediction of demand for industrial land and buildings at the local level. It is suggested that only by a more comprehensive understanding of the nature and characteristics of demand can the extent and nature of those repellent forces that are active within the traditional core industrial areas be addressed. Furthermore that only by understanding this and being able to provide more accurate and meaningful predictions of demand over time can any

strategy for managing the industrial land resource be considered that will provide the appropriate supply response over time.

The basic objectives of this thesis are therefore:

i) to consider generally those problems and policies that affect industrial areas particularly at the local level.

ii) to examine and understand more clearly the function and characteristics of demand in the Industrial Development Process.

iii) to describe alternative methods of prediction of industrial land requirements in the short to medium term at the local level, and

iv) to suggest a framework for the management of the industrial land resource in core areas.

1.4 Related Studies

This consideration of the related literature concentrates on the continuing theme throughout this study "DEMAND" in relation to the Industrial Land Resource. The study itself develops three areas:

i) The function and nature of demand for industrial land

ii) Alternative methods of predicting demand for industrial land

iii) A framework for meeting the changes in industrial land requirements

Each relates in a spatial context to the local level of policy implementation though their implications could be more far reaching.

The modern industrial debate began over forty years ago with Barlow's report and this elevated the concern for industry to the national and regional scale with any concern at the local level largely overridden. Over the past fifteen years concern has been expressed by many commentators over the efficiency of the original concept of regional policy brought into even sharper focus by the slow growth of the national economy which has only served to weaken still further the effectiveness of the major policy instruments (Smith D 1980).

Much of the basis for these conclusions has been borne out of those analyses that have considered the apparent changes that have been taking place in the location of manufacturing activity in the United Kingdom. Keeble (1976) and Smith D. (1971 & 1981) have attempted to explain these changes, to evaluate the effects of different influences such as government industrial location policy and to investigate the different components of change, in the form of different individual manufacturing industries and different change processes such as firm migration or in situ expansion.

Towards the latter part of the 1970s, it became clear that regional policy could no longer rely on mobile industry. A great deal however had been achieved by way of structural change and infrastructure development but essentially the basic and complex weakness in the regional economies had not been addressed (Smith, B. 1980). This view had been enhanced earlier by the gradual shift in emphasis away from the problems associated at the regional level to those in relation to the declining urban and social fabric of the inner city areas. By 1978 after ten years of piecemeal policy initiatives towards this new 'spatial concept' a formal policy was enacted.

Fastly diminishing was the significance of structural explanations for economic decline as an interpretation of the regional problem whilst the work of Fothergill and Gudgin and others was pointing to the relative performance of indigenous manufacturing industry as being the major factor in accounting for employment changes at the sub-regional level. Indeed evidence is now available that there has over quite a long period of time been a considerable shift (decentralisation) in the location of manufacturing jobs from cities to small towns and furthermore to the rural areas. Throughout the late 1970's and early 1980's more and more research has substantiated such a shift. (Keeble 1976, 1980; Fothergill and Gudgin 1979, 1982; Moore, Rhodes and Tyler 1980; Kitson and Monk 1982, 1983). The focus therefore has shifted to the relative performance of indigenous industry as between conurbations and rural areas as being one of the fundamental issues associated with industrial location. From the evidence available such a shift has occurred in every region of Great Britain covering a wide range of industries and different sizes of firms. Keeble, Owens and Thompson (1982) have confirmed that a broadly similar shift is being witnessed in the rest of Europe whilst Allamon and Birch (1975) have recorded a comparable phenomenon in the United States. According to Fothergill et al there has not just been a shift of industry from the inner city to the suburbs and the commuter belt beyond. If this were so it perhaps could be more easily explained. However across the whole urban hierarchy manufacturing employment change has been

related to settlement size with as a general rule: "the smaller the settlement the better the growth".

I will return to this particular aspect later but first mention should be made of other studies that have contributed to the growing amount of information particularly about inner city land development. Work has been undertaken regarding the nature of inner city ownership together with developers' perceived constraints on development (Williams et al. 1980; Nicholls et al. 1980; Fothergill, Kitson et al. 1983 and Adams, D. 1985). In Nicholls study cost and availability of sites were particularly mentioned. With regard to premises, shortages of suitable factories and workshops particularly for the small business sector has been a constraint which has caused firms to leave inner city areas and stopped those that remain from growing or operating efficiently (i.e. associated with the explanation of the problems relating to land value). Mention has been made by many authors of the compensation codes as being an important contributing factor to high land values which inhibits the supply of land for development in the inner city (Colenutt 1978; Nabarro 1980; Edwards 1977 ; RICS 1977; RTPI 1978). Most of these present the relationship between compensation codes and high land values as either a hypothesis requiring detailed research or an intuitively obvious contention perhaps backed with some evidence that tends to be somewhat sketchy or anecdotal. The study being undertaken by Baum and MacGregor (forthcoming) will perhaps shed some light in this important area.

To return to the problem of the urban-rural shift in manufacturing industry, the fact that the process exists is not disputed but as to what are the underlying causes there is little consensus. Fothergill et al. argue that it is necessary to understand the factors determining the location of industrial buildings but that the preferences of industrial manufacturing firms are only one influence and that just as important are the supply of land, the operation of planning controls and the behaviour of the property development industry.

They further argue that much of the work undertaken to date in analysing this urban-rural shift is too 'firm-orientated' focussing too heavily on the manufacturing firm. Three basic approaches can be identified here: the interview-based approach (e.g. Keeble 1968; IFF Research Ltd. 1980) determining why firms choose to move from cities or firms opinions about their existing locations; differential location costs to firms as a determinant to a more profitable location (e.g. Moore and Rhodes 1980; Lever 1981; Fothergill Kitson and Monk 1982); components of change approach measuring the contribution of openings, closures, expansions and contractions of establishments to employment change (e.g. Lloyd and Mason 1978; Dennis 1978).

The implication being that through understanding the locational preferences and behaviour of individual firms then the reasons for employment growth and decline in different areas might be clarified. Fothergill et al however argue that these approaches neglect one very important aspect : the requirements of manufacturing activity for physical space.

The basic premise being that all manufacturing production requires land and factory premises in which to occur and that for most firms the amount of factory floorspace required is determined by the production techonology in use. The essential pre-requisite to industrial growth in any area is therefore an adequate supply of industrial land and buildings.

The basic problem as identified by them is that the supply of land and buildings are not perfectly responsive to the needs of industry, if it were firms could expand where they wanted to and those most profitable locations would experience the fastest growth. However evidence shows that there are major spatial variations in the supply of land for industry and several surveys have revealed a high level of dissatisfaction with both sites and premises and in particular room for expansion in many of Britain's cities (Keeble 1968; Dennis 1978; IFF Research Ltd. 1980; Leigh and Northon 1983). The analysis of the industrial building stock in Birmingham (JURUE 1980 "Industrial Renewal in the inner city : an assessment of potential and problems") data from which

provides the base for this study revealed too that a high proportion of establishments lack room for expansion.

This study suggests that greater focus should be given to the dilemmas associated with the demand side of the equation; that by understanding the nature and characteristics of demand suitable supply responses can be formulated. It is not simply the preferences of individual firms that need to be taken account of but an understanding of the various constraints that hamper manufacturing industry (institutional or otherwise) together with the implications of the relaxation of those constraints.

The appropriate supply responses can only be formulated by an understanding of firms' existing and potential requirements. Through a more detailed understanding of this complex demand-supply relationship can perhaps the needs of industry be satisfied; can the economic, social and environmental fabric of the inner city be regenerated; can the dispersion and diffusion of urban areas to peripheral and rural locations be controlled.

The most appropriate agency to undertake the necessary management and co-ordination function at the local level is the local authority. The premise for this being that the basis of good management is control - not necessarily ownership. Local authorities have the existing capacity and the ability for both.

1.5 METHODOLOGY/APPROACH

The basis for much of this study stems from work undertaken by the author with the Joint Unit For Research on the Urban Environment at the University of Aston in Birmingham during the period 1979 to 1980. Two specific research projects involved the "Redevelopment of the Bilston Steelworks Site" and a study investigating problems associated with "Managing the Industrial Building Stock in the Inner City". The latter was the second phase of a study sponsored by the Department of the Environment as part of its programme of research concerned with inner city problems whilst the former was a study commissioned by the European Coal and Steel Community, British Steel Corporation (Industry) Ltd., West Midlands County Council and Wolverhampton Borough Council to look at the potential for redevelopment of the Bilston Steelworks site consequent upon the British Steel Corporation's closure of steelmaking at the Bilston Works.

The author's involvement in the Bilston study came under the broad heading of analysing economic conditions and demand potential whilst in the inner city project involvement was maintained throughout the second phase of the study. The initial concepts and the basic data of this thesis emanate very much from the author's involvement in industrial problems associated with these two projects.

The approach to this study involves firstly a literature search and policy review which information provides the overall contextual framework for the study. A somewhat synoptic approach has been adopted and undoubtedly there has been some oversimplification of certain issues but the broad range of problems and policies will have been discussed. Further literature reviews have also been undertaken relating to the issues raised in the individual chapters and these are discussed within the relevant areas.

As described above the study focusses on the issues associated with demand for industrial land at the local level. It addresses this on two levels one at the "aggregated" level of demand for the local authority area and the other at a "disaggregated" level of industrial areas within a local authority area. The basic approach in both instances involves detailed data collection at a micro-level not perhaps considered in this context before.

The information is collated from basic data already available in many local authority areas but not manipulated in this way and subsequently from primary data collection particularly in the area-based analyses where a variety of survey techniques are used viz. personal interviews, questionnaires, telephone surveys, physical inspection of properties etc. These are necessary in order to arrive at the level of detail and perception of demand required for the analyses.

The basic principles adopted in the above are subsequently applied in what have been described as "case studies". Once again these "case studies" can be described on two levels one that is the local authority level providing the geographical as well as macro-economic contexts required with the other providing a more physical as well as micro-economic context. The "case studies" however are for illustrative purposes only in that they allow us to observe and consider the implications of the application of the proposed frameworks on "live" areas. They are not analyses in the conventional case study mould and further consideration of this aspect is given in Chapter Five.

1.6 STRUCTURE

Chapter Two identifies and examines in general those problems that affect both industry and industrial areas together with the current policy responses. It defines the broad context of the study which is the "industrial city" and focusses gradually on the area of specific study, the urban industrial core. The chapter is basically one of definitions and as it proceeds so it defines further the problem areas, the case study area and the level at which the study will be viewed viz sub-regional/local.

Certain philosophical issues are introduced in this chapter specifically those issues relating to the role of local government in the industrial development process and the continuance of the urban core as a suitable location for industry though it is not within the scope of this work to resolve such issues.

Chapter Three begins by looking generally at the elements that contribute to the Industrial Development Process and more specifically at the sub-process that describes the locating decisions by firms. More specifically it focusses on the dilemmas associated with the demand or requirements for land and premises over time. The repellent forces active within the inner city areas are described which serve only to increase imbalance between demand and supply.

An essential pre-requisite for any industrial land management strategy at whatever level is balance or disparity between supply and demand and the ability to predict this over time. Existing methods of assessing demand are critically examined and alternative methods and strategy developed which it is contended enables the nature and characteristics of demand to be better understood at the local level.

Chapter Four develops the problems identified with demand in Chapter Three and transfers them onto the complex environment of the City of Birmingham. A framework emerges focussing on the demand characteristics which allows for small areas

traditionally associated with industrial development to be managed in such a way as to respond over time to changing requirements for land and premises. The existing treatment of industrial core areas are examined and a framework suggested within which renewal might be increased or accelerated. Other general approaches are also briefly examined. The study prescribes a cost-benefit framework for appraising alternative renewal strategies for specific areas.

Chapter Five takes the framework developed in Chapter Four and applies it to two case study areas in Birmingham that reflect the general characteristics associated with industrial core areas. The case study approach that is adopted is reviewed in terms of its strengths and weaknesses.

Chapter Six attempts to draw together the different threads of discussion with a re-emphasis of the principal theme of the study relating to the demand for industrial land at the local level. It reviews the importance of the demand component in any attempt to manage the industrial land resource and briefly relates the City of Birmingham's latest attempts to implement such a strategy. Finally it concludes by indicating certain future areas of research implied but outside the scope of the study and in particular focusses on the need for a more rigorous approach to industrial land demand forecasting.

CHAPTER TWO: REVIEW OF INDUSTRIAL PROBLEMS AND POLICIES

2.0 INTRODUCTION

Pre-industrial society was characterised by two different socio-cultural systems or 'ways of life' which heavily influenced the organisation of economic activities. These different ways of life were spatially distributed so that town and country were quite distinct in character.The process of industrialisation broke down the 'urban' way of life in two ways. First it restructured social arrangements in line with the requirements of a capitalist mode of production and secondly as industrialisation proceeded, and societies entered an advanced stage so the distinct pattern of life associated with farming production was in turn broken down and remoulded on the same lines as the rest of society.

2.1 HISTORICAL BACKGROUND

By the start of the Victorian age in 1837, "industrialisation" had already made a profound impact upon British life and society. The immediate availability of power and raw materials had matched the rapid technological advances and the development of the new transport systems. The ever growing population which in 1800 had stood at 10.5 million was to double to 21 million by 1850 and almost double again to 37 million by 1901. The associated rural-urban shift of population left an urban population of 77% as opposed to

17% which had existed at the beginning of this process of industrialisation. This provided both the labour and the market for the growing industrial society. In short the preceeding fifty to sixty years had witnessed the emergence of an urban and manufacturing economy from the rural and agrarian base of previous centuries.

The physical and spatial development of these cities was as dramatic as their population growth. The process created bigger and more specialised workplaces than before and new modes of transport were brought into the cities along with an unprecedented development and improvement of public services.

The twentieth century in contrast witnessed the commencement of a decline. Static or declining population levels since 1940, the increasing mobility of goods and people subsequently bringing about large-scale decentralisation of jobs and people have led to the present state. A state where despite industry's attempts at rationalisation together with Government's regional policies the "industrial city" is vanishing at an ever increasing rate. If Fothergill and Gudgin (see below) are to be believed, the process is continuing full-cycle and the United Kingdom is going to have to face the phenomenon of an 'urban -rural' shift of population and manufacturing industry. On the other hand it

might well be viewed as the next phase in the continuum of industrialization and urbanisation described above. This next phase being a diffusion of urban areas over the countryside (Alonso).

Whatever the view the facts are that manufacturing employment has fallen and is continuing to fall in the country as a whole - a trend which became evident in the 1960s and which has accelerated in recent years - but in Britain's major cities the decline has been much more apparent. Through a multiplier process the dissappearance of manufacturing industry from Britain's traditional industrial cores has potential for severe repercussions on the growing service sector, curbing the growth of its output and employment which many traditional industrial centres have relied upon in the past to soften the principle burden of industrial decline.

Against this backcloth of falling population and employment must be seen the decline in private investment in the physical fabric of inner city areas (the traditional industrial cores). As both money and people leave, it is the old less able and the deprived which are left behind - buildings as well as people. Therefore the most significant urban phenomenon that needs to be addressed today and in the future is the demise of the "industrial city".

Fothergill and Gudgin have identified two distinct yet related driving forces behind this phenomenon. Firstly the growth and speed in technology and capital intensity of modern manufacturing whereby new machinery is displacing labour whilst employment in existing factory floorspace is declining leading to a loss of jobs in manufacturing in cities (N.B. This should not be interpreted as a decline in demand for industrial floorspace in the traditional industrial locations; neither does it necessarily reflect their demand as an industrial location (see below). Secondly, the repellent forces operating within existing cities i.e. lack of room for physical expansion with most existing factories being hemmed in by existing urban development with little or no space for on-site expansion linked with the cost, unavailability and unsuitability of urban land has ensured that few entirely new factories have been built in these locations.

This then is a brief historical introduction to some of the issues to be explored in this thesis. The industrial problems associated with the demise of the industrial city now need to be considered in greater detail.

2.2 ECONOMIC BACKGROUND

The problems facing industry today are extremely diverse and complex and no individual solution is going to encompass all of the problems. The present state of the art is put at its simplest :

i) Unemployment has increased to over 3 million.

ii) Regional economic disparities have widened.

iii) Industrial output has declined (though there are signs this trend may be reversing).

iv) Industrial cities are becoming less able to compete.

v) There is recent evidence of a significant urban-rural shift of both population and manufacturing industry.

vi) The nature of industry itself appears to be undergoing considerable transformation.

Historically all of this needs to be set against a backcloth of general economic decline and national macro-economic policies. Moore & Rhodes attribute the poor economic growth record of the U.K. economy in the post-war period essentially to a deteriorating foreign trade performance. From 1972 imports increased to a level so much larger relative to exports that the expansion of the economy in 1973 produced a sharp and unprecedented deterioration in the balance which could only be restored by a recession of demand and output more severe than anything previously seen in the post-war period. Fig.(3) below shows what has happened in more recent times. The dotted lines represent logarithmic trends fitted

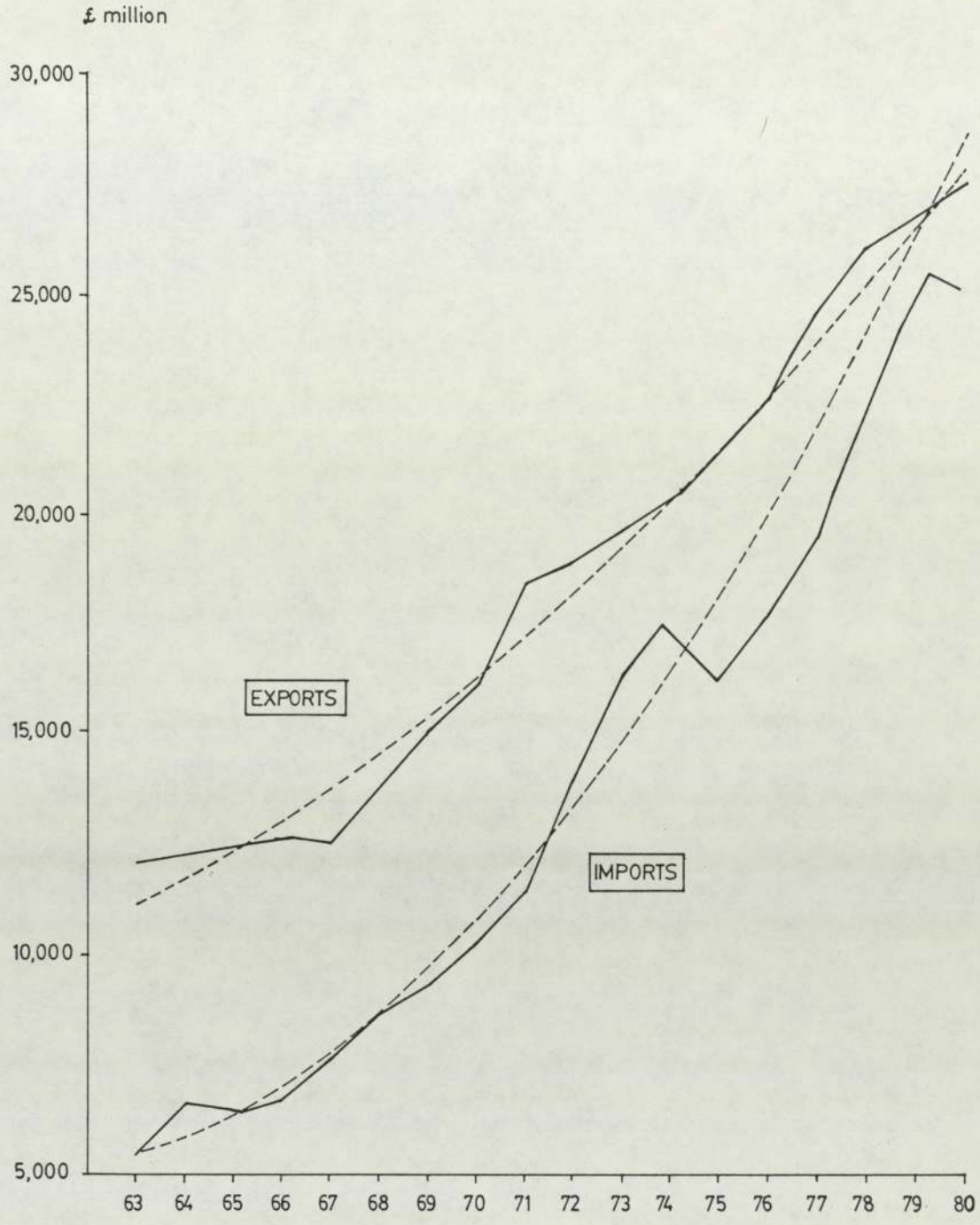


Fig. 3

Exports and imports of manufactures at 1978 import values.

Source : Moore & Rhodes

to the period 1963 - 1975 which are then projected to 1980.

Such trends have been allowed to continue because of the growth in contributions made to the Balance of Payments of North Sea Oil from 1976 onwards. North Sea Oil has been used not to lay the foundations for regeneration of the economy but to finance social security payments and other consumer expenditure which feeds increasingly on imported rather than domestically produced goods.

The adverse trends in manufactured trade reflect a condition of relative weakness and inefficiency within large parts of British manufacturing industry which is the central strategic economic problem facing U.K. economic policy makers. The most important problem then to be tackled is to reverse the adverse trends in manufactured trade through industrial regeneration.

It is necessary very briefly to distinguish between the original root causes of the predicament of the British economy and why it has perpetuated throughout the post-war period.

There have been many intrepretations presented about the original root causes but amongst the factors frequently pointed to are failure to diversify away from traditional industries, age of the capital stock, institutional

(including trade union) rigidities, periods of currency over-valuation etc.

An explanation of why U.K. economic problems persisted throughout twenty five years of increasing world economic prosperity and freer trade falls perhaps into two parts. First, policy makers considering medium term problems in the "never had it so good era" of the late 1950s, despite the adverse trends which with hindsight now seem so clear, generally tended to come up with optimistic forecasts. The medium term optimism sprang from the view that since trade in manufactures expands much faster than trade in food and raw materials, then the U.K. would reap the benefits of being a very large net exporter of manufactures and importers of food and raw materials. This was not to be so. (Fig.3)

Another part of the explanation is that orthodox economic theory might be wrong in suggesting in a world of comparatively free trade there are automatic self-correcting mechanisms which come to the aid of the weak and inefficient industrial country. In practice there seem to be more powerful forces at work to make rich countries richer and poor countries poorer. Such forces that promote economic divergence were first given tentative theoretical form by economists such as Myrdal and Kaldor. They developed a theory of cumulative causation which postulates a series of relationships giving rise to a vicious circle of relative decline: slow growth is associated with poor productivity

performance means that firms have a poor competitive performance (Verdoorn); poor productivity performance menas that firms have a poor competitive position with respect to both price and non-price factors; the poor competitive position prevents the rapid growth in exports and allows imports to penetrate home markets leading in turn to low profitability, low investment and subsequent slow growth.

2.3 POLICY CONTEXT

2.3.1 INTRODUCTION

Britain therefore has in comparative terms become one of the less successful industrial nations. The economic situation of all the regions has been dominated by this general lack of national success but some regions have been economically disadvantaged relative to others. Most of the Development Area regions are in fact particularly severe local examples of the British problem as a whole. Such regions may be particularly uncompetitive after suffering for many years from the powerful processes of cumulative causation of which one manifestation is an above average rate of registered unemployment.

Table 1 below shows that the Development Area regions have experienced unemployment rates higher than the U.K. rate throughout the last 30 years. For the problem regions there was no sharp deterioration in the unemployment differences until 1975, a combination of deepening national recession and a weaker regional policy led to a persistant and consistant widening of the unemployment differential in the problem regions between 1975 and 1980. This was accompanied by a relative improvement in other regions notably East Anglia and the South East. The Cambridge Economic Policy Group reported that between 1960 and 1975 active regional policy was directly responsible for the diversion of 280,000 manufacturing jobs to the main Development Areas. These were only the direct effects - if one were to consider the possible indirect multiplier effects on associated industries this figure would translate into something like the aggregate loss of 500,000 jobs.

Since the mid-1970's regional policy has been diluted and a change in emphasis has occurred. Industrial Development Certificates have been abandoned; the Regional Employment Premium has been abolished; Regional Development Grants have been cut together with rescheduling of status between Development and Associated areas, a change in emphasis

Table I

Regional differences in registered unemployment rates[1] in the U.K. 1950 - 80

	Percentage point deviation from UK rate								Change in deviation
	1950	1965	1970	1975	1977	1979	1980	1981	1950 - 80
Scotland	+1.5	+1.4	+1.6	+1.0	+1.8	+2.0	+2.3	+2.2	+0.8
North	+1.2	+1.0	+2.0	+1.6	+1.9	+2.5	+2.9	+3.0	+1.7
North West	0	+0.1	+0.1	+1.1	+1.2	+1.3	+1.7	+2.0	+1.7
Wales	+1.1	+1.0	+1.2	+1.4	+1.6	+2.1	+2.6	+3.0	+1.5
Northern Ireland		+4.5	+4.1	+3.4	+4.3	+4.9	+5.7	+6.5	+1.2
Yorkshire and Humberside	-0.8	-0.4	+0.3	-0.1	-0.4	0	+0.2	+1.5	+1.0
South West	-0.2	+0.1	+0.3	+0.6	+0.7	0	-0.5	-0.2	-0.3
East Midlands	-0.8	-0.6	-0.3	-0.5	+1.0	-1.0	-0.8	-0.9	0
West Midlands	-1.1	-0.8	-0.6	0	-0.4	-0.3	+0.3	+1.7	+1.4
East Anglia	-0.3	-0.2	-0.4	-0.5	-0.7	-0.2	-1.5	-1.1	-1.2
South East	-0.6	-0.6	-0.9	-1.2	-1.4	-1.8	-2.4	-3.1	-1.8

Source : Economic Trends.

Note: 1. School leavers are excluded

towards intra-regional problems and economic regeneration within traditional industrial cores (see below). This dilution is suggested by Moore & Rhodes as being one of the reasons for the differential rise in employment in the Development Area regions in recent years.

2.3.2 REGIONAL POLICY

The basis for post-war planning policy stems from the Barlow Commission's analysis of a dual problem of metropolitan congestion in the South East and Midlands and of underdevelopment and unemployment in the Northern and Western parts of the country. The problem was not necessarily related but by tackling both together it was hoped to devise a strategy which would both restrict the further growth of cities through land use planning controls and redirect surplus population and economic activity to the surrounding metropolitan hinterlands and to peripheral underdeveloped regions. Floorspace controls in the congested areas and regional financial incentives together with provision of infrastructure in the reception areas were the major tools to be utilised. This dual strategy formed the basis of the regional planning system up to the mid 1970s. Evidence would indicate that in all the major conurbations both population and economic activity have decentralised to new and expanded towns and that as a result of regional economic policy specifically, a large number of jobs have been created in the assisted areas.

During the latter half of the 1970's regional policy came under increasing scrutiny and criticism. The so-called prosperous regions protested that the policy was having a restrictive impact on industrial growth and innovation and that this expensive policy was failing to solve the problems of the assisted regions. The changing economic climate of the 1970's also began to undermine many of the assumptions upon which the policy had been based.

Throughout the post-war period up until 1974 there was a measure of continuity of attitude towards regional policy. Unemployment in the northern and western regions of the country was regarded as the key problem to be tackled. The cause of regional underdevelopment was seen overwhelmingly in terms of the decline of basic staple industries such as coal, steel, shipbuilding and textiles in these areas. The basic strategy which followed from this interpretation was one of taking the "work to the workers". Labour migration was generally regarded as socially disruptive, undesirable and ineffective in scale and speed.

The particular characteristics of the policy were an emphasis on capital mobility and on investment in manufacturing in spite of the increasing significance of the service sector as a source of employment growth (it was not regarded as mobile in the same sense as manufacturing); the broad brush non-selective nature of regional policy was primarily concerned with inter-regional movement and tended to ignore the

question of the location of firms within the receiving areas; in spite of the structural explanation for regional decline little effort was made to differentiate between industries and firms when applying control and incentives which reflected the immediacy of the political problems of high levels of management in certain areas.

Throughout the 1970's evidence was being provided as to the effectiveness of regional policy questioning the conventional analysis of regional problems.

In the structural explanation, for example the problem of traditional declining urban industrial regions is explained by the fall in the demand for the products of the basic staple industries i.e. coal, iron and steel, shipbuilding and heavy engineering. Yet the persistance of these 20th century difficulties is not wholly explained by the above. Why did not new industries develop on a sufficient scale to compensate for the decline of the traditional industries? Segal has suggested that the answer lies in the long-term consequences of specialisation in coal mining and heavy industrial activity which has meant that small firms play a minor role in the economy of the traditional assisted areas and in turn has limited the development of entrepreneurial and managerial skills.The failure to develop a strong indigenous sector is attributed to the nature of large-scale production technology which is unsuited to small firm formation and is reliant upon traditional non-transferable

craft skills. He went on to argue that the paternalistic and conservative management style of large firms in heavy industries has led to a slow adoption of modern management techniques and a tendency to emphasise production rather than marketing and the identification of new product and market opportunities - a reflection of the national malaise of recent years.

A further constraint suggested by NRST is the continued dominance of London and the South East as the administrative and business centre of the country. The concentration of higher level office activities in this area has placed the assisted areas at a disadvantage in terms of the development of new business and entrepreneurial activity which has affected their supply capability. The peripheral regions have therefore been characterised by increasing specialisation in production and "branch" activity on which regional policy has tended to focus. Such processes have tended to reinforce the relative weakness of the peripheral regions in "those skills opportunities and attitudes that play the leading role in initiating modern economic growth and change".

Fothergill & Gudgin have reinforced the argument that structural change is no longer of major significance in accounting for regional decline. Their work showed that in the period 1959-1975 industrial structure had a diminishing influence on variation in employment change. The differential component particularly of manufacturing was a much more

dominant influence on employment change at the subregional level. They also showed that the main influence on subregional change was indigenous performance. This was particularly the case in London and the West Midlands conurbations which provided further evidence that their poor employment performance cannot be solely attributed to outward industrial movement.

Another aspect of their work indicated that as far as spatial variations in differential growth and indigenous performance are concerned there is more variation within regions than between them particularly the contrast between urban and rural areas which is the major factor in accounting for differences in regional employment growth. Thus some regions e.g. East Anglia perform well because they are primarily rural while others grow more slowly e.g. North West because they are dominated by declining conurbations. The main cause of employment decline is not therefore structure or movement but poor indigenous performance of industry.

The reasons for the poor performance of the conurbations include the impact of physical planning policies, a lack of space to expand, the ageing of premises and infrastructure and the diminishing attraction of urban areas due to agglomeration diseconomies. The growth of industry in the wider metropolitan area on the other hand would appear to be explained by the availability of space, a good road network,

the composition of the labour force and the increasing importance of environmental quality on location decisions.

Smith, B. summarised the changing nature of regional policy and problems as follows:

i) The basis of the success of regional policy in the post-war years was a buoyant national economy. The late 1960's and 1970's was an era of slow growth which substantially weakened the effectiveness of the major policy instruments of floorspace controls and financial incentives.

ii) Where employment is generally high and increasing, the macro-economic justification for regional policy i.e. diversion of jobs from over-loaded prosperous regions to regions with under-employed resources thereby raising national output and postponing stop-go policies no longer has sufficient validity and is politically difficult to justify.

iii) Reductions in public expenditure by both central government in pursuance of macro-economic policies has ultimately had an effect on the level of public expenditure on regional policy with the reduction in areas actually eligible for assistance.

iv) The current emphasis on the need to improve national competitiveness has led to a focus of government attention on granting assistance to industries that are likely to promote economic efficiency rather than locational change.

v) The traditional approach of shifting footloose plants to the assisted areas has undoubtedly succeeded in raising the demand for labour and particularly in compensating for large scale job losses in these areas. The over-riding priority has been the provision of new jobs by the fastest means possible. The focus of attention needs to shift to strengthening the supply capability of these areas so as to make them capable of adapting in the long run to changing economic circumstances without external assistance. The problems which policy must attack are those deep-seated and complex weaknesses in the regional economies.

vi) Research has shown that the relative performance of indigenous manufacturing industry is the major factor accounting for employment changes at the sub-regional level and that variations in employment change within regions are of much more significance than those between regions. (Tyler; Fothergill and Gudgin). The relative performance of indigenous industry as between conurbations and rural areas is the fundamental issue which regional planning needs to be concerned with.

vii) Regional policy has been overwhelmingly concerned with broad inter-regional economic problems but the evidence indicates that the problem is one of intra-regional disparities. This policy approach is equally applicable to the supposedly prosperous regions and is not

competitive between regions as occurred in the search for mobile industry.

2.3.3 INNER CITY POLICY

The origins of the inner city problem lie in the 19th century. By the 1970's the principal elements of the so called inner city problem could be seen and were identified by the Inner City White Paper in 1977 :

> "Many of the inner areas surrounding the centres of our cities suffer.... from economic decline, physical decay and adverse social conditions...The inner parts of our cities ought not to be left to decay. It would mean leaving large numbers of people to face a future of declining job opportunities, a squalid environment, deteriorating housing and declining public services".

Physically the inner city comprises 20th century redevelopment and the surviving parts of the 19th century industrial city. The 19th century industrial city has left a legacy of buildings and infrastructure unsuitable for modern needs and which are expensive to renew or improve. This physical form is further complicated by a historical confusion of land ownership and uses.

The inner city problem is both a social and economic one with employment lying at the heart with jobs disappearing,

especially in manufacturing and traditional industries and workers moving out for better prospects elsewhere.

The share of manufacturing in total employment has fallen nationally as a result of the processes of deindustrialisation experienced by advanced countries in recent years and particularly in the inner cities. Greater London lost 40% of its manufacturing jobs between 1961-1975 - most markedly in the inner boroughs; Manchester between 1961-1971 lost 3% of its manufacturing jobs each year which was three times the rate for the rest of the Greater Manchester conurbation; Birmingham's industrial base has declined even faster with manufacturing employment in the city declining some 43% between 1971-1983 representing a loss of 126,000 jobs - compared with 31% nationally for that period.

An important aspect of this decline has been the complete closure of factories as bigger firms have rationalised their operations between several plants (e.g. British Steel, British Leyland etc.) Firms have preferred to expand or improve efficiency by leaving the inner cities for modern industrial estates outside the cities with better transport, premises and services. A study by Massey and Meegan considered that the stimulus for industrial restructuring came from various pressures (overcapacity and high costs, to achieve scale advantages or to improve market standing), and that most jobs lost were not relocated, but were totally lost as technological changes by firms reduced their need for

labour, particularly skilled labour. The withdrawal of key firms' demand for goods and services as they decentralised or retrenched has had long-term multiplier effects on the inner city economy, causing the decline or death of dependent firms in subsequent years. Fothergill et al in their theory of URBAN MANUFACTURING DECLINE (see above) view the problem slightly differently in that they identify a definite shift of manufacturing industry from urban to rural areas and creation of new sub-economies with presumably agglomeration economies eventually in these areas too.

By the late 1960's inner cities could be observed to contain areas of multiple deprivation where socially disadvantaged lower income groups with poor access to housing, education and other opportunities were concentrated. There was considerable concern expressed about the poor state of the physical environment and the growing unemployment rates which had become comparable to those found in the development areas.

In 1968 the Urban Programme was launched to provide small grants for social and community projects within the inner cities. Further initiatives were launched during this early period, the most notable being Education Priority Areas, Community Development Projects and the Urban Guidelines Studies. The initiatives were all fairly limited both in duration and in resources but the pool of knowledge which gradually accumulated, identified the scale of the problems

and laid the foundation for the major shift in policy towards inner city regeneration. In 1974 the Department of the Environment appointed three firms of consultants to undertake major studies of inner areas in Lambeth, Birmingham and Liverpool. The publication of their reports in 1977 marked a major switch in Government Policy. This was outlined in the White Paper "Policy for Inner Cities". The major features of the new approach were :

i) to tackle the inner city problems in a unified and comprehensive manner rather than dealing with different parts of the problem in often different but conflicting ways or by treating isolated pockets of deprivation. Hence "partnership", "programme" and "other" designated districts were established.

ii) an emphasis on economic regeneration, involving the private sector, as an equal if not greater priority to tackling social and environmental problems. The Urban Programme was re-cast to match these priorities.

iii) substantially greater resources. The funding of the Urban Programme was greatly increased and responsibility transferred to the D.o.E. At the same time a greater bias towards the inner city was introduced into government support of mainline local authority programmes. (since 1979 this bias has been reversed.)

iv) at about the same time it was announced that the new town and town expansion programme (so closely associated with conventional regional policy) would be progressively reduced and ultimately phased out.

INNER CITY PARTNERSHIPS

Under the Inner Urban Areas Act 1978 partnership arrangements were established in specific areas. The Inner City Partnership Committee brings together the Department of the Environment, the County and City councils, the Area Health Authority and where appropriate other agencies in order to promote a unified approach to inner city problems.

INDUSTRIAL IMPROVEMENT AREAS

In 1974 Rochdale became the first local authority to apply the concept of area improvement from older housing to older industrial areas. The initiative was soon adopted by Tyne and Wear and Merseyside County Councils and in 1978 given formal legislative status in the Inner Urban Areas Act. The Act empowered all partnership, programme and designated districts to make loans and grants to the private sector for land acquisition and site preparation and where they consider the relevant powers appropriate to declare Industrial Improvement Areas (I.I.A's) within which grants and loans can be made to the private sector for various environmental and access works or for converting or improving buildings.

PROMOTIONAL PLANNING AND INNER CITIES

On the change of government in 1979 certain policy trends which were evident earlier became more pronounced - namely :

a) Planning was seen as an activity to promote rather than regulate development;

b) Private sector were to play the prominent role especially in economic regeneration and new housing development. Private sector also to become more involved at the margin such as the renewal of inner cities and in derelict land reclamation.

c) The re-use of vacant land within cities was seen as a worthwhile policy objective in its own right and also linked directly to the policy of urban containment and the maintenance of green belts.

The Local Government, Planning and Land Act 1980 provided the legislative base for the new government's planning policies.

To this end the Secretary of State compiled by districts, a register of freehold or leasehold land owned by public bodies which are surplus to requirements. It also empowers him to designate any area of land within a Metropolitan District or an inner-London borough as an Urban Development Area after which an Urban Development Corporation is established "to serve the regeneration of its area" through bringing land and buildings into effective use, encouraging the development of existing and new industry and commerce, creating an attractive environment and ensuring that housing and social facilities are available to encourage people to live and work in the area.

The S.O.S may also invite any District Council/London Borough Council/New Town Development Corporation or Urban Development Corporation to prepare a scheme for an "Enterprise Zone" which once designated has the effect of granting planning permission for development specified in the scheme or for development of any class so specified. There are also additional benefits which largely amount to removal of fiscal and physical barriers to development particularly with regard to commercial and industrial buildings. Roger Tym and Partners were appointed to monitor the enterprise zone experiment and initial reactions were that the activity generated in the first year in almost all the EZ's designated would have happened any way within the region concerned.

In May 1982 the S.O.S announced that he had earmarked 70 millions in the 1983/84 urban programme and derelict reclamation budgets for projects which encourage private sector participation. Urban Development Grant submissions are made by local authorities in association with a private owner or development company. A development assessment is made jointly of acquisition, clearance and development costs and of expected income, capitalised, where appropriate. The shortfall is covered by the UDG (75% from Central Government and 25% from the local authority). If in the final analysis there is no shortfall then no grant is payable.

The Government's Inner City Policy aims to direct special attention and additional resources towards those inner city areas where the problems of economic decline, physical decay and adverse social factors create a particularly poor environment and a high degree of social need. Problems facing each area vary but they often include a combination of decayed infrastructure, unemployment, limited job opportunities, poor physical conditions and high concentrations of people with social difficulties.

Priority and emphasis is given to regenerating the economies of these areas.

2.3.4 ECONOMIC REGENERATION

Regional Policy and the Inner City Policy needs to be viewed against the present Government's avowed intention to recognise the need to encourage economic regeneration and is apparent in the shift of emphasis taken by Government in recent years away from conventional regional policy to focus on problems of the inner city.

The Government would claim that its industrial support measures are intended to complement the objectives of the overall inner city policy. National schemes of support for industrial investment are provided on the basis of the national advantage to be gained from capaital investment in and the application of new and important technologies. Any

contribution made to the economic regeneration of inner cities is intended to come from the support they provide for the new investment and innovation essential to the competitiveness of inner city industry.

The Government has identified that small firms are of some importance to the economies of inner cities in providing direct benefits and consequently have introduced a number of policies and instruments to encourage the small firms sector. The Department of Industry has listed ninety eight measures which are of specific assistance to small firms e.g. taxation, finances and employment together with measures relating to planning and premises and Industrial Building Allowances.

Government regional industrial policy still provides support for industrial investment in those areas of great need (Assisted Areas) defined in terms of of a number of criteria including unemployment levels and long-term problems of industrial structure and a number of those areas contain or have at their core, inner cities where the Government have concentrated on the identified areas of deprivation using the Urban Programme.

The English Industrial Estates has a supportive role to play with regard to Government's policies. Since June 1980 it has operated on the lines of a private sector property company as laid down by the Secretary of State for Industry. It's

statutory function is to provide, facilitate and manage industrial and commercial sites and premises in England for occupation by industrial and commercial undertakings with regard to the overall objective of alleviating unemployment in the Assisted Areas of England. It is held by Government that by pursuing a policy of complementing and stimulating private sector activity within a sound commercial framework the corporation has concentrated on sectors of the market and localities such as inner urban areas that are not being served by private or other public sector investment.

2.4 A THEORETICAL FRAMEWORK

Traditional regional policy has been identified as treating the symptoms rather than the cause of economic disparity. The problem lies somewhere within the regions themselves and within their existing industrial structure. The inner city problems as revealed are varied and complex. The policy response has been fragmented without any overall strategy to guide or co-ordinate the piecemeal measures or determine priorities for allocation for public resources between areas. Over the last 25 years all large urban areas including both the conurbations and major free-standing cities have been losing manufacturing jobs. Employment decline which was earliest and most severe in the inner areas has extended to the outer areas whilst growth has shifted to smaller urban centres and even to rural locations.

This 'urban - rural' shift is the dominant feature of spatial change in the British economy. The shift is now well documented (Keeble 1976, 1980; Fothergill & Gudgin 1979, 1982; Moore, Rhodes and Tyler 1980; Fothergill Kitson & Monk 1982.) It has occurred in every region of Great Britain involving a wide range of industries and different sizes of firms. Similar shifts can also be noted in other parts of Western Europe (Keeble, Owens & Thompson 1982) and in the United States (Allaman & Birch 1975). Table II below provides an interesting picture of the urban- rural shifts in manufacturing employment. The table indicates that it is not simply a shift of industry from the inner city to the suburbs and the commuter belt beyond. The problem is much more complex than that. Across the whole urban hierarchy manufacturing employment change has been related to settlement size and as a general rule - the smaller the settlement the better the growth. The fact that this urban - rural shift is occuring and on an increasing scale is now widely accepted. But as with traditional regional policy the question of the root causes of this problem still requires attention. Fothergill et al have argued that in order to understand the urban-rural shift in employment it is necessary to understand the factors determining the location of industrial buildings. This must of necessity include the performances of individual manufacturing firms, the supply of land, the operation of planning controls and the behaviour of the property development industry and their work is proceeding.

Table II Manufacturing employment change by type of area and region 1967 - 78
(as % 1967 employment in each type of area in each region)

	London	Conurbations	Free standing cities	Large towns	Small towns	Rural areas	TOTAL
East Anglia				+ 2.9	- 2.0	+43.3	+14.8
South West			-16.7	- 3.7	+ 5.1	+16.8	+ 0.9
Wales			-37.5	-12.5	+ 5.5	+16.0	- 1.5
East Midlands			-12.8	+ 0.7	+ 1.6	+21.0	- 3.6
North		-20.6	-19.8	-11.7	+31.7	+18.6	- 6.9
Scotland		-24.0	-32.1	-16.6	+ 5.7	+16.4	-12.4
Yorkshire and Humberside		-24.6	-16.0	- 4.2	+11.1	+22.4	-13.0
West Midlands		-20.5	-18.4		0	+15.4	-15.2
North West		-24.7		-10.3	-10.6	0	-18.4
South East	-37.1		+ 4.6	- 4.0	- 1.4	+23.8	-19.3
Great Britain	-37.1	-22.6	-15.5	-6.3	+ 1.3	+20.3	-13.0

Source : Department of Employment.

However they have identified that the urban-rural shift in manufacturing is the main process responsible for the decline of inner city core industrial areas and that through a multiplier process this disappearance of manufacturing industry from these traditional areas has severe "knock-on" effects in the service sector, curbing the growth of its output and employment. Eventually in this context of falling population and employment, private investment in the physical fabric of inner city areas is deterred.

The theory of urban manufacturing decline as propounded by Fothergill et al in relation to the urban- rural phenomenon provides a theoretical framework within which the focus of this study can be placed. The theory coupled with the urban - rural phenomenon assumes the existance of three mutually exclusive processes which when combined create a centrifugal urban-rural shift of industry and employment :

(1) Manufacturing industry is becoming more and more capital intensive with the introduction of new machinery and higher technology in production methods forcing manufacturers to invest in order to raise labour productivity and remain competitive.

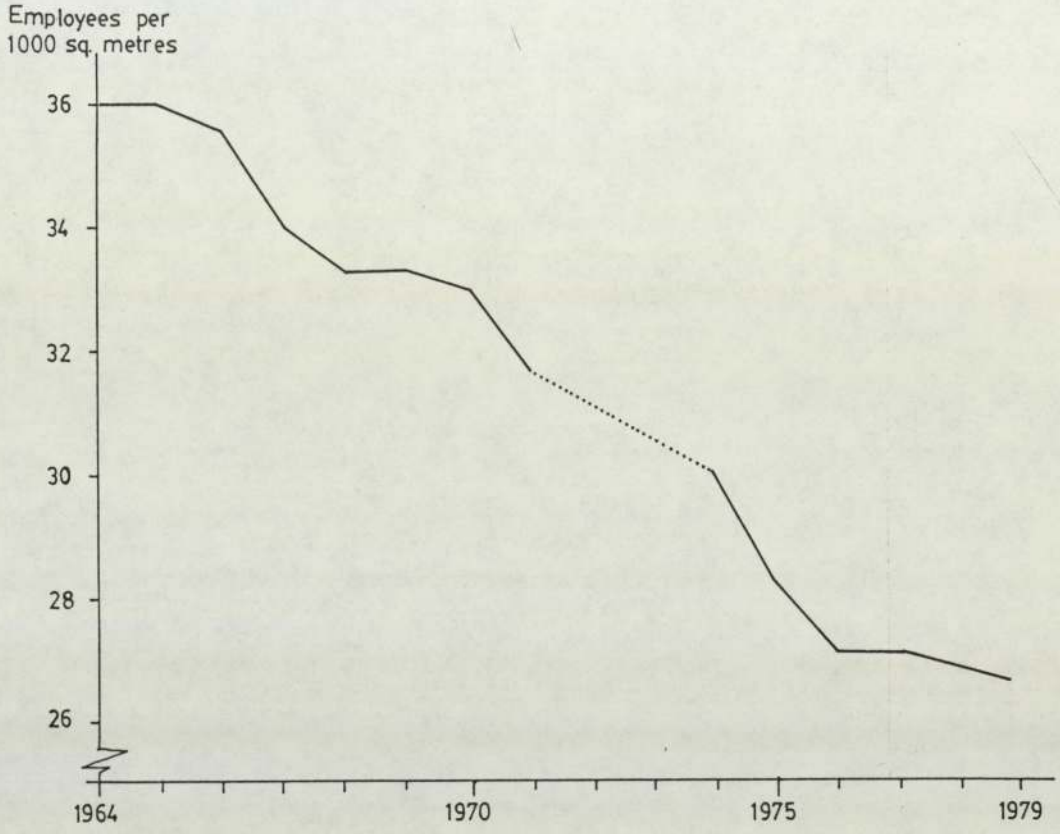
As the pace of investment increases and the stock and sophistication of capital equipment rises labour on the shop floor, on the scale employed in the past becomes superfluous and is displaced. Average employment density begins to fall in particular where there has been no

addition to floorspace. Figure 4 below indicates the trend in manufacturing employment density and in spite of fluctuations the overall trend is downwards. Between 1964 and 1979 this reduction in densities produced an average fall in employment of 26%. This in itself may not be a totally accurate picture in that the figures shown are aggregate manufacturing figures. The effects of this capitalisation on the shop floor have probably been more dramatic. Similarly certain industries will have fared worse than others.

(2) The increase in industrial floorspace in the United Kingdom has been unevenly distributed (see figure 5 below) with floorspace in London and the conurbations falling slightly since the mid 1960's. This needs to be viewed against the huge fall in manufacturing employment that has occurred concurrently in these locations. In other parts of the country floorspace has risen by roughly 30%. Fothergill et al believe that the disparity arises from repellent forces operating within cities namely that of the lack of room for physical expansion. The supply of urban land is either too costly, unsuitable or lacking; thus reducing the attractiveness of these places as new factory floorspace locations.

This description of the displacement of labour by capital and the lack of room for expansion in cities

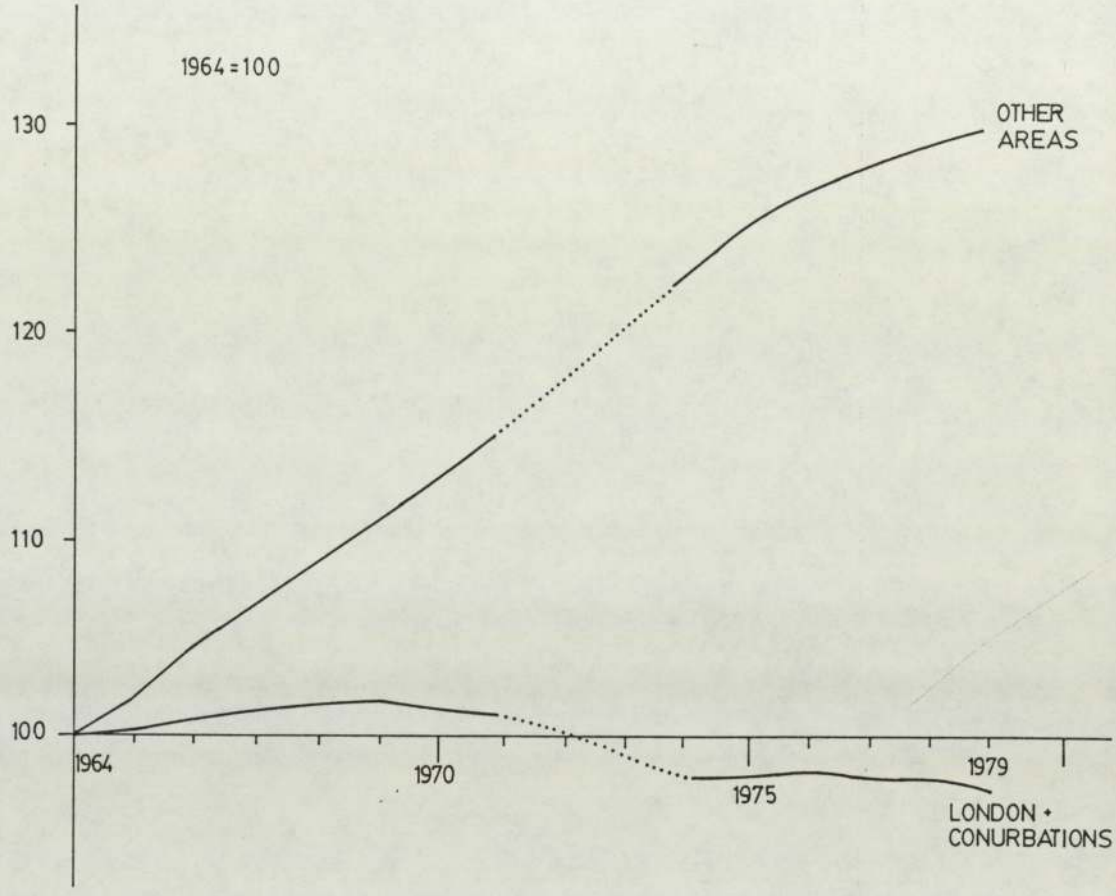
Fig. 4



Manufacturing employees per 1000 sq. metres of industrial floorspace England and Wales 1964 - 79

Source : Department of Employment
Department of the Environment

Fig.5



The stock of industrial floorspace in England and Wales 1964 - 79

Source : Department of the Environment, Commercial and Industrial Floorspace Statistics.

would be sufficient to describe the process of decline that is occurring in manufacturing industry in urban areas but it does not satisfactorily explain the process of urban-rural shift. Implicit to this is a third process.

(3) The suitability of the receiving areas therefore completes the theory for until now only a description of urban decline has been given. The overall spatial change being described implies growth in the rural areas.

Fothergill et al have identified that the urban-rural contrast in the quality of the industrial building stock is considerable in that the small towns and rural areas provide substantial advantage in terms of age, size and site coverage over traditional urban sites which in turn have significant influence on the growth or decline of employment in individual manufacturing establishments. A consequence of this has been the emergence of a large contrast between employment change in cities and change in small towns and rural areas. They have calculated from a study based on the East Midlands Region that roughly two-thirds of the urban-rural contrast in the growth of manufacturing establishments can be attributed to differences in the industrial building stock between cities, towns and rural areas.

Supplementing this is Fothergill et al's evidence on the large urban-rural contrast in the supply of land for industry (see Table III below). Basically Britain's largest cities have markedly less land available for industry in relation to the size of their manufacturing base than small towns and rural areas. It is worth noting their conclusion here that "an adequate supply of industrial land in any area is a prerequisite for stability of industrial employment not just for growth".

The process of urban-rural shift and the forces at work as identified here in describing urban manufacturing decline provide a plausible though perhaps as yet inconclusive theoretical framework within which the remainder of this particular study needs to be set. The study focusses on two issues which have been explicitly and implicitly referred to above. Explicit to the theory of Urban Manufacturing Decline are those repellent forces at work within traditional urban industrial areas. An increasing amount of empirical evidence is being gathered on the quality of the supply of both industrial land and premises in industrial cores in particular here is the unique study undertaken by JURUE for the D.o.E of the industrial building stock in Birmingham and the Cambridge University Industrial Premises survey being undertaken for the Department of Industry and the Department of Environment which has focussed on the East Midlands Region as a case study area looking at both urban sites and now

Table III

Available Industrial Land in England and Wales 1982 (Hectares)

	North	Yorks + Humberside	North West	East Midlands*	West Midlands*	East Anglia	South East*	South West*	Wales	ENGLAND + WALES*
London	-	-	-	-	-	-	746	-	-	746
Conurbations	492	496	777	-	1102	-	-	-	-	2867
Free Standing Cities	1418	1030	-	206	239	-	74	779	365	4111
Large Towns	490	1152	696	149	-	452	157	232	420	3748
Small Towns	1182	549	1289	883	631	130	1293	129	2145	8181
Rural Areas	280	599	72	645	445	651	250	635	614	4191
ENGLAND and WALES	3862	3826	2834	1833	2417	1233	2520	1775	3544	23844

* The following counties are excluded.

East Midlands: Derbyshire, Nottinghamshire.
West Midlands: Hereford and Worcester.
South East: Essex, Oxfordshire, Berkshire, Surrey, Buckinghamshire (except Milton Keynes).
Wouth West: Gloucestershire, Devon.

rural locations. Other work undertaken by JURUE in other parts of the West Midlands also emphasises the repellent force of the stock of industrial land and premises. The JURUE study concluded with the following:

> "Almost half of the building stock in Birmingham exhibits just those features that industry finds most undesirable. The most important disadvantage is the layout of the building stock; small, cramped sites, poor road layout and congestion. This makes it difficult and costly for industry to expand often forcing it to move. The poor layout of the stock itself also inhibits both developers and users (manufacturing and distribution industries) from redeveloping the area to modern standards. Thus investment in the stock is directed away from the areas most in need of modernising, furthermore it is so low that the average age of the total stock of buildings is increasing year by year. It is clear from a number of other studies that this is a problem which effects not only Birmingham but a large number of other major manufacturing centers in England". (Source: "Industrial Renewal in the Inner City: An assessment of the potential and problems" HMSO, 1980)
>
> (See 2.6.5 below and APPENDIX I)

The Cambridge University Study has commented on a survey based on the Industrial Building Stock of the East Midlands Region that:

"The Industrial building stock in cities, and their inner areas in particular is poorly situated to the needs of modern industry. The urban-rural contrast in the quality of the industrial building stock which had previously not been documented, is considerable. Premises in cities are more likely to be old, multi-storey and have less room for physical expansion than premises in small towns and rural areas. These differences are important since age of buildings, number of storeys and, in particular the proportion of site already occupied by buildings are significant influences on the growth or decline of employment in individual manufacturing establishments." (Source: "The Industrial Building Stock and its influence on the location of employment change" WP. No.5. Fothergill et al 1983)

(See APPENDIX II)

Supporting evidence of this problem comes in reports from both Greater Manchester Council and Glasgow City Council which identify

"...obsolescence of building stock... decentralisation of industrial activity...poor environmental conditions in the inner areas..." and " ...poor environment of industrial areas... vacant, obsolete and oversized factories... location and quality of industrial sites..."

respectively, as perceived industrial problems within their areas.

If those policies associated with economic regeneration of the inner areas are to be implemented and if the pace of urban-rural shift and consequently urban manufacturing decline is to be contained (should it not be desirous to turn the tide) then this repellent force or set of processes needs to be addressed.

Implied in the concept of this urban-rural shift is an understanding of the supply and demand features associated with industrial land and premises and yet implicit in the arguments stated above is that there is a mis-match both quantitative and qualitataive between that amount of land and premises available over time and the amount required by industry in a particular locality. The arguments as stated above are focussed on supply features and the inadequacy both in amount and quality available in urban industrial core areas. But a feature again implicit to generating solutions to this first issue is that sufficient is known and understood both of a quantitative and qualitative nature about the requirements for industrial land and premises over time for a given area. It is only in response to demand that solutions on the supply side can be generated. It is contended here that insufficient is understood of the demand side of the equation though the studies as quoted above are beginning to reveal more. Only by understanding the nature and characteristics of demand, of being able to predict and monitor this over time for a given area can authorities begin to generate solutions to the supply problem; only then

if we know and can predict the amount and type of land and premises required can a relatively flexible industrial land management strategy be devised that can begin to rationalise this urban-rural shift and subsequent urban manufacturing decline in the traditional industrial areas and disproportionate growth in pripheral and rural locations.

2.5 THE WEST MIDLANDS DEFINED

2.5.1 INTRODUCTION

The backcloth against which this study needs to be set is that of the West Midlands Region but more specifically at the sub-regional level that of the West Midland conurbation and at the local level the city of Birmingham. (For factual/economic profile refer to Appendix III)

It was "chosen" in many ways for purely pragmatic reasons in that the West Midlands conurbation had been the setting for the majority of the author's research and both data and conceptual base together with contacts were firmly established in this area. In many ways however it is considered a fortuitous "choice" in that the West Midlands describes a conurbation in transition with a long history of successful economic adaptation but with new emerging problems of decline of the basic industry, its repercussions on the whole economy, concentration on industrial ownership and control and the apparent failure of an old, small

entrepreneurial tradition to generate new sources of economic growth. It has provided the broadest and most complex of situations possible to examine and understand, from which to generate solutions.

It is hoped that by examining such problems and beginning to unravel some of the complexities,solutions generated might be applicable or adaptable to other areas where it is believed similar problems exist in varying degrees of complexity.

2.5.2 DEFINITIONS

The description "West Midlands" is something of a mis-nomer for it means different things to different people and refers to different levels of geographical and economic scale. It can be defined as the West Midlands Region or "West Midlands Standard Economic Region" which takes in the West Midlands County, Warwickshire, Staffordshire, Hereford and Worcestershsire and Shropshire. It can also be defined as the West Midlands County which takes in Birmingham and Solihull, Coventry, Dudley, Sandwell, Walsall and Wolverhampton or alternatively it can refer to the West Midlands Conurbation which is basically defined as the West Midlands County minus Coventry. (see Plan I attached)

The principal focus for this study is the latter which forms the great industrial conurbation at the heart of the West Midland Region.

SUB-REGIONS & PARTS OF SUB-REGIONS

Plan 1

2.5.3 LEVEL OF STUDY

The study is based broadly speaking at the sub-regional level but the case study approach as described above narrows the context even further to the local level and in this particular case within the context of the City of Birmingham. Those factors however which affect and are in operation within the city are to be found throughout the conurbation. The remaining sections attempt to review those problems and policies that can be identified within the above areas and on which the remainder of this study is based.

2.5.4 EMPLOYMENT, INVESTMENT AND PRODUCTIVITY

Since the mid 1960's, employment levels in manufacturing industry throughout the United Kingdom have been declining. The poor competitiveness of the United Kingdom manufactured goods in the world market has led to a significant fall in the country's share of world trade particularly in the vehicles and engineering industries. The situation for the manufacturing sector has worsened considerably since the quadrupling of oil prices in 1973 which led to a severe and continuing recession in both the national and international economy.

The economy of the West Midlands has an exceptionally high dependence on metal based manufacturing industries which account for nearly 50% of all male jobs in the County compared with the national average of 22%. Since 1966,

employment in the County has declined rapidly due principally to the decline experienced in these traditional metal-based sectors. As well as declining employment levels, industry in the West Midlands has recorded relatively low levels of investment during the 1960's and 1970's which has been reflected in a relative decline in the regions poroductivity, from 96% of the national average in 1963 to 90% in 1976. Productivity in the West Midlands is now the lowest of all regions in the country. This relatively low and declining share of industrial investment and low productivity is apparent in almost all the region's industries.

TABLE IV below shows that over 50% of all employment in the West Midlands Region is concentrated in the Conurbation. (See also Appendix III)

Whilst the aggregate picture for employment is shown in Fig.6, which indicates an overall decline in manufacturing employment in the West Midlands County the net employment losses illustrated here would however have been much greater had there not been a trade-off to some degree with a sustained growth in service employment. This growth can be seen as a partial restructuring in the economy away from manufacturing employment towards employment in the tertiary sectors. Forecasts predict that such processes could continue as the West Midlands County has only 45% of its jobs in this category compared with 58% in the U.K.

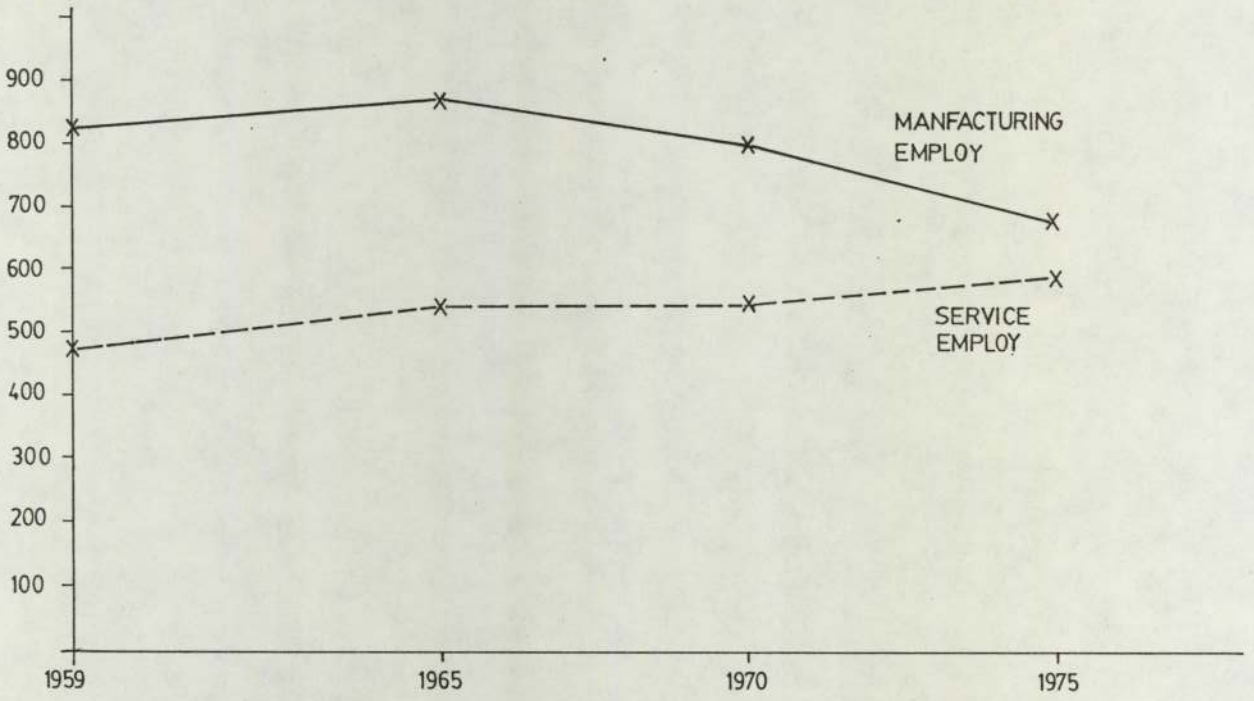
Table IV

Employment by Sector 1975
(number of jobs in thousands)

	Agri-culture	Mining	Manu-facturing	Con-struction	Services	Total
United Kingdom	287.8	349.7	7,333.8	1,273.3	12,868.4	22,213.0
West Midlands Economic Region	31.8	26.3	1,021.8	105.3	1,027.5	2,212.1
West Midlands County	2.2	2.7	685.3	62.3	607.7	1,360.3
West Midlands Conurbation	1.8	0.3	571.3	58.3	535.4	1,168.0
Birmingham & Solihull	0.5	1.12	278.2	35.0	331.2	635.8
Coventry	0.3	1.3	114.0	4.2	72.0	192.3
Dudley	0.4	0.1	48.2	5.0	48.8	102.8
Sandwell	-	-	112.5	5.3	55.2	182.8
Walsall	0.3	-	66.1	5.5	40.3	112.3
Wolverhampton	0.5	0.1	66.2	7.4	60.0	134.4

Source: adapted from W.M.C.C. 1978

Fig.6



Sectoral Employment Change in the West Midland County

Source : J.U.R.U.E.

Manufacturing however remains as the industrial base and therefore prosperity for the region though there are indications of change and re-structuring taking place within manufacturing too with an increase in proportion of small firms and employment in small firms particularly in the key West Midlands Sectors. Another factor to be considered in this context is the relative percentage increase in warehousing stock as compared with manufacturing stock. (see Fig. 7 & 8) This has been achieved in recent years because in 1976 only 10.8% of industrial floorspace in the County was in warehousing whereas the national proportion was 20.9% and by 1977 - 18.2% and 30.4% respectively. The implication of this is for potential continued growth in the warehousing sector. However the principal point to note in these figures is the continued increase in manufacturing floorspace in the West Midlands County.

N.B. As there is a much larger stock of manufacturing premises than warehousing the percentage increase shown actually represents a much larger net addition of manufacturing floorspace than warehousing.

This growth has been occurring at the same time as the other changes occurring in manufacturing i) falling employment ii) falling output by volume in key sectors and iii) an increasing proportion of small firms which signifies substantial change in the structure of West Midlands manufacturing industry.

Fig. 7

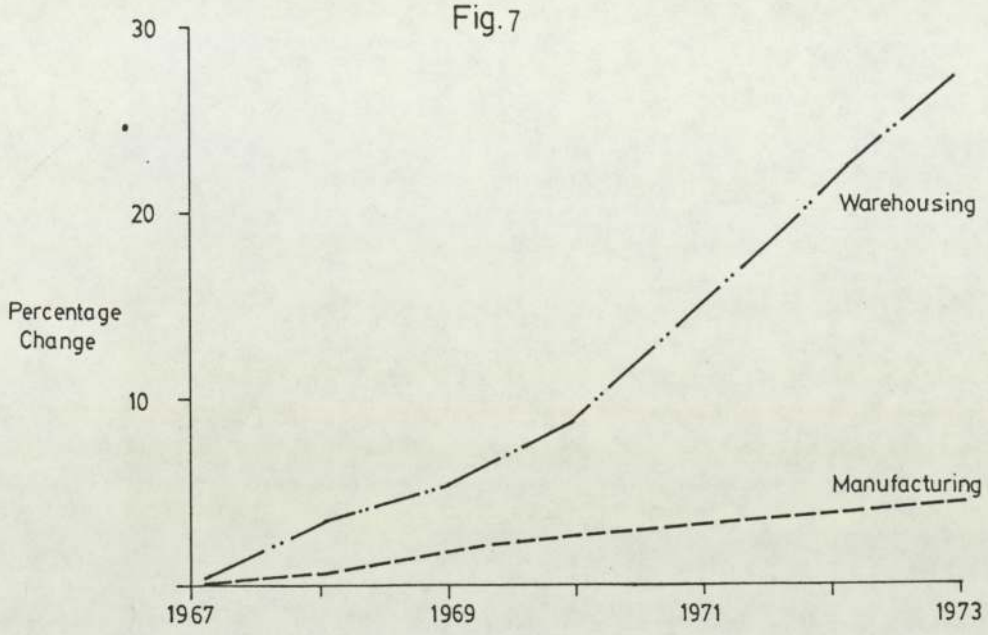
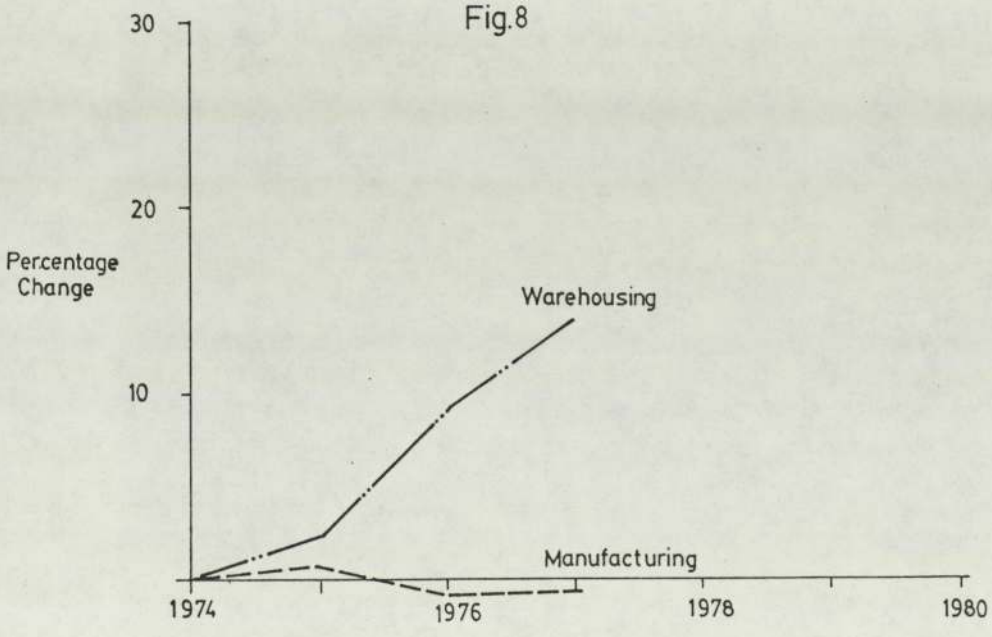


Fig. 8



Percentage Change in industrial floorspace (WMC)

Source : J. U. R. U. E.

Some manufacturing industries are therefore expanding in terms of floorspace requirements and must therefore be contributing to growth. From a study of industry in Birmingham (Williams et al 1980) it showed that approximately 80% of all industrial floorspace (manufacturing and warehousing) is produced by manufacturing and distributive industries for their own use and the major part of investment in new floorspace over the last 10-15 years has been by firms employing 250 people or less and almost 50% by firms with 100 employees or less.

This trend by the smaller firms is also carried over into space taken in new units produced by the development industry a trend that has been also found in Walsall (JURUE).

The vast majority of these firms whether building their own premises or moving into new ones are expanding firms - not necessarily in terms of employment but certainly in terms of output since with rare exceptions the key reason for making such investments is to expand to meet market demand.
There does appear therefore to be some restructuring of the economy taking place with the growth elements being services, distribution and small firms and the tendency would be to direct policy initiatives towards these sectors.

2.5.5 PROBLEMS

The West Midland economy however is largely dominated by very large manufacturing enterprises. Throughout the period 1979 to 1981 a number of studies were undertaken of various aspects of the West Midlands economy during which many individual manufacturing and distributive enterprises in the conurbation were interviewed (approx.400). Each firm was asked to outline the major difficulties and problems that it faced and whilst some of the very large firms were having problems with contracting markets and increased competition (questions primarily of demand and relative terms of trade and therefore largely responsive to national macro-economic policies) the majority of small and medium sized concerns ranked difficulties with premises as their most important problem followed by an apparent lack of adequately skilled labour.

TABLE V

FIRMS VIEWS OF PROBLEMS AND DIFFICULTIES THEY EXPERIENCED

(% of all Manufacturing and Distributive Firms in Birmingham)

PROBLEMS WITH:	% AFFECTED
Premises	61
Labour	58
Competition	35
Cost of raw materials	28
Loss of market	22
Changing of technology	18
Accessibility	14

SOURCE: Williams et al.

Although the table concentrates at the local level in Birmingham from other similar studies it is representative of results from elsewhere. One particular issue which firms repeatedly commented upon is the difficulty they have in operating in old, out-of-date premises and especially in premises which are cramped and confined with no room for expansion. (see Table VI below).

TABLE VI

Detailed Breakdown of Survey of Firms interviewed and estimates of all firms experiencing problems with BUILDINGS, SITES and LOCATIONS

BUILDING PROBLEMS	% of all firms surveyed	Estimated % of all fairms
Too small/cramped	16.2	17.4
Multi-storey	14.8	10.9
Age of building	13.4	11.1
High maintenance	7.6	7.8
More than one building, poor layout	7.1	4.2
Ceiling heights restricting	6.7	5.1
Irregular growth	5.2	1.2
Problems with landlord institutional context	4.8	7.8
Heat loss	3.8	1.7
Inflexible structure	3.6	3.1
Awkward column spacing	2.1	0.9
Underuse of space	1.9	1.9
Poor working environment	1.5	2.6
Insufficient locating system	1.5	1.2
Leaking roof	1.5	1.6

Source : Williams et al

TABLE VII

SITE PROBLEMS	% of all firms surveyed	Estimated % of firms
Vehicular goods access	20.5	15.4
Cramped site	19.5	17.6
Insufficient parking	16.7	21.5
Shared facilities	1.9	3.0
Site too dense	1.9	0.5
Security	1.5	1.3
Sloping	1.4	0.5
Flooding	0.5	0.1

Source : Williams et al

TABLE VIII

LOCATION PROBLEMS	% of all firms surveuyed	Estimated % of firms
Unsuitable for labour	6.7	5.6
Unpleasant	5.7	5.6
Not suitable for current use	2.4	1.9
Poor bus service	1.9	2.0
C.P.O.,blight etc.	1.5	1.7

Source : Williams et al

Indeed even a superficial survey of the industrial building stock in the West Midlands conurbation makes it clear that the majority of industry is having to operate in condtions more appropriate to the 19th century than the late 20th century. It has been estimated that approximately one third of all industrial buildings were built before the First World War almost half are multi-storey and the great majority are on sites with poor road access and with little or no land around on which to expand. The general trends of employment decline but floorspace expansion indicates that the new technologies which will form the basis of a more efficient industry demand more floorspace per worker and better, more modern layout hence the apparent urban-rural shift theory of urban manufacturing decline as expounded by Fothergill et al.

Those firms in any area willing and able to expand can only do so if the supply of premises is available in that area. Despite the apparent expansion in floorspace, surveys of firms in Birmingham, Walsall and Wolverhampton show that many firms are forced to move in order to expand (because of the lack of space around their existing premises) and that of those some 60% want to occupy new modern premises but only 30% are actually able to find such accommodation in "appropriate locations".(i.e. close to existing site).

There is then an old, out-of-date building stock unable to supply the needs of modernising industry and in spite of the additional floorspace they are not large enough to help

reduce the average age of the building stock in the West Midlands Conurbation. There is such a huge legacy of older industrial buildings that a much larger rate of new building would be required not only to accommodate new expansion but also to begin to replace and modernise the stock of property. Implicit in all of this is the supply of land. Modern competitive industry needs to occupy sities with much lower employment densities, more room for expansion and better layout and access than is provided by the majority of the building stock. The supply of suitable amounts and suitable quality of land is therefore crucial. Of all the factors of production it is the supply of land over which local authorities in the West Midlands have most control and which can be crucial in making life more or less easy for industry which it wishes to see expand. But supply is only one side of the equation. Studies of demand for industrial land are more problematic yet every bit as crucial for the local authority will act in response to the estimated requirements for land when exerting control over the supply factors. Those studies of demand for industrial land and the supply of that which is actually available for development (JURUE 1980) suggest that by the early 1980's industrial land demand per annum will exceed supply with the situation worsening as the eighties proceeds.

Some suggestions imply that there is in fact no under supply of land based upon an intuitive response to the apparently large areas of derelict and vacant land in the conurbation.

But it is the suitability and immediacy of supply that needs to be examined and although there may well appear to be the aggregate balance in reality a gross imbalance exists which will be compounded as the decade proceeds e.g. 1979 W.M.C.C. Structure Plan Review allocated 1300 ha of land for industrial development in the future against a projected demand of about 1000 ha. It has however been estimated that of the 1300 ha 63% can be classified as derelict, waste or cleared land and therefore not likely to be available in the short to medium term. The error is potentially compounded by the possibility that the supply available is in inappropriate locations with regard to locations required.

There are therefore considerable "lead" times involved in providing much needed industrial land in appropriate locations and any land allocation system must be aware of the nature, extent and characteristics of demand for land within given boundaries.

2.5.6 POLICIES AFFECTING INDUSTRY

i) CENTRAL GOVERNMENT POLICIES

The prosperity of industry within the West Midlands depends to a large extent on the prevailing economic climate. The fiscal policies of Central Government are crucial in providing an economic environment within which industry would wish to expand in the West Midlands. But the Government's

regional policy has been a major influence in weakening the economic and industrial base. The positive incentives for industry to relocate in the Assisted Areas coupled with the negative controls of I.D.C. policy have been a major factor in producing the decline in the West Midlands since the mid 1960's. Despite the fact that most constraints have now been abandoned a reversal of trends will not be immediate neither will it be automatic. Far more important than the direct job loss in the long-term has been the effect of inhibiting the natural process of economic change and regeneration throughout the area.

The importance which the government attaches to industrial regeneration and the encouragement of small businesses is reflected in CIRCULAR 22/80 (Development Control - Policy and Practices). The circular stated that "planning authorities should ensure that policies in their development plans are appropriately framed to facilitate small business development".

ii) <u>THE INNER CITY PARTNERSHIP PROGRAMME</u>

The regeneration of industry in inner Birmingham is the primary objective of the Birmingham Inner City Partnership programme jointly undertaken by the West Midlands County Council, Birmingham District Council and the Government. The programme aims to stem the flow of manufacturing jobs from the inner city and to encourage the creation of new

employment opportunities. Attention has been focussed on helping existing firms particularly small firms employing less than 50 employees together with encouragement of the development of new "seed bed" industries to broaden the industrial base of the area. Many Central Government (e.g. Manpower Services Commission) and Local Government policies have had an inner city bias built into them. Through declaration of Industrial Improvement areas, it is hoped will be increased the confidence of local industry, private sector investment and job creation possibilities enhanced.

iii) STRUCTURE PLAN POLICIES

The approved West Midlands County Council Structure Plan stresssed the importance of providing additional land for industrial use in order to facilitate the movement of firms into Birmingham together with the expansion and short distance relocation of existing firms. The West Midlands County Council have prepared a review of the Structure Plans covering the County area and have submitted the new plan to the Secretary of State. This new plan embodies a more positive approach to encouraging economic and industrial regeneration particularly in the older urban areas and it contains a series of policies designed to help investment and encourage employment opportunities and attempts to take account of the needs of existing firms to expand at or near their present location. A major aim of the County Structure

Plan is to provide sufficient land for industrial development and it places emphasis on the need for site assembly.

2.6 CONCLUSION

This chapter has provided the geographical and spatial contexts in which this study needs to be set. It also provides something of a theoretical framework and describes the changing environment in which the pursuance of a more meaningful assessment of demand at the local level needs to take place. The remaining chapters investigate on two levels the possibilities of achieving this with a view to suggesting a strategy whereby the industrial land resource can be effectively managed.

CHAPTER THREE : THE INDUSTRIAL DEVELOPMENT PROCESS UNDERSTANDING DEMAND

3.0 INTRODUCTION - THE FUNCTION OF THE DEVELOPMENT PROCESS

The development process may be defined as the process by which "land changes from one state of development and or use to another in response to changing needs and demands for space and buildings" (Barrett & Whitting 1983).

The process of producing buildings can be regarded as a high risk activity requiring relatively large capital sums to be tied up in the production of a product which is largely indivisible. Once the process has commenced it can be extremely difficult to modify either the product or its rate of production whilst the time-scale of production between the initial decision and capital outlay to when the completed product is marketed invariably means that both demand and cost may be subject to fluctuation.

There are therefore two basic elements to the development process.

i) Bringing together the necessary physical resources - land, infrastructure,development/investment finance, professional advice and skills, construction materials and manpower.

ii) Calculating the risk and renewal in terms of the estimated cost and time-scale of the assembly process in relation to assessed future demand and expected returns on investment.

The interaction and inter-relationships of the different activities and range of agencies involved in the development process is an extremely complex thing to describe.

The 'PILCHER REPORT' on Commercial Property Development adopted a functional description of the actitivies involved in achieving a commercial development :

i) the perception and estimation of demand for new commercial buildings of different types;

ii) the identification and securing of sites on which buildings might be constructed to meet that demand;

iii) the design of accommodation to meet the demand on the sites identified;

iv) the arrangement of short and long-term finance to fund site acquisition and construction;

v) the management of design and construction; and

vi) the letting and management of the completed buildings.

Barrett, Stewart and Underwood (1978) adopted a classification based on the stages through which land passes in the process of conversion from one state of development/use to another :

i) Development Pressures and Prospects: Describing those influences which stimulate land conversion or development through public sector planning and programmes of future land use of development activity or through private sector aspirations of owners or developers in response to external circumstances. These reflect changes in the perceived need or demand for land and buildings for a variety of uses.

ii) Development Feasibility: Covers many factors in land availability including physical condition, ownership, planning procedures; service provision etc, financing, marketability of the development etc.

iii) Implementation: The stage of actual development covering the process of construction and the transfer into new use and occupation.

In practice in both descriptions these functions are not discrete but are often combined and performed in different ways for different sectors by a variety (and combination) of actors.

3.1. THE INDUSTRIAL DEVELOPMENT PROCESS

Figure 9 is a simplified framework of the process by which the industrial building stock is maintained and developed and also indicates the output of that process in terms of buildings and land; in use and out of use; on and off the market; at any one time.

There are therefore two very different processes by which the stock of industrial buildings is changed :

i) By the industrial land and building industry.

ii) Manufacturing firms themselves.

In (i) the prime actors are developers, local authorities, property investors and land owners whose principal interest is in leasing or selling industrial land and property or buying it to lease as an investment. This is viewing them solely in their role as suppliers of industrial land and buildings. The availability and cost of development finance together with costs of construction will also operate to condition the decision of this set of actors. In Birmingham the industrial development industry is responsible for less than 20% of all types of industrial development activity viz. extensions, refurbishment, development and redevelopment (Williams et al. 1979). On the other hand manufacturing firms are heavily involved. Some act as owner occupiers; some as tenants. It includes all manufacturing industry plus that

Development of the Industrial Building Stock

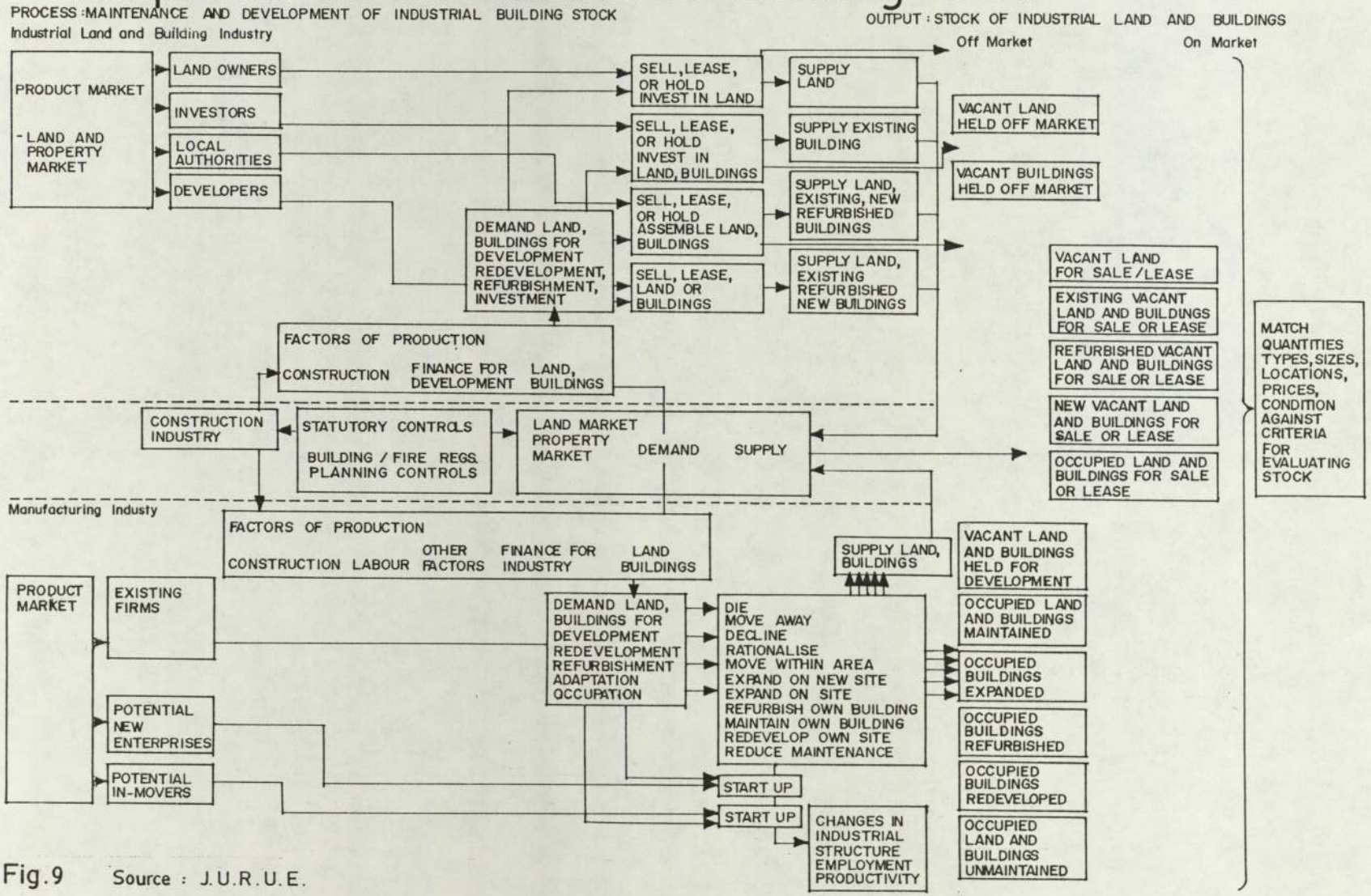


Fig.9 Source : J.U.R.U.E.

part of the distribution sector which does not serve a purely retail function. In terms of additions to floorspace they are responsible for 80% of all types of industrial development activity in the Birmingham area (see Table IX).

This group of actors consists of:

a) existing firms in area who may decide to change, maintain or develop their existing property or move to new property, or who may be moving away from the area or declining.

b) New in-moving firms or potential new enterprises deciding to start-up in the area.

Invariably decisions as to these rest on decisions being made with regard to their particular product market though those having strong implications for their property will also be affected by the land and property market, availability and cost of finance and construction costs. Decisions made by this sector may have implications for the supply of land and buildings on the market, the demand/requirements for property or changes in the building stock which is occupied by the firms and which does not therefore come onto the market. The prime markets within which these two sets of actors participate are quite different - industrial markets vis - a - vis the land and property market. However from the diagram it is apparent that inputs from the land and property market and the construction industry are common to both industrial developers and manufacturers wishing to develop premises and

Table IX

Indicators of the Amount of Development Work Undertaken by the Industrial Development Industry and Manufac-uring Industry (3)

Types of Development	Industrial Development Industry (1)			Manufacturing Industry		
	Number of units appearing in a 3-4 month period	Number of planning applications submitted in a 12 month period (2)	Number of building regulation applications submitted in a 12 month period	Estimate of new and modified floorspace sq.m. per annum (4)	Number of planning applications submitted in a 12 month period (2)	Number of building regulation applications submitted in a 12 month period
Refurbishment						
Modifications/ Alterations	51 Est.84,000sq.m. (6) per annum	9 (27.3%)	8 (6.8%)	180,000	24 (72.7%)	106 (89.8%)
Refurbishment Associated with Moves				127,000		
New Development (5)	26 Est.30,000sq.m. (6) per annum	20 (19.6%) (19.6%)	5 (12.6%) (12.2%)	43,000(5)	80 (78.4%)	35 (85.4%)
Extensions		6 (4.5%)	5 (6.0%)	49,000	124 (93.2%)	78 (94.0%)

1. In terms of total floorspace involved per year, and considering each of the indicators in the table it is likely that the Industrial Development Industry has accounted for about 10% of industrial property development. The current involvement is however likely to be well in excess of this figure, see (6) below.
2. Many Planning Applications (PA's) will be outline and some will have been refused.
3. Only the proportions in brackets are directly comparable between sectors, however they will not sum to 100% when the type of all applicants was not known.
4. Estimate based on an analysis of the investments made over the last ten years by the sample of firms interviewed.
5. Including redevelopment.
6. This figure is based upon multiplying the area of new and refurbished units on the market in the 3-4 months period by a factor of 3.5. Due to the current activity in the industrial property market this figure is likely to be considerably higher than in previous years. However, it will not include property that is pre-let.

this is where the public sector and particularly at the local level the local authority play an important role as planning can significantly influence the supply of land and through development controls can directly affect individual schemes.

The output of the development process are also of two different kinds :

a) Land and buildings on the market

b) Land and buildings not on the market-held for investment or expansion or because they are occupied which makes up quite naturally the major element of all the industrial building stock.

The process however is a dynamic one with occupants and owners continually changing, expanding, refurbishing or redeveloping their property whilst in the on-market situation there is either new, refurbished or vacant buildings for occupation by industry or land and buildings for development, refurbishment or redevelopment prior to occupation. There may also be some occupied property on-market at any point in time. In Birmingham the occupied sector building stock constituted in 1978/79 approximately 92% of the total stock. Vacant buildings accounted for 8% of the total stock at any one time of which 32% were being held off the market. The supply of new property for sale or lease amounted to 0.3% of the annual stock count; the existing

vacant property coming onto the market for occupation amounted to beween 6-8% of the stock p.a. Furthermore 40% of firms were leaseholders; 73% of property on the market was to let and not for sale. {Source : JURUE}

In 1978 the supply of all new floorspace in Birmingham was at a rate of just above 1% of the stock count. Historically the rate has been less than 1% which from work undertaken by NEDO is insufficient to prevent the age of the stock increasing.

3.2 THE IMPORTANCE OF DEMAND

The focus of this study as indentified in Chapter One is on the dilemmas associated with the demand side of this complex equation. In reality there is an obvious mis-match both of a quantitative and qualitative nature between land and premises required by industry in a particular locality and land and premises available over time.

The area-based approach to the problems of the industrial core as outlined in Chapters Four and Five focus explictly on supply features and the inadequacy in amount, quality and nature available in urban industrial core areas. Implicit to any discussion therein is that sufficient is known and understood both of a quantitative and qualitative nature with regard to the requirements for industrial land and premises

over time for a given area for it is only in response to demand that one can begin to generate appropriate supply responses. Essential to this sutdy is the contention that insufficient is known about the amount, nature and characteristics of the requirements of industry with reqard to land and premises and that existing methods of determining these at the local level on which supply responses can be based are inadequate. If this is the case then supply responses by both public and private sector are being made on questionable estimates of the demand for land and premises which if allowed to continue unchecked will serve only to compound the errors made and increase the mis-match in the Demand-Supply equation.

This again is borne out by studies undertaken in the West Midlands. One instance of this is the gradual realisation that aggregate estimates of the supply of land and premises are in many ways irrelevant as they fail to represent the actual situation. One of the arguments used in the past to defend certain policy decisions has been that there is no apparent mis-match between the Demand and Supply elements as aggregate figures would indicate for given areas an apparent equilibrium. However the aggregate figure of supply has taken no cognisance of the quality and timing of availability of land and premises (demand characteristics). Only recently has it become apparent that the nature and characteristics of demand need to be accounted for as well as the crude measure of quality required.

Therefore only by understanding the nature and characteristics of demand, of being able to predict with greater confidence and monitor this over time for a given area can local authorities and private sector begin to generate possible solutions.

In the remaining sections we give consideration to existing methods of forecasting/predicting industrial land requirements. The suggested alternatives are attembts to give greater creditility to estimates aggregated at the local level.

3.3. UNDERSTANDING DEMAND

3.3.1. INTRODUCTION

Industrial activity and therefore the demand for industrial land and premises at the regional and sub-regional level is heavily dependent upon national and international economic policies. Forecasts of the national economy seldom exceed four years since the assumptions upon which they are based (none the least being political stability) become increasingly unreliable over longer time horizons. It is therefore questionable whether it is useful to attempt to make predictions of industrial land demand beyond a similar length of period notwithstanding the potential effects of changes in communications technology, transportation costs and changing nature of industrial activities through higher

technology capital intensity. However there are a number of reasons as described above why the assessment of industrial land demand is critical particularly at the local level.

As already discussed manufacturing employment has been declining for a number of years. At the same time the amount of manufacturing floorspace has been increasing. These apparently conflicting trends are likely to continue due to the unsuitability of much of the existing floorspace with regard to modern manufacturing requirements and the slow rate of renewal prevalent in the industrial building stock.

Whilst the rate of manufacturing employment has declined the rate of growth of warehousing floorspace has been substantial (as much as ten times as fast as that of manufacturing floorspace). These plus the low intensity of modern industrial site developments (40% to 50% site cover) imply a continuing high aggregate industrial land demand. The problem for the local authority is how to accommodate these trends and their outcome which they must if the economic prosperity and employment opportunities of the area are to be maintained or enhanced.

3.3.2 CONVENTIONAL METHODS

The conventional method for estimating industrial land demand used by local authorities takes the likely growth of employment in the different industrial sectors and by multiplying it by a factor related to typical employment densities with the individual sectors a corresponding figure of the land demand can be obtained. By aggregating the figures for each sector and allowing a proportion for expansion that is likely to be undertaken within existing industrial curtilages an overall figure of demand for industrial land can be obtained. Such a process has a number of obvious limitations which are recognised by many of the local authorities involved.

First of all there are few industrial sectors that can be expected to grow in terms of employment and even where growth is achieved the likelihood is that those will be more than compensated for by the employment losses in other sectors that are assumed in the method to contribute nothing to the release for redevelopment of industrial land i.e. that are not growing. Within a declining industry, there may be individual firms that are expanding and may require further land. Some establishments may release premises and land through closure or contraction although such premises may not be suitable for re-use without substantial investment. It is implicit in the conventional forecasts that these latter factors counterbalance.

Secondly the estimates of average employment densities in manufacturing industry are unreliable particularly as currently expressed in terms of employees per unit land area.Within each sector there is a vast range of densities and a general trend towards lower employment densities. In the West Midlands Region this trend has meant an increase in the average floorspace per worker from 30 to 40sq.m. between 1967 and 1976. This is indicative of on the one hand a more extensive and productive manufacturing floorspace requirement and on the other by a growth in requirement for storage and warehousing space. With this general trend also the evidence suggests that the decline in employment densities has been sharpest in older industrial floorspace and that modern rational floorspace requirements including that for small warehousing units could achieve relatively higher employment densities.

Therefore the forecast of industrial land requirement based on employment trends is at best a very approximate guide to the scale of land requirements. The explanations for the continuing demand for industrial space are more subtle and complex.

With more data and increased analysis of the relationships between output, employment, consumption etc. which contribute to aggregate demand the traditional method might be able to overcome the apparent looseness of the relationship between the employment level and land used by industry and thus prove

to be more beneficial in its demand forecast. However this would demand more of the existing local accounting system. It might therefore be possible to make use of alternative data sources and survey results to devise a better understanding of demand. From existing material three ways seem possible.

3.3.3 ALTERNATIVE METHODOLOGIES IN USE

The conventional methodology as described is the one that is most widely used by local authorities. There are however variations and alternative approaches actually in use :

i) Some authorities retain an overall aim of ensuring a sufficient supply of industrial land to meet all components of demand. This means that at any time there must be a certain element of choice of location and size of site available within say a county area. To allow for this a fairly optimistic view needs to be taken of future land demand. An approach very briefly is to calculate a range of likely demand in each district based on the rates of "take-up" over say a three year period. The lower part of the range is determined by projecting the average annual rate of development over the three year period whilst the upper part of the range corresponds with the average of the two highest annual levels of take-up in each district. Greater emphasis is placed on the upper level to allow for an optimistic view of future prospects.

ii) An alternative "scenario-devising" approach is to apply variations of growth to workers densities. The workers density (floorspace per worker) is calculated for each industry group and existing space requirements can be obtained by multiplying the worker density with the manufacturing work force. An employment model is then used to project the manufacturing work force. Three sets of manufacturing labour projections are estimated based on assumed Gross Domestic Product rates of growth with corresponding productivity rates of growth for each. This will give three projections which would say correspond to a high, medium and low projection. Some assumption or prediction would need to be made regarding the possible change in distribution of the total manufacturing work force in the various industry groups over the forecast period. By combining the labour projection figures with the worker density a group series of figures can be calculated which can be aggregated to provide total manufacturing land demand over specified the period of time. Whichever forecast is chosen from say the "high, medium or low" projections would depend on the confidence in estimates of G.D.P. and corresponding productivity rates of growth.

iii) A slightly more sophisticated approach adopts a statistical time-series approach that requires the availability of good reliable historical data of demand and evidence of a definite trend. The projections of demand for factory space are based on an analysis of

demand trends over a period of years (depending on data available). By using a statistical approach known as EXPONENTIAL SMOOTHING a future demand forecast can be obtained. Exponential smoothing enables greater weight to be attached to the more recent data with regard to allocation performance. It also has a facility of producing "self-correcting" forecasts as it has built into it an adjustment factor that regulates forecast values by increasing or decreasing them in the opposite direction of earlier forecast errors much in the same way as a thermostat functions to control temperature. The Exponential Smoothing procedure provides for the next period's forecast directly from the current period's actual and forecast values.

FORMULATION : $F_{t+1} = \alpha y_t + (1 - \alpha) F_t$

Where t = Current Time Period

y_t = Actual Data for Current Period

F_{t+1} = Forecast for Next Period

F_t = Forecast for Current Period

α = Smoothing Constant ($0 < \alpha < 1$)

Basically the entire time series is built into the forecast though the successive weights attached to the earlier data decrease exponentially. Therefore, the more current the actual value the time series is, the greater will be the weight attached to it; the greater will be its effect on the forecast for the next period.

A refinement of this model allows a further characteristic of demand to be built into the forecast viz the trend. The method used is known as HOLT`S method or TWO PARAMETER EXPONENTIAL SMOOTHING. This is chosen as it is highly responsive to recent shifts in data trends. It assumes that the underlying process generating demand has an average which changes linearly with time. It attempts to eliminate any lag by explicitly accounting for the trend by using a second smoothing constant for the trend itself. The value of the immediate past growth factor is included in the calculation of the current value of the exponentially weighted average value of demand and thus updates the old value in line with the trend.

The equations describing this part of the calculation process are given in the order in which they are used :

FORMULATION :

$$V_t = \alpha y_t + (1 - \alpha)(V_{t-1} + b_{t-1}) \quad \text{- smooth the data}$$

$$b_t = \beta (V_t - V_{t-1}) + (1 - \beta) b_{t-1} \quad \text{- smooth the trend}$$

$$F_{t+1} = V_t + b_t \quad \text{- forecast}$$

Where,

y_t = Actual data for period t

V_t = Smoothed value for period t

b_t = Smoothed trend value for period t

F_{t+1} = Forecast for next period

α = Data smoothing constant ($0 < \alpha < 1$)

β = Trend smoothing constant ($0 < \beta < 1$)

One of the problems is that any values for both α and β may have to be somewhat arbitrarily chosen though if sufficient historical information is available they can be selected by interactive process using a computer such that the greatest weight is given to the most recent data and to obtain the minimum mean-squared-error.

error $e_t = y_t - F_t$

$$\sum e^2 = \sum (y_t - F_t)^2$$

The use of this method requires the availabilitly of sufficient historical data of suitable accuracy on which the forecast for the next period will depend. It further depends on the existence of a definable trend in the analysis. It is simply a mathematical technique that reflects the future based on past figures. It cannot take account of the likely effect of predicated or likely changes in the variables that effect the use and development of land and it therefore throws no real light on the nature and characteristics of demand.

3.3.4 PROPOSED ALTERNATIVE METHODOLOGIES

INTRODUCTION

First by extrapolating from known trends in aggregate manufacturing and warehouse floorspace one might be able to establish an Industrial Land Demand (I.L.D.). Secondly by examining the available new "on market" stock and analysing the flows of industrial property coming on and off the market together with an estimate of the amount of new property produced and required in the given area another figure for

I.L.D. might be produced. Finally by estimating the demand by new and existing firms for industrial land in the area and in addition making some estimate of the requirements of "in-movers" to the subject area a third I.L.D. figure can be assessed. Each gives an aggregate demand for space, in a given area but can also be used to give an assessment of the amount of new industrial land required.

Furthermore by using the methods in combination cross-checks can be applied and in so doing also begin to provide a very detailed picture of the characteristics of demand. Each method reveals different characteristics but particularly the type of activity, origin of establishment, size of units, tenure structure, tenure preference. These together with the influence of access to both primary and motorway road networks can perhaps give a greater insight into considering the more long-term implications that technological change and more particularly its pace may have for industrial land use.

3.3.5 "EXTRAPOLATING FLOORSPACE TRENDS"

This methodology arises from the fact that there is data available at the district level, recording annual floorspace statistics. These are based on inland revenue returns and are recorded at the Regional Offices of the D.o.E. Both warehousing and manufacturing floorspace statistics are recorded and are updated by adding annual net changes that occur. In addition periodic stock counts are undertaken.

From experience in the West Midlands it has been found that there are some problems that attach to the accuracy of the stock counts though the trends themselves are reasonably consistent.

By extrapolating these trends it would be possible to forecast the aggregate requirements of manufacturing and warehousing industry. However in order to convert this to a requirement for new industrial land it is necessary to make several assumptions which vary between the manufacturing and warehousing sectors. For these assumptions to be made a more detailed knowledge of the industrial development process for the area is a pre-requisite. Assumptions below derive from data gathered in the Birmingham Core Study area.

ASSUMPTIONS

1. 30% of all additional manufacturing floorspace will be provided within existing industrial curtilages. This figure is suggested by the work of Williams et al (1980) who estimated that during the previous 10 years 40% of new manufacturing floorspace produced in Birmingham was in extensions (a proportion of which were on adjacent sites) and from the WMCC Employment Density Survey where it was held that 20% of the land held by industrial and commercial firms was held for expansion plus the fact that approximately 25% of manufacturing concerns had insufficient land for the next 5 years.

2. 10% of additional warehousing floorspace is likely to be contained within existing industrial curtilages. The greater land requirements and high number of warehouse users in the WMCC survey said that they had insufficient land for the next five years and all suggested a lower figure than that for manufacturing industry.
3. Net increases in floorspace developed outside the existing industrial curtilages is built at 40% site coverage (the implication being that industrial redevelopment will not decrease the intensity of development on individual sites - perhaps somewhat unrealistic).

With these assumptions estimates of the amount of new industrial land required can be made as formulated below.

TOTAL ANNUAL LAND REQUIREMENT : $\frac{(7AX + 9'A''X')}{40000}$ ha

where:-

A = stock manufacturing floorspace) m^2
'A' = stock of warehousing floorspace)

X = estimated % annual net increase in f.s. in manufacturing

'x' = estimated % annual net increase in f.s. in warehousing.

3.3.6 ASSESSING DEMAND FROM THE EXTENT OF STOCK ON MARKET

Increasingly local authorities are producing periodic lists of industrial property available within their areas. Therefore at any given point in time it is possible to obtain a "snapshot"/static view of the "on market" situation. By combining this with an analysis of the "rate of flow" of property of different types it again might be possible to obtain estimates of floorspace and subsequently industrial land requirements.

There are obvious problems and limitations associated with this data source :

1. The register may not be comprehensive. Pre-let or purpose built new premises will not be included.
2. The register relies on all the estate agents submitting their complete industrial portfolios for which there is no requirement.
3. Some property is described collectively making esimates of the total floorspace (in each size band) involved difficult - (whether new or second hand).
4. Each periodic recording is a static view and gives no indication of the rate of transfer or 'flow' through the market.

In its defence it does give an indication of the type and size of new industrial floorspace provision and second hand property coming onto the market. An estimate of new

industrial land requirements can be undertaken by calculating the amount of new floorspace produced and on market within different size bands viz. up to 500 m^2 ; 501-1000 m^2 ; 1000 m^2 + and adjusting these figures according to the estimated rate of transfer (or flow) given prevailing market conditions. (This is another problem in that you have to be aware of how the sub-market in each size - band will react as market conditions vary. From this can be calculated an equivalent land demand (as formulated below).

ASSUMPTIONS

1. Approximately 1/3 of all new floorspace comes on to the market as new or redeveloped industrial land.(JURUE, 1980).
2. Another 1/3 is in the form of extensions to existing property - (a proportion) some of which will be on adjacent sites.
3. Remainder is produced by industry on new or redeveloped sites for its own use. (JURUE 1980).

Using these proportions the total industrial land requirements can be estimated.

FORMULATION

$$\text{ESTIMATED F.S. DEMAND} = \sum_{i=1}^{3} A_i \left(\frac{12}{Xi}\right) m^2$$

$$\text{ESTIMATED LAND DEMAND} = \sum_{i=Ai}^{3} A_i \left(\frac{12}{Xi}\right) /4000$$

N.B. in sq. m.

A_i = New floorspace on the market at a given point in time in each of the 3 unit sizes :

$i = 1 =$ below 500 m^2

$i = 2 =$ 501 - 1000 m^2

$i = 3 =$ 1000 + m^2

X_i = Estimated flow period in months.

Various assumptions re: flow periods.

X_1 = 2 - 6 months

X_2 = 6 - 12 months

X_3 = 12 - 24 months

depending on prevailing market conditions.

As approximately 50% of new industrial development is purpose built and therefore will not come on to the market or is constructed within existing curtilages the resulting figure

from the formulation above for all new land requirements in a given area needs to be adjusted.

One significant advantage of this method is that it allows some assessment of the extent to which the industrial development industry is providing for different sized industrial establishments. This supply can in turn be compared with demand originating from new, indigenous and in-moving firms as estimated in the third method.

3.3.7 ESTIMATING THE DEMAND FOR SPACE FROM SURVEYS OF INDIGENOUS FIRMS

This method as distinct from the previous methodologies requires primary data collection. The procedure involves a telephone interview survey in conjunction with collection of other behavioural and/or attitudinal data.

For an accurate estimate an accurate description of the population of all firms in the subject area is essential and the IML listings are a useful source for this data. There are two very definite advantages attributable to the IML listings.

1. They provide a description of the population of the firms and allow stratified sampling by size category. i.e. employment size.

2. They provide telephone numbers and contact addresses which simplfies the survey procedure still further.

The first stage in the exercise is to estimate the number of firms moving each year together with the number of new firms originating in the study areas. It requires responses to two basic questions.

1. How long has the firm (in its present form) been in operation?
2. How long has the firm been in operation on its present site?

It is possible to attach confidence limits to these estimates which will vary according to the stratum sample and population sizes.

The next stage is to extend the above in order to generate estimates of the annual space requirements (premises and land) of moving and new firms. There are certain difficulties associated with this which need to be overcome. These difficulties include the disproportionate effect that a small number of large firms will have who will move in any given year on the aggregate space demands plus the difficulties of estimating demand for warehousing particularly that which might originate from outside of the subject area.

The formula below illustrates the procedure for estimating the number of firms moving or beginning operation each year and two estimates are provided.

i) Based on the proportion of firms sampled in each group beginning operation on their present site during the last 10 years.

ii) Based on the median length of occupation of sites by firms sampled in each size group.

Both methods will indicate the proportion of firms in the size ranges moving each year and in practice the proportions derived are similar. By reference to the population stratum sizes it is possible to estimate the number of all firms moving each year.

FORMULATION

Method (i)

$$\sum_{i=1}^{3} \frac{P_i X_i}{10}$$

Method (ii)

$$\sum_{i=1}^{3} \frac{P_i 10}{2y_i}$$

Where :

i = employment size band

P = the number of firms in the popluation of each employment size band i

i = 1 = 1 - 10 employees

i = 2 = 11 - 50 employees

i = 3 = 50 + employees.

N.B. Size groups can vary according to the known population characteristics of the population of firms.

X_i = proportion of the sample in each size group moving within the last 10 years.

Y_i = median length of occupation of the present sites by firms within each size group.

Confidence limit for the estimate in Method (i) can be obtained.

$$X_i \pm 1.96 \sqrt{\sum_{i=1}^{3} (S.D.F.)_i \; X_i \; (1 - X_i)}$$

where $$(S.D.F.) = \frac{W_i^2 \; (1 - f_i)}{n_i}$$

This gives the maximum error in the proportion of firms moving. To obtain the maximum error in the number of firms moving multiply by $\sum_i P$

W_i = Stratum weight = $\frac{\text{Number in population stratum}}{\text{Total Population}}$

F_i = Sample Fraction = $\frac{\text{Number in sample stratum}}{\text{Number in population stratum}}$

n = Number in sample stratum

The procedure for distinguishing between the contribution to demand made by new firms that move is relatively straightforward:

i) Calculate the proportion of all firms in each size stratum that have begun operation in the last 10 years.

ii) Subtract (i) from the proportion of all firms that have begun operation on their present site within the same period.

The greatest proportion of new firms defined in this way will occur in the smallest size category.

In order to estimate the space requirements of these new and relocating firms alternative assumptions are made. These assumptions however represent/highlight the essential weakness of the methodology there being a wide variety of size requirements with the major contribution to the total amount of floorspace made by the larger firms. It is

possible to take the average employment size of the firms in each size category and multiply this by the typical floorspace per worker.

Alternatively further detailed studies can provide more floorspace data (JURUE 1980) but the difficulty of this method is in estimating the average floorspace requirements of the firms in the largest size category and the adjustment that needs to be made to the calculation in accordance with the propensity of firms to move within this group.

Both floorspace per worker and floorspace per establishment are estimates and therefore a realistic total estimate of space requirements will require the multiplication of two ranges: "number of firms moving" and "space requirements". The final best estimate will therefore be subject to considerable error. The formula below gives the method of estimating the space (both land and floorspace) requirements of new and relocating firms together with the magnitidue of errors.

FORMULATION

Estimate of new floorspace requirements of moving and new firms.

$$\sum_{i=1}^{3} \frac{(X_i - e_i)(y_i - f_i)}{3} \quad 2_m$$

$\therefore$ new land requirements in hectares

$$\sum_{i=1}^{3} (X_{i-} + e_{i}) (Y_{i} + f_{i}) / 3 \quad . \quad 4000 \text{ hectares.}$$

$X_{i-} + e_{i}$ = estimated range of firms moving in each of the employment size bands.

$Y_{i} + f_{i}$ = estimated average floorspace requirements of firms (m_{2})

There are two alternative methods of estimating Y_{i}

(1) Based on average employment size and typical employment densities.

(2) Actual surveys based on the known average floorspace of firms in each size group.

N.B. Approx. 1/3 of all floorspace required will be new floorspace.

3.4 IMPLICATIONS OF RECENT CHANGES

Several somewhat inconsistant changes in past trends have been identified in recent years which are likely to make any accurate predictions somewhat speculative. Consequently the decline in manufacturing employment is likely to continue but there is some evidence to indicate that the overall decrease in employment densities which is an essential pre-requisite

for continued demand for industrial floorspace may not continue. This evidence is again somewhat inconclusive but in the newer industrial areas in light industrial use higher than average employment densities are being maintained. Nevertheless due to the large stock of essentially inadequate floorspace it is likely that demand for modern floorspace (regular, low density, single storey forms) will continue though the aggregate amount of actual floorspace required could over time decline as we observe the introduction of more space efficient processes.

The impact of warehousing development also needs to be observed very carefully. It has made an increasing contribution to the net aggregate increases in industrial floorspace over the past ten years. The trend itself is linked to increasing levels of consumption and the subsequent increase in national imports though storage for manufacturing output too has had an effect. Substantial growth in the national economy is likely to reinforce this trend though as with manufacturing technological improvements in storage, higher quality materials handling etc. may over time decrease the aggregate space demand for warehousing.

Technological advances particularly in the field of communications and the replacement of labour by capital will again over time reduce the locational links between firms and could allow for a decentralisation of industry within traditional areas which according to the theory of urban

manufacturing decline, is a process that will occur in any event.

Finally a factor that is becoming increasingly evident in certain firms locating or relocating decisions is the attraction to areas of better quality environment. There is some evidence that more and more firms are paying some attention to environmental factors and standards. All of which goes some way to sustaining Alonso's observations of a "diffusion of industry over a wider geographical area" with a wide dispersal of industrial developments.

3.5 CONCLUSION

Forecasting is, at best, an inexact science. Most often it is dealing with the extension of historic trends or assuming that the past will persist into the future - that observed relationships will extend beyond the range of data inputs. Projections are extremely useful and given the correct context critical to the formulation of an industrial land strategy. However it is necessary to be constantly reminded that although the trend may now be a fact, extrapolations represent no more than an educated guess. The presumption being that all factors influencing what is being projected will continue to act in the same way and in the same magnitude.

This is certainly true of conventional methodology as described earlier. Nevertheless it is not the author's intention here to represent the alternative methodologies suggested as free of similar discrepencies. Indeed far from it, for each alternative methodology has its own set of weaknesses. However the benefit to be derived from these methods is firstly in their ability to describe in more detail different facets of the underlying factors that affect demand at any given point in time. Furthermore in combination the picture of demand and characteristics of demand becomes far more comprehensive. Similarly by using these in combination each effectively acts as a cross-check on the other two considering demand from three different perspectives. In doing so much more can be made of existing data sources though these methods require quite a detailed knowledge of industry and the intentions of industrialists within the given area. Given this they then provide a fairly rapid and cost effective indication of the extent and nature of demand in the short to medium term. It is these factors then which the author suggests would provide an improvement and possibly more reliable forecast than conventional methods. It is not the panacea however to this problem area merely a step in the right direction. It is doubtful in any event whether because of the trends identified above and the inconsistency of economic policy due to political change over time whether long-term forecasts should ever be relied upon as these factors will affect both Demand and Supply side characteristics. Nevertheless further work is required to

achieve both a better understanding of industrial land requirements and to produce a more systematic and sophisticated approach to forecasting in the short to medium term at least to provide more reliable information which is critical to the formulation of a more responsive industrial land strategy.

(For a comparison of the methodolgies and characteristics of demand refer to Appendix IV)

The dilemmas focussed upon in the above chapter have indentified the importance of the Demand component. The suggested methods provide a greater understanding of the Industrial Land Demand profile at the local level in aggregate terms. The following chapters develop this consideration of demand still further to consider its importance on an areal basis. In ohter words its attempts to reveal the implications of those demand characteristics at below local level; at a disaggregated level based on which a framework for analysis and management of those areas will emerge.

CHAPTER FOUR

A FRAMEWORK FOR THE MANAGEMENT OF CORE INDUSTRIAL AREAS

4.0 INTRODUCTION

The remaining Chapters attempt to develop this need for a more meaningful assessment of demand characteristics but not at the aggregated level described in the previous chapter. This chapter develops the theme at more of a disaggregated level. It puts forward the argument for the seperate treatment of industrial areas within a local authority area and proceeds to develop a framework for management of those areas which suggests that by understanding the nature and characteristics of demand the appropiate supply responses can be generated.

4.1 BACKGROUND

The report "The Use and Renewal of the Industrial Building Stock: An Assessment of Potential and Problems" (J.U.R.U.E.). 1979) took the Birmingham Inner City area as its overall case study area and had as its objectives :

i) To investigate the extent to which physical, economic, institutional and statutory factors constrain refurbishment and renewal of older industrial buildings.

ii) To assess the scope for stimulating improvement and renewal of older industrial buildings -including the use of financial incentives (Summary Findings - Appendix I)

It operated within the wider policy context concerned with the whole question of the economic performance of industry in the inner city.

It was found that almost half of the industrial building stock in Birmingham exhibited features that were least acceptable to industrialists based on a personal interview survey of industrialists in Birmingham. The principal disadvantage of the stock is its layout - specifically small, cramped sites (70% of the buildings have no room for expansion either on their own or adjacent sites); poor road network with 48% of all buildings with 100% site coverage forcing parking, loading and unloading to take place on the street and in turn leads to general congestion in and around the area, again making it difficult and furthermore costly for industry to expand. Those occupants of buildings therefore wishing to expand or improve their output have basically two options:

i) Refurbish

ii) Relocate

A small number (17% of the buildings) do have limited space available for expansion on site and an even smaller number

(13% of the buildings) have space available on adjacent sites on which they can put up extensions.

The vast majority of sites however in the core area of Birmingham are small, making land assembly problematic and extremely time consuming. Developers would have to assemble a number of contiguous sites in order to produce a scheme large enough to make investment worthwhile. The poor layout of the stock therefore inhibits both developers and users from redeveloping the area to modern standards. What has happened is that any investment in new developments which has taken place has been directed away from those areas that are experiencing the worst problems of density and congestion to peripheral/green field sites. That development which does occur in the core tends to be piecemeal refurbishment or extension work which merely serves to perpetuate the existing stock and its poor layout or increase its density.

The J.U.R.U.E. study therefore concluded:

> "If these areas, which are important locations for industry are to be improved then an opportunity must be found to rationalise the road layout; provide some new buildings at modern densities; and provide some of the existing firms with adjacent land onto which they can expand. This problem of the lack of space to allow expansion and redevelopment is not merely a matter of balancing the total supply and demand for sites; the key

feature is that suitable sites do not exist in those areas where modernisation and rationalisaion is most necessary. Investment will only occur in those areas if this major constraint is removed by making sites available in appropriate locations. This implies a policy of selective redevelopment on a small area or building block basis rather than building by building. It is the local planning authority that can most effectively pursue such a policy. If some means is not found to enable investment to change the basic problems of layout then the prognosis must be that large areas of our industrial cities containing major concentrations of industry will become more and more obsolete with all that this entails for industrial efficiency and employment opportunities" (Williams et al 1980).

This study however did not address the problem of the feasibility of such recommendations/conclusions the implication of which is for far greater public intervention in the industrial development process particularly at the local level.

The complaints identified by industry itself (viz. manufacturing and distribution - see above) can be used to deduce in part, the form that improvement of the stock should take. Therefore the objectives of any renewal policy in this context might be:

i) to improve local access to buildings (especially for goods vehicles).

ii) to make car parking, loading and unloading facilities available.

iii) to provide more single storey production space.

iv) to provide more premises with external space for storage, other uses or expansion

Such are the basic characteristics of modern industrial developments. Local authorities or industrial estate managers may well be interested in broader objectives encompassing form of road layout together with shape and arrangement of industrial sites and curtilages.

In Birmingham much of the industrial stock is developed on a street pattern which is at least 100 years old and designed for modes of transport very different from today. Similarly the pattern and relationship of site uses is based on an earlier acceptance of mixed uses of housing/retail/industry.

In brief the lack of space and poor supply of easily developed sites has the effect of making it difficult for developers to operate and of inducing occupying firms either to move or to adapt their buildings. In Birmingham approximately 80% of all new redeveloped industrial floorspace produced each year is undertaken by the manufacturing and distributive industry for its own use (J.U.R.U.E. 1979). The pattern of congestion in the inner

areas is such that 70% of buildings are on site with no room for expansion either within existing curtilages or on adjacent plots, so that firms are physically unable to put in new floorspace or redevelop the buildings around them. The majority of redevelopment and new buildings takes place on less congested predominantly suburban sites and therefore a lot of the investment by users in the inner area industrial stock amounts to adaptation of the existing stock in good condition which (as seen above) perpetuates and enhances the most undesirable features particularly as patterns change. This congestion in turn means that there are few well serviced large sites in inner areas and that the 20% of new floorspace developed/redeveloped by industrial developers tends to be directed towards peripheral areas (D.o.E. 1979; Carter 1977). The current policy environment has led to little or no change in these least satisfactory aspects of the stock.

Refurbishment is not the panacea for it will serve only to strengthen the tendency for the older stock to be preserved - possibly with the buildings improved but reflecting inputs to a stock wich is badly laid out on poor sites with poor access.

It is physically impossible to create the requirements identified by industry based on 19th century land use and curtilage patterns and equally obsolete transport facilities without some measure of redevelopment. It is therefore

contended that only by pursuing a small area approach to redevelopment rather than allowing the piecemeal building by building approach can policy move towards removing some of the problems identified and meeting the requirements of industry.

4.2 CONVENTIONAL APPROACHES

Industrial property development is essentially undertaken by three different types of agency.

i) The Industrial Development Industry.

ii) Manufacturing and Distributive Industries.

iii) Local Authorities.

The most active of these as has been said is Manufacturing and Distributive industries which in Birmingham accounts for 80% of total activity per annum. The industrial development industry accounts for the majority of the remainder for sale or lease whilst the local authority plays a relatively minor role through the provision of refurbished and small units.

Each has its own set of criteria. The developer is governed largely by the state of the market for industrial premises together with his financial position. Investment by Manufacturing and Distributive industries is determined basically by both the current and anticipated state of their respective product markets. Local authority action however is much more complex. The physical and economic condition of

inner areas (Chapter Two) has aroused great concern at both central and local government levels. But both public and private investment in the industrial stock has been insufficient to alter in any significant way the overall composition of the stock which in inner areas is somewhat old and outdated. The principal objective of Local Authority initiatives has been the preservation and creation of employment with secondary objectives being to improve the physical environment, make better use of existing resources, reduce diseconomies to users of industrial areas caused by congestion and poor access and stimulate private sector investment.

4.3 RENEWAL BY THE INDUSTRIAL DEVELOPMENT INDUSTRY

Developers account for only a minority of industrial building developments. Their activities may however take a wide variety of forms and include development of greenfield sites, refurbishment or redevelopment. Their products may be for sale or let; purpose built to a clients' specification or speculative. Redevelopment activity has not been widespread in Birmingham with major redevelopments focussing on sites in single ownership with vacant possession of a size allowing for phased redevelopment with no need for a complicated and protracted land assembly exercise. Other sites in prime locations have also been developed as the private sector has become more confident as to the viability of small units - a market in which they have been reluctant to become involved.

Refurbishment activity has concentrated on relatively modern single storey structures with rational layouts and accommodation which are acquired and refurbished to give no more than 20 years life and sold in fee simple to incoming industrialists. Activity in older multi-storey refurbishment by industrial developers is rare due to a limited market.

Some developers do chose to invest long-term on estate-style developments. The "Birmingham Factory Centre" just outside of the core area owned and managed by Slough Industrial Estates is a prime example where they have successfully carried out phased redevelopment of the 55 acre estate. Several characteristics from this example are of some relevance to this discussion.

i) Redevelopment has involved considerable alteration to the road network. The company purchases and redistributes electricity and gas in bulk and organises and operates all services on the estate. On redevelopment this reduces delay caused by lengthy negotiations with statutory undertakers.

ii) Overall redevelopment takes place at slightly lower density but to maximise investment return. Such a policy does not specifically allow for expansion of individual units as holding land for expansion would not be commercially viable unless the occupant were to pay the relevant rent. Nevertheless within the estate there is scope for allowing for expansion - moving to larger premises as they become available.

iii) Refurbishment is only undertaken on relatively modern premises which already have good layout and accessibility - this represents only a small proportion of the floorspace.

There are also certain aspects associated with implementation and management of redevelopment :

i) Most firms occupying the vacated property could be relocated within the estate and there are strong preferences on behalf of firms to do this when anxious to retain linkages. Some firms do go out of business during this type of redevelopment process but many are paying historic rents, operating in poor conditions and with traditional processes.

ii) In most cases it is possible to wait until the termination of leases and then to offer tenants alternative accommodation within the estates.

iii) Security of Tenure under the Landlord and Tenant Act doesn't normally act as a constraint.

iv) It is often possible to negotiate relocation before actual expiry of leases.

v) Specifically built units can be provided for larger companies in such an estate which allows rationalisation of site layout for them.

vi) Typical leasing arrangements are for 25 year terms; 5 year rent reviews with annual indexation of rents based on the wholesale price index. Reviews may also take account of individual firms' circumstances but

essentially lets of vacant property take place at market rents.

vii) Where firms do relocate with modern rational site layouts, often less floorspace is required.

The key issues therefore are:

i) Private sector when operating as landowners do recognise the value of developing the older parts of their estates.

ii) Such redevelopment involves careful management to reduce dislocation it might otherwise cause.

iii) Areas of judgement in the decision to redevelop have become wider given changing economic conditions.

vi) Ownership of a large estate facilitates this type of redevelopment process.

4.4 RENEWAL BY MANUFACTURING AND DISTRIBUTIVE INDUSTRIES

Much of the unique study of firms undertaken by J.U.R.U.E. in Birmingham provided evidence that firms had themselves contributed very little to changes in the urban form in older industrial areas. Firms have made no impact on the road patterns (unless within existing industrial curtilages) and have undertaken very little redevelopment not associated with moves whilst the only tendency to decrease the intensity of site development has been the limited purchase of car parking land by a few large firms.

This in turn poses serious questions given the rapid changes in access and production requirements and whilst the rate of change of these differs widely between firms, three in particular are emphasised: the need to accommodate larger goods vehicles; the widespread preference for single storey production spaces; increasing need for employee and visitor car parking. Each suggests a need for lower intensity site development and yet although a number of firms in Birmingham have modified and/or extended their premises few such developments have actually decreased the intensity of site development. Moreover before attaching blame to individual firms it might be useful to first examinine the nature of the constraints that exist. The most marked area is the unavailability of adjacent vacant land to easily accommodate expansion requirements and the difficulties of operating whilst undertaking redevelopment. Where large firms occupy large sites partial phased redevelopment is possible as opportunities arise over time. Minor modifications to loading bays etc. are relatively simple and therefore amount to a common cosmetic occurrence in older industrial buildings.

But the complexity of redevelopment,investment and relocation decisions varies greatly between different sized companies and those with specialist plant requirements. For the small firm with light machinery the decision may depend upon informal contacts and the apparent short term benefits and may only be precipitated by serious constraints on expansion.

Basically however:

i) Land assembly for the private sector is complex, time consuming and therefore expensive. The space requirements of expanding firms are unlikely to match either the timing or by size the available adjacent land for expansion. Identifying the ownership of vacant land can in itself pose further problems to prospective purchasers who may have to pay prices over and above those which would give a market return on development.

ii) Developments in cramped inner city areas may be substantially more costly than in less congested areas.High site intensities of development may be judged viable but it is unlikely that space above ground floor will be attractive to any save for a specialist firm.

iii) The acquisition of land by firms for expansion may be followed by underutilisation.

4.5 RENEWAL BY LOCAL AUTHORITY

Local Authorities have a relatively long history of intervention and renewal in older industrial areas. In Birmingham the most noted of such is the redevelopment of part of the "Jewellery Quarter" but other examples have involved large-scale land assembly in the Nechells area previously zoned for housing; a 20 acre site in the Small Heath area and refurbished workshops. The West Midland County Council has also been involved in a limited amount of industrial renewal including refurbishment and more recently

in the development of the Science Park concept. As major land owners the local authorities have a major role to pay in future industrial developments given changing policy constraints.

There are however broadly two very different view points to consider. The first is to see the local authority as a major landowner and to advocate sales of leases and developments set against purely commercial criteria. Providing reasonable control can be exerted over certain anti-social effects associated with such developments those which most highly value the particular site (the highest bidders) should be encouraged. The second view is that the Local Authority should differently assess other factors against commercial criteria e.g. preserving existing jobs or encouraging developments likely to generate more jobs and perhaps even with regard to the quality of job to be provided irrespective of whether they give the best return from the land. The two views may appear incompatible but it will be shown that this need not be so.

4.6 THE NEED FOR A NEW APPROACH

Clearly the existing measures employed in practice do not overcome the problems identified with the existing building stock and the question as to how to deal with these areas still begs an answer.

Modernisation is not a simple task. The areas under the microscope are densely developed and for good reason namely that central locations continue to hold many advantages for industry. But it is those very aspects of the building stock as we have seen above that are least acceptable to its users (small sites in different ownership and the density of development) which prevent both developers and manufacturing and distributive industry from carrying through modernisation.

Private developers are limited by the lack of suitably sized and shaped sites and the problems of land ownership and assembly. Manufacturing industry situated on cramped sites with no room for expansion - forced to move or refurbish - perpetuates problems as described. Rate of net additions to the industrial floorspace is therefore so low that the average age of the stock is increasing and the small addition that does take place is directed away from those areas which need modernisation. Again activity perpetuates rather than redevelops the overall inefficient layout of the stock.

If this circularity of cause and effect is not broken then there is little likelihood of older industrial areas being redeveloped in a form appropriate for industry of the late 20th century and the pace of "urban manufacturing decline" will accelerate.

If the cycle is to be broken constraints on the supply of land and sites must be removed and greater consideration given to the nature and characteristics of demand and supply. At the heart of the problem is the poor distribution of available vacant land throughout the industrial stock to make sites of a suitable size available where required in those areas where stock tends to be most dense implies a policy of selective redevelopment on a small area or building block basis rather than piecemeal building by building which would give the opportunity to:

i) rationalise road structure and improve road access.

ii) redevelop some sites with modern buildings at lower densities.

iii) provide some of the existing firms with the opportunity to expand without being forced to move.

As stated above at the beginning of this section such a policy implies greater rather than less intervention by local authorities.

4.7 AN AREA-BASED APPROACH

One of the most obvious difficulties with any policy concerning accelerating the renewal of the industrial building stock is that the vast majority of the stock is already occupied. Clearance (reminiscent of the Housing Act slum clearance) followed by large scale redevelopment is not therefore feasible without causing even further problems to

the nature of industry and employment which form objectives in such a proposal. However it is the case that there is a considerable amount of mobility especially amongst the smaller firms. In Birmingham over the past 10 years approximately 40% of the industrial firms have moved at least once (JURUE 1979). Such mobility provides an opportunity for phased intervention in an area when properties or leases change hands and avoids the difficulties of moving or relocating firms. Again this implies a piecemeal plot by plot, building by building approach which perpetuates existing problems as we have seen rather than generating solutions.However this implies several other things.It implies a rational, planned approach to industrial areas that establishes an overall set of objectives for a given area which moves towards some improved layout of the stock. It also implies that a great deal is known about the area in terms of the firms, buildings, people, ownership and natural processes operating within that will allow planning and phasing towards this set of objectives. Thus renewal is achieved as the opportunities arise where firms move and is a process that requires management over a period of years.

It is therefore important to devise an assessment procedure that can analyse alternative renewal options but when considering options that have not just financial implications but also political and planning implications something more than a conventional private sector approach is required which

can begin to take account of the non-financial tangible benefits and costs as well as provide a systematic qualitative assessment of unquantified costs and benefits. A cost-benefit approach is therefore adopted.

4.8 THE COST-BENEFIT FRAMEWORK

The cost-benefit method of assessment assumes:

i) Before expenditure decisions are made alternative expenditure options should be considered and

ii) The basic criterion for choosing between these options should be to choose the option for which the difference between overall 'benefit' and 'cost' is greatest.

With those general propositions in mind the process of assessment can begin:

a) Define the boundaries of the area for consideration.

b) Survey the uses and physical condition of industrial premises and set objectives to be considered in the renewal option.

c) Draw up a number of feasible ways (in terms of being politically feasible and within the existing planning context)of tackling the problems found in the defined area.

d) Identify the nature and timing of Costs and Benefits, including intangibles attached to each of the options identified.

e) Assess these benefits and costs to see which option provides the greatest net benefit.

Any number of options can be evaluated but it will ultimately depend on how many different courses of action are thought to be feasible and potentially acceptable as it is a waste of resources in evaluating schemes which for basic design reasons or through known binding constraints are going to prove abortive. One essential feature of this evaluation procedure is the "MINIMUM ACTION" option. Essentially this will entail that level of activity consistent with the local authority's statutory and other obligations. It assumes therefore that the local authority takes no initiative to influence the level of interest beyond that which is mandatory or under the existing planning controls. It acts as the baseline in the evaluation against which other more positive options are referred. When considering this particular option it is however necessary to predict what investment would be undertaken by the private sector over the relevant time horizon. This will require detailed knowledge of the elements within the area concerned and involve some considerable survey work.

Irrespective of the number of options generated each scheme should be described and measured in terms of the whole area even though some parts of the area are left unchanged in some options and each scheme will require close definition with regard to their physical characteristics.

The agency undertaking the investment together with timing and associated action necessary to facilitate the investment should also be stated. This inevitably will involve a predictive element concerning the likely effectiveness of different policies in the given area.

Stage one in the process involves identifying and specifying alternative schemes. Once completed the evaluation process can begin. Very simply it involves tabulating for each scheme the aggregate costs and benefits from which an estimate of the net benefit of each option can be derived. The first step is to identify and measure those costs and benefits generated by each option. As far as this is possible they should be measured in MONETARY terms as it will facilitate the addition and reduces the options to a known unit of comparison which would otherwise have to be "measured" in different physical units. The second step in the evaluation procedure is to define each element of cost and benefit with regard to the date at which it occurs. The "time dimension" is an essential feature of the cost-benefit approach as in general people place higher values on costs and benefits (however defined) arising today rather than at some vague date in the future.

Therefore those costs and benefits identified as occurring in the future need to be written down or discounted to take account of this. On the 'benefits' side the task is basically to express in monetary terms all measurable

benefits flowing from an option and accruing to society expressed in constant day prices and specifying clearly timing over the life of the scheme. On the 'costs' side all measurable costs need to be estimated for each option in terms of "resource costs" i.e. land, labour, materials etc. that society faces as a whole. Once again timing and measurement in present day prices are essential features.

In order to do this however it is necessary to have a monetary measure that represents the benefits accruing to society from industrial property. The 'Estimated Market Value' of an industrial building is a measure of the discounted sum of future benefits which the premises and site offer to its occupants including the discounted residual value of the site at the end of the buildings' life. It needs to be viewed in the context of both the national and local industrial property markets which asesses the present and prospective advantages and disadvantages of the property.

The 'Estimated Market Value' is therefore used as the principal measure of benefit as it provides the best practicable guide to the differences in benefit which arise from provision of different types and quality of industrial property.

The most appropriate method of assessment is where possible by comparison with similar property within the city. There

are however particular difficulties in applying market values to industrial property within a cost-benefit framework where a number of factors are likely to affect differentially the market values of old and new industrial property in the future which could act to increase the expected market value of new relative to old.

i) Redevelopment of older industrial property will often result in considerable decreases in intensity of site developments, consequently any valuation based on current prices for second hand floorspace may diminish the difference between redeveloped and currently existing property values on a particular site. However the demand for and thus e.m.v. of second hand industrial property is closely related to the supply of new comparable premises and liable to fluctuation; decreasing as the supply of a new increases and vice versa. A strategy to increase the supply of new industrial floorspace would therefore tend to increase the gap between new and second hand industrial floorspace values making redevelopment more viable.

ii) Access to the motorway network has an important influence on market values. This effect is likely to be greater for modern than second hand property as the circulation requirements of those who will benefit from any improved access may not be capable of being accommodated in second hand property.

iii) Market values vary greatly according to unit sizes. New units could be provided to optimise returns of redevelopments more easily (given suitable demand) than second hand property constrained by its existing form and configuration.

iv) Due to inertia, costs of relocation, specific plant requirements etc. the actual value of premises to the occupant may be much greater than their e.m.v would indicate. A large consumer surplus to the occupant would tend to prohibit relocation and therefore redevelopment even though it is the most viable option should the site become available.

v) The requirements of industrial users are changing so rapidly and are likely to continue to do so. This increases the value of new well accessed industrial property relative to second hand premises. Furthermore particular characteristics of flexibility and potential for expansion may not be fully reflected in e.m.v. but could be expected to be more evident in new rather than old property.

There are several other factors which though not acting in such a differential way as described above nevertheless may have considerable effects on e.m.v.'s of property within industrial areas. For instance the renewal of part of an industrial area may enhance prices of property located on adjacent or nearby sites. Similarly sites can obtain a 'monopoly' value particularly where a situation arises where

there is demand from several firms on adjacent or nearby sites wishing to expand. The price paid would reflect e.m.v. plus an extra monopoly benefit which would not necessarily be recognised by an external agency asessing the area. Furthermore many firms require specialised plant which could well have a value well above an e.m.v. due to the unavailability of alternatives or well below e.m.v. due to obsolescence both of which distort true e.m.v. figures.

In addition there are three other factors that will need to be considered before benefits as measured in terms of e.m.v. can be compared at Net Present Value :

i) Price inflation. This can alter the real costs of different materials relative to one another. In the majority of cases this will be impossible to predict but it is probable that any future increases in costs of energy would increase the value of modern relative to old property assuming running costs of older property are significantly greater.

ii) Both future Costs and Benefits need to be compared with Costs and Benefits of today and for this the method used is discounting. Whatever the rate of discount chosen the general effect of the discounting process is to stress the advantages of postponing costs and bringing forward benefits relative to the incidence of costs which conform with the principle that the community values 1 - worth of immediate benefits (or

costs) as worth more than identical benefits (or costs) postponed to some date in the future.

iii) There are some elements of both benefit and cost that may not be measured in monetary terms. These intangible factors or non-quantifiable costs and benefits associated with each renewal option have to be treated slightly differently but the fact that they are not capable of being quantified does not mean that they have to be forgotton. In fact the very essence of the Cost-Benefit evaluation approach rests on the fact that such elements need also to be incorporated into the balance which assesses benefit and cost along with everything else. It is however necessary to :

i) avoid double counting between tangible and intangible items.

ii) describe the intangible items as precisely as possible; if possible quantify in physical terms.

iii) assess intangible factors on the basis that their timing is as important as quantified items which are formally discounted.

In short, therefore, on both the benefit and cost side there are the following categtories:

INDUSTRIAL AREA BENEFITS/COSTS	NON INDUSTRIAL AREA BENEFITS / COSTS
1) measurable in money	2) measurable in money
3) not measurable in money (intangible)	4) not measurable in money (intangible)

Where measures of both Costs and Benefits have been assembled under the wide definitions given above and when they have been dated and fed into their various categories the discounting process can then be applied. For the items measured in monetary terms - discounting is done by applying the discount factor appropriate for the particular year in the time stream.The sum of discounted costs is then taken from the sum of discounted benefits to arrive at the net benefit in quantified monetary terms, the NET PRESENT VALUE of the option.

NET PRESENT VALUE therefore brings together and balances out all the money costs and benefits and if there were no intangibles then quite simply the options would be ranked according to NPV and the appraisal would be complete.

However the INTANGIBLES cannot be overlooked. In spite of the fact they are not capable of measurement they will be an important consideration. The analyst has to weigh up the choice of options by balancing out the NPV score of each

option with an appreciation of intangible costs and benefits which the option produces. The preferred option will be the option which produces the greatest net social benefit taking both money costs and benefits and intangible items jointly into account. If the option chosen does not have the greatest NPV in terms of quantified items then it is equivalent to saying that the intangible net benefits of the chosen option at least compensate for the least quantified NPV.

The choice will therefore be a matter of judgement, informed by the arithmetic of money measurement and discounting on the one hand and a close questioning analysis of intangible factors on the other.

The procedure can therefore be summarised:

i. Identify monetary costs and benefits.

ii. Express monetary costs and benefits in terms of their Net Present Values.

iii. Assess the intangibles.

iv. Make the final choice.

As with any methodology of this nature there are certain limitations which the analyst should be made aware of particularly with regard to industrial property. The use of e.m.v. to measure the stream of benefits implies that the cost-benefit assessment will tend to favour the use of industrial land by those willing to pay the highest price. As the supply of land within prime sites is limited this

could mean displacement of firms from those sites which in turn could mean job losses despite the fact that other indicators of economic activity - output, value added etc. may be greater in the new users. Furthermore should renewal options be extended over wide areas of the city firms could on removal from site be quite unable to find suitable cheap premises to relocate to within which they could survive. One possible safeguard here is to ensure that as much land as possible is available both within and outside of the inner city however a rapid increase in industrial land availability could have the effect of deflating industrial land values which could seriously affect interests of existing land holders. In Birmingham and it is believed in many other industrial cities however with the current low levels of net addition and the age of the existing stock a considerable amount of activity would be required to seriously affect the level of supply of second hand property.

Before making a final choice there are however two further refinements to the methodology that the analyst may wish to consider. For instance if the analysis shows either that the NPV of the new option is greater than the NPV of the Minimum Action Option (M.A.O) or that the intangible benefits more than outweigh any dificit in NPV of renewing compared with M.A.O. then the local authority should undertake a financial feasibility of the renewal option. This is a safeguard in that local authorities may not be concerned with generating profits as such and may not have to account for all their

internal administration costs. The local authority will have greater regard for the intangible benefits of the relevant options basically because of its general responsibility for its environment and because it has a major land holding interest. Equally it will be more concerned with the intangible costs particularly those likely to be associated with job losses. One issue concerning the renewal of industrial areas that warrants perhaps further consideration within the framework for assessment is that if renewal is to take place it should do so at lower densities which would probably translate into a loss of employment opportunities in the area. An estimation of this could be incorporated within the assessment framework. It is however extremely difficult to predict the number of workers who will be employed in any given floorspace because employment densities vary greatly both within and between industrial sectors which means that use of average figures applied to relatively small areas can be very misleading. Furthermore other factors have also been shown to influence employment densities much as the age of the establishment and its size.

Nevertheless by assuming an average floorspace per worker in modern industrial floorspace, estimates could be incorporated into the assessment which would give some guide as to the implications for employment in the area of differing renewal options.

4.9 CONCLUSIONS

The above framework requires that sufficient is understood about the nature and characteristics of demand at a disaggregated level of individual industrial areas. Though focussing on indigenous user requirements and perceptions of need it should also be viewed in the much wider and aggregated context of demand at the local level as assessed in Chapter Three.

What needs to be examined now is the feasibility and implications of applying this framework and whether the picture of demand can be built sufficiently to provide a suitable assessment of user requirements over time.

CHAPTER FIVE - THE AREA-BASED APPROACH TO CORE INDUSTRIAL AREAS - CASE STUDIES

5.0 INTRODUCTION

The purpose of this chapter is to take the framework prescribed in Chapter Four and apply it to 'live' urban industrial core areas. In this way its application can be illustrated and the implications for the area and the 'actors' involved can be observed. They should not, however be seen as case studies in the conventional sense. They are not 'looking backwards'(Jenkins, W.I. 1978). It is not an attempt to analyse the implications of historical events or policies though historical development features do form part of the framework adopted. Rather it is more concerned with assessing the future implications of the application of such a framework and in this respect resembles the simulation of a likely event or policy decision. The essential purpose of the 'case-studies', it must be stressed, is largely for illustration.

A great deal of debate surrounds the use of case studies (Davies, J.G. 1972; Bracken, I. 1981; Heclo, H. 1974; Lebas, E. 1978; Jenkins, W. I. 1978 etc) and these are recognised. Case studies are almost by definition fixed in time and space and therefore somewhat static but more particularly there are the problems associated with the development of theory from such analyses. The latter is certainly not the intention of

the use of these `case studies' and the former are recognised. The purpose of the use of case studies in this context is to illustrate the feasibility of applying the suggested framework and to stress the importance of assessing demand at this level in the formulation of a management stategy.

The case studies observed below are presented in summary only. Full analyses are presented in Appendices V and VI. The case studies are taken from the inner city of Birmingham and represent two different yet typical sets of characteristics associated with traditional industrial cores within the context of Urban Manufacting Decline. The first looks at the application of the approach and methodology to the renewal of a highly congested inner city area whilst the second assesses the viability of renewal of an industrial area that contains some vacant land. Together with other studies and supporting anectdotal evidence from other major conurbations the problems identified within these study areas are not unique. Whilst one would not go as far as to say they are representative, nevertheless many of the features present are recognisable in other areas.

The case studies whilst serving to illustrate many of the problems described, develop the importance of understanding the demand component at the disaggregated and completely different spatial level which provides a base for considering the implications for adopting this framework.

5.1 ASSESSING RENEWAL OPTIONS

Before turning to the case-studies in the next section, it is important to consider the assessment procedure developed to select alternative renewal options since it is necessary to be clear on the objectives which lie behind the assessment and hence the way in which costs and benefits are handled.

The aims of this study are concerned with the form and condition of the industrial building stock as a whole. Hence benefits are essentially concerned with the value to industry of an improved building stock and costs with the resources required to achieve that improvement (which resources include the value of the existing stock to industry). Table X indicates the benefits and costs considered in the assessments. Again those serve to indicate user preceptions which develop the demand side of the equation.

TABLE X

BENEFITS AND COSTS

BENEFITS	COSTS
i) Value of proposed building in that location.	i) Value of existing building or site in that location.
ii) Off-street car parking	ii) Building materials and manpower involved in demolition and redevelopment or improved building.
iii) Off-street manoeuvering commercial vehicles.	iii) Manpower time involved in managing,lettings etc.
iv) Off-street loading/ unloading.	
v) More rational road layout.	
vi) Reduced road congestion.	
vii) More rational site/plot shapes and sizes.	
viii) Potential of expanding easily from one building/site to another because of modular layout.	

5.2 CASE STUDY ONE:

RENEWAL OF A HIGHLY CONGESTED AREA

The schematic drawing below illustrates the necessary fectures of the case study area and in particular the demants of demand that require consideration.

At the time of survey some 400 workers were employed by 13 firms operating in 190,920 s.f. (17,743m^2) within a total area of about 7 acres (2.8 h.a.). (See Figure 10)

The area is characterised by being highly congested with severe parking problems and a considerable amount of on-street loading and unloading. The building stock is in a variety of states of repair, age and tenure and is developed to high plot ratios around an awkard road pattern covering almost all available land. Fig. 10 also indicates in broad terms the intentions and likelihood of investment or relocation by the occupying firms. There appears to be a typical cross section of stability and expansion intentions amongst the firms with relatively few seeking additional space within the area though some have accommodated expansion outside the area. Several firms have indicated their likelihood of relocating in the medium and long terms. In addition a number of the small establishments have only limited periods to run on their leases.

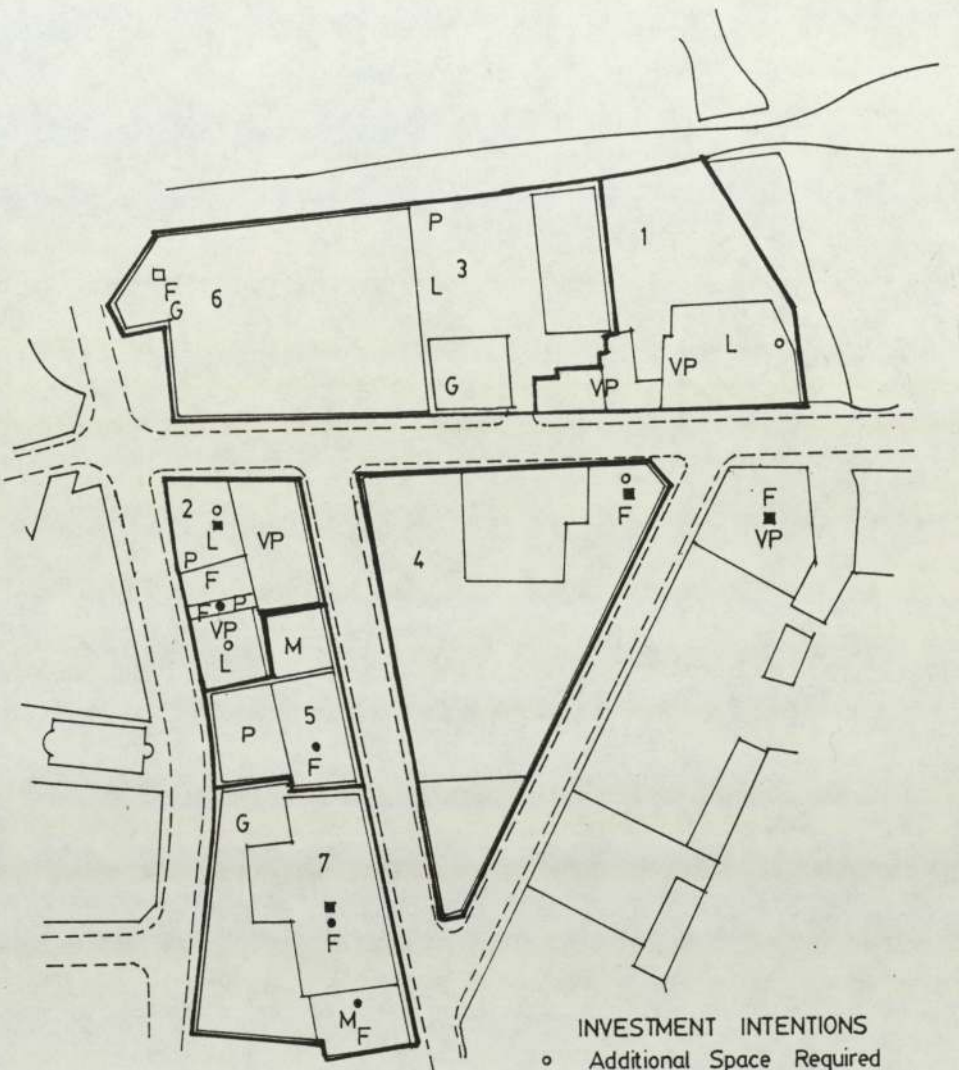


Fig. 10 Case Study One; the Study Area; Form and Building Condition; Tenure and Investment Intentions.

This description is typical of many areas in the inner city of Birmingham where the predominant land use has for some time been industrial. A crude estimate indicates that there is something like 100 acres of this kind typified by dense industrial development, divided into a large number of sites and with little available vacant land.

The phased renewal option therefore has the following objectives :

i) To reduce congestion, the extent of on-street loading and unloading and car parking.

ii) To assemble sites in parts of the area to provide improved unit premises.

iii) To provide, if necessary, for future expansion requirements of firms within the area.

iv) To allow for the future renewal of the entire site by increasing the size and rationalising the shape of sites.

Furthermore a number of constraints have been generally accepted as conforming to the overall aim of the study and for simplicity sake in examining the effectiveness of the methodology.

i) The involvement of the Local Authority to be at a minimum.

ii) For financial reasons no firms will be compulsorily relocated though the ends of leases might be negotiated and relocation necessary at the expiry of a lease.

iii) Outstanding road improvement lines need not be accepted.

In addition a number of assumptions have been made in the evaluation.

i) The E.M.V.'s of property that are assumed to represent the time stream of benefits accruing to occupants and society are the current or predicted use values based on present or likely level of use. Therefore vacant property attracts a NIL value.

ii) In the case of improved or redeveloped buildings it has been assumed that there is no decrease in E.M.V. between year one and the time of renewal.

In general all renewal and alternative/intermediate options generated should conform as far as possible to current planning controls and building regulations though given certain circumstances in order to benefit from the full development potential of the sites a certain amount of flexibility would have to be incorporated. In these case studies six general assumptions regarding renewal/alternative options have been made :

i) Outstanding proposed redevelopment schemes are disregarded.

ii) Planned site lines of 9m x 90m will be incorporated in new developments though in some of the longer periods these may remain inadequate until overall renewal of site is complete.

iii) Renewal developments incorporate access standards for goods vehicles up to 15m in length with no off-site manoeuvering. For the alternative options site access standards will obviously be lower and in certain instances only smaller trucks will be satisfactorily accommodated.

iv) Car parking standards need to be flexible and should take account particularly in renewal options both of the alternative parking available in the vicinity and the characteristics of the individual sites. Rather than applying a standard to each individual site the renewal options tend towards achieving an overall standard for the whole site.

v) In the case study examples in the renewal options rear access to all new buildings has been provided. No building has been constructed within 2m of another nor within the same distance of the edge of pavements or canals. Better standards viz, fire regulations can be achieved under renewal compared with alternative options.

vi) Designs of new industrial buildings are based on standard single 15-18m span portal frames constructed at 10m centres.

The minimal action option with which the preferred renewal options are compared is based on the presumption that the local authority takes no initiative to influence the level of investment beyond that which is mandatory or under the

domain of planning control. In the M.A.O. it is necessary to make certain predictions with regard to the level of investment to be undertaken by the private sector. The predictions here assume largely piecemeal rehabilitation by occupying firms with little land assembly, continuing underuse of some land and no alteration to the existing road pattern. In case study one only two options have been considered :

i) a 'renewal' option to ideally meet the objectives as described above.

ii) a minimal action option - from predictions based on a non-interventionist approach.

Furthermore some of the more radical renewal alternatives have not been considered on the grounds of financial feasibility. In particular with this study options involving development over roads were avoided due to the extra costs of diverting services and the fact that the only reasonable alternative road pattern would mean disturbance of most of the stable firms within the area and where the traffic management advantages would have been relatively slight. From further study of the site and surrounding area it also emerged that short-term options for the alleviation of traffic problems were not feasible at least in the context of this case study area. The provision of public car parking would not reduce the extent of on-street parking due to the considerable demand for parking in the surroundings to the area. Also the provision of small private car parks would

not substantially improve things for other users and visitors to the area though would offer some relief to individual firms.

The chosen renewal option falls broadly into three phases: the final plan at lower overall density; allocating adequate space for car parking and on site loading and unloading; involving the closure of one road to through traffic and the movement of several firms.

Both renewal option and M.A.O. are shown below (figs. 11&12) the latter being a prediction based on data collected from within the area indicating slow and piecemeal patterns of renewal that is typical of dense industrial areas.

In case study one the area is broken down into several identifiable sites as shown in Fig. 10 through this is flexible and could be varied. Detailed appraisals from sites 4 and 7 together with a summary appraisal of the case study area as a whole are included in Appendix V.

Summary evaluation process:

i) a cost-benefit evaluation of the options based on the market values of the property and the identification of the intangible and non-quantifiable factors.

ii) a discussion of the financial implications of investments and,

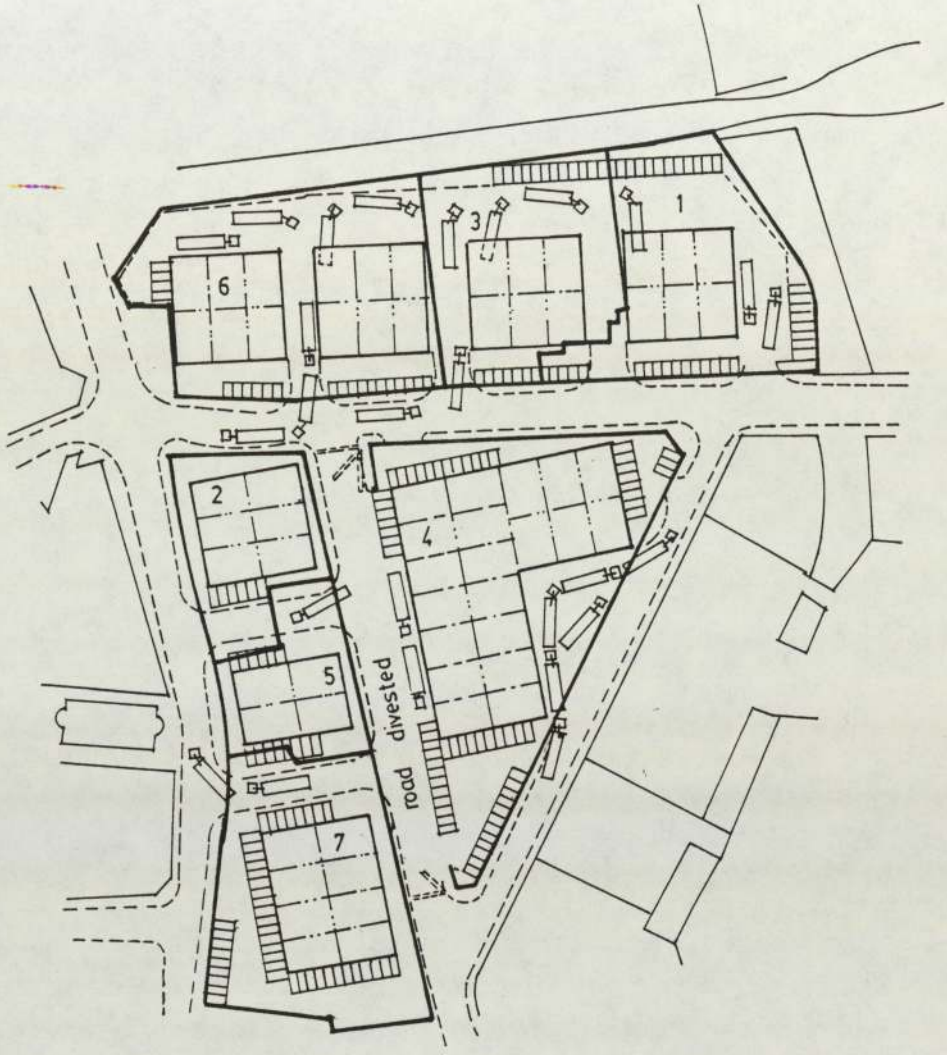


Fig. 11 Case Study One ; Renewal Option.

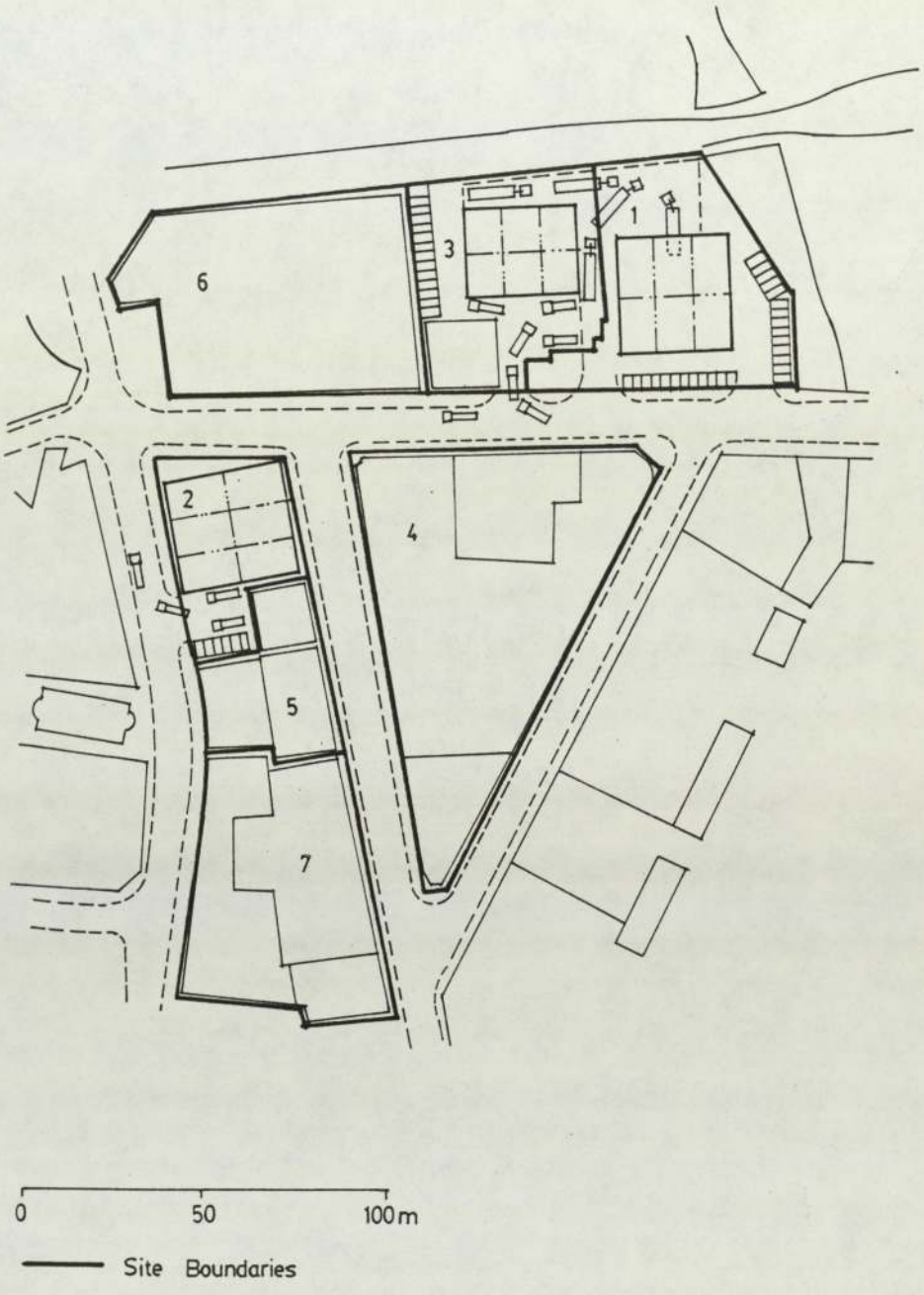


Fig. 12 Case Study One ; Minimal Action Option.

iii) the likely employment impact of renewal on the different sites.

Costing assumptions for both Cost-Benefit and financial apprasials were as :

Building Costs	£15 p.s.f. (160 p.s.m)	
Demolition Costs.....	£1 p.cub.f (34 p.c.m.)	
Finance.....	17.5%	
Professional fees.....	13.5 % of building costs	
Rents of new property.....	£2.25 p.s.f.	E.M.V.'s
Invesstment yield.....	8%	
Rents of older property....	50p to £1.25 p.s.f.	)depending
		)on condition
Investment yieds.....	13% to 15%	)= current use

A discount rate of 5% is used in the Cost-Benefit Appraisal. When making assessments of the future market values of existing buildings a depreciation rate of 1% p.a. is incorporated.

5.3 CASE STUDY TWO

RENEWAL OF AN INDUSTRIAL AREA CONTAINING SOME VACANT LAND

Fig. 13 shows schematically the second case study area selected.

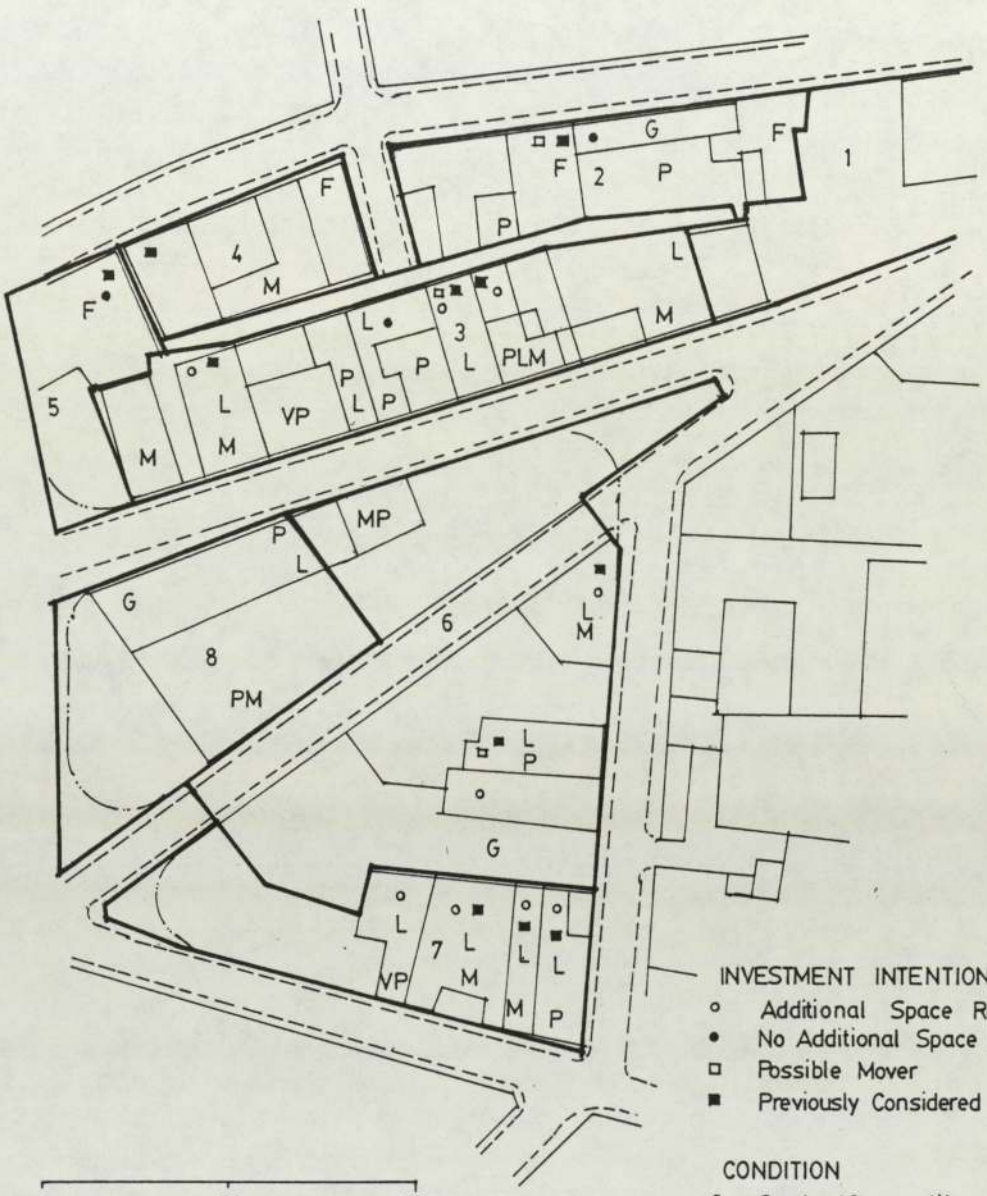


Fig. 13 Case Study Two;
Form and Building Condition;
Tenure and Investment Intentions

Details as follows:

Workers	690
Firms	18
Floorspace	309,000 s.f.(28,717m^2)
Land Area	4HA
Zoning	Entirely for industry and contained within a designated redevelopment area.

It is characterised by small parcels of awkwardly shaped vacant land formerly occupied by slum housing and pre-first world war and inter-war industrial buildings, densely developed and in a variety of states of repair. The freehold of the majority of the land is owned by a charitable foundation which intends to develop the area for industry at the expiry of the outstanding leases in about 15 years. Several firms already operating within the area are seeking additional space for expansion and would like to redevelop themselves or rationalise their present arrangement by operating on a single rather than split sites.

The area is typical of several within the city where there are pockets of unused land, a predominent historical land owner and some dereliction. The road pattern is a major constraint to good access but there is adequate parking within the area although motorists tend to show a preference for on street parking.

The objectives were:

i) To improve the road layout; in particular to decrease the need for lorries turning.

ii) To increase the extent of land in operation.

iii) To rationalise and improve the shape of available sites.

iv) To provide for the expansion requirements of existing firms within the area.

It has been thought viable and useful in this instance to generate an option involving the closure and development over a road to increase the size and improve the shape of the sites and therefore the costs of service diversion have had to be broadly assessed.

Because of the complexity of the area it has been considered necessary on some of the sites to evaluate two rather than a single renewal option as in the previous case study. The 'renewal option' involves the majority of the site, the alterations of the access arrangements and only limited refurbishment with most of the work to be undertaken in the short to medium terms (see Fig. 14 below). The closure of the East-West road to through traffic would occur with the renewal of site (3) and the closure of the road through site (6) on the renewal of that site.

The `minimal action option' reflects the intention of the owner to comprehensively redevelop the site on the expiry of

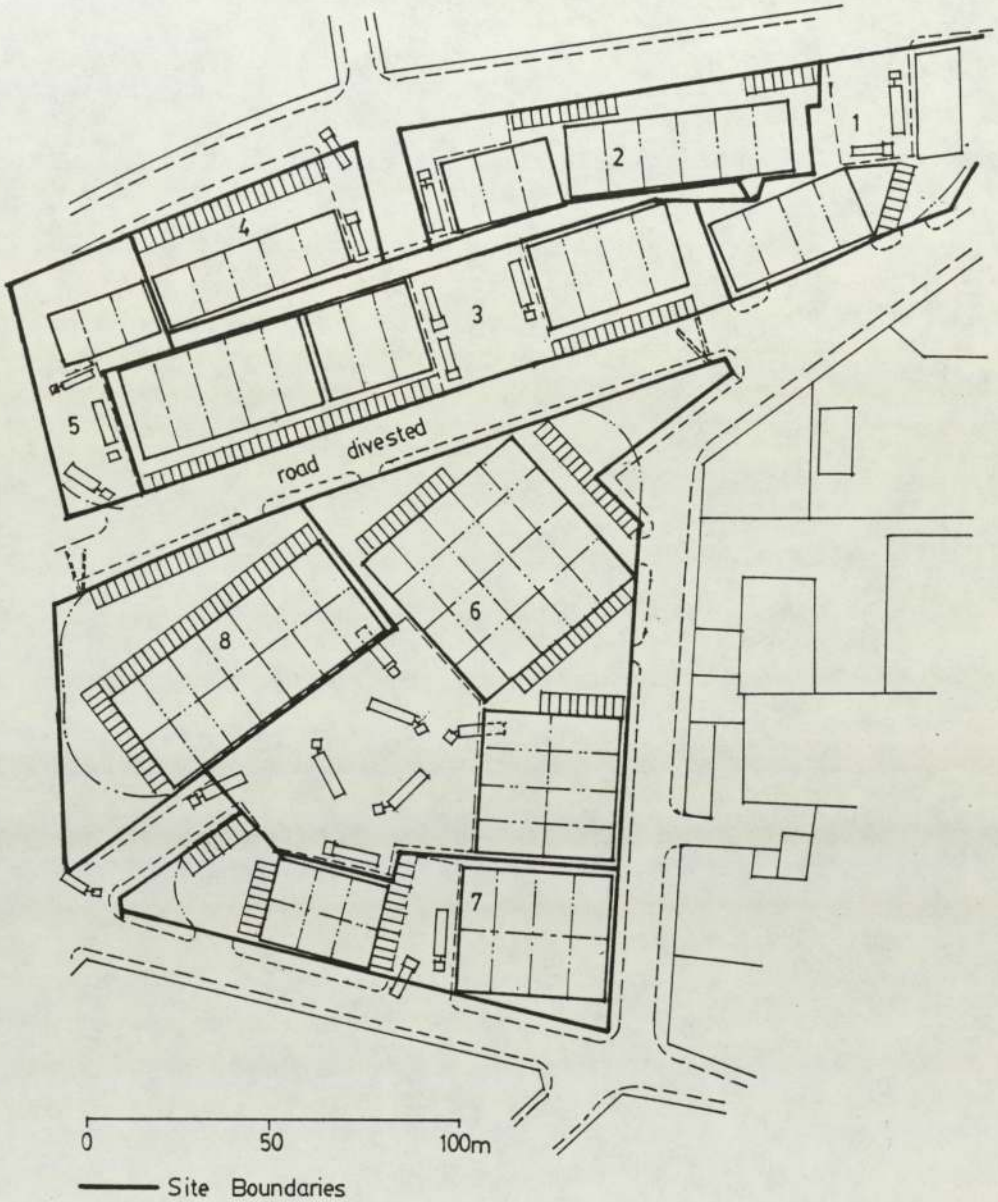


Fig.14 Case Study Two ; Renewal Option.

the current leases. (see Fig. 15). In some instances investment prior to redevelopment will be needed to maintain the present buildings in satisfactory condition. Based on the detailed analysis of the demand characteristics. The case study area has been divided into eight sites and two or three options evaluated for each site. The sites have been designed so that the options within them are not conditional upon developments on other sites and this enables a different option for each site to be incorporated in an overall strategy - depending on the results of the analysis E.G. Renewal option preferred for Site 1; improvement on Site 2; M.A.O. on site 3. (Examples of assessment from sites 3, 4, 5, 6, and 7 plus full details for case study area in Appendix VI).

5.4 INITIAL IMPLICATIONS

The discussion as presented has certain implications based on an increase in knowledge of the nature and characterics of demand in and for the area:

i) it assumes the level of demand for premises will be maintained.

ii) it implies that the balance between new and second hand/refurbished premises on the market will shift in favour of "new".

iii) it implies a lower density of site coverage.

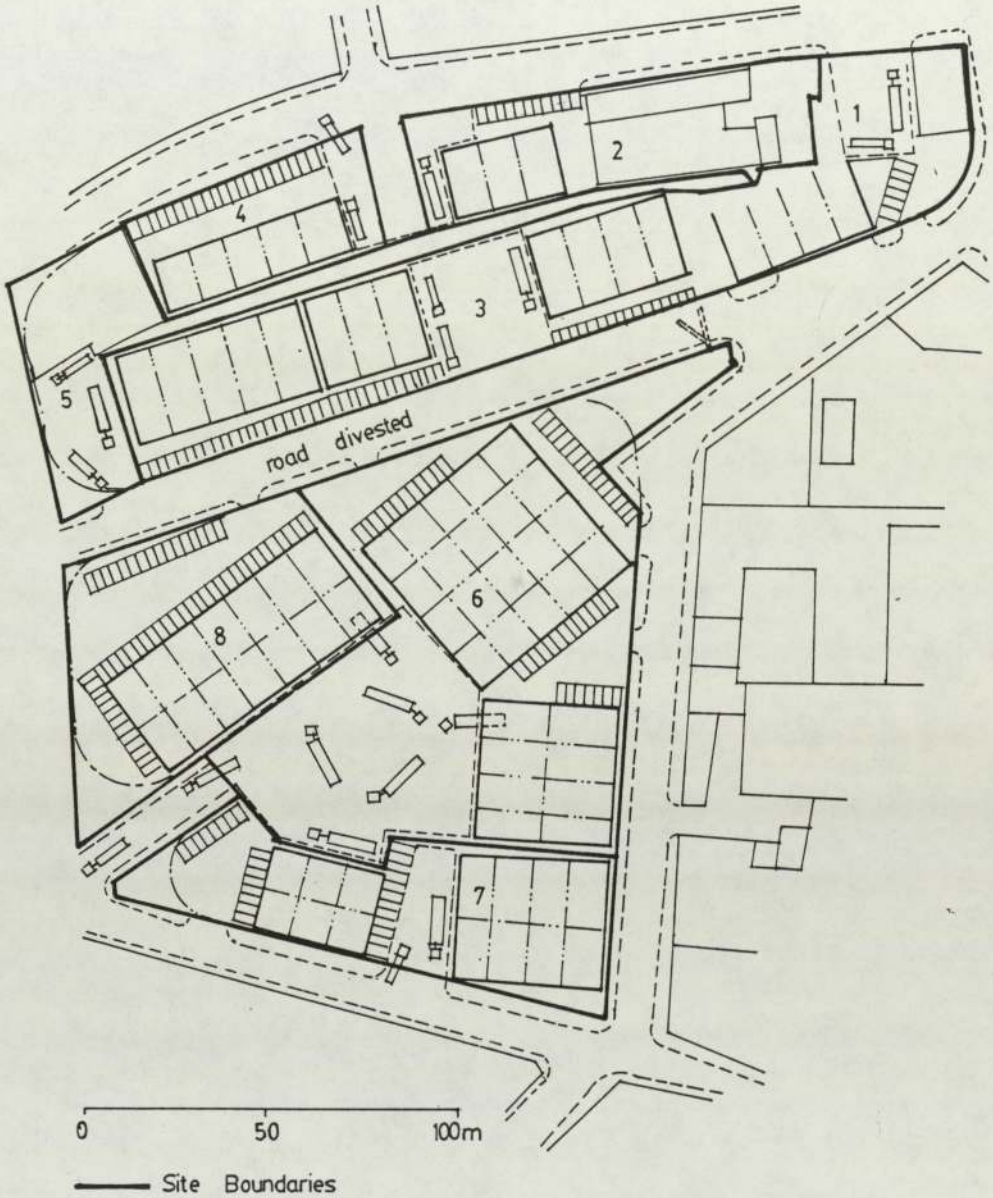


Fig. 15 Case Study Two ; Minimal Action Option.

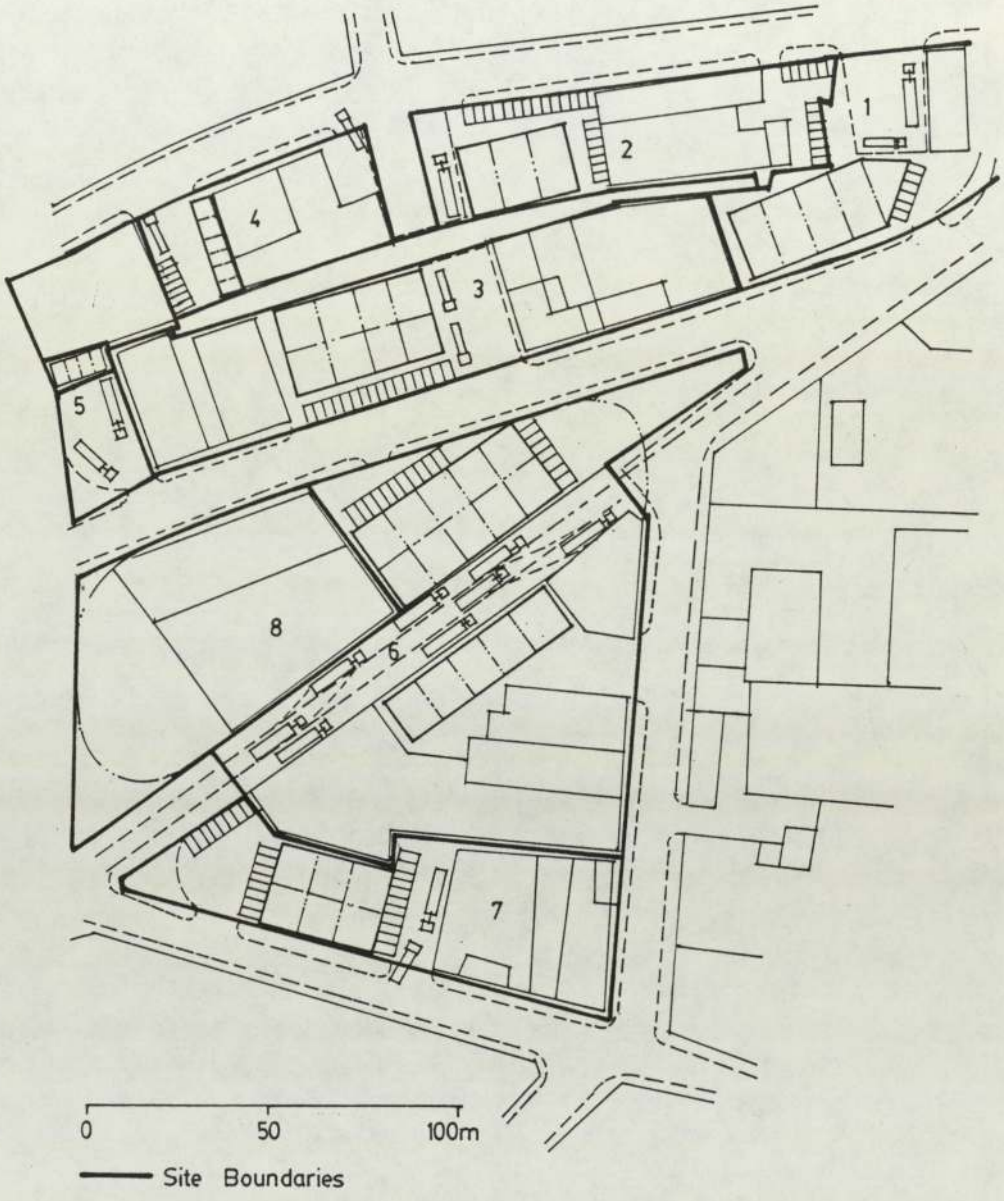


Fig. 16 Case Study Two ; Improvement Option.

iv) it implies some decentralisation of industry.

v) it implies a need for the complementary release of sites and provision of premises in more peripheral areas.

Should a policy of selective redevelopment be accepted the balance in the supply of premises would over time shift towards "new" and inevitably more expensive accommodation which raises questions similar to those raised in the "gentrification" process described in the housing sector particularly with regard to the ability of existing companies to afford such premises. Evidence of demand in Birmingham would suggest that there are a number of firms in the core areas which could afford to pay for such premises.An analysis of the smaller firms interviewed in the J.U.R.U.E study indicates that rent accounts for only 2 to 3% of turnover. Furthermore new firms tend to occupy premises where they pay a higher than average rent as they don't have historically low rent agreements whilst many of the firms occupying the very cheapest of rented property are small firms, up to 40 years old who haven't invested in their property during the past decade.

A reduction in density of site coverage implies some decentralisation of firms from core areas which in turn identifies a need for a complementary release of sites and provision of premises in more peripheral areas. This effect on the supply side is a greater availability over a wider area which inturn could help to widen the differences

between new and second hand property values which in turn makes redevelopment a more attractive option. The danger is of course that any complementary policy if not carefully monitored could lead to an "over-supply" of premises in the areas as a whole though this in turn is probably not likely as there is no severe speculative pressure for building industrial premises. An additional danger too is that increasing supply in the peripheral areas could create a slump in inner land values though this too presupposes a loss of importance attached to the "inner city" location and dismisses the component of demand associated with the expansion of indigenous firms.

A critical factor in this policy of selective redevelopment will be the method of implementation vis-a-vis existing firms. The methodology as described so far concentrates on the "management" of change rather than imposing it by means of compulsory relocation which more often than not proves to be financially too expensive and also involves dislocation of industrial and therefore economic activity. (A "compulsory" approach is however considered in the final section of this chapter).

Careful surveys of firms in the area are required (see the case studies) in order to reveal future intentions of firms, tenure position, age and state of existing premises of land etc. and given the dynamic nature of firms in general allows a more sensitive approach to management problems. The

overall effect therefore of such a method of implementation would be to "accelerate" change and guide it towards selective redevelopment rather than to improve it. Such "acceleration" should not be viewed as an overnight process indeed this in many instances would neither be desirable in terms of the occupants involved nor feasible in terms of resources required.

However, from the case studies it is apparent that delaying renewal actually represents an opportunity cost as greater overall benefits could be achieved by bringing forward the timing of renewal as compared with what would be likely to happen without any intervention.

The policy therefore needs to be fashioned as much towards the individual firms as it should to the buildings.
In any discussion involving economic regeneration the implications for employment or unemployment need also to be considered. This particular approach has potentially certain effects on employment structure in the context of the inner city. Basically a policy of selective redevelopment by admission inevitably means a reduction in site cover which in turn leads to lower employment density culminating in theory at least with higher levels of unemployment in the inner area. Indeed this might at first instance seem to be so and conforms to FOTHERGILL's theory relating to URBAN MANUFACTURING DECLINE. But in the short term at least this needn't be so as implied by the results of the case studies.

New properties by virtue of their more rational layout can allow a more economical use of space and hence it is likely that employment densities in old and badly laid out buildings are in fact quite low. If this is the case then employment change in the short-term at least could therefore be minimised. There are also the potential "knock-on" effects associated with upgrading and regenerating such areas and the potential changes in the employment structure in the longer term through complementary growth in the service sector.

McIntosh and Keddie (1979) noted that the difficulties caused by the current state of the building stock have been seen as a major threat to the stability of employment in the inner area. A policy of selective redevelopment could mitigate the threat with little or no short-term cost to employment.

5.5 SUMMARY

The aim of developing a management framework such as this would be to increase the amount of redeveloped floorspace and sites with improved layout and a more rational road system in inner areas by a process similar to Estate Management.

This process is directed at an areal base rather than indiscriminately across all industrial property. This in turn could result in a mixture of forms of activity

emcompassing redevelopment, refurbishment together with continued maintenance. For example in the case studies which examined some fifteen sites in total (see Appendices V and VI) nine of those sites recorded maximum net benefits on redevelopment, four when maintained as existing and two when refurbished but also inclusive of some infill development.

This process would be carried out over a number of years to accelerate the rate of change to some degree and minimise the opportunity cost of waiting and wasting resources - managing the stock in such a way that its development tends towards a more rational and flexible layout. Critical to such an approach is the data base requirementand in particular an understanding of demand component. Considerable survey work dealing with the components within the area is essential. A picture has to be built of the overall characteristics of the area but also of the characteristics, (physical and economic) of the individual firms that make up the area. It is necessary to assess in detail the requirements of each occupant and owner and their aspirations and perceptions of demand in order to formulate a strategy in relation to those as much as in relation to the state of the property hence the analogy with Estate Management practice. The Cost-Benefit method of assessment as proposed simply aids in asessing the potential outcome of different management strategies.

However such a policy approach needs to be placed in perspective of the size of the problem being faced and the

likely impact on the nature and rate of change which is occurring.

Using Birmingham as a context there is currently :

12m sq.ft. of industrial floorspace

44% is 66years old

70% is 41 years old

Net addition to stock = 1% p.a.

In 1978/79 developers supplied 30,000m^2 of new floorspace, 80,000m^2 of refurbished/improved floorspace.

Such a rate of addition is so low that the average age of the stock is increasing and if it is to be reduced and any increasing demand for floorspace is to be satisfied then a two to three - fold increase in activity would be required. An increase in resource input of this magnitude is unlikely given the recent economic climate. Furthermore within such a context it is imperative to pursue a policy emphasis on redevelopment rather than refurbishment so that any activity which does occur produces new rather than refurbished stock. Within such a context therefore there are fairly strong arguments to support a policy of selective redevelopment as described. However it begs two further questions.

i) How much? and

ii) By whom?

The approach as outlined avoids the call for large amounts of investment on which no returns are made by pursuing an

approach that might be called "URBAN MANAGEMENT" (WILLIAMS et al). The case studies described above indicate that such a policy can be pursued without necessarily incurring a financial loss (should this be an essential criterion) though the initial returns on investment are relatively small. The issue of "by whom" the policy ends are to be achieved raises the question as to why the private sector does not undertake more redevelopment in the core area and the extent to which the market mechanism might be used to achieve the more efficient forms of development implied by the policy ends.

These reasons can be summarised.

i) Many current owners do not recognise the value of the asset they are occupying. This is because the majority of occupants tend to be freeholders of which a substantial number have finished paying for their property or they are leaseholders tied in on historic rents.

ii) Externalities imposed on other users of the area particularly with regard to road congestion through on street loading and unloading.

iii) Limited information on the land and property markets which is a significant problem to firms or developers trying to assemble sites into a developable unit. The problem invariably is one of determining who owns what interest in particular properties and overcoming the problem of possibly having to pay 'monopoly values' for key sites.

iv) A policy of selective re-development would in all probability require a complementary policy of release and provision of industrial land and premises in other areas a consequence of which could well be a widening of the difference in rentals between new and second hand refurbished property which in itself would begin to enhance the redevelopment option in inner areas.

The problems/issues identified above are made significantly worse by the obsolete plot shapes, sizes and road layout and even though such a policy of selective redevelopment leads to, at least on the evidence from the case studies, a more efficient process, the financial returns of achieving this are simply not sufficient to attract private sector developers.

This therefore implies that the most suitable agency for precipitating such an approach in the first instance and stimulating the required activity in the core areas in such a fashion is the local authority (see below). By adopting this type of approach to core areas through selective redevelopment it provides a systemmatic framework for assessing the economic financial and employment impact of intervening in these types of areas. The key however is getting closer to and familiar with the characteristics of demand.

5.6 AN ALTERNATIVE COMPULSORY APPROACH

The above describes a framework for accelerating and guiding redevelopment towards given ends. The existing alternative approaches undertaken by both public and private sector are, given different circumstances, politically not feasible, financially not feasible and / or administratively not feasible. The existing method of compulsorily achieving these ends through the powers of compulsory acquisition available to all local authorities would not prove either politically, financially and/or administratively feasible.

Yet there are different methods or systems of approach used in other parts of the world that are apparently feasible, that are compulsory and that potentially might achieve the given ends to the satisfaction of all the `actors' as expounded in earlier chapters.

The final section of this chapter will be spent in looking very briefly at one of these alternative approaches of urban renewal/ redevelopment namely, that of "Land Re-adjustment" or "Land Pooling". Details of the method together with an example illustrating its potential use can be found in Appendix VII.

5.6.1 LAND READJUSTMENT/LAND POOLING

This is not a "new" planning technique and has been reported in planning literature (Bryant 1972; Archer 1978; and Marshall 1981).

The pooling and consequent re-adjustment of privately owned lands is in fact quite a common practice in Japan, South Korea and Taiwan mainly in reponse to the difficulties of subdividing numerous small and irregular shaped farms into a regular pattern of streets and building sites (Sah 1972, Doebele, 1976; and the Land Bureau 1971). Its first application however stems from Europe and in particular from Germany as far back as 1902. But it has also been implemented in urban-rural fringe areas in Perth, Western Australia where it has been fairly widely adopted to "improve the efficiency and equity" of the urban development process.

More recently in Tokyo and in Australia researchers have begun to explore the possible use of the technique in urban areas where urbanization has taken place without any definite planning and both the living and working environments have become degraded through lack of basic facilities and infrastructure all of which are needed if improvement to the environment and economic regeneration are to be achieved.

5.6.2 METHOD IN OUTLINE

Land re-adjustment/pooling essentially provides a means of land assembly with local government as the effective agency thus releasing the potential for urban land development and the benefits that accrue to the parties involved. By giving the local authority unified control of the ownership of the disparate and fragmented holdings in the land it is suggested that subsquent planning and development of the land allows the local authority to achieve economic and efficient land development to a high standard. Through overall control or unification of ownership recovery of all increases in land values can be effected to recoup the cost of any land development works which in turn will have generated the enhancement in land values. The local authority in so doing will be able to recover any expenditure or capital outlay within a short period and possibly share the costs and the land value increases equitably between the existing landowners. This technique is based on a resumption process of compulsory land acquisition adopted by certain governments.

Under such a process the land can be legally transferred from the private landowner to the government. The government gives notice of its intention and the landowner makes a claim for compensation. Compensation received however is not in the form of a cash payment based on hypothetical market values rather it is "paid" in the form of serviced building sites which would then be marketable should the landowner

wish to liquidate his asset. A further cash adjustment might well be payable though this would depend on the mechanics of the specific scheme.

Essentially what is formed is a compulsory partnership between the local authority on the one hand and the landowners on the other. The scheme ultimately takes the effect of a partnership agreement for the particular project with the local authority contributing project management skills, finance through raising a loan and the use of its governmental status and powers to enable the scheme to progress. The landowners contribute their land for the period of the project.

5.6.3 POTENTIAL FOR APPLICATION

It is not intended here to suggest that the model briefly described above and in Appendix VII in its present state can begin to cope with the problems indentified in the earlier chapters in the core areas.

However it is believed that given some refinements the model may have a part to play in providing real initiatives to cope with the industrial problems of the core areas.

There is in fact a great deal of commonality between the broad objectives of the two approaches as contained in this

chapter. Both are an attempt to achieve an efficient, rational and timely pattern of land use out of a confused fragmented and disused pattern of ownership at minimal expense to the public sector. Both attempt to accelerate the urban land development process in order to offset the wasteful opportunity cost of inefficient and/or non-productive land. However the problems being dealt with do not have the same characteristics. With the latter example we have been discussing essentially suburban or urban-rural fringe areas where although fragmentation of ownership and land use is prevalent and inefficient patterns of land use apparent due to lack of essential infrastructure and facilities it has very different features to the problems experienced in the core areas where we are dealing with these same problems but in the context of congestion - of buildings, people, roads etc. The nature of premises only adds to these differences where on the one hand one is dealing with individual residential premises whose occupants are relatively mobile and on the other with buildings of various sizes and components many with fixed plant as expensive as the premises themselves and occupants who perhaps rely on their location for their markets - similar problems, very different characteristics. A review of possible scenarios incorporating this approach reveals more clearly the possible implications.

i) A straightforward application of the methodology to the core areas as described in the case studies : The immediate problem here is that in many instances one is not dealing with a few owners but many many individual owners each with different aspirations. Getting them to work towards a single set of objectives would be problematic. Another problem would arise in that one of the objectives of redeveloping the core areas whether selectively or compulsorily is to reduce congestion and therefore site coverage. It is envisaged that unless the local authority is dealing with a few owners that excessive amounts of compensation for buildings lost or relocated would be prohibitive in that even with but moreso without a complementary policy of releasing sites and premises in other areas the enhanced value attaching to the project would possibly be insufficient to offset compensation payments which would include for premises lost, fixed capital replacement, disturbance allowances etc. This also assumes that the owners in question retain their objectives as identified by the surveys (see above) that it is not a return on the land that motivates them towards redevelopment but the potential increased return on their productive process brought about by more rational site layout, supervision infrastructure, more efficient use of resources ,etc.

ii) Use in some case areas where vacant land already exists plus the potential for incorporating inefficient road space into the developable site: This would allow the local authority to cover its costs by being able to sell off greater amounts of fully serviced and rationally subdivided units for development at enhanced values. Again this implies a complementary policy of providing more premises and sites in peripheral areas to cater for those displaced and a similar attitude is assumed atowards returns as in (i). A similar picture would also develop where the local authority are perhaps owners of land in the project area.

iii) Used simply as an adjunct to the selective Redevelopment Approach as expressed previously: The problem with the selective redevelopment approach as described is that it is vague regarding implementation and enforcement of the plan. A compulsory partnership of the nature described would enable the plan to be enforced at the times previously adjudged to give greater benefit.

The agreement would bind the parties to the commitment ensuring implementation and therefore ensuring achievement of the set objectives. This would provide a selective and systematic basis for securing the benefits by a progressive implementation of the planning scheme. The whole concept rests within the wider context of an urban industrial programme catering for the progressive

implementation of a strategy undertaking projects as and when required for the timely redevelopment of land.

The Land Re-adjustment / Land Pooling scheme requires further consideration but it is considered that given certain circumstances it has a role to play in its own right as a method for securing redevelopment of urban areas. Its most immediate benefit however would possibly be in combination with the selective approach essentially providing a basis for enforcing the plan and therefore achieving the set objectives but also as a means of accelerating the development process by providing these private landowners/firms with a financial stimulus towards redevelopment. The amount of equity granted to the private sector would not take on the element of windfall gains as implied by the examples described above principally because the costs of redevelopment in heavily congested industrial core areas are likely to be that much greater and also because the stated objectives of the firms involved are not primarily to see returns on investment in their land but to achieve greater returns from their business through investment in the land resource.

Again the key however to utilising this as a potential tool for managing the urban land resource and particularly that which relates to manufacturing industry is an understanding and recognition of not just the quantitative aspect of demand but a more intimate qualitative asssessment.

5.7 CONCLUSIONS

What emerges from this is a framework plus a possible alternative in which change in urban industrial areas of varying characteristics can be managed over time in order that supply and demand are more effectively compatible. The essential component to such a land management strategy is a more detailed and comprehensive understanding of the nature and characteristics of demand for a given locality.

The framework itself allows for flexibility in its implementation. But it is a flexibility that is largely governed by the demand components of a particular area. The conventional criticisms of the generally static nature and spatial fixity of case studies in an urban context are not ignored but in the context in which these studies have been used such criticisms would be largely misdirected.

The ultimate intention of such studies is to explicate some phenomenon or situation set against a theorical context. Whilst it is not the intention here to develop theory it is the intention to examine initially at least the feasibility of applying such a managemnt framework together with the feasibility of building a picture of the demand characteristics and perceptions on which the management strategy depends. They also serve to illustrate and confirm at least in the context of Birmingham's core industrial areas the active presence of those repellent forces that are

contributing to urban manufacting decline in an environment of urban - rural shift.

CHAPTER SIX

CONCLUSIONS

6.0 INTRODUCTION

This study has identified as its focus demand as it relates to the industrial land resource over time. It has attempted to stress the importance of demand in the overall demand-supply relationship at the local level and the dilemmas associated with an inadequate understanding of its basic nature and characteristics.

In coming to terms with this demand component the study has addressed questions surrounding the state of the industrial land and building stock in core industrial areas which in turn is set against a context which describes a relationship between capacity in the core areas and activity in more peripheral locations. Chapters Two and Three provide the broad contextual nature to the study with Chapter Two describing the development of problems associated with manufacturing industry in its traditional urban location. The West Midlands the city of Birmingham are the geographical contexts used to illustrate these features. Chapter Three in turn focusses on the dilemmas associated with demand at a `macro' or local authority level. This has on various occasions in the text been referred to as viewing demand in an 'aggregated' sense in that the whole of the local/district authority area is being considered.

Chapter Four focusses the microscope much more sharply on individual industrial areas that can be defined in traditional industrial core areas and suggests a framework for approaching these areas with a view to managing change over time thus enabling the necessary supply response to more closely resemble the timing and nature of user requirements. The key issue at this `micro' or `disaggregated' level of inquiry is once again those demand side features. This suggests that any strategy for addressing the problems at this level would require a much more intimate understanding of demand and a much more intimate relationship between the instigating agency and the users.

This differentiation between the `aggregated' and `disaggregated' levels perhaps requires some further explanation. The aggregated level of demand referred to in the text requires an understanding and prediction of demand for a given district or locality as a whole. The methods suggested make assessments based on knowledge acquired of existing and potential user requirements from within the area from broad trends and also from outside the area-potential `in-movers'. This provides a suitably detailed picture of the broader context of demand which a local authority potentially has to contend with if suitable supply responses in the area are to be generated. It also allows the local authority with a potential to strategically manipulate its supply responses over time throughout the given area in order that other broader economic objectives might be achieved.

This aggregate picture of demand provides the contextual nature of demand within which the more detailed land management framework is proposed. The even more detailed and disaggregated pictures of demand at the much more micro level of individual industrial areas are required to effect such a strategy and focusses on the existing and potential requirements over time of indigenous users.

The research at the two different levels of demand are therefore mutually beneficial. The first providing the overall contextual nature of industrial land requirements in which the individual industrial areas need to be set whilst the second when aggregated with knowledge from other similar areas allows the framework for prediction at the aggregated level to be more fully implemented.

6.1 REVIEW OF MAJOR ISSUES

The supply of land is crucial to the process of expansion, restructuring and modernisation. Modern competitive industry needs to occupy sites with much lower employment densities, more room for expansion and better layout and access than is provided by the majority of the existing building stock. Whilst it is clear that a key enabling policy must be to ensure that the supply side is adequately catered for an essential pre-requisite must surely be a clearer understanding of the requirements of industry - DEMAND. Only by understanding what is required, how much is required,

where it is required and when it is likely to be required that any action to effect a suitable supply response can be undertaken using the methods and approaches described above. The study has contended in Chapter THREE that existing knowledge of the state of the demand side of the equation at the local level has continually been inadequate. Assessments of demand are made based on aggregated figures that give no cognisance to the changing nature and characteristics of the industries involved within a given area making any supply response at best questionable.

Alternative methods have been suggested and whilst individually the measurements of demand forecast might be equally as questionable as existing methods nevertheless when applied they begin to reveal important characteristics regarding demand in a given area. Furthermore when used in combination not only do they act as cross-checks through looking at demand requirements from different perspectives but they begin to build a fairly comprehensive picture of the nature and characteristics of demand for that area from which more confident supply responses by local authorities, industrialists and developers alike can be effected.

In Chapters Four and Five a framework has been described which by examining in detail the costs and implications of renewing two older industrial areas within the inner city has indicated the potential for and feasibility of accelerating

renewal and demonstrated a method of systematically assessing the economic, financial and employment impacts of advocating renewal in these types of areas.

Three types of appraisal are required. Firstly a cost-benefit appraisal wherein current use values and expected market values of property represent the benefits accurring to society of the use of the land for existing and potential industrial developments; secondly a financial appraisal should be undertaken to demonstrate whether differing renewal options are financially attractive to occupying firms, developers or local authorities; thirdly an assessment of the impact on job opportunities and the number of people likely to be employed in the area after the differing renewal options are undertaken. The case-study used to demonstrate the feasibility of applying such a framework have three distinct objtectives.

i) to illustrate the potential for renewal and intervention in the industrial renewal/development process by the Local Authority;

ii) to develop a framework to enable to more effective assessment of the renewal options;

iii) to explain in relation to individual sites the nature of previous development and future renewal without intervention.

A detailed examination of the case studies reveals examples of sites where the renewal option offers net benefits in the cost benefit appraisal but where the development envisaged was unlikely to be financially attractive to developers. This does not of course mean that a positive financial return was not achieved.

Similarly the cost of refurbishment of premises is basically reflected in the enhanced market value of the improved property but though it might be worthwhile for an occupying firm to spend money on improving the premises the enhancement in value is insufficient to make such activity financially viable for a developer and assuming that market values are a true reflection of tangible benefits represents both a net cost to society and a financial cost to the local authority undertaking the work.

It is not however simply a matter of costs and how these are reflected for in several instances other factors - institutional and land tenure - represent major constraints in the land assembly and development process. The local authority can therefore help to realise the benefits of renewal.

The case studies serve to illustrate just those circumstances that exist in older industrial areas which have contributed to the slow rate of renewal of the industrial building stock and a rapidly increasing wasting asset(The repellent forces).

Small awkward shaped sites in partial use; the incremental expansion of existing firms to occupy all existing space; complex tenure patterns; well maintained buildings often the result of the inertia of the occupying firm rather than the apparent benefits of the retention of the buildings; sites developed to high plot ratios unlikely to attract any form of investment and constraining renewal on adjacaent sites. These features are all reflected in the choice of case study areas.

The framework suggested provides a systematic and thorough indication of the potential impact of industrial renewal and could be used by a local authority concerned with accelerating renewal and improving the use of industrial land. The case studies reflect specifically circumstances as they apply in Birmingham but there is evidence available that such features exist in varying forms in other core industrial locations.

The approach as described is area-based and therein lies its limitation but also provides it with a much wider context of basically being one initiative within a much broader strategy. Despite its areal limitation the level of information required to "manage" the renewal of such areas is considerable.

The nature of the cost-benefit framework in its assessment of both tangible and intangible aspects of renewal means that a variety of assumptions and predictions about market

conditions need to be reflected in the framework. This further requires a detailed knowledge of occupying firms and the development potential of individual sites, including the tenure patterns, investment intentions and form of site development that could be achieved on renewal. Through making explicit the implication of intervention the analysis allows the authority to select that option that accords to criteria it may adopt regarding the extent and nature of intervention. Basically this means that the local authority can choose only to allow development on those sites where there are net benefits or where the intangible benefits outweigh the net cost or it can choose to delay intervention allowing property to be let on short term leases until renewal becomes financially viable.

Alternatively the local authority could adopt a policy of only actively intervening where options are not attractive to developers though care must be taken to ensure that the local authority is not itself responsible for increasing property / land prices by its own declared interest in the process of accelerating renewal. The local authority could restrict its role to that of land assembly and information centre to prospective developers with limited use of its compulsory purchase powers. Whatever measures are adopted it is crucial that they be carefully monitored and that the system is flexible enough to adapt policies to changing economic circumstances and to this end their relationships

within a wider strategy of ensuring sufficient land availability needs to be clearly defined.

In the context as described in the core areas the efforts of local authorities could best be used in renewing the older industrial building stock so tht it may better conform with the requirements of manufacturing and distributive industries. By adopting the framework as described significant impact on the rate of renewal could be made without a substantial cost to the local authorities and the industrial future of many of the older industrial areas of cities could best be served in this way.

6.2 AN INDUSTRIAL LAND MANAGEMENT STRATEGY

This focus on demand side components has provided the framework for an approach to industrial land. An understanding of the dilemmas associated with the nature and characteristics of demand does not in itself provide solutions to the problems of manufacturing industry and their traditional urban core environments. But it does provide the potential for developing a much broader industrial land management stategy for a given area.

If it is accepted that the processes of urban manufacturing decline and urban-rural shift are the environments within which industry is operating then isolated and piecemeal initiatives directed at individual locations are likely to

continue to prove ineffective. A much broader and at the same time more initimate perception of the industrial environment within a local authority area is necessary which will require considerable co-ordination of policy initiatives. For instance the selective redevelopment of individual industrial areas explicitly calls for a complementary policy of release of appropriate sites and development of suitable premises in peripheral locations. The frameworks developed in the study have been variously labelled in the text as part of an overall concept of `Urban Management' and `Industrial Land Management', of `managing urban change' with as much emphasis on the `user' as on the `use'. An overall strategy to manage the industrial land resource for a given area particularly at the local/sub-regional level is therefore implicit in the above discussions. Indeed it is essential if the process of urban-rural shift is to be controlled and local authorities are to retain their proportion of the manufacturing base within their boundaries and if the process of urban manufacturing decline as expressed above in the inner city environment is to be reversed.

A brief further reference is now made to the study area considered in the text i.e. Birmingham. An industrial land strategy for the city has recently been advocated by the Planning Department which aim would be to make industrial land in the City better value and more abundant whilst at the same time the "mammoth problem of the poor quality of

existing industrial areas and buildings must also be tackled." The advocates see the problem in two dimensions - the short-term and the long term.

The short term problems relate to the existing stock of land and premises in the existing industrial areas basically as described in the case study examples. Furthermore :

> "the high price and poor quality of land and buildings militate against large operations either expanding or setting up in the city. Plenty of much more attractive opportunities are available to dynamic firms not tied to the area, in established smaller towns and new towns, at prices allowing the acquisition of sensible expansion space against future needs....These 'lock, stock and barrel' moves are just the tip of the iceburg. In quantity and quality the flow of lesser investment decisions is much more important."

The long - term problems identified centre around the lack of competitiveness and the need at national level to offer some protection to home industry while it re-equips whilst at the local level the investment opportunities need to be made available to attract the capital that will otherwise leave the county or locate elsewhere.

The need therefore in Birmingham is for a supply of marketable and 'competitive' industrial land on a completely different scale to that previously envisaged. The scale of the problem is described more fully in Appendix VIII.

The strategy proposed for Birmingham is one therefore that attacks both the short term problems and long-term problems involving:

a) Improving and speeding up the re-cycling of existing land ("urban regeneration")

b) Getting new industrial land made available for development.

In order that these do not conflict such activities would need to be carefully balanced and it is proposed they should therefore be targeted on two different market sectors. The recyling of existing land could be targetted on small/medium users (up to 10-20 acres) within existing industrial areas starting from the core areas and moving outwards where land assembly at that sort of scale would present fewer problems and where there is existing demand from those smaller indigenous industries tied to the area.

Initiatives required to achieve success under this part of strategy would be:

i) Avoid acquisition not contributing to the strategy;

ii) Relate acquisitions to ability to finance and undertake works necessary to achieve a marketable product (including grants);

iii) Pressure County to improve road access to the areas;

iv) Avoid purchases where there is a private agency willing to purchase;

v) Programme purchases involving re-locations with ability to supply re-location premises;

vi) Avoid purchases on a pure "aid to industy" basis; obtain guarantees re: future locational intentions of firms.

vii) Leasing/selling land which allows adequate expansion space to be provided.

viii) Continue industrial improvement area action-achieving environmental improvements - facilitating private sector marketing efforts.

Target scale for this area of activity would be to achieve the recycling of 130 acres of existing industrial land per annum compared with a current rate of around 80 acres per annum. A substantial proportion of this given current low levels of private sector activity will require public sector action. Within such a strategy both frameworks suggested in the text focussing as they do on the demand side characteristics would be vital to achieving such policy ends.

With regard to the longer term problems and the policy of making new industrial land available within the overall strategy being described this it is proposed would be targeted on larger existing and outside firms including warehousing and distribution generally in the land requirement range of 10 -20 acres and upwards. This would concentrate on larger scale existing peripheral sites and an identification of attractive new large scale locations requiring :

i) Idenfitication of locations with minimum infrastructure cost and high levels of access. Additional land would have to be found beyond the City boundaries identified within the Structure Plan of neighbouring counties.

ii) Earmarking economic development funds for acquisition and servicing of land and necessary inputs from other public agencies.

iii) Foregoing quick returns from piecemeal development as this would undermine the urban regeneration leg of the strategy. A minimum lower size of individual development plots could be set at 15-20 acres and rigidly enforced. Similarly releases should be phased in the light of availability of alternative marketable sites emerging from the urban regeneration process - either through landlord control or planning conditions.

iv) Consultation with major existing firms to learn future investment intentions and to "sell" the industrial land strategy benefits to them.

v) Headhunting key foreign and U.K. firms to provide a selling point.

Target figures for this area of activity would need to be 125 acres of new industrial land per annum. Once again the suggested methods of approach advocated in this study again have relevance particularly that associated with forecasting/ understanding demand where the characteristics of industrial land requirements are better understood. Furthermore this area of strategy involves the complementary policy identified in the selective redevelopment approach which is critical to balancing peripheral development with urban re-generation.

This therefore is one approach to an industrial land management strategy the details of which may be soley of relevance to the Birmingham area. However the concept and general philosophy of preparing to manage change over time is an important one to meeting the 'challenge presented by industry and the industrial environment of all our major industrial cities. In any event the key to successfully achieving the objectives implicit in such a philosophy rests on an appropriate understanding of the demand-supply relationship as it operates at the local level.

6.3 NEED AND SCOPE FOR FURTHER RESEARCH

Throughout this study two questions more of a philosophical nature have recurred which the author has made no explicit

attempt to resolve. The first involves the role of the inner city as a suitable and continuing industrial location. Throughout, demand for space in these core industrial areas has been explicit to the frameworks suggested. However the problems encountered in these areas may mean that what is being witnessed is a natural process of decline and shift of industry which would fit very neatly into the concepts of `urban manufacturing decline' and `urban-rural shift' as expressed by Fothergill et al and Alonso's views of the process of urban diffusion over wider geographical areas. If this is so then by devising strategies involving intervention by the public sector we may simply be delaying and distorting market processes even further which will only serve to exacerbate an already difficult set of circumstances. Certainly there does appear to be grave doubts surrounding the suitability of the inner city as an attractive and suitable location for certain kinds of new industries and services but this is a reflection of existing conditions which the proposed methodologies togeter with any land management strategy are attempting to tackle. Certainly from the `J.U.R.U.E and Cambridge Studies' in both the West and East Midlands respectively demand for industrial space in the traditional core areas from indigenous small and medium sized firms persists and is likely to for the foreseeable future. Further empirical work to expand on the data from Birmingham and the J.U.R.U.E studies together with the work being undertaken by Fothergill, Kitson and Monk needs to be understaken specifically in an attempt to identify the future

importance of the existing industrial areas in the core to the industrial development process. An extension of this area of study is the need to continue to examine very closely the impact that the `urban-rural shift' phenomenon is likely to have on the rural areas in terms of `land-take'; not simply in terms of the requirements of industry but of all the associated forms of development that will ultimately occur as these areas "industrialise". This will need to be fully appraised and costed both in qualitative and quantitative terms. Should the process continue relatively unfettered the overall cost to society as a whole will need to be assessed both in terms of rural area and/or Green Belt lost, together with the possibility of a wasting asset in the existing industrial areas.

The second debatable area is that of the role of the local authority in the process discusssed. The emphasis throughout the study has been one of greater public sector intervention by local authorities in the industrial development process. The implication eing that the like catalysis for the implementation of any land management strategy ought to be the local authority. Barrett and Whitting have looked fairly comprehensively at this aspect in their work on `Local Authorities and Land Supply'. Nevertheless it raises certain philosophical issues concerning the role of local authorities viz-a-viz the market mechanisms. Certainly the involvement of local authorities in industrial property development is not new and in Birmingham as in many major industrial cities

they are substantial industrial land owners and have built new and refurbished older industrial property mainly for smaller units as well as being involved in the assembly of industrial land. Nevertheless the city of Birmingham itself has at different times reacted negatively to the question as to whether they should become involved in renewal. It is still a contentious issue and many authorities would feel it was politically unacceptable to become involved in development even of the advocated on the above study. Whilst the political aspect will always provide a bone of contention the author feels that further work on the role of the local authority specifically with regard to industry as caretaker of the industrial land resource needs to be undertaken particularly with regard to the `management' concept as suggested in the study.

Directly related to this specifically regarding the selective redevelopment of certain industrial areas is the question of land/site assembly. The study in Chapter Four briefly described an alternative compulsory method of `land pooling and land re-adjustment'. A suggested area of further research is to examine and test the possibility of using such a method in urban congested areas within the political and legislative framework of the United Kingdom. It is believed that certain adaptations will be required to the methodology as described and to the legislative base but that it could provide a useful additional cost-effective tool which could

be incorporated into an industrial land management framework and could possibly have application to other sectors.

In all of the above discussions there are questions related to policy that also merit further attention. Two areas in mind are firstly the implication for the existing policy framework and secondly the question of policy implementation and the implementation processes. There are in many instances involving policy and policy analysis differing perspectives between central and local levels and often the receptivity to policies is governed by the degree of change being sought and who is seeking such a change i.e. whether it is being sought by central or local government. This is a complex area but in view of the central-local perspectives implicit in much of the background to this study I feel this would make an important contribution to the likelihood of success or otherwise of an overall industrial land management strategy.

Finally I return to the central theme and principal aim of this study with its focus on the dilemmas associated with demand for industrial land. The methods and framework described in the above text do when implemented begin to provide the necessary picture of demand required when considering the demand-supply relationship in the industrial land development process. But with the expansion of the choice of industrial location over much wider geographical areas (urban-rural shift) and with the problems already

associated with the `mis-match' between demand and supply in the core existing industrial areas there is a vital need to establish a much more rigorous model of the demand for industrial land. One that attempts to look beyond the short-term and in spite of the problems associated with the prediction of technological change establish a more enlightened view of land-take for industry in the long-term. This will involve looking more closely at the components of aggregate demand and the relationship to levels of output, employment and consumption for a given area more than likely in the form of a regression model. This then when combined with the suggested methods and framework described above which enlighten as to the changing characteristics and nature of demand in the short to medium term might provide a sound base from which an appropriate industrial land management strategy for a given area possibly at the national level can be devised.

APPENDICES.

Appendix I

Summary Findings: The Use and Renewal of the Industrial Building Stock in the Inner City by J.U.R.U.E.

Summary Points

* The form of the building stock is at present inadequate and the rate of change is too slow.

* Piecemeal refurbishment on a building-by-building basis will only serve to perpetuate the existing unsatisfactory form of development.

* Policies should encourage selective redevelopment and rationalisation by area rather than by individual sites.

* Speculative refurbishment should only be undertaken or encouraged when there is clear evidence of a demand for premises and that refurbishment is the best way of meeting that demand. It should not be undertaken merely to use apparently redundant buildings.

* 47.2% of firms interviewed (equivalent to 1500 firms in Birmingham as a whole) said that labour supply was a problem and 45.7% (i.e. approximately 1630 firms in the City) mentioned problems with their premises. It was the second most commonly stated problem but suffered disproportionately by smaller firms.

* 16.2% of firms interviewed (equivalent to 615 firms in the City as a whole) said they had difficulties caused by buildings that were too small or cramped, 13.4% (i.e. approximately 390 firms in Birmingham) caused by the age of the buildings, and 14.8% (i.e. approximately 385 firms in Birmingham) because of multi-storey premises. Of those interviewed 19.5% (i.e. approximately 625 firms in the City as a whole) said that cramped sites were a problem, 16.7% (i.e. approximately 760 firms in Birmingham) said insufficient car parking and 20.5% (i.e. 545 firms in Birmingham) said poor access was a problem.

* Only 17% of all buildings within Birmingham's Core Area have space available for expansion within their sites, only 13% have it on adjacent sites, and 70% are very restricted.

* 48% of all buildings in the Core Area completely cover the site they occupy and hence parking and loading/off loading takes place on the street.

42% of the buildings in the Core Area are pre-first world war, and 22% inter-war. However, 78% are in good condition with only 1.3% derelict.

Only 35% of the buildings in the Core Area are single storey, 41% are predominantly two storey and 24% more than two storey.

Some 2357 firms, 67% of all firms in Birmingham, employ 25 or less people. These firms move frequently. The median length of time they occupy a building is 7-8 years.

There has been an increase in industrial development over the past two years and, in the past year, some concentration by developers on producing units of less than 500 sq.m. However, the proportion of all property on the market (both new and second hand) which falls into the smallest category (less than 250 sq.m.) is still smaller than the proportion of all firms in Birmingham which falls into the smallest category (less than 10 employees).

Manufacturing industry is responsible for over 80% (by floorspace) of all types of industrial development (refurbishment, extension, redevelopment, development). The industrial development industry is responsible for less than 20%.

75% (by floorspace) of all types of industrial development are refurbishment projects, including major modifications and alterations and work done when moving into new or second-hand premises. 77% of this is done by manufacturing ind ustry.

67.6% of all industrial firms interviewed had made some investment in their premises over the past ten years; 30% had improved their premises, 20% extended on site, 12% extended on an adjacent site, and 17% moved to a second-hand property.

Over 40% of those investing did so because they wished to meet additional market demand.

92% of the industrial building stock is occupied and off the market. 7.8% is vacant at any one time of which about two thirds is on the market. The supply of new property coming on to the market each year for sale or lease amounts to 0.3% of the stock and the supply of second-hand property (including refurbished) coming on the market to 8% of the stock.

Rack rents, varying from £27 per sq.m. for prime, small units to £10 per sq.m. for larger units are considerably higher than the rent paid by the majority of industrial tenants in Birmingham. Due to long rent review periods, rents have been kept down to a median level of £7 per sq.m. The tendancy towards shorter rent review periods will reduce these differences.

The majority of industrialists are owner occupiers, only 40% are tenants yet 76% of all industrial property on the market is to let.

Only 4% of the building stock is "persistently vacant" (i.e. vacant for more than 6 months) and of this approximately 80% is off the market: i.e. only 1% of the stock is on the market for longer than 6 months in periods of buoyant property market conditions.

Historically, the rate of addition of new floorspace (developments, redevelopment, extensions) has been at a rate of approximately 1% of the existing stock per annum. At this rate the average age of the stock is barely being maintained and may well be increasing.

During the period analysed in this report there has been a strong demand for new units.

22.6% of the planning applications for new industrial development received in the period examined were refused. The refusal rate for planning applications for major refurbishment was only 9%; they were also dealt with more quickly than those for new development. The principal grounds for refusal were non-conforming use or amenity.

The 'final' refusal rate for building regulation applications during the period examined was 26.8% for new developments and 18.2% for major refurbishment projects. Again, the latter group were handled more quickly.

* 90% of all relaxations of building regulation requirements were associated with fire regulations.

* The median time taken to determine planning applications for new industrial development was 12½ weeks and 20 weeks to determine building regulation applications for similar projects. This combined time of 32½ weeks is considerably longer than reports of the time taken to obtain development permission in some other European and N.American countries.

* Some developers and contractors were of the opinion that changes in the building regulations on wind bracing and thermal insulation put up the costs of building. The effect of fire compartmentation in multi-storey premises was to make conversions of such property uneconomic; however, there is a poor market for multi-storey property anyway.

* The technical problems of refurbishment are essentially those of uncertainty and the costs of delays caused by unforseen difficulties which arise during the work.

* Developers requiring long-term financial support are constrained by the financial institutions from undertaking refurbishment projects. Access to finance for development work is rarely a difficulty for manufacturing industry.

Appendix II

Summary Points: University of Cambridge Industrial Location Research Project

APPENDIX II

The industrial building stock in cities, and their inner areas in particular, is poorly suited to the needs of modern industry. The urban-rural contrast in the quality of the industrial building stock, which had previously not been documented, is considerable. Premises in cities are more likely to be old, multi-storey and to have less room for physical expansion than premises in small towns and rural areas. These differences are important since age of buildings, number of storeys and, in particular, the proportion of a site already occupied by buildings are significant influences on the growth or decline of employment in individual manufacturing establishments.

A consequence of the association between the growth of employment and the sorts of sites and premises occupied by firms is the emergence of a large contrast between employment change in cities and change in small towns and rural areas. In cities, growth is often thwarted by lack of room for expansion or impeded by inefficient buildings; in other areas the problems are much less widespread. Preliminary calculations indicate that roughly two-thirds of the urban-rural contrast in the growth of manufacturing establishments can be attributed to differences in the industrial building stock between cities, towns and rural areas.

This last conclusion is based on data for over a thousand factors in one region, the East Midlands. However, the East Midlands is a 'typical' region so far as the urban-rural shift is concerned, and there are few reasons why the conclusions should not also apply to other regions and to the country as a whole.

The policy implications are considerable. Since the quality of the industrial building stock can be improved only slowly and incrementally, because of the vast investment involved, there are likely to be few quick methods to raise the growth of city firms to the level achieved by their counterparts in small towns and rural areas. Especially during an upturn in the economy, the lack of room for physical expansion in cities can be expected to hold back the growth of firms and widen urban-rural disparities again. On the other hand, central and local government should at least take heart that the supply of land and buildings for industry is not something entirely outside their control.

Appendix III

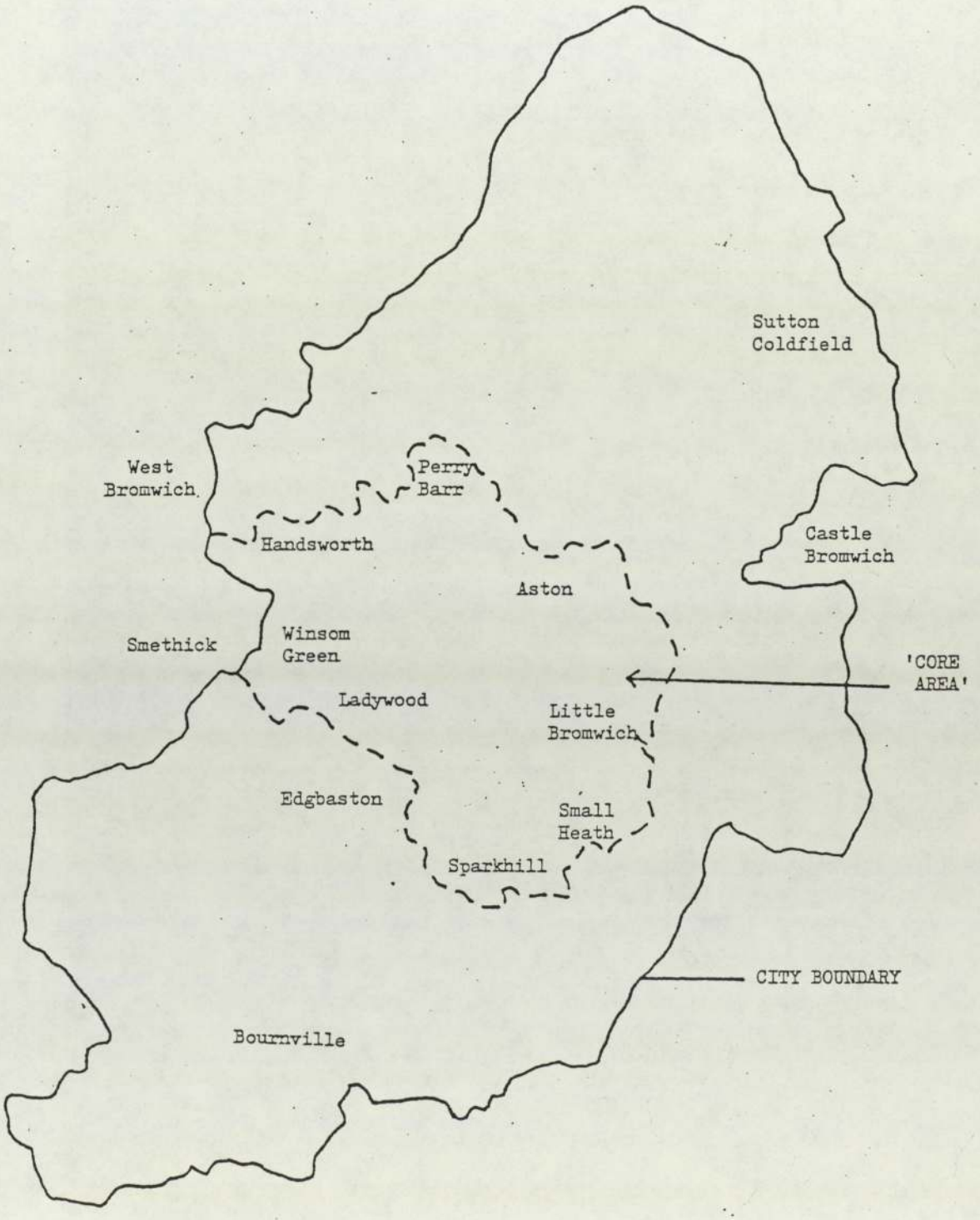
Economic/Employment Profile of West Midlands and Birmingham Study Area

	West Midlands	UK
Area (hectares)	1.301m	24.41m
Total agricultural area	75.3%	72.7%
Population (1981)	5.1m	54.3m (GB)
Change 1971-81	+0.76%	+0.57%
Projection (1991)	5.2m	55.5m (GB)
Stock of dwellings (1981)	1.8m	19.5m (GB)
Local-authority owned	32.2%	31.2% (GB)
Average house price (1st quarter 1983)	£21,622	£24,972
Households with car (1981)	62.1%	60.5% (GB)
Unemployment (May 1983)	15.7%	12.8%
Commercial and industrial floorspace stock (April 1982)		England
Total (excl open storage) sq. ft	679.2	5,083.9
Commercial offices	5.5%	9.6%
Shops and restaurants	10.5%	13.6%
Shops with living accommodation	1.6%	2.2%
Warehouses	20.6%	25.4%
Industrial	61.8%	49.2%

Rents for prime space, £ per sq. ft - Birmingham

	1979	1980	1981	1982	1983
Offices	3.50	5.50	5.50	6.00	6.25
Industrial	1.75	2.00	2.25	2.20	2.25
Shops (Zone A)	54	63	66	85	85

Appendix Figure 1: The 'Core Area' of Birmingham



Employment Structure of the Core Area, Birmingham District, W. Midlands Region and England & Wales.

Area/Industry Group	1951	1961	1966	1971	1975/76
1. CORE					1975
a) Manufacturing Inds.					40%
b) Services					55
c) Construction					
d) Other					5
2. BIRMINGHAM DISTRICT					1976
a) Manufacturing Inds.	58.8%	55.8%	52.2%	48.3%	42.3%
b) Services	36.5	38.1	41.2	46.3	52.2
c) Construction	4.4	5.4	6.2	5.4	5.5
d) Other	0.3	0.7	0.4		
3. PARTNERSHIP AREA					1976
a) Manufacturing Inds.				47.2%	40.8%
b) Services				47.2	53.8
c) Construction				5.6	5.4
d) Other					
4. W. MIDLANDS REGION					1976
a) Manufacturing Inds.	49.3%	49.9%	48.6%	50.0%	44.8%
b) Services	38.5	38.4	40.1	42.5	47.7
c) Construction	4.9	6.1	6.8	4.7	4.9
d) Other	7.3	5.6	4.5	2.8	2.6
5. ENGLAND & WALES					1975
a) Manufacturing Inds.	35.8%	36.5%	35.1%		33.5%
b) Services	49.3	50.0	51.7		56.5
c) Construction	6.3	6.8	7.7		8.3
d) Other	8.6	6.7	5.5		1.7

Sources :

1. Birmingham City. Birmingham Statistics. Vol.17. 1972-73.
2. Birmingham City. Birmingham Statistics. Vol.19. 1976-77.
3. Birmingham I.C.P. Position Statement No.1. Inner City Profile. 1978.
4. A Developing Strategy for the W.Midlands. 1st Annual Report 1975.
5. W.Midlands County Council. Annual Statistical Abstract 1977.

Employment 1971 - 76

Area/Authority (1)	Manufacturing (2)	Services (3)	Construction (4)	Other (5)	Total (6)
Birmingham Partnership Area					
Employment 1971	237024	237331	28288	303	502946
Employment 1976	183731	242342	24306	94	450473
Change in Employment 71 - 76	-53293	+5011	-3982	-209	-52473
Percentage change in employment 71-76	-22.5%	+2.1%	-14.1%	-69.0%	-10.4%
Birmingham District					
Employment 1971	294891	282846	32904	403	611044
Employment 1976	236113	291268	30365	198	557944
Change in Employment 71 - 76	-58778	+8422	-2539	-205	-53100
Percentage change in employment 71 - 76	-19.9%	+3.0%	-7.7%	-50.9%	-8.7%
West Midlands Region					
Change in Employment 71 - 76	-125200	+105700	+3300	-4300	-20600
Percentage change in Employment 71 - 76	-11.3%	+11.3%	+3.2%	-6.9%	-0.9%
Great Britain					
Percentage change in Employment 71 - 76	-10.0%	+10.4%	+3.8%	-11.8%	+1.8%

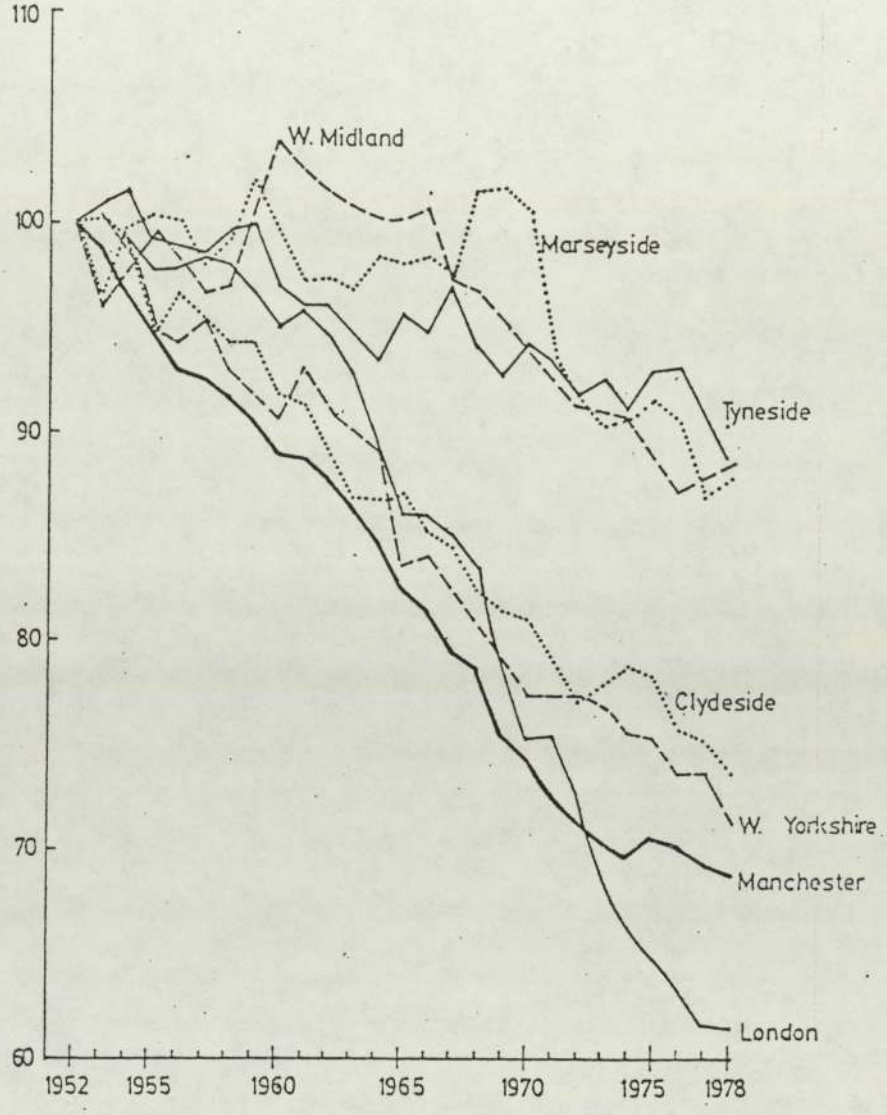
Notes

i) Sutton Coldfield is included in the Birmingham District figure for 1971

ii) Figures are for employees in employment.

Source : Birmingham I.C.P. (1978). Position Statement 1. Inner City Profile.

Appendix Fig. 2



Manufacturing employment in the conurbations relative to the United Kingdom 1952 - 78

1952 = 100

CH/68

EMPLOYMENT, WEST MIDLANDS COUNTY 1971-1981

SIC	Sector	1971	1981	Changes 1971 - 81	
				Structural Component	Local Growth Component
I	Agriculture	2.291	2,000	- 271	- 20
II	Mining & Quarrying	3,633	2,600	- 549	- 484
III	Food, Drink and Tobacco	31,259	19,600	- 4,814	- 6,845
IV,V	Chemicals, Coal, Oil Products	16,099	11,700	- 1,628	- 2,771
VI	Metal Manufacture	109,734	65,100	-38,682	- 5,952
VII,X	Mechanical & Marine Engineering	88,789	56,500	-22,586	- 9,703
VII	Instrument Engineering	4,442	4,500	- 844	+ 902
IX	Electrical Engineering	72,139	52,600	-11,398	- 8,141
XI	Vehicles	191,750	110,100	-51,578	- 30,072
XII	Metal Goods n.e.s.	155,646	100,000	-34,515	- 21,131
XIII	Textiles	6,012	3,900	- 2,753	+ 641
XIV	Leather & Fur	3,996	3,600	- 1,418	+ 1,022
XV	Clothing & Footwear	6,943	5,900	- 2,655	+ 1,612
XVI	Bricks, Pottery, Glass, Cement	11,178	6,400	- 3,281	- 1,497
XVII	Timber & Furniture	12,350	7,500	- 2,253	- 2,597
XVIII	Paper, Printing & Publishing	19,972	15,800	- 2,740	- 1,432
XIX	Other Manufacturing	29,093	18,000	- 7,139	- 3,954
XX	Construction	65,523	51,400	- 7,058	- 7,065
XII	Gas, Electricity & Water	19,064	16,500	- 1,578	- 986
XXII	Transport & Communications	64,753	55,600	- 5,273	- 3,880
XXIII	Distributive Trades	138,076	137,100	+ 8,803	- 9,779
XXIV	Insurance, Banking & Finance)	209,807	223,000	+55,779	- 42,586
XXV	Professional & Scientific)				
XXVI	Miscellaneous Services	81,081	108,600	+26,479	+ 1,040
XXVII	Public Admin. & Defence	50,855	74,300	+ 1,470	+ 21,975
	Total	1,394,485	1,152,300	-110,482	-131,703

Source : D.E. Census of Employment (1971) and W.M.C.C. (1981 estimate)

EMPLOYMENT PROJECTIONS, WEST MIDLANDS COUNTY, 1978-91

SIC	SECTOR	EMPLOYMENT (000's)				
		1978	1981	1982	1986	1991
I	Agriculture	2.1	2.0	2.0	1.8	1.6
II	Mining & Quarrying	2.9	2.6	2.5	2.3	2.2
III	Food, Drink and Tobacco	24.5	19.6	18.5	18.1	16.7
IV	Coal & Petroleum Products	0.5	0.2	0.2	0.1	0.1
V	Chemicals	14.4	11.5	11.1	10.8	10.3
VI	Metal Manufacture	95.8	65.1	60.8	54.3	39.9
VII	Mechanical Engineering	74.7	56.5	52.1	47.8	38.8
VIII	Instrument Engineering	4.9	4.5	4.4	4.9	5.6
IX	Electrical Engineering	67.2	52.6	50.3	48.2	42.9
X	Shipbuilding & Marine Eng.	0.2	-	-	-	-
XI	Vehicles	155.5	110.1	98.7	75.3	51.0
XII	Metal Goods n.e.s.	133.7	100.0	96.8	89.2	75.8
XIII	Textiles	5.3	3.9	3.8	3.7	3.4
XIV	Leather, Leather goods, etc.	4.1	5.6	3.6	3.4	3.0
XV	Clothing & Footwear	7.3	5.9	5.6	5.2	4.8
XVI	Bricks, Pottery, Glass, Cement	8.9	6.4	6.2	5.9	5.3
XVII	Timber & Furniture	10.3	7.5	7.2	7.5	7.3
XVIII	Paper, Printing & Publishing	18.1	15.8	15.6	14.1	11.8
XIX	Other Manuf. Industries	25.5	18.0	16.8	15.3	14.4
XX	Construction	60.5	51.4	50.2	55.0	61.1
XXI	Gas, Electricity & Water	17.4	16.5	16.5	16.2	15.4
XXII	Transport & Communications	58.5	55.6	55.3	53.1	52.2
XXIII	Distributive Trades	141.2	137.1	136.1	140.1	137.6
XXIV	Ins. Banking, Finance & Business	59.5	63.0	62.6	62.1	67.0
XXV	Professional & Scientific	164.0	160.0	137.6	136.1	142.1
XXVI	Miscellaneous Services	106.5	108.6	107.4	124.0	123.2
XXVII	Public Admin. & Defence	75.5	74.3	73.8	74.0	76.0
		1,339.0	1,152.3	1,095.7	1,068.5	1,009.5

Source : WMCC.

LABOUR SUPPLY FORECASTS[1] 1981-1991
WEST MIDLANDS COUNTY BASED ON NATIONAL ASSUMPTION

	1981	1986	1991
Males	777,475	776,011	764,661
Maried Females	314,511	318,262	325,164
Other Females	174,350	173,926	161,612
Total	1,266,336	1,268,199	1,251,437

Source : WMCC

VACANT INDUSTRIAL FLOORSPACE/LAND

(sq.ft/acres for sale/to let in Birmingham) Oct 1983

	Modern Premises single/2 storey likely to be disposed of when market picks up	Older Premises suitable for occupation/refurb likely to be disposed of when market picks up	Older Premises derelict/ for redevelopment	Good Quality Land	Poor Quality Land
	1	2	3	4	5
Under (5000 ft^2 floorspace (1 acre land	706,000	579,000	–	13.25	1.95
Over (5000 ft^2 floorspace (1 acre land	2,553,000	3,746,000	2,346,800 (45 acres)	66.30	4.50
Total (ft^2 floorspace (acres land	3,259,000	4,325,000	2,346,800	79.55	6.45

Notes

1. For purposes of survey "modern premises" includes factories/warehouses post circa 1960.
2. Generally in sound structural condition enjoying good access, location etc. demand for which is likely when market picks up either for premises in existing state or following refurbishment.
3. Premises generally unsuitable for occupation or refurbishment due to condition, outmoded form of construction, poor arrangement, access, servicing etc., where only feasible alternative is redevelopment.
4. Clearly identifiable land on the market in primary/secondary location with no major site problems, good access etc. and planning permission actual or likely.
5. Clearly identifiable land on the market where planning permission actual or likely but poor location, access, site problems, possibly useful only as open storage/yard.
6. Properties advertised for sale/to let are excluded from the above where they were still in fact occupied.

BREAKDOWN OF SPACE BETWEEN AREAS OF CITY

Area	Modern Premises			Older Suitable Premises			Older Derelict Premises			Good Quality Land			Poor Quality Land		
	5,000-	5000+	Total	5000-	5000+	Total	5000-	5000+	Total	1 acre-	1acre+	Total	1acre-	1acre+	Total
City Centre/Dibeth/ Deritend	69,000	306,000	375,000	108,000	575,000	683,000	-	-	-	-	-	-	0.5	-	0.5
Aston/Witton/New Town	141,000	258,000	399,000	79,000	613,000	692,000	-	1,232,000 (14 acres)	1,232,000 (14 acres)	2.25	7	9.25	0.2	-	0.2
Nechells/Saltley	100,000	285,000	385,000	27,000	160,000	187,000	-	50,000 (1 acre)	50,000 (1 acre)	1	14	15	-	-	-
Erdington/Gravelly Hill	22,000	136,000	158,000	6,000	25,000	31,000	-	-	-	-	8	8	-	-	-
Sutton/C.Bromwich/ Tyburn	9,000	430,000	439,000	3,000	66,000	69,000	-	525,000 (10 acres)	525,000 (10 acres)	3	10	13	-	-	-
Perry Barr/Great Barr	6,000	100,000	106,000	-	29,000	29,000	-	-	-	-	-	-	-	1.5	1.5
Handsworth/Lozells	10,000	12,000	22,000	19,000	16,000	35,000	-	-	-	1	-	1		-	-
Ladywood/Winson Green/ Lee Bank	23,000	76,000	99,000	31,000	175,000	206,000	-	-	-	-	-	-		3	3
Hockley	37,000	118,000	155,000	140,000	430,000	570,000	-	175,000 (4 acres)	175,000 (4 acres)	1	1	2	-	-	-
Bordesley/ Bordesley Green	121,000	49,000	170,000	16,000	214,000	230,000	-	100,000 (3 acres)	100,000 (3 acres)	0.5	5.7	6.3	-	-	-
Sparkbrook/Highgate	41,000	65,000	106,000	31,000	170,000	201,000	-	112,000 (2 acres)	112,000 (2 acres)	3.5	1.5	5	0.25	-	0.25
Small Heath/Tyseley	38,000	228,000	266,000	87,000	520,000	607,000	-	15,800 (3 acres)	15,800 (3 acres)	-	-	6.3	6.3	-	-
Yardley/Stechford/ Garretts Green	19,000	210,000	229,000	-	250,000	250,000	-	137,000 (8 acres)	137,000 (8 acres)	1	-	1	1	-	1
Acocks Gn./Hall Gn.	-	100,000	100,000	-	128,000	128,000	-	-	-	-	6	6	-	-	-
Selly Oak/Stirchley/ Kings Heath	22,000	42,000	64,000	22,000	250,000	272,000	-	-	-	-	2.5	2.5	-	-	-
Longbridge/ Kings Norton	48,000	138,000	186,000	10,000	125,000	135,000	-	-	-	-	4.3	4.3	-	-	-

WEST MIDLANDS
INDUSTRIAL FLOORSPACE 1971 – 1978

Appendix Fig. 3

Cartographic Services WMRO
Departments of the Environment & Transport

Appendix IV

Comparison of Suggested Forecasting Methodlogies and notes on Revealed Characteristics of Demand

COMPARISON OF METHODOLOGIES

The three methodologies as described are based therefore on previous trends, current activity in the poroperty makret and previous behaviour of firms respectively.

When used in practice there has been some discrepency between the results obtained. The most apparent one is that the floorspace projections indicate a nigh demand for warehousing which is not reflected in the results of the firms survey.

One apparent reason for this is that only a small proportion of all industrial firms are warehousing firms and the firms survey results are based on the average annual activity over a period of 10 years when the warehousing sector has considerably expanded. This apparent demand for warehousing can be substantiated from the results of a number of specific studies that have been carried out on new estates which indicate that a high proportion of new industrial floorspace is used for warehousing much of which originates from outside of the area.

Of the three methods devised the floorspace projections are on balance the more reliable.

The poor quality of the data available for the on-market property analysis allows simply a systematic indication of supply whilst the sample survey offers a new perspective on the origin of demand. However by far the greatest problem attaching to all three methodologies is their distinct lack of theoretical rigour.

To their credit they provide a quick and relatively cost effective means of indicating the extent and nature of demand and they compare favourably with the traditional methodologies. Nevertheless those factors that contribute to demand remain poorly understood. Further attention needs to be directed at the input to the supply side of the equation of redeveloped industrial land. The rate of renewal of industrial land has been extremely slow but with the current rate of technological and structural economic change coupled with those major plant closures the contribution of redeveloped land has become an important factor. The costs of redevelopment will however affect the extent to which it can accommodate demand and substitute for new industrial land.

It can also be argued that the general requirements of decreasing industrial densities of development can only be met by a sufficient supply of new land (inc. periphery) and therefore many older industrial areas should be renewed at

densities compatible with modern industrial production.

CHARACTERISTICS OF DEMAND

(i) SIZE OF UNITS

The data obtained from the firms surveys as well as detailing the extent of demand also gives as estimate of the size distribution of industrial units required for relocating firms. This has provided useful information with regard to the criticism levelled at the industrial development industry for its reluctance to provide small units and the implications this may have for the mobility and efficiency of small and new firms. The methodology provides a useful guide to local authorities and developers alike.

TABLE

The proportion of firms in each employment size group operating within units of different sizes.

EMPLOYMENT SIZE BAND	UNIT SIZES(FLOORSPACE IN SQ.FT.)				
	2500	2501-5000	5001-10000	10001-20000	<20000
1-10	62	24	11	3	-
11-25	12	24	41	23	2
26-50	5	10	27	29	29
51+	-	-	-	33	67

These proportions need to be adjusted according to the known propensities of firms in the different size groups to relocate or begin operations in order that the size requirements of units supplied can be estimated - calculate the proportion of firms that move or begin operations in each size category (employment) and multiply it by the figures in the table. Yet another adjustment will be necessary in the largest employment size group to take account of the greater propensity of small rather than larger groups in this size band to move.

Procedure:-

$$Pi = \sum_{i=1}^{4} Nij \; Yj$$

P_i = Proportion of all units required in size band i

N_{ij} = Proportion of all firms in employment size j and unit size band i (see TABLE)

Y_j = Proportion of all firms that move or begin operation that are in employment size band j

Method assumes that firms wishing to relocate will

occupy units of a smaller size distribution to that of all firms operating within each size band. Such an assumption makes no provision for additional space for expansion but it is reasonable because it is unlikely that firms moving to new property would wish to occupy much more space than they actually require and it is possible tht the advantages offered by new, well designed space will mean that additional space requirements will not be great.

INDICATIONS OF METHODOLOGY FROM JURUE STUDY

35% of all units required need to be less than 2500 s.f.
20% between 2501 - 5000 s.f.
20% between 5001 - 10000 s.f.
14% between 1000 - 20000 s.f.
10% greater than 20000 s.f. (= DEMAND)

Other work has shown that the actual provision of units (SUPPLY) was less biased towards the smaller end of the market than this analysis suggests should be the case.

Possible causes:

i) Preference of developers and financial institutions for larger units.

ii) Relatively volatile nature of demand at the larger

and smaller ends of the market.

iii) Marked bias towards provision of warehousing units on new estates.

(ii) TENURE PREFERENCE

Through the interview survey of firms an indication of both tenure and tenure preferences of existing firms can be obtained. From the J.U.R.U.E. surveys the freehold is the principal form of ownership and the preference. The larger the firm the more likely it is to be a freeholder.

(iii) TYPE OF ACTIVITY

The extent of demand for warehousing and manufacturing floorspace is revealed in the floorspace statistics. By comparing these proportions with those in other regions or throughout the country an indication can also be obtained of the actual and likely relative importance of the individual sector.

Detailed sectoral breakdowns are not possible unless large survey samples are achieved or it is assumed that movement and start up rates will be similar in each industrial sector (the IML data allows the population of

firms to be disaggregated by SIC).

(iv) ORIGIN OF ESTABLISHMENT

Again can be revealed from the firms survey particularly the scale of indigenous demand and the pattern of movement of firms. There is evidence of the strong preference for short distance moves the majority of which tend neither to concentration nor dispersal but are strongly determined by the location of the supply of industrial land and premises.

(v) ACCESSIBILITY TO SITES

Access to site and primary road network is critical in determining the preferred location of industrial sites and premises notably for warehousing and distributive users rather than manufacturers. "Proximity to a traditional area" (HAYWOOD 1979) can outweight the importance of access for manufacuturing users but not for warehousing where the traditional links have not been established.

Where industrial land is being considered then "ACCESSIBILITY" is most significant. Some of the surveys have revealed a difference in perspective

between developers and existing industrialists where the developers tend to view more critically the immediate access to potential sites than the industrialists do to the sites they operate on (Existing firms make do; new or transitional firms are working from first principles). It is likely that firms will be encouraged to become aware of their transport and accessibility costs by the increasing costs of energy and moves towards customer account profitability.

Appendix V

Case Study Area I: Summary Findings and Detailed Site Analyses

ASSESSMENT OF SITES

Site 1

The site contains a single storey factory warehouse unit of approximately 4,300 sq. ft. (400 sq. m.) in poor condition together with a yard and semi-derelict outbuildings occupied by a scrap merchant and totalling approximately 6,250 sq. ft. (580 sq. m.). There are also two converted residential properties fronting the street and incorporating industrial/ office space totalling approximately 8,000 sq. ft. (750 sq. m.), including ground and first floor accommodation. An area of some 14,000 sq. ft. (1,300 sq. m.) containing derelict property completes the site.

The renewal option would involve the immediate site clearance and redevelopment of 10,320 sq. ft. (960 sq. m.) net single storey industrial/warehousing floorspace at approximately 40% site coverage.

The minimal action option assumes that a similar development would occur after five years.

The intangible benefits of the renewal option are:

(i) Improved access and amenity to others in the area by a reduction in on-street loading/unloading and turning, occurring in year 2.

(ii) A structure suitable for further expansion and integration with the redevelopment of site 3. To some extent the value of this would be incorporated in the EMV of the development.

Against these benefits must be set the unquantifiable costs of movement to the scrapyard and small firms in the converted residential property. However, it is likely that these firms will move at the end of their leases or that the benefits of moving to the individual companies would outway the costs.

The intangible and unquantifiable benefits and costs of the minimal action option are similar to those of the renewal option but they are deferred for five years and there are intangible costs associated with congestion and physical blight suffered in the interim.

Results

The results of the cost benefit analysis indicate that the New Present Value (NPV) of the renewal option is greater than the NPV of deferring the development for five years as in the minimal action option. The underuse of the site for that period, including the complete lack of use of the back land, therefore represents an opportunity cost of some £34,000 to the community during that time. Results are given in Tables below.

Financial Appraisal

From the local authorities' point of view the following cost and returns could be anticipated for either option:-

Acquisition Costs

Costs of existing occupied premises	£38,000	(based on estimated existing rental returns)
Costs of back land and derelict premises	£10,000	(based on site value £25,000 minus 30% fo lack of access and £5-8,000 demolition costs)
Interest on land and premises purchase price	£8,400	

Development Costs

Demolition costs (excluding derelict premises)	£10,000	
Building costs	£165,000	(At £15 p.s.f.)
Professional fees @ 13½%	£22,275	
Interest on development costs	£17,386	(Over half the development period at 17.5%)
	£270,936	

Expected Market Value

£2.25 p.s.f. @ 8% yield gives £290,250 for 10,320 sq. ft. net.

The initial return on capital is 8.5% which may be considered an acceptable return on capital employed by the local authority.

From the developer's point of view, however, this development would appear less attractive, the maximum profit margin is 7.1% assuming £15 p.s.f. building costs and prime rentals whereas a developer might expect closer to 20%.

Case Study One: Site One; Renewal Option.

Description of Benefits to be Quantified	Present Value Using Discount Rate of 5%	Year 0	1	2	3	4	5 - 15	Description of Non-Quantifiable Items Benefits
E.M.V. of Redevelopment at the end of Year 1	+276318		290250					Improved access and amenity to others in the area by a reduction in on-street loading/ unloading and turning, occuring in Year 2. A structure suitable for further expansion and integration with the redevelopment of adjacent site.
Enhanced Capitalised Value of Rates Payable	+158813		166820					
Total Discounted Benefits	+435131		457070					
Description of Costs	Discounted @ 5%	0	1	2	3	4	5 - 15	Costs
Current use value	+38000	38000						Costs of movement to the scrap yard and small firms in the converted residential property.
Current Rates Payable (Capitalised)	+32426	32426						
Building & Development Costs	+187275	187275						
Demolition Costs	+10000	10000						
Total Discounted Costs	+267701	267701						
Net Present Value	+167430							

Cast Study One; Site One; Minimal Action Option.

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8 - 15	Description of Non-Quantifiable Items Benefits
Benefit of Occupation until Renewal in Year 6:											Improved access and amenity to others in the area by a reduction in on-street loading/ unloading and turning, occuring in Year 7.
C.U.V.	+38000	28000									
Value in Year 5 assuming 1% p.a. depreciation rate	-28266						-36100				
Benefit of Rates Payable until Renewal	+7418		1713	1713	1713	1713	1713				
E.M.U. of Redevelopment	+216527							290250			
Enhanced Value of Capitalised Rates	+124448							166820			
Total Discounted Benefits	+358127	28000	1713	1713	1713	1713	-34387	457070			
Description of Costs	Discounted @ 5%	0	1	2	3	4	5	6	7	8 - 15	Costs
C.U.V.	+38000	38000									Costs of movement to the scrap yard and small firms in the converted residential property.
Current Rates Payable (Capitalised)	+32426	32426									
Building + Developing Costs	+146824						187275				
Demolition Costs	+7840						10000				
Total Discounted Costs	+224892	70426					197275				
Net Present Value	+133234										

Site 4

Site 4 is a large, 1.1 acre (0.46 ha) triangular shaped site occupying a dominating position in the case study area. The premises total 50,000 sq.ft. (4,646 sq.m.) and completely cover the site; they are a mixture of modern single storey bays and pre-first world war buildings including first floor office space. The entire premises are occupied by an engineering company specialising in the batch production of a number of metal components. The buildings are in poor condition and require considerable repair of refurbishment. The roof in particular is in need of immediate attention. Despite the nature of the site and buildings the firm operates reasonably efficiently and profitably within the premises and has considered, but decided against, moving within the last few years.

The renewal option involves the short term repair and maintenance of the building to be carried out during year 2 at a cost of ₤40,000. Occupation of the premises will continue until redevelopment of the site, the firm's departure beginning in year 5. Redevelopment would coincide with a road closure to allow additional space for parking and access,

The minimal action option owuld involve substantial refurbishment of the building undertaken over the next three years at a total cost of ₤200,000 and the premises' continued use by the current occupier for the foreseeable future.

The intangible benefits of the renewal option are mainly in the improved access it would offer for firms in the area; the unquantifiable costs include the costs of disturbance to the major firm.

The minimal action option will offer intangible benefits to the occupying firm in the form of improved working conditions but would, given the intensity of use of the premises, probably involve some disruption of production whilst the work is being undertaken. There will be the continued costs of congestion and the awkward shape of the site.

Results

The results of the cost/benefit appraisal shown in Table below (a) and (b) indicate that in the minimal action option, given the expected market rents of the refurbished property there are no net benefits associated with the major costs (approximately ₤4 per sq.ft.) involved. The renewal option does offer net benefits although because of the small profit margin (3.6%) that might reasonably be expected, the redevelopment is unlikely to be attractive to a developer.

Financial Appraisal

Clearly in cost benefit terms the "minimal action" option is unsatisfactory. However from the company's point of view the investment may be considered worthwhile. The firm is successful and profitable and it must assess the inconveniences of continuing to operate on the site against all the costs of relocation. It is likely that the company's short term profitability would suffer as a consequence of any move and its overall space requirements would increase. The financial appraisal from the firm's point of view would probably resemble that below (figures are given for illustration only).

3 acre site @ £85,000 per acre in equivalent central location	£255,000
Equivalent floorspace 50,000 sq.ft. @ £15 per sq.ft.	£750,000
Plus Relocation costs, moving machinery etc.,	
Loss of production, hard to estimate	
Approximate total investment, say	£1,200,000

Benefits of Relocation:

Site value of or;ginal site (current use value)	£207,675
Improvements in efficiency (unlikely to be great for this particular firm)	

NET COSTS OF RELOCATION (Approximately)	£1,000,000

If finance were paid back over five years at 18½% interest approximately £380,000 per year would have to be found and it is likely that this would be viewed as quite unacceptable. However, the rental equivalent on new property would be a maximum of £112,500 per annum which would be sustainable by the firm which would have to judge whether or not savings in efficiency and other benefits of operating in modern conditions could offset this cost.

It is unlikely that the acquisition at current use value and redevelopment of the site along the lines suggested in the renewal option owuld be attractive to a developer as the profit margin is very low but the option may be attractive to a local authority especially as the intangible benefits of redevelopment are so considerable. However, due to the high interest charges and the long development period envisaged the development may show an initial loss and a lower return on capital employed as shown in Table

Table

Cost and Returns on Redevelopment of Site 4 from the Point of View of a Development Agency

	One Year Development Period £	Two Year Development Period £
Costs of Acquisition		
Cost of building	195,214	
Interest Charge on Premises Costs	34,162	68,324
Costs of Development		
Interest Charges on Development Costs	58,226	116,452
Costs of Demolition	18,500	
Costs of Construction @15 per sq.ft.	570,000	
Fees @ 13½%	76,950	
Total Costs	953,052	1,045,440
Value of Redevelopment		
EMV after redevelopment 34,450 sq.ft. net @ £2.25	986,906	
Capital profit	33,854	-58,534
Initial return on total costs	3.6%	5.6%

Because of high interest rates the development is only satisfactory for the shorter development period.

Case Study One; Site Four; Renewal Option.

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7 - 15	Description of Non-Quantifiable Items Benefits
Benefit of occupation until completion of interim improvements @ end of Yr.2:										Improved access to surrounding firms after redevelopment
C.U.V.	207675	207675								
Value @ end Yr.2 ignoring improvements & assuming a 1% p.a. depreciation rate	-184594			-203522						
Benefit of occupation until Renewal @ end of Yr. 4:										
Improved va-ue as at end of Yr. 2	+202851			223650						
Value @ end of Yr. 4	-180383					-219177				
Rates payable	+62275		17562	17562	17562	17562				
E.M.V. of Redevelopment	+736232							986906		
Enhanced Value of Rates	+457642							613461		
Benefit of improvements to Owner occupier										
Value of works	+41178			45400						
Increase in market value	-14489			-15975						
Total Discounted Benefits	+1328387	207675	17562	67115	17562	-201615		1600367		

Description of Costs	Discounted @ 5%	Year 0	1	2	3	4	5 - 15	Costs
C.U.V.	+207675	207675						Disruption during improvement
Current Rates (Capitalised)	+332436	332436						
Improvement Costs	+43221		45400					Relocation costs to firm
Building and Development	+532440					646950		
Demolition Costs	+15226					18500		
Total Discounted Costs	+1130998	540111	45400			665450		
Net Present Value	+197389							

Case Study One; Site Four; Minimal Action Option.

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5 - 15	Description of Non-Quantifiable Items Benefits
Benefit of occupation during works until completion at end of Year 3								Improved working conditions
C.U.V.	+207675							
Value @ end of Yr. 2 in improved state	-184594			-203522				
Rates payable	+36648		17562	17562				
E.M.V. of refurbished unit	+220838				255600			
Enhanced rates	+348771				403670			
Benefit of refurb. to owner occupier	+206090							
value of works	+206090		76045	76045	74910			
Increase in rates benefit	-61546				-71234			
Increase in market value	-41407				-47925			
Total Discounted Benefits	+732475	0	1	2	3	4	5 - 15	Costs
Description of Costs	Discounted @ 5%	0	1	2	3	4	5 - 15	Costs
C.U.V.	+207675	207675						Disruption of production during improvement
Current rates (Capitalised)	+332436	332436						
Costs of refurbishment	+206090		76045	76045	74910			Continuing congestion and access difficulties for surrounding firms
Total Discounted Costs	+746201	540111	76045	76045	74910			
Net Present Value	-13726							

Site 7

Site 7 contains a large, predominantly single storey combination of units, totalling 30,000 sq.ft. (2,800 sq.m.) in separate ownership. All the premises are in reasonably good condition, although the layout is complex. The major part of the premises were purpose built for their current use and neither occupant anticipates any major investment in the foreseeable future.

The renewal option involves redevelopment in year 9 at lower density with no substantial investment up to that time.

The minimal action option involves no investment over and above maintenance.

The intangible benefits of renewal include improved access but are offset by the considerable disturbance costs likely.

There are some costs associated with the continuing requirements of the firm for on-street loading, unloading and parking but with the improvements in access associated with the renewal option on Site 4 these costs would be somewhat reduced.

Results

Clearly in the short term redevelopment is not viable or beneficial, however, if the major premises were to become vacant and their current use value to decline substantially been redevelopment would become a more viable proposition.

Case Study One; Site Seven; Minimal Action Option.

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5 - 15	Description of Non-Quantifiable Items Benefits
C.U.V.	+216000	216000						
Current rates (Capitalised)	+263493	263493						
Total Discounted Benefits	+479493	479493						
Description of Costs	Discounted @ 5%	0	1	2	3	4	5 - 15	Costs
C.U.V.	+216000	216000						Continuing on street loading, unloading and parking.
Current rates (Capitalised)	+263493	263493						
Total Discounted Costs	+479493	479493						
Net Present Value	ZERO							

Case Study One; Site Seven; Renewal Option.

Description to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8	9	10-15	Description of Non-Quantifiable Items Benefits
Benefit of occupation until renewal at end of Year 8													Improved access
C.U.V.	+216000	216000											
Value @ end of Year 8 assuming a 1% p.a. depreciation rate	-134533									-198720			
Rates payable till renewal	+89978		13920	13920	13920	13920	13920	13920	13920	13920			
E.M.V. of redevelopment	+249615										387000		
Enhanced rates	+126389										195952		
Total Discounted Benefits	+574450	216000	13920	13920	13920	13920	13920	13920	13920	-184800	582952		
Description of Costs	Discounted @ 5%	0	1	2	3	4	5	6	7	8	9	10-15	Costs
C.U.V.	+216000	216000											Disturbance costs to firms
Current rates (Capitalised)	+263493	263493											
Building & development	+169047									249700			
Demolition costs	+9817									14500			
Total Discounted Costs	+638356												
Net Present Value	-83906												

The Overall Costs and Benefits of the Renewal and Minimal Action Options

Table below indicates the total discounted costs and benefits of the two options for each site. Only on sites (1), (2) and (4) are the net benefits of the renewal options greater than those of the minimal action options, on the remaining sites the net present value of the minimal action option is greater than that of the renewal option. Overall the net benefits of the renewal option are ₤215,927 and the net costs of the minimal action option are ₤332,613. However, these totals could easily be adjusted by not including some sites or altering certain options. The following points have been illustrated in the above case study.

(i) Several sites are currently underused in the sense that the benefits of redevelopment outweigh the benefits of continued occupation in current use and the costs of redevelopment. The cost benefit appraisal of Sites (1), (2), and (4) all show that net benefits would accrue on redevelopment.

(ii) The postponing of renewal may result in an opportunity cost. This is illustrated in the analysis of Site (1).

(iii) Net benefits may not accrue as a result of refurbishment. The cost benefit appraisal of Site (4), (5) and (6) indicates examples of this where the costs of refurbishment and not reflected in the increased market value of the property and will only give benefits equal or above costs if undertaken by the owner occupier.

(iv) The attainment of a development integrated with other sites may for an individual site offer lower net tangible benefits than a more piecemeal development and retention of the existing premises. The appraisal of Site (3) gives an illustration of this.

The Overall Financial Appraisal

From a financial point of view a number of other points were illustrated in this case study:-

(i) Small occupied sites of the type described are unlikely to be markedly attractive to developers but they may offer low returns of investment and some profit when redeveloped. For example, Sites (1), (2), and (4).

(ii) Refurbishment of the occpuied buildings will only be seen as financially worthwhile to the occupying firm if there are benefits other than those reflected in the market value of the improved building. See for example the financial appraisal of Sites (4), (5) and (6).

(iii) Land assembly may be undertaken by the local authority to further development by reducing the financial costs to firms willing to develop, see for example Site (3).

Employment Appraisal

Overall if the renewal option was implemented in full assuming that the newly developed floorspace would be occupied at a density of one employee per 300 sq.ft. a decrease from 400 to 354 in the overall employment in the case study area could be anticipated. The anticipated changes in floorspace and level of employment are shown in Table below for each site. Interestingly, on each of the sites where the 'renewal option' offers net benefits greater than the minimal action option i.e. Sites (1), (2), and (4) an actual increase in employment may be anticipated. For the remaining four sites, particularly Sites (6) and (7), the loss of employment under the renewal option might be considerable largely because of the current high density of development.

General Appraisal

For sites (1), (2), (3) and (4), the renewal option offers net benefits; in the case of Site (3), the intangible benefits of an integrated development need to be offset against the reduced lettable floorspace that would result. The net costs of redeveloping site (5) are higher than the likely net costs of refurbishment and its renewal should await the deterioration of the building and hence a reduction in current use value. The awkward configuration of the site and the presence of the infill office development both augur against renewal in the present circumstances. However, the renewal of sites (1), (2), (3) and (4) might alter these circumstances by increasing the expected market value of any redevelopment value on site (5). Site (6) and (7) could also only be redeveloped at a net cost. Site (7) is best left alone, but the alternative costs of major refurbishment on site (6) would be considerable. It can be anticipated that the balance of advantage on site (6) may tip in favour of redevelopment in the long term. Because of the way the options have been developed in terms of a number of independent sites, themselves groups of curtilages, it is in fact possible to design any number of options based upon a mixture of renewal and minimal action on different sites. It seems clear that this is likely to happen, not only because of the cost benefit appraisals but also for reasons related to the practical problems of negotiation and timing.

The Overall Costs and Benefits of the Renewal and Minimal Action Options in a Highly Congested Industrial Area

	Site Number	Discounted Benefits	Discounted Costs	Net Present Value
Renewal Options	1	435,131	267,701	+167,430
	2	435,131	267,048	+168,083
	3	396,207	359,999	+36,208
	4	1,328,387	1,130,998	+196,389
	5	269,642	361,520	-91,878
	6	806,208	984,607	-178,399
	7	574,450	658,356	-83,906
Overall Net Present Value				+215,927
Minimal Action Option	1	258,126	224,892	+133,234
	2	402,546	249,878	+152,668
	3	427,025	324,326	+102,699
	4	732,475	746,201	-13,726
	5	339,644	349,192	-9,448
	6	876,277	909,090	-32,814
	7	479,493	479,493	-
Overall Net Present Value				+332,613

Employment Appraisal

Site	At Present		Under Renewal Option		Change	
	Total Occupied Floorspace Net (sq.ft.)	Current Employment	Total Occupied Floorspace Net (sq.ft.)	Predicted Employment	Floorspace Change	Employment Change
1	4,220	4	10,320	11-34	INC. 6,100 (+144.5%)	+7 to +30
2	7,400	15	10,320	11-34	INC. 2,920 (+39.5%)	-4 to +19
3	20,000	3	10,320	11-34	DEC. 9,680 (-48.4%)	+8 to +31
4	50,000	100	34,450	37-114	DEC. 15,550 (-31.3%)	-63 to +14
5	22,300	48	6,880	7-23	DEC. 15,420 (-69.1%)	-41 to -25
6	50,000	130	20,640	23-69	DEC. 29,360 (-58.7%)	-107 to -61
7	37,000	100	13,760	15-46	DEC. 23,240 (-62.8%)	-85 to -54
Total	190,920	400	106,690	354	DEC. 84,230 (-44.1%)	

N.B.

Average existing empolyment density 480 sq.ft./employee

1 Predicted employment density in new premises from one employee/900 sq.ft. to one employee/300 sq.ft.

Appendix VI

Case Study Area II: Summary Findings and Detailed Site Analyses

Site 3

Site three is a complex site accommodating approximately six separate companies. The premises are largely in poor condition (with the exception of those in one small section of the site) and require considerable repair and maintenance.

The renewal option entails the total demolition of all buildings on the site followed by the redevelopment of units at a lower density. It would take place during years 6 and 7 and would be completed and let by the end of year 7.

The improvement option involves a phased programme of refurbishment and redevelopment on infill sites taking place over a period of five years. For the purpose of this option the site has been divided into three areas (i), (ii) and (iii). Area (i) will be refurbished in years 1 and 2, area (ii) will be redeveloped in years 3 and 4, and the premises within area (iii) will be refurbished in year 5.

The minimal action option simply involves delaying the redevelopment described in the renewal option until year 15.

The intangible benefits of the renewal and minimal action option are similar but occur earlier in the renewal option. There would be considerable disruption however associated with the redevelopment of this site containing as it does 87450 sq.ft. and approximately 200 workers and there are obvious advantages to the land owners in awaiting the termination of leases before undertaking renewal work. The disruption costs of the improvement option are also likely to be considerable but less than those of renewal.

Results

Tables below indicate the results of the cost benefit appraisal. Clearly on the basis of the chosen assumptions only the minimal action option is, in cost benefit terms, viable. The main reasons for this are the assumptions that the market values of the occupied property will only decline by 1% per annum and the large decrease in the net lettable floorspace from the present 87450 sq.ft. to 34500 in the renewal and minimal action options and to 68764 sq.ft. in the improvement option. It would be unreasonable to anticipate any increase in the amount of new floorspace attainable on the site but it can be shown that if the value of the present property were to fall by 5% a year the renewal option would offer net benefits. This assumption would similarly affect the 'minimal action' option but its effect on the improvement option is more difficult to ascertain.

It would be unlikely in fact that the cost of improvement would in that case contribute a net increase in the market value of the occupied property. Without doubt introducing assumptions that anticipate more rapid reductions in the expected market values of older property will decrease the apparent viability of refurbishment options.

Financial Appraisal

There are no considerations on this site that have not been illustrated elsewhere. From the land owners' point of view given the intensity of occupation of the site and the outstanding leases which will expire within a few years of each other there is unlikely to be advantage in accelerating the process of renewal. Equally, given the current leasing arrangements there is little incentive on behalf of the occupying firms to invest in the premises.

Site 3

Renewal Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8-15	Description of Non-Quantifiable Items Benefits
Benefit of Occupation until Renewal											
C.U.V	+288905	288905									
Value at year 5 -	-215177						-274460				
Rate payable	+113961		26322				26322		89100		
E.M.V. of redevelopment	+633501										
Enhanced Rates	+302809								425892		
Total Discounted Benefits	+1124012										
Description of Costs	Discounted @5%	0	1	2	3	4	5	6	7	8-15	Costs
C.U.V.	+288905	288905									
Current rates	+425892	425892									Disruption to current occupiers
Buildings & development	+457223							612900			
Demolition Costs	+15680						20000				
Total Discounted Costs	+1187700										
Net Present Value	-63688										

Improvement Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8-15	Description of Non-Quantifiable Items Benefits
Phase (i) E.M.V. Part (1)	+56625			62431							
Rates	+89577			98762							
Benefit of Oaccupation:-											
C.U.V.	+42921	42921									
Value at end of Year 1. (unimproved)	-40521		-42492								
Rates Payable	+3725		3913								
E.M.V. Part (2)	+54447			60030							
Rates	+110249			121553							
Benefit of Occupation											
C.U.V.	+36019	36019									
Value	-33947		-35659								
Rates	+4585		4816								
Ben. of IMPS. to owner occupier. = cost of works minus of increase in market value and rates.	+17399										
Total Discounted Benefits	[Phase (i)] +341079										
Description of Costs	Discounted @5%	0	1	2	3	4	5	6	7	8-15	Costs
C.U.V.	+78939	78939									Disruption to current occupiers, but rather less than in Renewal option.
Rates	+165236	165236									
Refurb. Costs	+110432		116000								
Total Discounted Costs	Phase(i) +354607		116000								
Net Present Value											

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8-15	Description of Non-Quantifiable Items Benefits
Phase (ii)											
Benefit of Occupation:-											
C.U.V.	+70897	70897									
Value @ end of Year 2.	-63018			-69479							
Rates payable	+12361		6649	6649		290628					
E.M.V.	+239187					143106					
Total Discounted Benefits	+377203 [Phase(ii)]										
Description of Costs	Discounted @5%	0	1	2	3	4	5	6	7	8-15	Costs
Phase (ii) C.U.V.	+70897	70897									
Rates	+125851	125851									
Building Costs	+172838				200044						
Demolition Costs	+5896			6500							
Total Discounted Costs	+375482 [Phase(ii)]										
Net Present Value											

Site 3

Improvement Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8-15	Description of Non-Quantifiable Items Benefits
Phase (iii)											
Benefit of occupation until improvement in Year 5.											
C.U.V.	+139250	139250									
Value @ end of Year 4.	-110019					-133680					
Rates Payable	+30953					8729					
E.M.V.	+122836						156678				
Enhanced Rates	+133855						170733				
Benefit of Works to owner occupier.											
Value of Works	+25805						32915				
Increase in Rates	-4310						-5497				
Increase in Market Value	-13664						-17428				
Phase (i) b/f	+341079										
Phase (ii) b/f	+377203										
Total Discounted Benefits	+1042988										
Description of Costs	Discounted @5%	0	1	2	3	4	5	6	7	8-15	Costs
C.U.V.	+139250	139250									
Rates	+165236	165236									
Cost of Works	+27089					32915					
Phase (i) b/f	+354607										
Phase (ii) b/f	+375482										
Total Discounted Costs	+1061664										
Net Present Value	-18676										

Minimum Action Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2-10	11	12	13	14	15	16	Description of Non-Quantifiable Items Benefits
Benefit of Occupation Until Development											
C.U.V.	+288905	288905									
Value at end of Year 14	-125471							-248458			
Rates payable	+260561							26322			
E.M.V.	+408078									891000	
Enhanced Rates	+195059									425892	
Total Discounted Benefits	+1027132										
Description of Costs	Discounted @5%	0	1	2-10	11	12	13	14	15	16	Costs
C.U.V.	+288905	288905									Desruption as in Table 4.3(2) but occuring in Year 14.
Rates	+425892	425892									
Building Costs	+294805								612900		
Demolition Costs	+10100							20000			
Total Discounted Costs	+1019702										
Net Present Value	+7430										

Site 4

Site four is in single ownership though it contains several different units upon which a substantial amount of repair and refurbishment work is being undertaken. Within the site there is also a good size yard.

The renewal option involves the redevelopment of 9,500 sq. ft. on the site in year 7 and reoccupation in year 8 with no further work in the meantime.

The improvement option involves the completion of the refurbishment programme by the end of year 1 at an overall cost of £2 per sq. ft. adding approximately 5p per sq. ft. overall, to the rental value to be followed by an extension of 1,800 sq. ft. to be completed by the end of year 5.

The minimal action option is the same as the renewal option except that redevelopment is delayed until year 10.

As access arrangements are reasonable the only intangible benefits of renewal will be in the improved appearance of the premises. As the development fronts open space on the opposite side of which are housing developments these benefits may be considered highly valued. They are of course slightly delayed in the minimal action option. Disruption would however be at a minimum in the improvement option.

Results

The results of the cost benefit appraisal are shown in Tables

Each of the options show net costs due to an approximate halving of the available floorspace in the renewal and minimal action cases. However, the improvement/refurbishment option renders the smallest net costs. The magnitude of net costs in the renewal and minimal action options will decrease if it is assumed that the market value of the second hand property decreases more rapidly.

Financial Appraisal

The assumptions illustrated make each option financially unviable. The relatively small net costs associated with the renewal option suggest that without a more rapid decrease in the current use value of the property redevelopment is not financially viable.

Site 4

Renewal Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8-15	Description of Non-Quantifiable Items Benefits
Benefit of Occupation											
C.U.V.	+81600	81600									Improved appearance of the premises
Value @ end of YR.6	-57221							-76704			
Rates	+32080							6320			
E.M.V.	+182372								256500		
Enhanced Rates	+83385								117279		
Total Discounted Benefits	+322216										
Description of Costs	Discounted @5%	0	1	2	3	4	5	6	7	8-15	Costs
C.U.V.	+81600	81600									
Rates	+119636	119636									
Building Costs	+130181							174506			
Demolition	+5036							6750			
Total Discounted Costs	+336453										
Net Present Value	-14237										

Improvement Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8-15	Description of Non-Quantifiable Items Benefits
C.U.V.	+75600	75600									Minimum disruption
Enhanced M.V.	+5188		5450								
Enhanced Rates	+3159		3318								
Current Rates	+119636	119636									
Value of Extension	+14896						19000				
Enhanced Rates	+16061						20512				
Benefit of Occupation of Yard C.U.V.	+6000	6000									
Value @ end of YR.5	-4740						-5760				
Benefit of IMPS to owner occupiers Value of works	+34272		36000								
Increase in Rates	-3159		-3318								
Increase in M.V.	-5188		-5450								
Total Discounted Benefits	+261725										
Description of Costs	Discounted @5%	0	1	2	3	4	5	6	7	8-15	Costs
C.U.V.	+756000	756000									
Rates	+119636	119636									
Repairs and IMPS.	+36000	36000									
C.U.V. of Yard Extension works	+6000					36000					
Total Discounted Costs	+266864										
Net Present Value	-5120										

Minimum Action Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2-8	9	10	11	12	13	14-15	Description of Non-Quantifiable Items Benefits
Benefit of Occupation											
C.U.V.	+81600	81600									
Value at end of Year 9	-47895				-74256						
Rates until Renewal	+449351				6320						
E.M.V.	+157491					256500					
Rates	+72009					17279					
Total Discounted Benefits	+308140										
Description of Costs	Discounted @5%	0	1	2-8	9	10	11	12	13	14-15	Costs
C.U.V.	+81600	81600									Improved appearance of the premises
Rates	+119636	119636									
Building & Development Costs	+112556				174506				612900		
Demolition Costs	+4354				6750						
Total Discounted Costs	+318146										
Net Present Value	-10006										

Site 5

The site is owned by the single occupying enterprise. The buildings are of reasonably sound construction and little change is likely in the foreseeable future.

In the renewal option the site would not be redeveloped until year 15 when the current 20,000 sq.ft- premises would be replaced by 6,500 sq.ft.

In the improvement option some small extension work would be carried out in year 5 amounting to 10% of the existing floor-space, i.e. 2,000 sq.ft. with an estimated increase in the rental value of 5p per sq.ft. on the original premises.

In the minimal action option no investment over and above maintenance would be made.

The intangible benefits of redevelopment would not be great, the current access arrangements are satisfactory and the quality of the building reasonable. Increasing the later comprehensive renewal of the site. There are obviously no intangible costs and benefits associated with the minimal action option.

Results

The results of the cost benefit appraisal given in Tables below indicate that the renewal option offers net costs but the improvement option offers net benefits. Again the key assumptions are the rate of depreciation of the value of the occupied building and the low increase in value accredited to the expenditure on refurbishment. The former assumption reduces the viability of the option renewal and the latter the refurbishment options.

Financial Appraisal

The example illustrates no new points. However, it has been assumed that the occupying industrialist may wish to utilise his available space to extend his premises and is prepared to realise the cost even though this may not be reflected in an increase in market value. This is quite a common occurrence; building costs are high because of the small scale of development but the advantages of expanding without relocation are very considerable for the firm.

Indeed, it is this balance of advantage that accounts for much of the high intensity of site development typical of this and other case study areas. The paradox of accommodating this expansion is the likelihood that it may further inhibit future renewal.

Site 5

Renewal Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2-9	10	11	12	13	14	15	Description of Non-Quantifiable Items Benefits
Benefit of Occupation:-											
C.U.V.	+159400	159400							-137084		
Value at end of Year 14	-692271										
Rates until Year 14	+79459									3027	
E.M.V.	+84175									175000	
Enhanced Rates	+445359									92589	
Total Discounted Benefits	+298342										
Description of Costs	Discounted @5%	0	1	2-9	10	11	12	13	14	15	Costs
C.U.V.	+159400										
Rates	+151937										
Building & Demolition Costs	+61083								119175		
Demolition costs	+3788								7500		
Total Discounted Costs	+375307										
Net Present Value	-76966										

Improvement Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1-3	4	5	6-8	9	10	11-12	13-15	Description of Non-Quantifiable Items Benefits
C.U.V.	-159400	159400									
Rates	+151937	151937									
E.M.V. after extension	+154441				196991						
C.U.V. assuming 1% Depreciation rate	-118721				-151430						
Enhanced Rates	+17887				22815						
E.M.V. after Improvements in YR.10	+113160							184300			
C.U.V.	-88084							-143460			
Enhanced Rates	+5830							9496			
Ben. of Imps. to owner occupiers											
Value of Works	+27876							45400			
Increase in Rates	-5830							-9496			
Increase in M.V.	-15287							-24900			
Total Discounted Benefits	+402606										
Description of Costs	Discounted @5%	0	1-3	4	5	6-8	9	10	11-12	13-15	Costs
C.U.V.	+159400	159400									Inhibition of comprehensive renewal
Rates	+151937	151937									
Extension Costs Costs	+41101			49940			45400				
Improvement Costs	+29283										
Total Discounted Costs	+381721										
Net Present Value	+20885										

Minimum Action Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8-15	Description of Non-Quantifiable Items Benefits
C.U.V.	+159400	159600									
Rates	+151937	151937									
Total Discounted Benefits	+311337										
Description of Costs	Discounted @5%	0	1	2	3	4	5	6	7	8-15	Costs
C.U.V.	+159400	159400									
Rates	+151937	151937									
Total Discounted Costs	+311337										
Net Present Value	ZERO										

Site 6

Site 6 is an interesting example of a complex site containing four separate enterprises and areas of vacant land formerly occupied by slum housing. The occupied buildings are generally in reasonably good condition. They include purpose built single storey factory premises and a converted school but stand within awkwardly shaped curtilages. The site is bisected by a road and each option discussed below includes some alteration of the services and transport routes.

The renewal option involves the demolition and redevelopment of the site over a two-year period beginning at the end of year 4. This will include the closure of and development over a through road. 42,500 sq.ft. of floorspace would be built.

The improvement option involves the phased refurbishment and development of vacant sites. In year 1, one firm would relocate and the remaining vacant site developed on each side of the intersecting road which would become private. In year 2, a major refurbishment of an engineering works on the site at £4 per sq.ft. would occur to give an increase in rental value of 25p per sq.ft. In year 5 the further improvement of the remaining works at a similar price and return would be undertaken.

The minimal action option is simply the deferment of the renewal option until year 15.

The intangible benefits of the renewal option include the creation of a more rational site with larger modern units with regular layouts suitable for modern production. The intangible benefits of the minimal action option are similar but deferred. The improvement options offer a rapid utilisation of the vacant land and the minimal disruption to occupying firms but the maintenance of awkwardly shaped sites might inhibit future renewal.

Results

The results indicate that the improvement option offers the greatest net benefits. The amount of floorpsace is increased on the site and given the assumptions made, a reasonable return could be anticipated for the new development. The minimal action option also offers net benefits. The balance in favour of improvement would, however, disappear were the assumption about the steadily decreasing capital value of the older occupied property to change.

Financial Appraisal

The improvement option is unlikely as the land owners would prefer to redevelop at the expiry of the outstanding leases rather than undertake in-fill development and inherit the older buildings and awkwardly shaped sites. The parcels of land available under this option are also unlikely to be attractive to the industrial development industry because of their shape. Refurbishment is not attractive to the developer for similar reasons, nor for the industrialist with a limited period to run on his lease and where he is aware of the land owners intentions. The only question therefore that really presents itself is whether or not renewal should be brought forward. There will be financial costs to those involved in assembling the land and disturbance costs to the firms that relocate. Some of these would occur at the end of the leases in any circumstances. An awareness of the firms' intentions might in this example assist an earlier renewal.

Many of the costs of services involved in the renewal and minimal action option would accrue to the developing agency. The proposed configuration of the new road layout minimises the costs of alteration and rerouting of services although the divestment and management of the road by developers does create a number of problems which are likely to tend to increase costs. The main costs are the renewal of services beneath the closed road and some rerouting of electricity supplies at an estimated cost of ₤7,500 together with improvements to the existing sewerage system at a cost of ₤7,500. These costs may be directly off-set against the additional space accruing in the redevelopment option as a result of building over part of the road.

Site 6

Renewal Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8-15	Description of Non-Quantifiable Items Benefits
Benefit of Occupation:-											
C.U.V.	+278648	278648									
Value @ end of YR.4.	-220154					-267502					
Rates until renewal	+83572					23568					
E.M.V.	+856035							1147500			
Enhanced Rates	+391370							524625			
Total Discounted Benefits	+1330947										
Description of Costs	Discounted @5%	0	1	2	3	4	5	6	7	8-15	Costs
C.U.V.	+278748	278748									
Rates	+446121	445121									
Building & Development Cost	+613990						783150				
Demolition Costs	+20575					25000					
Alteration of Services	+12345					15000					
Total Discounted Costs	+1370995										
Net Present Value	-40048										

Improvement Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8-15	Description of Non-Quantifiable Items Benefits
Phase (i)											
E.M.V. after renewal	+571920		600756								
Enhanced Rates	+281601		295799								
Phase (ii)											
C.U.V.	+94813	94813									
Value of Improvements	+39240			43263							
Rates payable	+145216	145216									
Value of Enhanced Rates	+35922			39605							
Benefit of Imps. to owner occupiers			126212								
Value of works	+120154			-39605							
Increase in Rates	-35922			-43263							
Increase in M.V.	-39240										
Phase (iii)											
C.U.V.	+130221	130221									
Value of Imps.	+46488						59296				
Rates	+199422										
Value of Enhanced Rates	+39112										
Beb.of imps.to owner occ	+130775					158900					
cost inc. in Rates	-30664						-39112				
inc. in M.V.	-36415						-46448				
C.U.V. retained bldg.	+37206	37206									
Rates	+85467	85467									
Total Discounted Benefits	+1815316										

Description of Costs	Discounted @5%	0	1	2	3	4	5	6	7	8-15	Costs
Phase (i) C.U.V.	+16508	16508									
Rates	+26117	26117									
Building Costs	+408600	408600									
Demo. costs	+2000	+2000									
Phase (ii) C.U.V.	+94813	94813									
Rates	+145216	145216									
Imp. costs	+120154		126212								
Phase (iii) C.U.V.	+130221	130221									
Rates	+199422	199422									
Imp. Costs	+130775					158900					
C.U.V. Retained Bldg.	+37206										
Rates	+85467										
Total Discounted Costs	+1396499										
Net Present Value	+418817										

Minimum Action Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2 - 12	13	14	15	Description of Non-Quantifiable Items Benefits
C.U.V.	+278748	278748						
Value @ end of Year 14	-121060					-239723		
Rates until renewal	+233300					28568		
E.M.V.	+525555							1147500
Enhanced rates	+240278							524625
Total Discounted Benefits	+1156821							
Description of Costs	Description @ 5%	0	1	2 - 12	13	14	15	Costs
C.U.V.	+278748	278748						
Rates	+446121	446121					783150	
Building costs	+376695					25000		
Services	+7575					15000		
Total Discounted Costs	+1121764							
Net Present Value	+35057							

Site 7

This site is fairly large and contains several operators, offering scope for immediate redevelopment at its western end. The premises are a mixture of semi-derelict and post-second world war infill and the occupants include a short term tenant at one end of the site occupying land on a temporary basis. For the following discussion it has been divided into an eastern and western plot.

The renewal option involves the immediate renewal of one portion of the site with 8,750 sq.ft. of new floorspace and the redevelopment of the other portion of the site with 16,375 sq.ft. after a further 6 years.

The improvement option involves a smaller development of 5,400 sq.ft. on the unused portion of the site and the improvement in year 6 of the remaining buildings at £3 per sq.ft. to give an estimated increase in rental value of 20p per sq.ft. overall.

The minimal action option is similar to the renewal option but deferred until year 15, though demolition of part of site will occur at the end of year 4 due to continued deterioration of the structure. The van hire firm operating on the vacant site on the corner can also be assumed to remain.

The intangible benefits of the renewal and minimal action option are similar but occur earlier in the former. They include a more rational site layout and improved appearance. The renewal option would however involve greater disruption to existing firms. The improvement option offers less intangible benefits but would allow the continued occupation of the site.

Results

The results of the cost benefit appraisal indicate that the renewal option offers the greatest net tangible benefits. The minimal action option also offers net tangible benefits greater than the improvement option. An important result of this appraisal is that the immediate development of part of the site need not inhibit future renewal. Results of the cost benefit appraisal are given in Tables below.

Site 7

Renewal Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2-6	7	8	9	10	11-13	14-15	Description of Non-Quantifiable Items Benefits
E.M.V. of Redevelopment on West of site	+224916		236256								Improved appearance
Rates	+110760		116345								Rational layout
Benefit of occupation until YR.7	+449351				6320						
C.U.V.	+107957	107957									
Value and end of YR.7	-71384				-100400						
Rates Payable	+48759				8427						
E.M.V.	+300205					442128					
Enhanced Rates	+137237					202116					
Total Discounted Benefits	+857163										
Description of Costs	Discounted @5%	0	1	2-6	7	8	9	10	11-13	14-15	Costs
C.U.V. (West)	+29639	29639									Disruption to existing firms
Rates	+20892	20892									
Building Costs	+161736	161736									
Demolition	+1500	1500									
C.U.V. (East)	+107957	107957									
Rates	+159552	159552									
Building Costs	+217886				306450						
Demolition Costs	+7107				10000						
Total Discounted Costs	+706242										
Net Present Value	+150921										

Improvement Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5	6	7	8-15	Description of Non-Quantifiable Items Benefits
E.M.V.	+138802		145800								Continued occupation of the site
Rates	+73228		76920								
Benefit of Occupation:-											
C.U.V.	+107957	107957									
Value at end of YR.5	-80406						-102559				
Rates	+36489						8427				
E.M.V. of Improved Bldg	+107381							143942			
Enhanced Rates	+138837							186108			
Ben. of Imps. to owner occupiers											
Value of works	+74747						95340				
Inc. in Rates	-19883							-26586			
Inc. in M.V.	-26845							-35985			
Total Discounted Benefits	+550357										
Description of Costs	Discounted @5%	0	1	2	3	4	5	6	7	8-15	Costs
C.U.V. (West)	+29639	29639									
Rates	+20892	20892									
Building Costs	+102150	102150									
Demolition Costs	+1500	1500									
C.U.V. (East)	+107957	107957									
Rates	+159522	159522									
Improvement Costs	+74747						95340				
Total Discounted Costs											
Net Present Value	+53950										

Site 7

Minimum Action Option

Description of Benefits to be Quantified	Present Value using Discount Rate of 5%	Year 0	1	2	3	4	5 - 13	14	15	Description of Non-Quantifiable Quantifiable Items (Benefits)
E.M.V. of renewal	+326303								678384	
Rates	+153180								318461	
Benefit of occupation										
C.U.V.	+107975	107975								
Value @ end of Year 14	-40886							-92843		
Rates	+83419		8427							
Ben. of occupation									-17200	
C.U.V.	+20000	20000								
Value at end of Year 14	-8686									
Ben. of occupation										
C.U.V.	+9639	9639								
Value @ end of Year 14	-7618					-9253				
Rates	+3915		1104							
Total Discounted Benefits	+641224									

Description of Costs	Discounted @5%	0	1	2-3	4	5	6	7-13	14	15	Costs
C.U.V.(East)	+29639	29639									
Rates	+20892	208922									
Building Costs	+81677										
Demolition Costs	+1235				1500				161737		
C.U.V.(West)	+107975	107975									
Rates	+159522	159522									
Building Cost	+154757								306450		
Demolition Cost	+5050								10000		
Total Discounted Costs	+560729										
Net Present Value	+80495										

THE OVERALL COSTS AND BENEFITS OF THE RENEWAL, IMPROVEMENT AND MINIMAL ACTION OPTIONS

Table below indicates the total discounted tangible costs and benefits for the three options for each of the eight sites. In sites (1), (7) and (8) the net benefits of the renewal option are positive and greater than for the alternative options. Only on sites (5) and (6) are the net benefits of the improvement and infill option greater than either the renewal or minimal action option, but on site (4) the net costs of the improvement option are less than the alternative. On the remaining sites (2) and (3) the net benefits of the minimal action options are greater than the alternatives.

Overall the net benefits of the improvement options combined outweigh those of the combined alternatives. However, the net benefits of the combined improvement options derive almost entirely from the infill developments on site 6. The individual site studies have also illustrated a number of points particularly those concerned with the viability of the refurbishment of older property.

(i) Refurbishment of older property, particularly that built before the first world war and that of multi-storey construction is costly and the investment will not be reflected in an appropriate increase in market values. See for example sites (2), (3), (4), (5), (7) and (8).

(ii) The net benefits of renewal are in many cases marginal, unless it is assumed that the capital value of older property (without major improvements) decrease in real terms at greater rate than 1% per assum over time. See sites (2) and (3) for examples of this.

(iii) Varying assumptions about the rate of decrease of market values of older property will have implications for the cost and benefits of the timing of renewal.

(iv) In some instances the prima facie tangible net benefits of infill and limited improvement will be greater than those of renewal but they will involve the perpetuation of an irregular and awkward road network (see particularly site (6) for an example of this).

(v) Delaying the renewal of some of the sites will represent an opportunity cost.

THE OVERALL FINANCIAL APPRAISAL

A number of points have been illustrated in this case study:-

(i) Refurbishment is unlikely to be an attractive and financially sensible option for firms leasing property nor for the land owners.

(ii) Due to the difficulties of renegotiating leases the most opportune plan for the land owners is to delay renewal until termination of all the leases and redevelop comprehensively.

EMPLOYMENT APPRAISAL

Table below indicates the present floorspace and employment and the likely impacts on them of the renewal and improvement options. Despite the apparent number of vacant sites within the case study area the decline in floorspace in the renewal option is considerable, in fact very similar in percentage terms to that which would occur as a result of the renewal option in the previous case study. Given the assumption about the anticipated employment density the impact of the number of jobs in the area would be less marked, a loss of between 17 and 73 per cent would be likely. This is, of course, a net loss in the case study area, firms that move from the area will take jobs with them and the improved operating conditions associated with the renewal option might increase the long term security of employment in the area. In the improvement option, superflicially at least, the impact on both floorspace and employment appears attractive. There would be a net increase of 4.5% in available floorspace and assuming that present densities are retained in the older floorspace and the new additions contain one worker per 300 sq.ft. an increase of 11.4% in jobs within the case study area could be anticipated. The minimal action option obviously has similar long term implications for the floorspace and employment within the case study area as does the renewal option.

GENERAL APPRAISAL

For sites (1), (7) and (8) the renewal option offers net benefits greater than for the alternative options of improvement or minimal action. The over-all impact on employment on these four sites is unlikely to be great and the acceleration of renewal appears feasible. For site (2) there is little advantage in bringing forward renewal except possibly in the older part of the site. None of the options considered for site (3) offer net benefits, the complex nature of the site and high level of employment within it both augur against bringing forward renewal, however changes in the assumption about the

current use value of the premises declining at only 1% per annum would affect the cost benefit appraisal significantly. The appraisal of site (5) showed no advantage to be gained in terms of market values by expenditure on the improvement of the substantial premises to provide some expansion and infill development. However, the occupying firm may still consider the undertaking of the work worthwhile. Site (6) is interesting; it is the only example in either case study where the renewal option has proposed the closure and development over a road. The cost benefit appraisal of this site indicate that both minimal action and improvement options offered net benefits greater than those in the renewal option. However, the assumption about the slow decline of current use values augured in favour of the improvement option.

Employment Appraisal

Site	EXISTING Net Floor-space sq.ft.	EXISTING Number of Employees	RENEWAL OPTION Net Floor-space sq.ft.	RENEWAL OPTION Predicted Number of Employees	PERCENTAGE CHANGE Floor-space	PERCENTAGE CHANGE Employment
Site 1	-	-	9,000	10-10	-	-
Site 2	33,500	103	19,266	21-64	-42.6	-80 to -38.0
Site 3	87,450	197	34,500	38-115	-60.5	-81 to -42.0
Site 4	18,000	50	9,500	10-31	-47.2	-80 to 38.0
Site 5	20,000	50	6,500	7-21	-67.5	-86 to 58.0
Site 6	78,300	140	42,500	47-141	-45.7	-66 to +1.0
Site 7	32,000	114	25,125	28-83	-21.5	-75 to -27.0
Site 8	40,000	35	25,000	28-83	-37.5	-20 to +237.0
TOTAL	309,250	689	171,391	189-568	-44.6	-73 to -17.6

Site	EXISTING Net Floor-space sq.ft.	EXISTING Number of Employees	IMPROVEMENT OPTION Net Florospace sq.ft. Retained	Net Florospace sq.ft. New Development	Net Florospace sq.ft. Total	Predicted of Employees	PERCENTAGE CHANGE Floor-space	PERCENTAGE CHANGE Employment
Site 1	-	-	-	9,000	9,000	10-10		-
	33,500	103	25,000	7,000	32,000	85-100	-4.5	-17 to -3.0
	87,450	197	58,000	10,764	68,764	141-165	-21.4	-28 to -16.0
	18,000	50	18,000	1,800	19,800	52-56	+10.0	+4 to +12.0
	20,000	50	20,000	2,000	22,000	52-56	+10.0	+4 to +12.0
	78,300	140	75,800	22,250	98,050	160-209	+25.2	+14 to 49.0
	32,000	114	28,000	5,400	33,400	105-117	+4.4	+8 to 3.0
	40,000	35	40,000	-	40,000	35	-	-
TOTAL	309,250	689	264,800	58,214	323,014	640-768[1]	+4.5	11.5

Average Existing Density at Present = 448 sq.ft./employee

1 Assuming a range of employment density from one employee/300 sq.ft. to one employee/900 sq.ft. in the new floorspace and a similar employment density in the retained floorspace to that present

The Overall Costs and Benefits of the Options in Case Study II

	Sites	Benefits	Costs	N.P.V.
Renewal Option	1	337,110	168,548	168,563
	2	550,607	533,257	17,350
	3	1,124,012	1,187,700	-63,688
	4	322,216	336,453	-14,237
	5	298,342	375,307	-76,966
	6	1,330,947	1,370,995	-40,048
	7	857,163	706,242	150,921
	8	816,942	665,702	151,240
Total Net Present Value				293,134
Improvement Option	1	-	-	-
	2	532,770	509,539	23,231
	3	+1,042,988	+1,061,664	-18,676
	4	261,725	266,864	-5,120
	5	402,606	381,721	20,885
	6	1,815,316	1,396,499	418,817
	7	550,357	496,407	53,950
	8	524,834	537,859	-13,025
Total Net Present Value				480,062
Minimal Action Option	1	217,422	108,714	108,708
	2	478,703	445,147	33,556
	3	1,027,132	1,019,762	7,430
	4	308,140	318,146	-10,006
	5	311,337	311,337	
	6	1,156,821	1,121,764	35,057
	7	641,224	560,729	80,495
	8	+631,953	+525,596	106,358
Total Net Present Value				221,910

Appendix VII

A Compulsory Alternative: Case Study

PRINCIPLES

There are three basic principles that mainly apply to the financial arrangements for these partnership projects :

i) All costs of infrastructure works and facilities required to improve the land should be charged to the project. The principle being that it is the works that enhance the overall value of the land and therefore all costs incurred should be drawn from the increased market value.

ii) Each landowner's interest in the project should be based on the assessed site value of the land taken into the scheme. In schemes that have been implemented in the above areas this assessment of market value of each landholding excludes the value of the premises thereon because the landowner receives the site with premises on it after the resubdivision. Alternatively the landowner is paid compensation for the building(s) should it(they) need to be demolished and that compensation is in turn charged as a cost to the project.

iii) Generally speaking any cash surplus accruing after recovery of all costs would be passed back to the landowners rather than shared between the local authority and the landowners.

These then are the basic principles as applied to the

existing schemes of land re-adjustment in the countries in which they are operative. Diagramatic representation of the scheme is presented in Figures.

In Western Australia these principles are usually applied to "land pooling" projects through a mechanism termed the "owners' value ratio" . Essentially what happens is that the market values of the landholdings in the scheme are assessed as at the date of the Local Authority resolution to prepare the pooling scheme. The market values of all serviced building sites are then estimated as at the date of completion of the project together with the costs of infrastructure and interest etc. cost. The total costs are then subtracted from the total value of the building sites to estimate the total net after value of the land. This can then be expressed as a ratio of the total opening land value and termed the estimated owners' value ratio. This ratio shows the estimated net land value gain for the landowners from the project. The Local Authority then uses this ratio to guide its allocation of serviced sites to the original landowners and to estimate the amount of cash adjustment payable to/by each landowner. It can then identify those serviced sites it will retain and sell to recover its outlay and costs. A final account is then undertaken upon completion and disposal of the necessary units and any cash surplus is then paid to the landowners and distributed in

proportion to the assessed market value of their original land holding. This takes account of any enhancement in value over the development period that was not foreseen in the original estimate.

THE PLAN

An essential feature of this method of approach to landuse problem is the "Plan". The local authority must have a clear set of objectives for the area and to this end should first prepare a plan and text to define the project. On approval and presumably after appropriate public consultation it should then be used to authorise and regulate the project with the local authority assembling the private and public lands in the designated scheme area and consolidating the titles and through resumption powers take possession of the land without payment of compensation. The local authority then raises short term finance through the appropriate banks - funding institutions - joint stock or merchant banks to finance the development works and proceeds to service and subdivide the land in accordance with the approved planning scheme.

ADVANTAGES

There are potentially a number of possible advantages to

both the public and private sector and in this type of partnership even though it be "compulsory" the local authority has certain advantages over a private land developer as a partner:

i) It can use its extensive governmental powers to accelerate development of the project particularly through resumption, street closure and title consolidation powers. This resumption power allows it to enforce landowner participation and to avoid the 'holdout' monopoly land-owner problem.

ii) As a government authority it is (at least in theory) able to obtain better co-operation from other government authorities and public bodies such as the utility companies in carrying out the subdivision.

iii) The local authority does not have to finance the purchase of the land for the project and is probably capable of obtaining bank loans at more favourable rates of interest than many private developers.

The developer also gains certain advantages in that the planning scheme will already have been prepared and he avoids the need to undertake or pay the cost of workers and facilities that are paid for out of the project.

Land owners in those areas where the technique has become established have also achieved greater benefits in that they

have received markedly better returns for ther lands through such a project than they would had they sold them to a private developer. This is due to the fact that the market value of the sites they receive from the project is usually well above the assessed market value of their original landholding. Irrespective however of the direct financial rewards and implications for the parties involved there are significant intangible benefits to be gained from the provision of adequate infrastructure and facilities and rationalising site layout. This is provided quickly and efficiently with the co-operation of those inolved.

A HYPOTHETICAL ILLUSTRATION

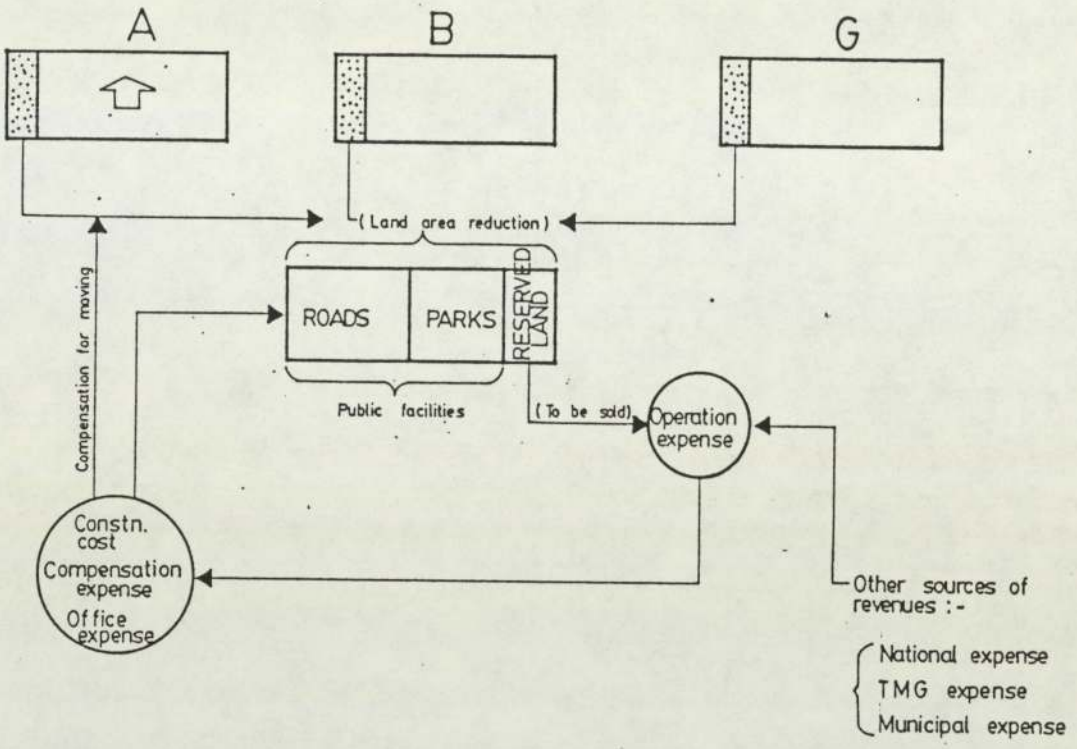
Gross Before Value	
20HA of land zoned as residential,	
industrial, or shown as " white"	
and valued at say	200,000
Gross After Value	
15HA residential land fully serviced	
at 50,000 per HA	750,000
3HA industrial land suitable for	
light industrial development at	
100,000 per HA	300,000
2HA of amenity open space say	NIL

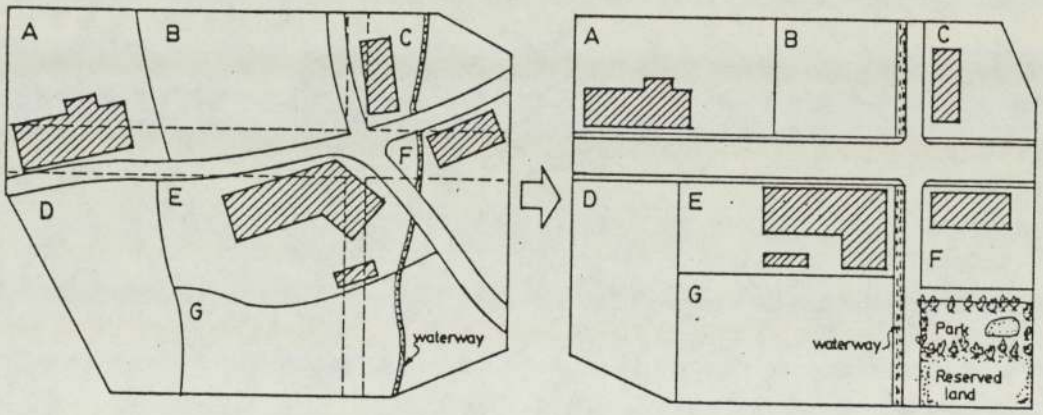
	TOTAL	1.050,000
LESS		
Costs of infrastructure		
interest charges		
overheads	say	250,000
net after value		800,000

The valuation factor to be used is then the total of 800,000 divided by 200,000 = 4

Owners would therefore receive back four times the current/existing value of their land and the community would gain a well-planned development rather than the piecemeal infilling schemes undertaken in the past.

System of effecting the project





Before the land readjustment project was effected.

After the land readjustment project was effected.

Appendix VIII

An Industrial Land Management Strategy

Table Order of magnitude calculation of industrial land needs.

A. INDUSTRIAL BUILDINGS

1. Current stock: Industry: 90m sq.ft (Source: Inland Revenue.)
Warehousing: 25m sq.ft
115m sq.ft (84m sq.ft in core areas.)

2. Obsolete stock in urgent need of replacement

(a) pre 1st war stock in core area	27m sq.ft.
(b) inter war in poor/derelict condition	1.4m sq.ft.
(c) post war in poor/derelict condition	1.6m sq.ft.
(d) allowance for stock outside core area (10%)	3m sq.ft.
	33m sq.ft.

Source: based on JURUE survey 1978/9.

3. Replacement of obsolescent stock

Assume 40 year life for stock not in poor/derelict conditon (82m sq.ft) i.e.12 1/2% p.a

2m sq.ft.pa

4. Increase in industrial/warehousing floorspace required to sustain economic activity

Assume minimum of 1% p.a.
(National rate in 60's and 70's) 1.2m sq.ft.pa

5. Annual industrial building programme needed

(a)Replace 1/2 obsolete stock within 10yrs:	1.7m sq.ft.pa
(b)Replace obsolescent stock (40 yrs life :	2.0m.sq.ft.pa
(c)Increase floorspace:	1.2m sq.ft.pa
TOTAL	4.9m sq.ft.pa

B. LAND REQUIREMENT

1. Annual Requirement

(a) Total land needed for industry at 1:3 gross plot ratio)	340 acres pa.
(b) deduct land freed by clearance of obsolete/obsolescent buildings (at 1:1 1/2 gross plot ratio)	130 acres pa.
Net industrial land need	210 acres pa.

2. 10 year requirements

(a) net industrial land need	2100 acres
(b) deduct existing allocations	850 acres
Net new industrial land required over 10 years.	1250 acres

3. After 10 years

Estimated requirements	125 acres pa.
Compare existing stock of land in individual use	4000 acres

LIST OF REFERENCES.

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ALLAMON, P.A. and BIRCH, D.L. (1975) Components of Employment Change for States by Industry Group, Harward University - M.I.T. Joint Centre for Urban Studies W.P. No. 5 Cambridge, Mass.

ALONSO, W. (1977) The population factor and urban structure. Harvard University, Centre for Population Studies, Working Paper No. 02.

ARCHER (1978) Land Pooling for Planned Urban Development in Perth, W. Australia Regional Studies Vol. 12, p.p. 397-408.

BARRETT, S., STEWART, M. and UNDERWOOD, J. (1978) The Land Market and Development Process, S.A.U.S. Bristol, Paper No. 2, 1978.

BARRETT, S. and WHITTING, G. (1983) Local Authorities and Land Supply S.A.U.S. Bristol, Occasional Paper No. 10.

BAUM, A. and MacGREGOR, B. (1984) Land availability for inner city development (forthcoming).

BOZEAT, N., WILLIAMS, M. and McKINNELL, K. (1980) Managing the Industrial Building Stock in the Inner City JURUE (unpublished).

BOZEAT, N. (1980) Assessing the extent and Characteristics of Demand for Industrial Premises and Land at the Local Level. Working Paper JURUE.

BRACKEN, I. (1981) Urban Planning Methods. Research and Policy Analysis. Methuen

BRYANT, R.W.G. (1972) Land, Private Property, Public Control. Harvet House. Montreal.

CAMBRIDGE ECONOMIC POLICY (1981) Economic Policy in the U.K. Vol. 7 No. 1 Gower, Aldershot, Hants.

CARTER, H. (1977) Urban origins : a review Progress in human geography 1 12-32.

CITY OF BIRMINGHAM PLANNING DEPARTMENT (1981) BIRMINGHAM CENTRAL AREA District Plan Topic Papers Land Resources; Industry.

CITY OF BIRMINGHAM PLANNING DEPARTMENT (1983) An Industrial Land Strategy for Birmingham. Report to Committee.

COLENUTT, A. (1978) Are inner city land values a problem? Architects' Journal, 168.

DAVIES, J.G. (1972). The Evangelistic Bureaucrat. Tavistock.

DENNIS, R. (1978) 'The decline of Manufacturing Employment in Greater London 1966-74' Urban Studies, Vol. 15, p.p. 63-73.

DEPARTMENT OF THE ENVIRONMENT (1972) First Report of the Advisory Group on Commercial Property Development (The Pilcher Report) HMSO.

DEPARTMENT OF THE ENVIRONMENT (1983) INNER CITIES POLICY : ENGLAND Inner Cities Directorate. Dept. of the Environment.

DOEBELE, W.A. (1976) Land Policy in Seoul and Gwangju, Korea with special reference to Land Re-adjustement (Third Draft) World Bank, Washington D.C.

EDWARDS, M. (1977) : "Vagaries of the Inner City Land Market" Architects Journal 2nd Feb.

FOTHERGILL, S. and GUDGIN, G. (1979) 'Regional employment change a sub-regional explanation'. Progress in Planning, Vol. 12, p.p. 155-219.

FOTHERGILL, S. and GUDGIN, G. (1982) Unequal Growth - Urban and Regional Employment Change in the U.K. Heinemann.

FOTHERGILL, S., KITSON, M. and MONK, S.: The Role of Capital Investment in the Urban-Rural Shift in Manufacturing Industry, Industrial Location Research Project, University of Cambridge, Department of Land Economy, Working Paper No. 1, 1982.

FOTHERGILL, S., KITSON, M. and MONK, S.: The Profitability of Manufacturing Industry in the UK Conurbations, Industrial Location Research Project, University of Cambridge, Department of Land Economy, Working Paper No. 2, 1982.

FOTHERGILL, S., KITSON, M. and MONK, S.: The Impact of the New and Expanded Towns Programme on Industrial Location in British 1960-78, Industrial Location Research Project, University of Cambridge, Department of Land Economy, Working Paper No. 3, 1982.

FOTHERGILL, S., KITSON, M. and MONK, S.: Changes in Industrial Floorspace and Employment in Cities, Towns and Rural Areas, Industrial Location Research Project, University of Cambridge, Department of Land Economy, Working Paper No. 4, 1982.

FOTHERGILL, S., KITSON, M. and MONK, S.: The Industrial Building Stock and its Influence on the Location of Employment Change, Industrial Location Research Project, University of Cambridge, Department of Land Economy, Working Paper No. 5, 1983.

FOTHERGILL, S., KITSON, M. and MONK, S.: Industrial Land Availability in Cities, Towns and Rural Areas, Industrial Location Research Project, University of Cambridge, Department of Land Economy, Working Paper No. 6, 1983.

HECLO, H. (1974). Modern Social Policies in Britain and Sweden. Yale University Press.

HOWARD, K. and SHARD, J.A. (1983). Management of a Student Research Project. Gower.

I.F.F. RESEARCH LTD. (1980) The Inner City HMSO (For DoE) London.

JENKINS, W. I. (1978) Policy Analysis. A Political and Organisational Perspective. Government Admistration Services. Martin Robertson.

JURUE (1979) A Brief Profile of the Inner City of Birmingham. Joint Unit for Research on the Urban Environment R.N.9. University of Aston in Birmingham.

JURUE (1979) The Use and Renewal of the Industrial Building Stock in the Inner City: An Assessment of Potential and Problems. University of Aston in Birmingham.

JURUE (1980) January The Redevelopment of the Bilston Steelworks Site. Report for EECSC, BSC Ltd., W.M.C.C. University of Aston in Birmingham.

JURUE (1980) May. Walsall's Industrial Economy: Problems Potential and Policies. Report for Walsall M.D.C. Univesity of Aston in Birmingham.

JURUE (1980) June. Accommodating Change in the 1980's B.I.M. Conference on Revival of the West Midlands in the Eighties, Wolverhampton.

KALDOR, N. (1939) Welfare propositions of economies and interpersonal comparisons of utility ECONOMIC JOURNAL VOL. 49.

KEEBLE, D. (1968) 'Industrial decentralisation and the metropolis: The North West London case' Transactions of the Institute of British Geographers, 44, p.p. 1-54.

KEEBLE, D. (1976) Industrial Location and Planning in the United Kingdom, London Methuen.

KEEBLE, D. (1980) 'Industrial Decline, regional policy and the urban-rural manufacturing shift in the U.K.' Environment and Planning A. Vol. 12, p.p. 945-62.

KEEBLE, D., OWENS, P.L. and THOMPSON, C. (1982) The Urban-rural manufacturing shift in the E.E.C., mimeo, Dept. of Geography, Cambridge.

LEBAS, E. (1978) in CES Conference on Urban Change and Conflict:
CES Conference Paper 19

LEIGH, D. and NORTH, R. (1983) Monitoring manufacturing employment change in London 1976-81 : The implications for local economic policy, unpub. DoE.

LEVER, W.F. (1981) Operating costs as an explanation of employment change in the Clydeside region paper presented at the 'Industry and the Inner City' conference. Univ. of Newcastle.

LLOYD and MASON (1978) Manufacturing in the inner city : the case of Manchester Transactions of the British Institute of Geographers Vol. 3 No. 1 p.p. 66-90.

MARSHALL, P. (2980) Land Pooling in Western Australia Chartered Surveyor June p.p. 494-496.

MASSEY, D.B. and MEEGAN, R.A. (1979) The Geography of industrial re-organisation : the spatial effects of the electrical engineering sector under the Industrial Re-organisation Corporatioin. Progress in Planning 10 part 3.

MOORE, B.C., RHODES, J. and TYLER, P. (1980) New Developments in the Evaluation of Regional Policy, paper presented at an SSRC urban and regional economics conference, Birmingham May 1980.

MOORE, B.C. and RHODES J. (1981) "A Second Great Depression in the U.K. Regions Can Anything be done?" Regional Studies Vol. 165, p.p. 323-333.

MYRDAL G.M. (1957) Economic Theory and Undeveloped Regions, Duckworth London.

NABARRO, R. (1980) Industrial Land Assembly in the Inner City, Conference Paper at Industry and the Inner City, Surningdale 1980.

NEDO (1979) "Current Investment in Industrial Buildings" Unpublished paper by Economic Development Committee for Building and Civil Engineering, London.

NICHOLLS, D.C. et al (1980) The Private Sector Having Development Process in Inner City Areas Report to the D.o.E. Dept. of Land Economy, Univ. of Cambridge.

REES, G. and LAMBERT, J. (1985) Cities in Crisis. The political economy of urba development in post-war Britain. Arnold.

RICS (1977) : Inner City REgeneration Royal Institution of Chartered Surveyors.

RTPI (1978) : Land Values and Planning in the Inner Areas Report of Royal Town Planning Institute Working Party 1978.

SAH, J.P. (1973) Urban Land Policies and Land Use Control Measures, Vol. II : Asia and the Far East U.N. New York 45-46 and 96-97.

SMITH, B.M.D. and MAWSON, J. (1980) British Regional Policy during the 1970's - A Critical Review with Specific reference to the W. Midlands in the 1980's : Centre for Urban and Regional Studies, Univ. of Birmingham.

SMITH, D. (1980) Industrial Location : An Economic Geographical Analysis. 2nd ed. Wiley.

SLOUGH ESTATES (1979) Industrial Investments : A Case Study in Factory Building. Slough Estates.

TAN, H. (1983) Singapore - Personal Communication.

THE LAND BUREAU (1971) A diagrammatic introduction to urban land consolidation. The Land Bureau Taiwan Provincial Gov't Taipei.

TOKYO METROPOLITAN GOVERNMENT (1983) Planning of Tokyo 1983 The Bureau of City Planning.

W.M.C.C. (1978) "Land Resources" County Structure Plan Department of Survey.

W.M.C.C. (1983) West Midlands County Structure Plan : ;Proposals for Alterations.

WILLIAMS, H.E. et al (1980) "Industrial Restructuring in the Inner City" Inner Cities Research Report No. 2 H.M.S.O. London.

WILLIAMS, H.E. et al (1980) Industrial Renewal in the Inner City D.o.E.